



## Spring 2017

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<http://science.nature.nps.gov/im/units/ncrn/index.cfm>

## Our Forest Generation Gap

- Like human populations, healthy forests include all ages from young seedlings to old trees.
- Without a healthy young seedling and sapling generation, there will be no one to replace the trees that die and forests themselves will eventually decline.
- The youngest seedlings are now being damaged and eaten by an overabundance of white-tailed deer in NCR park forests.
- Managing deer is essential not only for the future of forest trees, but also for all the birds, bugs, bears, bats, and other creatures that live in forests, and the people who enjoy them.

As early as the 1970s, long before the National Capital Region Inventory & Monitoring Network (NCRN I&M) began detailed forest vegetation monitoring, park staff at Catoctin suspected problems related to forest damage and deer overabundance.

Although overall lack of forest regeneration throughout the National Capital Region (NCR) remains a concern today, several parks are now managing deer populations. These include Rock Creek Park, Catoctin Mountain Park, and starting in 2016, Antietam National Battlefield and Monocacy National Battlefield. One goal of deer management is to decrease the deer population so that seedlings and saplings can thrive and bring tree populations back into balance.

Key measures of success are the number of seedlings and a score called the “stocking index.” This index calculates regeneration potential using the number, size, and distribution of seedlings and saplings. Stocking index scores have changed very little since 2006-2009, but in parks like Catoctin the abundance of small seedlings has surged since park deer reductions began in 2009.

Each year, the NCRN I&M looks at forest regeneration in parks across the region. A new resource brief looking at the latest (2016) data is now available at: [https://science.nature.nps.gov/im/units/ncrn/assets/docs/RBs/NCRN\\_ForestRegeneration\\_2016.pdf](https://science.nature.nps.gov/im/units/ncrn/assets/docs/RBs/NCRN_ForestRegeneration_2016.pdf)



White ash seedlings at Catoctin Mountain Park



# Environmental History of the Potomac Gorge Runs Deep

Kirsten Crase and Donald Linebaugh, University of Maryland, School of Architecture, Planning, and Preservation

*The Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW CESU) promotes stewardship and integrated ecosystem management of natural and cultural resources in the Chesapeake Watershed through collaborative research, technical assistance, and education.*

The Potomac Gorge's cliffs and rushing waters set the stage for a dynamic play of human and natural history that began thousands of years ago and is still being written. The Gorge stretches for 15 miles from the Great Falls of the Potomac down to Georgetown in Washington, D.C. Along the way it plunges 130 feet over the Fall Line – the boundary between the hard bedrock of the inland Piedmont and the softer rocks of the Coastal Plain.

The CW CESU is currently facilitating a team of researchers to produce an environmental history of the Potomac River Gorge. As a preview to this project, we present here a few of its stories about this meeting place of geology, hydrology, history, and culture.

## Herring and Trade

The annual spring arrival of shad and herring that have journeyed from the Atlantic Ocean to spawn, first drew Native Americans to establish fishing camps in the Gorge. Over time, these fish-inspired gatherings became a trading area for tribes whose permanent homes were further away. While the health and numbers of the fish declined centuries later in response to effects of early westward expansion, the construction of the C&O Canal, the Industrial Revolution, and twentieth century suburban development, today human activity has been a bit kinder. Reduced pollution and the installation of a fish passage in the Little Falls Dam have helped revitalize the shad and herring populations that first brought people here.

## Civil War Deforestation and Flooding

During the Civil War, the Potomac River served as the de facto boundary between North and South. Both sides cut down forest cover to build lookouts and forts along the river. The Union army also cleared a great deal of wooded land for firewood and building supplies in the upper Potomac watershed and Shenandoah Valley. A boom in industrial logging followed the war. This loss of forest increased erosion



The Great Falls of the Potomac. An aquatint engraved by J. Cartwright and drawn by George Beck. Published by Atkins & Nightingale, 1802.

and led to floods that decimated the Gorge area in the 1870s, 1880s, and beyond.

### Conservation & Historic Preservation

Efforts to preserve and protect the resources and scenic values of the Gorge beginning in the late nineteenth and early twentieth centuries included work by the Civilian Conservation Corps and the advocacy of hiker and U.S. Supreme Court Justice William O. Douglas. The designation of the C&O Canal as a National Historical Park followed in 1971.

Today, there is a dynamism between the human and natural activities in the Gorge. Late twentieth century forest conservation efforts on federal park lands, including the two that comprise much of the Gorge, have had a beneficial role. This is showcased in forest data collected, analyzed, and published by the National Capital Region Inventory & Monitoring Network. It shows that forested areas in several National Capital Region parks have stronger indicators of health and longevity than the non-NPS forested areas nearby. In our environmental history, this and other similar data are woven together with the growth of the conservation movement and flowering of the National Park Service over the course of the twentieth century.

### An Ambitious Environmental History Project

In addition to these stories of migrating herring, Native American tribal exchanges, Civil War era deforestation, and more modern conservation and preservation efforts, the Potomac River Gorge environmental history project focuses on topics including:

- how regular flooding shaped the human, animal, and plant communities of the Gorge
- interplay between the Gorge's unique natural attributes and its ongoing role as a central locale of trade and transportation close to the seat of national government,
- how unique natural resources in the Gorge drew Native American and European communities to this area
- the increasing value of the Gorge's ecological and recreational resources
- the potential impacts of climate change on the Gorge

Researchers and writers at the University of Maryland are using a blended approach to natural and cultural history in this project. They hope the method will serve as a foundation for future place-based research, and showcase the fundamental overlap of the environment and human culture. In the coming months, the NCR will release a final project report and hold events with park staff to share project findings.

To learn more about the Potomac Gorge project, please contact Dean Herrin through NPS email (202-619-7229), Donald Linebaugh (301-405-6309), or Kirsten Crase (301-405-6631).



## I&M in Your Park - Spring Schedule

Long-term monitoring of park natural resources means that the National Capital Region Inventory & Monitoring Network (NCRN I&M) is out in the parks regularly to collect data.

Park staff and volunteers are welcome to join us in the field. To schedule a meet up, or for more specific monitoring dates please contact Megan Nortrup at 202-339-8314.

March, April, May 2017	Amphibians	Forest Birds	Forest Soils	Forest Vegetation	Grassland Birds	Marsh Elevation (SET)	Water (quarterly)
Antietam National Battlefield		X	X	X	X		X
Catoctin Mountain Park	X	X	X	X			X
Chesapeake & Ohio Canal NHP	X	X	X	X			
George Washington Memorial Parkway	X	X		X		X	X
Harpers Ferry NHP		X		X			X
Manassas National Battlefield Park	X	X	X	X	X		X
Monocacy National Battlefield		X	X	X	X		X
National Capital Parks - East	X	X	X	X		X	X
Prince William Forest Park	X	X	X	X			X
Rock Creek Park	X	X		X			X
Wolf Trap NP for the Performing Arts		X		X			X



## Fishing for Fishers in NCR Parks

Scott Bates, NCR Wildlife Biologist

Fishers went missing from our region more than 150 years ago. Could they be coming back?

Fishers, also known as fisher cats (*Martes pennanti*), are a member of the weasel family made locally extinct in the mid-Atlantic region in the 1850s by logging and trapping. They're essentially a large mink (9-20 lbs) that eats small mammals including squirrels, mice, groundhogs, chipmunks, and rabbits.

In 1969, West Virginia state officials released 22 New Hampshire-caught fishers. The fishers quickly established a breeding population and started slowly expanding their range eastward. They are now found in all the counties of the Maryland panhandle including Garrett, Allegany, Washington, and Frederick Counties. Confirmed photos of fishers were taken at Cunningham Falls State Park in Maryland in 2013.

### Porcupine Predator

Fishers prefer intact forest habitat and often den in tree cavities, rock crevices, or hollow logs. They can rotate their hindpaws nearly 180 degrees, allowing them to grasp branches and hang down from trees, and to chase prey up and down trees. But perhaps their most unique attribute is that they can successfully attack porcupines by wounding them in the face, weakening them and then going after the abdomen. Porcupines can protect themselves by putting their face into a nook formed by a rock or tree, staying in a den, or climbing a tree and facing away from the trunk.



Top and Left: A juvenile fisher cat in Garrett County, Maryland, 2014.  
Right: An adult fisher cat at Cunningham Falls State Park, 2013.

Top and left photos: Fred Shaffer

Photo: eMammal

### Camera traps

Will fishers make their way to the DC area? Because fishers are active only during twilight in the summer, they may already be an unnoticed predator that we rarely see, much like bobcats and coyotes. (The juvenile fisher pictured here during daylight is an exception to the rule.)

To search for their presence in NCR, I've placed cameras at Antietam and Monocacy Battlefields and in the Frederick County section of the C&O towpath. Stay tuned.

## The Importance of National Park Protection for Birds and Forests

It bears repeating. National Parks protect places that preserve our country's greatest natural, historic, and cultural treasures. And if you happen to be looking for an illustration of why parks in the capital region are important, two recent press releases may help.

Based on scholarly articles in the journal *Ecosphere*, one describes the importance of NPS protection for forests in the

eastern U.S. (National Park Protection Lets Forests Flourish: [http://go.nps.gov/Forests\\_Flourish](http://go.nps.gov/Forests_Flourish)). And the second shows how parks are helping bird communities thrive (Birds Reveal How Small Mid-Atlantic Parks Have Outsized Protective Punch: [http://go.nps.gov/Birds\\_Reveal](http://go.nps.gov/Birds_Reveal)).

Questions? Contact Megan Nortrup at NPS email.

### Park Acronyms

ANTI = Antietam National Battlefield  
CATO = Catocin 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



## Emerald Ash Borer, Ten Years In

When tiny green aliens arrived, we knew things would change. But how fast and how far remained a mystery. Today we are more than ten years into the emerald ash borer's invasion of the National Capital Region (NCR), and the initial impacts are clear. Ash trees are beginning to die off, with striking declines in some areas.

To look at the state of ash trees across the region, the National Capital Region Inventory & Monitoring Network analyzed the past 10 years of forest monitoring data. The results are in a new resource brief on ash trees (in the wake of emerald ash borer). It's available at: [http://go.nps.gov/ash\\_update](http://go.nps.gov/ash_update)

For readers looking for the main takeaways of the brief, a bulleted summary is provided up front:

- The invasive emerald ash borer beetle is present in National Capital Region (NCR) parks
- It is nearly 100% fatal to ash trees
- White ash is a very common tree in NCR forests
- Ash tree mortality is rising
- Parks are managing hazard and special value trees



Photo: Kenneth R. Law

A common sign of emerald ash borer infestation called "blonding", created when woodpeckers damage tree bark by searching underneath for beetle larva.

## Continuous Water Monitoring Pilot Period Ends: Protocol and Redeployment Begin

The NCRN I&M pilot of continuous water monitoring is now complete. From 2012 to 2016 loggers measuring:

- conductivity
- dissolved oxygen
- air & water temperature
- water level & air pressure

were deployed in eight regional streams. This pilot was in addition to NCRN's ongoing quarterly monitoring at 37 streams.

During the pilot, NCRN's water crew (Margie and Tonya) did a lot. They scouted sites, installed and maintained monitoring gear, and gathered and managed lots of data. They dealt with loggers stranded by dried streams or buried by excessive silt and gone missing after theft or flooding. The crew conferred with NPS scientists doing similar work in the northeast, and got USGS training on data handling.

In the fall of 2016, the crew pulled the continuous loggers from streams. Based on what they learned during the pilot period, they are now working on a protocol to guide future monitoring. The crew will begin to redeploy loggers this spring following the draft protocol and with input from parks.

Water quality is an important part of healthy habitat for

aquatic organisms, wildlife, plants, and humans.

Quarterly stream monitoring data from I&M is available on the Water Visualizer: <https://irmadev.nps.gov/r-reports/NCRN/Water/>



Photo: NPS/Nortrup

Quantico Creek at Prince William Forest Park.

## Join Us for a Wildflower Walk!

This year, NCRN I&M is hosting two wildflower walks with Botanist Elizabeth Matthews! Join us this spring to explore wildflowers and other spring plants in the Owen's Creek area of Catoctin Mountain Park. Or this autumn to discover the flowers and plants at Fort DeRussy in Rock Creek Park. The autumn walk will also include discussion of cultural resources in and around the fort. Space is limited for both walks, so please RSVP early to Elizabeth Matthews by NPS email.

### Owens Creek, Catoctin Mountain Park

April 25 (Tuesday), 10am-2pm

Becky Loncosky (CATO Biologist) and Liz Matthews (I&M Botanist) will co-lead a walk to explore spring wildflowers in the Owens Creek area. We will meet at the Owens Creek picnic area by 10am. Additional details will be distributed to registered participants.

Please RSVP by Friday, April 14

### Fort DeRussy, Rock Creek Park

September 2017 (exact date and time TBD)

Maureen Joseph (NCR Historical Landscape Architect) and Liz Matthews (I&M Botanist) will co-lead this walk to ex-



Photo: NPS/Nortrup

Liz Matthews leading a 2015 plant walk in the Deep Cut area of Manassas National Battlefield Park.

plore the vegetation and cultural resources found at this fort site (and nearby locations in Rock Creek Park). Look for a detailed announcement with meeting location and time in the summer issue of this quarterly.

## Calendar

### MARCH

13-19. National Wildlife Week

### APRIL

2-7. George Wright Society Conference. Norfolk, VA. <http://www.georgewright.org/gws2017>

22. Earth Day

25. Spring Wildflower Walk at Catoctin Mountain Park, Owen's Creek. See details above.

### MAY

9. International Migratory Bird Day

11. Natural Resources Advisory Team (NAT) and Cultural Resources Advisory Team (CAT) combined meeting. Location to be determined.

17-20. Citizen Science Association Conference. <http://citizen-science.org/association/conferences/citsci2017/>

### JULY

20. Natural Resources Advisory Team (NAT) Meeting. HAFE.

### SEPTEMBER

TBD. Wildflower Walk at Fort DeRussy

### National Capital Region Network Inventory & Monitoring (NCRN I&M) Staff:

Program Manager: Geoff Sanders

Data Manager: vacant

Botanist: Elizabeth Matthews

GIS Specialist: Gregory Geise

Hydrologic Technician: Tonya Watts

Hydrologic Technician: Margie Shaffer

Quantitative Ecologist: John Paul Schmit

Science Communicator: Megan Nortrup

### Visit NCRN I&M online at:

Website: <http://science.nature.nps.gov/im/units/ncrn>

Facebook: <http://www.facebook.com/NPSNCRN>

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