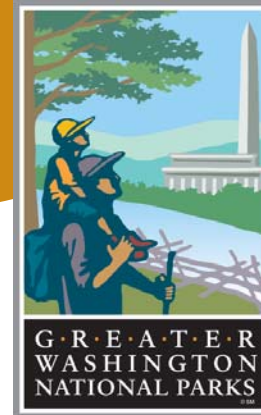


The Current

Volume 2/Number 3

Fall 2007



Preserving our Natural Heritage



View from Hog Rock in Catocin Mountain Park.

The Greater Washington National Parks of the National Capital Region preserve and protect some of the most valued and ecologically diverse natural resources in the Washington, D.C. metropolitan area. The Region's 70,000 acres span four physiographic provinces and support 130 vegetation communities. Parks with both natural and cultural resources provide important habitat for thousands of plant and animal species, including many insects. Partnerships with park neighbors and organizations such as The Nature Conservancy strengthen the conservation of these park resources.

The Greater Washington National Parks protect fragments of the area's former large scale natural landscapes. Natural resources are not easily sustained, and they are particularly vulnerable to the stresses of urbanization, such as air and water pollution and the encroachment of invasive exotic insects, diseases, and plants. The Region's Exotic Plant Management Team continues to make progress removing the most aggressive nonnative plants. However, new invaders continue to enter our parks such as the Japanese angelica (*Aralia elata*) discovered in Rock Creek Park this spring.

Parks are developing adaptive management plans to address over-abundant native species. Excessive browsing by white-tailed deer (*Odocoileus virginianus*) has essentially stopped forest regeneration at Catocin Mountain Park. Resident Canada geese (*Branta canadensis*) continue to voraciously eat wetland plants and denude the recently restored marsh in Anacostia Park.

Restoring lost species and habitats are daunting but attainable tasks. The mitigation of obstacles to anadromous fish migration in Rock Creek with the construction of the fish ladder at Peirce Mill is an excellent example of how science and engineering can alleviate past environmental disturbances. Research is underway to restore the Region's only federally endangered plant species, harperella (*Ptilimnium nodosum*), to its historic range at the C&O Canal National Historical Park.

The National Park Service resource management responsibility is complex. The Inventory and Monitoring program, assesses resource status and trends. They develop models that use long term monitoring data, providing direction for adaptive management. As they work to understand the ecological health of the parks, the Chesapeake Watershed Cooperative Ecosystem Studies Unit supports the inventory and monitoring program and resource managers at parks by engaging academic and other partners. As our knowledge base increases, the Region's Urban Ecology Research Learning Alliance provides in-depth information to managers and park visitors about our valued and threatened resources and the extensive efforts the National Park Service is making to sustain them.

Regional Director's Corner

Greater Washington National Parks preserve our wonderful natural heritage and provide opportunities to learn and connect with nature.

The National Park Service (NPS) has a strong commitment to the natural stewardship of these resources. Urbanization presents complex and persistent challenges to park managers in their efforts to preserve, protect, and restore threatened resources. Park resource managers work collectively with the NPS regional Center for Urban Ecology and many other partners to explore, describe, and monitor the changing complexities and the unique values of our natural resources, and to demonstrate science-based environmental stewardship.

This volume of The Current presents a sampling of park resource issues and describes how our managers are meeting the challenges they face. I encourage you to learn more from our staff as you enjoy the Greater Washington National Parks.

Joseph M. Lawler
Regional Director
National Capital Region



IN THIS ISSUE:

- Taking the Pulse of our Parks
- NCR Shares National Conservation Success - Bald Eagle Delisted
- Protecting Our View of the National Mall



Callan Bentley, a Geoscientist-in-the-Park (GIP) sponsored by UERLA, works at C&O Canal NHP. Mr. Bentley stands next to folded layers of the Catoctin greenstone, near Point of Rocks, MD.

Parks for Science

The Greater Washington National Parks have forests, wetlands, and rivers where scientists study the natural world and our relationship to it and help the National Park Service develop solutions to the challenges facing increasingly encroached ecosystems.

The Urban Ecology Research Learning Alliance (UERLA), part of the National Park Service's Center for Urban Ecology, helps connect science and education by supporting research and increasing research-related educational opportunities in our parks. Partnerships among national parks, universities, federal and state agencies, non-profit organizations, and citizens generate scientific research. UERLA communicates research results and promotes the use of research to support management needs and public understanding of our resources.

If you would like to learn more about our regional research learning center and the research activities in our parks, we invite you to visit the Center for Urban Ecology website, www.nps.gov/cue/, where many of our publications are available, or to contact Giselle Mora, Science Education Coordinator at Giselle_Mora-Bourgeois@nps.gov or by phone at 202-342-1443 ext. 220.



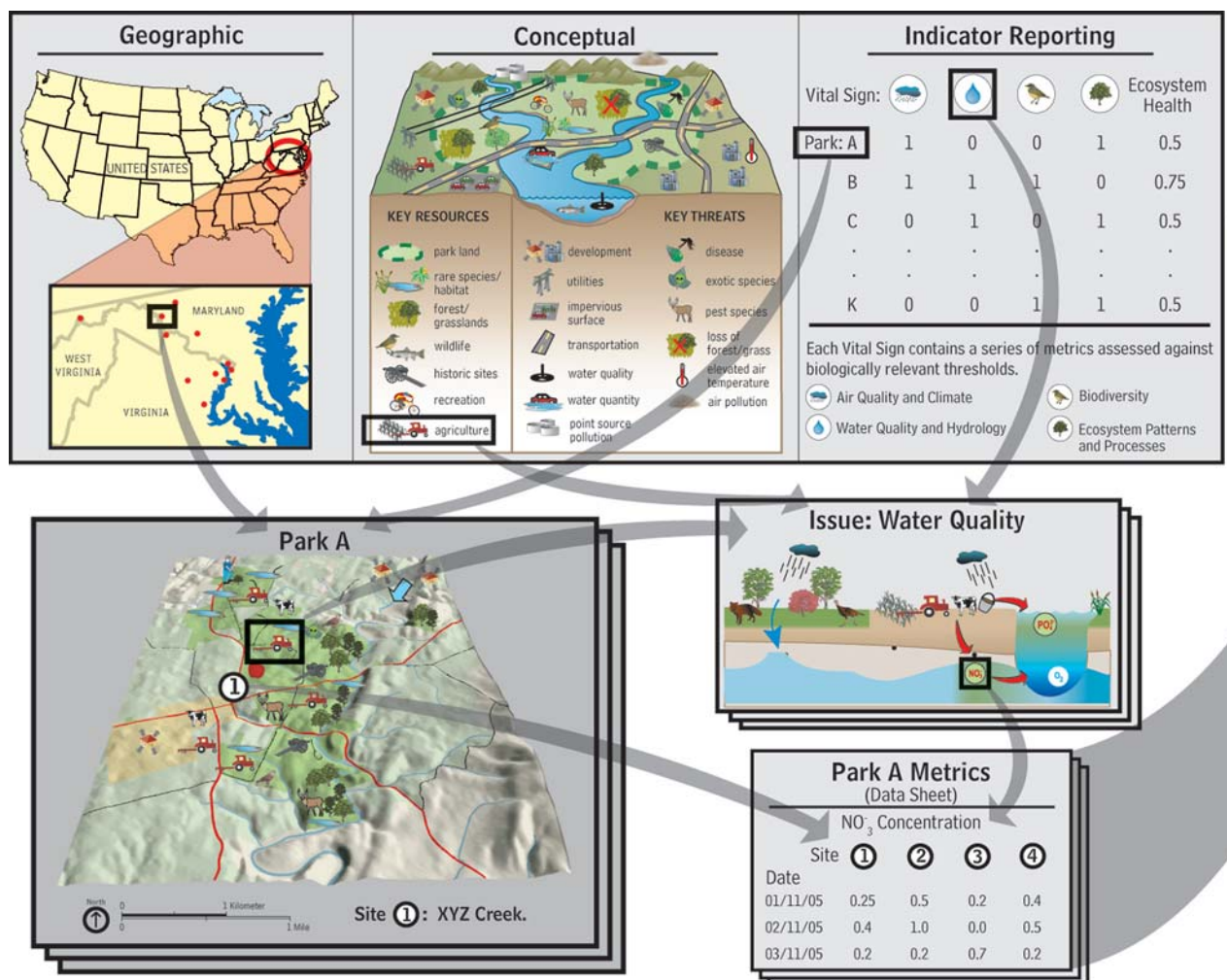
The Research Learning Center helps bridge science and management by supporting regional workshops like the 2006 Grasslands Restoration Workshop at Monocacy National Battlefield.

Taking the Pulse of our Parks

How can the National Park Service sustain park ecosystem health? Answering that question is the job of the National Capital Region Inventory and Monitoring Network, NCRN.

Just as a physician conducts a physical exam to check a patient's health, the NCRN vital signs program monitors the health of the ecosystems in the Greater Washington National Parks. The NCRN joined natural resource managers, academic cooperators, and others to collect baseline information on valuable park natural resources and to identify key threats or stressors to those resources. Based on this information, the NCRN selected 21 indicators or "vital signs" to monitor so that it can understand trends and the range of natural variation in ecosystems and their responses to impacts.

To be useful, trend information requires sound scientific design and analysis of data, and an interpretation that provides meaning, suggests a course of action, and engages the public interested in park stewardship. The job is not easy. The vital signs monitoring data collected are complex. In an effort to make the data accessible and useful to a wide audience, NCRN and the Integration and Application Network (University of Maryland Center for Environmental Science) developed communication tools that present key issues, resources, and threats in "thought drawings" called conceptual diagrams. These diagrams provide context and give visual representations of complex issues. The conceptual diagrams are a friendly way to link with real data and to learn about the status and trends of resources from multiple points of view.



The Inventory and Monitoring Network will provide research and monitoring information in multiple ways. For example, a neighbor of Monocacy National Battlefield may be interested in the effects of agricultural practices on water quality in the park. That neighbor will be able to link to a conceptual diagram that explains how inputs of agriculture can affect water quality, look at water quality data for the park, and compare them to water quality in other parks in the region. For more information on the NCRN vital signs program, please visit <http://www.ncrnvitalsigns.net/>



Left: NCRN staff monitoring water quality.
Right: NCRN staff setting plots for monitoring vegetation.



Protecting and Restoring Endangered Species in NCR

Under the Endangered Species Act, the National Capital Region is mandated to conserve and restore federally-listed species. Here is an update on park's efforts to conserve endangered species. For more information contact Diane Pavek, NCR Threatened and Endangered Species Coordinator at 202-342-1443, extension 209 or Diane_Pavek@nps.gov

NCR Shares National Conservation Success, Bald Eagle Delisted

The bald eagle (*Haliaeetus leucocephalus*) was officially removed from the Federal Endangered Species List on August 8, 2007. NCR parks contributed to the bald eagle's recovery by protecting habitats for nesting, perching, hunting, and roosting. Three parks, C&O Canal NHP, George Washington Memorial Parkway, and National Capital Parks—East, have nesting eagles. In addition, eagles are residents in Catoctin Mountain Park. Bald eagles fly over and occasionally stop in Harpers Ferry NHP, Manassas National Battlefield Park, National Mall & Memorial Parks, Prince William Forest Park, and Rock Creek Park. Parks will follow the U.S. Fish and Wildlife Service national management guidelines to monitor and sustain the eagle recovery. Bald eagles continue to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.



Wear Rubber Boots when Restoring Endangered Harperella

“Sometimes it’s easiest just to walk straight up the stream to reach harperella sites,” said Dr. Elizabeth Wells, George Washington University, about accessing sites to restore federally endangered harperella (*Ptilimnium nodosum*) to the waterways of the C&O Canal NHP. Dr. Wells is deciphering the unique survival requirements for harperella, a member of the carrot family that has small clusters of white flowers and needle-like leaves. Dr. Wells’s research shows harperella requires full sun on damp cobblebars that frequently flood and never completely dry out. While the plants cannot withstand heavy, frequent floods over 2.1 meters (7 feet) deep, they can tolerate weeks of shallow immersion at about 0.6 meter (2 feet) deep. Plants produce seeds in late summer and fall. However, when flooded for long periods, harperella can reproduce by vegetative production of viable plantlets at stem nodes, which is a form of cloning. Addressing the needs of harperella is necessary for successful reintroduction into the park.



Close-up of the federally endangered harperella plant.

Critical Spawning Habitat for Endangered Shortnose Sturgeon

After a 107-year absence, the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) returned to Little Falls on the Potomac River in April 2006. Since the National Park Service manages the bed of the Potomac River within the District of Columbia, the National Capital Region needed to ascertain whether the river bottom is suitable and used for spawning by this endangered fish. Dr. Boyd Kynard, U.S. Geological Survey-Biological Resources Discipline, documented spawning, feeding, and wintering habitats and radio-tagged and traced two females during his 2004-2007 study.



Placing D-drift nets near Little Falls to census early life stages of the shortnose sturgeon.



Dr. Wells and intern Cristin Walters evaluate a transplant site for harperella restoration.



Matt Breece holds a radio-tagged female shortnose sturgeon. The species returned to Little Falls in April 2006 after a 107-year absence.

For the Potomac River, the “geographic area under NPS jurisdiction is critical to the spawning success of the species,” Dr. Kynard confirmed. Suitable spawning habitat has fast, turbulent currents and clean gravel, cobble, and boulders in the river bottom. His research suggests the sturgeon is a permanent, year-round resident of the Potomac River with sufficient habitat and water quality for all life stages.

It's Not Just a Walk in the Park for Interns



Cruising mountain ridges looking for rare plants, evaluating muddy transplant sites for an endangered species, and pulling down satellite locations of orchids is all in a day's work for Cristin Walters. She is the Conservation and Land Management Intern from the Chicago Botanic Garden working in three National Capital Region parks. The national NPS Endangered Species Program sponsors her five-month internship.

Cristin helps the parks with a wide range of projects, receiving hands-on resource management experience. She searches trees for gypsy moth damage in Harpers Ferry NHP, monitors vegetation in Catoctin Mountain Park, and is preparing a draft revegetation manual for the C&O Canal NHP. Cristin also assists researchers in the parks with projects such as harperella (*Ptilimnium nodosum*) restoration at the C&O Canal NHP, wetland surveys at Harpers Ferry NHP, and mushroom monitoring at Catoctin.

Cristin summed up her internship saying, “I hope NCR continues to provide opportunities like this for other recent graduates looking to work for NPS.”

CW-CESU Partner finds Endangered Indiana Bat



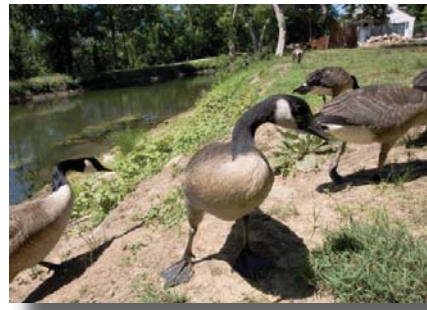
The first federally endangered Indiana bat (*Myotis sodalis*) to be seen in 27 years on the C&O Canal NHP was pulled from a net by Josh Johnson and Dr. Ed Gates during a fall evening survey in 2006. These

researchers are from the University of Maryland Center for Environmental Science--Appalachian Lab, a partner in the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW-CESU).

Discoveries like this are possible by the partnership opportunities the CW-CESU brings to parks. The CW-CESU is a consortium of 11 research institutions and six federal agencies with expertise essential to park managers. Through the CW-CESU, parks can connect with researchers to address resource issues such as wildlife habitat use.

For more information about the CW-CESU and its partners, see <http://cesu.al.umces.edu/> or contact Walter Zachritz, NPS CW-CESU Coordinator, at 301/689-7107 or Walter_Zachritz@nps.gov

Too Much Watchable Wildlife?



Canada Geese

Have you ever heard the saying “if you see one cockroach, you know there must be more”? In some Greater Washington National Parks, some people may be extending this thought to white-tailed deer (*Odocoileus virginianus*) and Canada geese (*Branta canadensis*).

How did this happen?

The current large number of white-tailed deer is primarily a consequence of land use change. The increase in residential housing provides more edge habitat that deer prefer. Additionally, prevailing attitudes toward deer have changed from a utilitarian view that deer are a source of meat to a protectionist view.

Catoctin Mountain Park, Rock Creek Park, and Manassas National Battlefield Park have all documented significant loss of tree seedlings due to large white-tailed deer populations. This severely threatens the regeneration of the forest. Deer browsing is also responsible for the loss of historic agricultural landscapes at Antietam National Battlefield, Monocacy National Battlefield, and the C&O Canal National Historical Park.

Increased Canada geese populations have a different history. Various state wildlife agencies restocked our area with the non-migratory resident Canada goose, subspecies *gigantea*, to increase hunting opportunities. This bird is larger than the other Canada geese subspecies and can survive colder temperatures. Since there is no hunting in most urban areas, Canada geese numbers quickly increase around open lakes and waterways with little vegetation where fox and coyote (*Canis latrans*), their natural predators, can hide.

In National Capital Parks-East, the over abundant Canada goose population has drastically compromised the efforts of the Park and their partners to restore over 100 acres of wetland. The geese eat thousands of newly planted wetland plants as quickly as they are planted.

NCR parks are taking action to address these significant management issues. Currently, Catoctin, Rock Creek, and National Capital Parks – East are developing management plans and pursuing environmental compliance for a range of proposed management actions.

For more information, please contact Scott Bates, NCR Wildlife Biologist, at Scott_Bates@nps.org or 202-342-1443 Ext 226.



Multiflora Rose

Winning a New Battle for Antietam National Battlefield

The National Capital Region battlefield parks preserve historic settings while protecting natural ecosystems. However, as with an invading army, non-native, rapidly-spreading plants are taking over large portions of these battlefields.

The battle against invasive plants is long standing. The NPS’ National Capital Exotic Plant Management Team (EPMT) leads the campaign with a highly trained, mobile strike force of plant management specialists that assist parks in the control of exotic invasive plants. The EPMT assesses problems, gives recommendations, and performs mechanical removals or chemical controls. Although the work is difficult, significant victories are possible when parks, partners, and the EPMT work together.

The fields at Antietam National Battlefield are an example of cooperative conservation. Resource managers reported the exotic plants, mainly autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), and eastern red-cedar trees (*Juniperus virginiana*), spreading rapidly over the fields. In 2006, the EPMT launched a massive cutting and chemical spraying attack on the exotics. During the fall, park staff followed up by mowing and spot-treating the fields, and then leased them for hay harvesting under a special use permit. In 2007, the EPMT came back to make sure the invasives were kept under control. Antietam and the EPMT can claim a victory. Through this collaboration, they met the goals of maintaining the battlefield scenery and controlling the invasives.

For more information on the problem posed by invasive species and to learn about the work of EPMTs, visit <http://www.nature.nps.gov/biology/invasivespecies/>



The Emerald ash borer larva in fall. Inset, adult Emerald ash borer. Photos courtesy of David Cappaert, Michigan State University.

Little Critters with Big Tree Appetites

Emerald Ash Borer

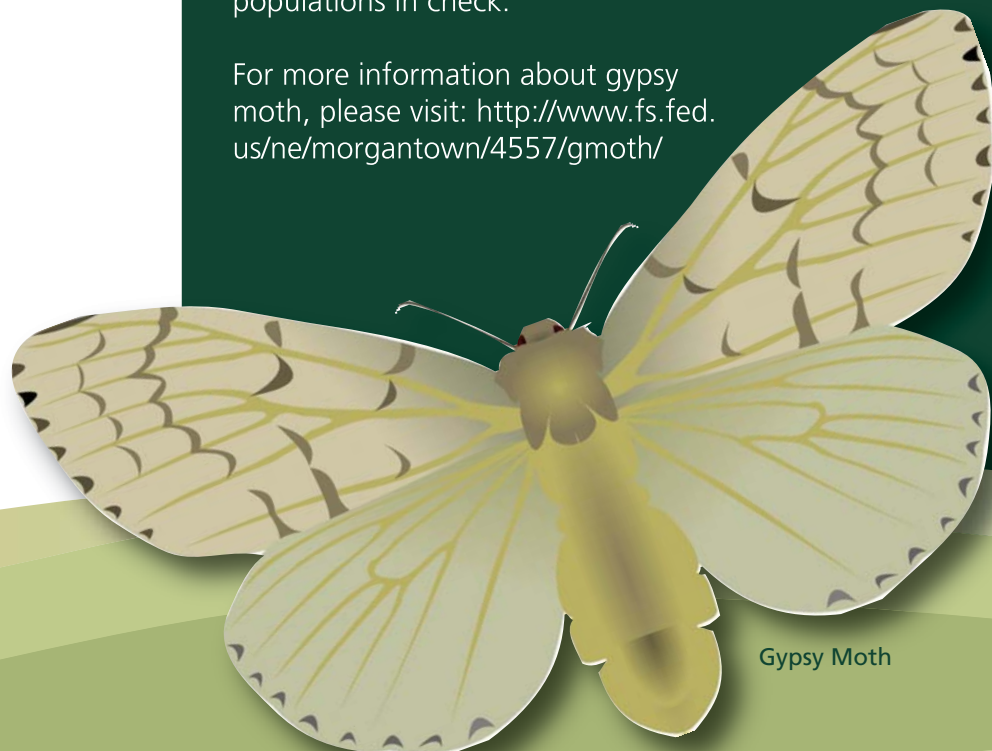
The Emerald ash borer (*Agrilus planipennis*), a beetle accidentally introduced from Asia, has destroyed over 15 million ash trees (*Fraxinus spp.*) since its discovery in Michigan in 2002. Feeding by the immature stage (larva) on the inner bark kills the trees. Greater Washington National Parks are identifying ash populations for monitoring and taking measures to prevent travelers from introducing potentially infested firewood. NCR is coordinating with state agriculture departments to assist with prevention, monitoring, and eradication efforts.

To learn more about emerald ash borer, visit: http://www.mdinvasivesp.org/species/uploadpdf/species_3_pdf_1.pdf
<http://mda.state.md.us/plants-pests/eab>.

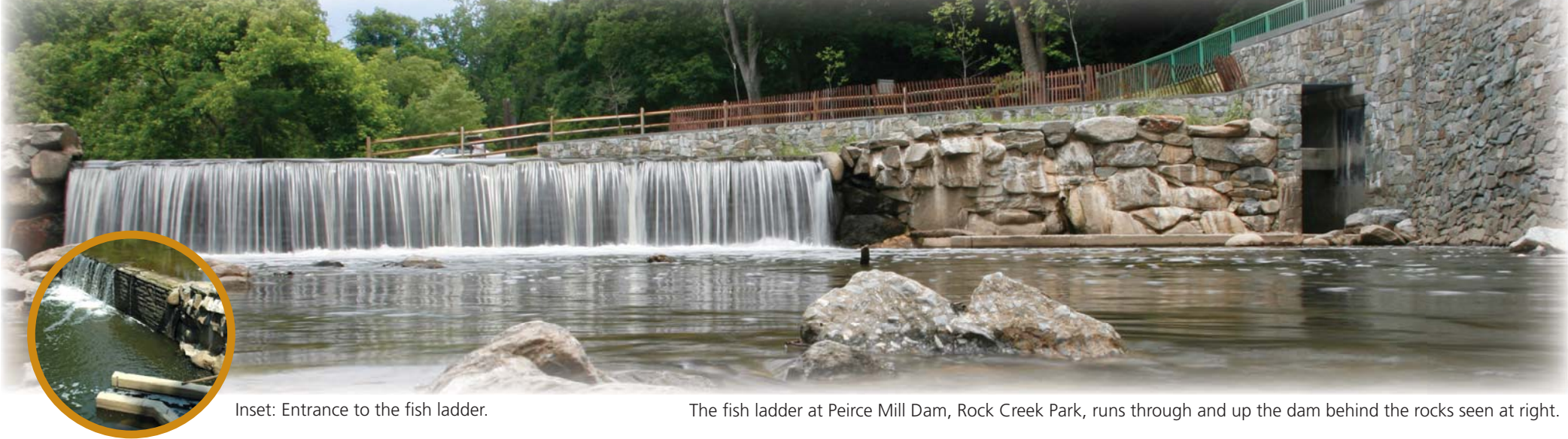
Gypsy Moth

The Gypsy moth (*Lymantria dispar*) was brought from Europe to the Boston, Massachusetts area around 1870. Its spread throughout the northeastern United States has cost the government and landowners billions of dollars in control efforts. The gypsy moth prefers oak trees (*Quercus spp.*), a major component of our forested parklands. National Capital Region parks are currently experiencing a large outbreak. In late summer and fall, park staff look for egg masses on tree bark. When egg mass numbers are high, the U.S. Forest Service assists with population surveys and funds and implements aerial control. The NPS’s preferred method of control is a biological insecticide made from a virus that is specific to the moth. A fungus introduced in the late 1980’s helps keep populations in check.

For more information about gypsy moth, please visit: <http://www.fs.fed.us/ne/morgantown/4557/gmoth/>



Gypsy Moth



Inset: Entrance to the fish ladder.

The fish ladder at Peirce Mill Dam, Rock Creek Park, runs through and up the dam behind the rocks seen at right.

Removing Barriers to Restore Fish Populations

Man-made structures built to hold water in rivers and streams for drinking, hydropower, flood control, and transportation create impassable barriers for fish. Fish need to move freely between feeding and spawning areas to complete their life cycle. Fish like shad and herring (anadromous), live in the ocean and move into freshwater streams to spawn. Other fish (catadromous) are born in the ocean, mature in fresh water, and return to the ocean to spawn. American eels (*Anguilla rostrata*) are the only catadromous fish in North America. Greater Washington National Parks are taking actions to remove fish barriers to restore fish populations.

Beginning in 2003, Rock Creek Park removed eight fish blockages that included sewer lines, abandoned concrete fords, and a fabricated dam, to restore 15 miles of migratory and resident fish habitat. A series of step pools raised the water elevation above the obstructions and created the desired flow depth so that the fish could navigate safely. At Peirce Mill Dam in Rock Creek Park, a Denil fish ladder allows fish to traverse past the eight-foot dam. The project was completed in 2006, and this year Bill Yeaman, resource management specialist at Rock Creek Park, spotted fish swimming up the fish ladder and through the flow constrictors. He reported, “all the hard work that has been accomplished has paid off.”

At the Chesapeake & Ohio Canal National Historical Park, park staff is cooperating with the U.S. Fish and Wildlife Service and Allegheny Energy to install two eelways or openings on the C&O Canal’s Dams 4 and 5 on the Potomac River. The eelways will open 120 miles of river habitat, making the Potomac the first river reopened to American eel passage on the eastern U.S. coast. Allegheny Energy is already providing downstream passage to the eel by shutting down their hydropower turbines at night when eels migrate back to the ocean to spawn.

Protecting the View

The urban expanse of the eastern coast encompasses all of the Greater Washington National Parks. As such, each park in the National Capital Region experiences some poor air quality days annually. Air pollution impacts healthy recreation, plants, ecosystems, and scenic views. The National Park Service (NPS) collaborates with local, state, and federal partners to monitor our air.

One notable collaboration monitors the quality of the scenic view of the Nation’s Capital. A web camera takes a picture of the National Mall every 15 minutes and uploads it to an NPS website along with the current ozone and fine particle levels provided by the District of Columbia Department of the Environment. Staff from the Center for Urban Ecology also collect air samples and send them for chemical analyses. The visual data collected by the webcam are cross-referenced with the chemical analyses to determine which mix of pollutants impairs views the most. Research has shown that in the eastern U.S., sulfate particles from coal-fired power plants have the greatest effect on visibility.

Currently, the Washington D.C. region exceeds the EPA standards for ozone and fine particles concentration. The good news is that poor air quality days are becoming less frequent and less severe. Trends show significant improvement of visibility on the dirtiest days.

To link to images from the web camera and view the current air quality, visit www.nps.gov/cue



View from the NPS web camera on a good air quality day (left) and a bad air quality day (right).

Celebrating a 50-year Partnership for an Extraordinary Place

The Potomac River Gorge extends for 15 miles from Great Falls to Georgetown. The Gorge supports one of the highest concentrations of globally rare species and natural communities in the nation. Stephanie Flack, The Nature Conservancy (TNC) Potomac Gorge Project Director, describes the Gorge as a “natural monument in the shadow of national monuments.”

An extraordinary partnership between TNC and the National Park Service (NPS) preserves the resources of the Potomac Gorge. This collaboration is a model of how science, management, and public stewardship work together to sustain fragile ecosystems. The partnership began over 50 years ago, when TNC helped NPS acquire Great Falls Park. Protection efforts have extended to the present with a private donation of the 10-acre Offutt Island to TNC in July 2007. Through the years, TNC and NPS have worked to conserve the Gorge resources through research, improving management, and volunteer opportunities. TNC promotes public awareness about how everyone can help protect this backyard preserve.

For more information about the Potomac Gorge, and to download the “Good Neighbor Handbook” and other educational brochures visit: <http://www.nature.org/wherewework/northamerica/states/maryland/>

Upcoming Events

For GWNP event information, call 202-619-7222

Veterans Day — Honoring all who served

Sunday, November 11, 2007

Various locations throughout your Greater Washington National Parks

Event highlights include:

- Storytelling at Vietnam Women's Memorial, 9:00 a.m. to 12:00 p.m. and 2:00 p.m. to 4 p.m., Vietnam Women's Memorial, 23rd and Constitution Ave. NW, Washington, D.C.

Wreath Laying Ceremonies:

- Veterans Day at Arlington National Cemetery, 11:00 a.m., Arlington National Cemetery, Tomb of the Unknown Soldier
- Veterans Day at Vietnam Veterans Memorial, 1:00 p.m., Vietnam Veterans Memorial, Washington, D.C.
- Veterans Day at the Navy Memorial, 1:00 p.m., U.S. Navy Memorial, 701 Pennsylvania Ave., N.W., Washington, D.C.
- African-American Civil War Memorial, time to be determined, African American Civil War Memorial, Vermont Ave. & U Street, N.W., Washington, D.C. Call 202-426-6927 or 202-667-2667.

Early Birders

Saturdays through October 2007, 7:30 a.m.

Prince William Forest Park,
Pine Grove Picnic Area

Call 703-221-7181 for information.

National Public Lands Day Recognition - Exotic Plant Removal

Saturday, September 29, 2007
9:00 a.m. to Noon



Fall Color Walk

October 20, 21, 27, 28
1:30 p.m. to 2:30 p.m. and
3:00 p.m. to 4:00 p.m.

Catoctin Mountain Park.

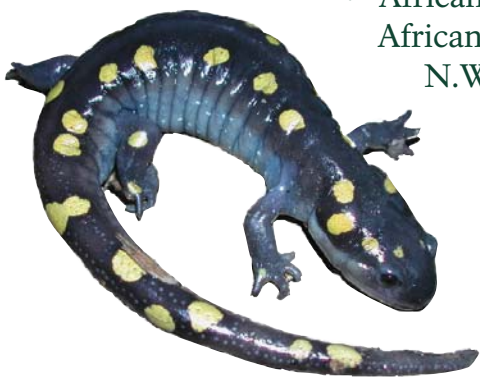
For more information on these programs, call 301-663-9388.

Sights and Sounds of the Seasons

First and last Wednesdays and Saturdays of every month
10:00 a.m. to Noon

Meet at the Great Falls Tavern Visitor Center.

Call 301-767-3714 for details.



Spotted salamander



National Park Service
U.S. Department of the Interior

Greater Washington National Parks

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Natural Resources & Science



Sweet magnolia bloom

The National Park Service's **Center for Urban Ecology**, National Capital Region, is an interdisciplinary team that provides scientific guidance, technical assistance and education for the preservation, conservation, and enhancement of park resources within urbanizing landscapes.

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