National Capital Region Inventory & Monitoring Network

National Park Service
U.S. Department of the Interior

NCRN Natural Resource Quarterly

Summer 2014

Promising BioControls for Widespread Invasive Plants

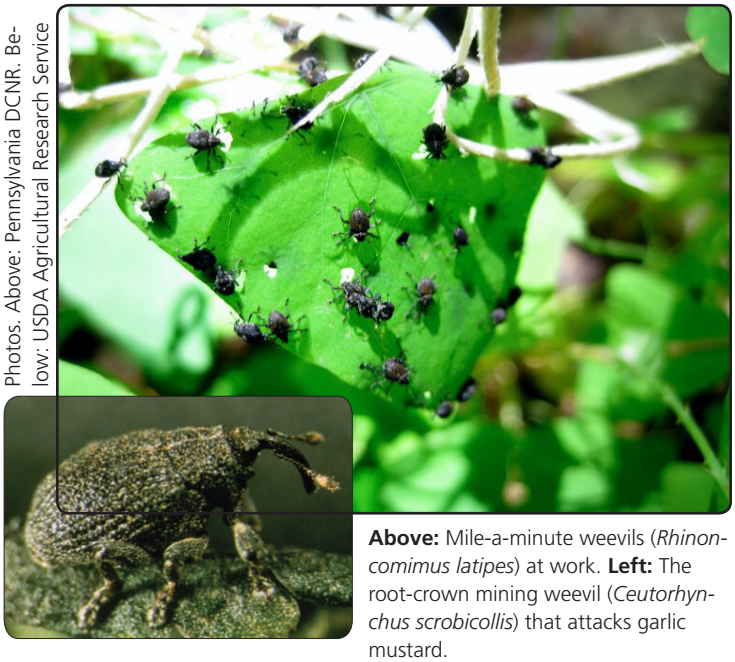
Jil Swearingen, Integrated Pest Management Coordinator

Biological controls are one of several weapons available in the battle against the approximately 400 invasive plant species that affect natural areas in the mid-Atlantic region. Following is a quick summary of biocontrols that are either in use or being considered for future use to help manage some of our more challenging invasive plants.

Garlic mustard (*Alliaria petiolata*). Four weevil species in the genus *Ceutorhynchus* have been extensively studied at CABI-Switzerland and the University of Minnesota and a root-crown mining weevil *Ceutorhynchus scrobicollis* has been proposed for release in North America. Additional host range tests and review is needed.

Japanese knotweed (*Fallopia japonica*), giant knotweed (*F. sachalinensis*), and the hybrid between these two, *F. x bohemica* (a.k.a. Bohemian or hybrid knotweed) are found throughout much of North America, especially in riparian areas. Four natural enemies from knotweed's native range were tested as potential biological control agents for knotweeds in North America—a leaf beetle, two moths, and a psyllid. Only the psyllid, *Aphalara itadori*, was found to be suitably host-specific. Two different biotypes of the psyllid were evaluated—a northern biotype (from Hokkaido) collected from giant knotweed, and a southern biotype (from Kyushu) collected from Japanese knotweed. Both show a high level of host specificity to knotweeds, but differences in performance of the two biotypes on the three knotweed species suggest that both biotypes will likely be needed for effective control against all knotweed species and genotypes in North America. The psyllid was released in England and Wales in 2010 with no apparent negative affects and is being studied by the USDA Animal and Plant Health Inspection Service (APHIS).

Photos. Above: Pennsylvania DCNR. Below: USDA Agricultural Research Service



Above: Mile-a-minute weevils (*Rhinoncomimus latipes*) at work. **Left:** The root-crown mining weevil (*Ceutorhynchus scrobicollis*) that attacks garlic mustard.

(*Continued page 2*)

Coming to Your Park this Summer...

Field work scheduled for June/July/August

See page 4 to learn about the new google calendar for NCRN I&M field activity.

	ANTI*	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
I&M Amphibian Monitoring			x			x			x	x	
Exotic Plant Management	x	x	x	x	x	x	x	x	x	x	x
I&M Forest Bird Monitoring	x	x	x	x	x	x	x	x	x	x	x
I&M Forest Vegetation Monitoring	x	x	x	x	x	x	x	x	x	x	x
I&M Water Monitoring	x	x		x	x	x	x	x	x	x	x

*Park acronyms on page 3

In This Issue:

(*Biocontrols continued*)

Japanese stiltgrass (*Microstegium vimineum*). Two species of *Bipolaris* fungus have been described as the cause of leaf spots and necrosis on Japanese stiltgrass in the Eastern U.S.; evidence suggests that the disease may be suppressing local populations. Research is on-going. Keep an eye out for leaf blight during the growing season and report it via the Mid-Atlantic Early Detection Network.

Mile-a-minute weed (*Persicaria perfoliata*). The host-specific weevil *Rhinoncomimus latipes* was approved for release in the U.S. in 2004, and since has been released widely throughout the range of mile-a-minute weed, with considerable though somewhat variable success. The weevils are being mass-reared by the Phillip Alampi Laboratory in New Jersey, and can be obtained from that lab for release or moved from established populations within a state. A plant pathogen, *Colletotrichum gloeosporioides* from Turkey is currently being evaluated at USDA, Agricultural Research Service (ARS), Foreign Disease-Weed Science Research Unit, in Fort Detrick, MD.

Swallowworts (*Vincetoxicum sp.*). Biocontrols for pale swallowwort (*Vincetoxicum rossicum*) and black swallowwort (*V. nigrum*) are undergoing host range testing at Ft Detrick, MD. The agents include a moth *Hypena opulenta*, which was recently approved for release in Canada, and a plant pathogen *Colletotrichum lineola*, originally from Russia.

Tree-of-heaven (*Ailanthus altissima*). A native, soil-borne vascular wilt fungus, *Verticillium nonalfalfae*, has been found killing large numbers of *Ailanthus altissima* trees in south-central Pennsylvania and north-western Maryland, and this fungus appears to be quite host-specific and continues to be evaluated. The Asian wevil *Eucryptorrhynchus brandti* is under study at Virginia Tech. However, corkwood (*Leitneria floridana*), which is listed as threatened in Florida, may be affected. Continued research is needed on the insect's potential host range.

Photo: Pollock

Ailanthus webworm (*Atteva punctella*).

Atteva punctella, the ailanthus webworm, is thought to be native to southern Florida and Central America. It has apparently expanded its host range and distribution onto tree-of-heaven, where it can cause serious damage, especially to seedlings and small plants. It is a strikingly pretty moth and is found in the Mid-Atlantic area.

For more information on biocontrols, visit the USDA Agricultural Research Service Biocontrol Research Program webpage at: http://www.ars.usda.gov/is/AR/archive/jul09/research0709.htm

Amphibian Updates for C&O, Prince William, and Rock Creek

For amphibians, 2013 was a pretty good year. It was wetter than average and those species whose breeding or larval periods extend later into the season may have been able to survive in greater numbers. That would partly explain why estimates of wetland occupancy went up last year for species like the American bullfrog, green frog, and gray treefrog.

Photo: USGS/Dietrich

A northern two-lined salamander (*Eurycea bislineata*) at Prince William Forest Park.

NCRN I&M monitors amphibians at Rock Creek Park, Prince William Forest Park, and in the Potomac Gorge area of the C&O Canal National Historical Park. Amphibian data through 2013 is now available in a set of update briefs for Rock Creek Park, Prince William Forest Park, and the C&O Canal under the "Resource Brief" tab at: http://science.nature.nps.gov/im/units/ncrn/monitor/amphibians/index.cfm.

Exotic Plant Management Team News

The National Capital Region, Exotic Plant Management Team (NCR EPMT) has been working in parks since March this year. Despite late snow, they were able to treat many areas of lesser celandine and a population of giant hogweed (*Heracleum mantegazzianum*) threatening Rock Creek Park. In May the team collaborated with the Mid-Atlantic EPMT team for two days of work removing autumn olive at Gettysburg and Antietam. It was a great chance to learn how another team operates and share tips and tricks.

In response to a few extra funded projects this year the team will expand by up to four new members in June and July.

NCRN I&M Pilots Grassland Bird Monitoring

In response to an outpouring of interest from NCR parks, the NCRN Inventory & Monitoring (I&M) program will pilot test grassland bird monitoring this summer at Manassas National Battlefield Park. The I&M field crew will monitor a seclection of grassland sites using the same methods as existing forest bird monitoring.

Photo: NPS/Bates

Grasshopper sparrows (*Ammodramus savannarum*) are a common grassland bird species.

We hope to learn if the forest bird monitoring protocol will be appropriate for grassland birds and if we will detect primarily grassland birds or a mix of forest and grassland species. We may also learn if observations differ based on the type and size of grassland. This pilot data will help tell us what we can learn about larger grassland bird populations.

I&M currently monitors forest birds, visiting each of approximately 385 sites throughout the National Capital Region twice—once in spring and once in summer. During each visit, a trained observer records all birds calling and visible within 100 meters during a ten minute period.

If this forest protocol also works for grassland birds, we will be better positioned for future monitoring should funding become available.

A field crew of trained ornithologists from University of Delaware began I&M's eighth year of monitoring this May. To see the I&M bird crew's schedule, sign up for the I&M Field Activity google calendar by contacting Megan Nortrup by NPS email. More information on I&M forest bird monitoring is at: http://science.nature.nps.gov/im/units/ncrn/monitor/forest_birds/index.cfm.

Feral Hog Update

Scott Bates, Wildlife Biologist, National Capital Region

The population status of feral hogs in the region remains largely unchanged since initial reports of their presence in August 2012. There are no feral hogs in Maryland. A population of 300-500 has been confirmed around Culpeper, Virginia. They are dispersing along riparian areas and by illegal relocations. Dispersal via riparian areas to PRWI and MANA is highly improbable but illegal relocation is always a concern.

The Animal Plant Health Inspection Service (APHIS) Wildlife Services' Feral Hog Environmental Impact Statement is supposed to be reviewed by NPS in 2014. Virginia Wildlife Services has hired a wildlife biologist to collate all of the reports around Culpeper and to work with private landowners to plan management actions.

You can't manage (or not manage!) without monitoring. Developing a monitoring program requires a practical method that is sensitive to changes in number over time, relies on a minimal number of easily met assumptions, and allows for valid comparisons over time or between areas. It is also a difficult task. Parks are already understaffed and devoting time to monitoring deer, geese, small-whorled pogonia, and coyote in addition to their other duties and responsibilities.

Since there are no confirmed feral hog populations (yet!) in NCR parks, we may be able to take advantage of feral hog ecology and current monitoring efforts for other wildlife to at least have an opportunistic "early warning" detection procedure. Feral hog tracks and scat observations can be included during PRWI and MANA coyote scat collection searches. Observations of feral hogs can be captured on trail cameras used for other projects. Feral hogs may be observed during spotlight surveys but they tend to be wary of humans and their eyes do not have a reflective tapetum like deer. We can take advantage of feral hog preference for riparian areas and set up cameras or track plates adjacent to vernal pools, streams, and ponds. Being mindful of feral hogs while working on other projects is not a substitute for monitoring but it will at least determine whether we should implement a dedicated monitoring project for feral hogs.

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

I&M Field Calendar and Online Park Photo Resources

I&M Field Activity Google Calendar

A google calendar of NCRN I&M field activities with specific monitoring dates & park locations is now available. To subscribe, contact Megan Nortrup via NPS email. The calendar includes schedules for water monitoring, forest vegetation monitoring, and amphibian and bird monitoring.

Online Park Photos

As part of the long-standing efforts to document the park's biodiversity, the natural resources management team of the **George Washington Memorial Parkway** has compiled a photo gallery of its identified insects, spiders, centipedes, and millipedes. The gallery is now available at: http://www.nps.gov/gwmp/naturescience/insects.htm.

Citizen science continues to be an important component of the natural resources program at **Wolf Trap National Park for the Performing Arts**. Thanks to park volunteer Sheryl Pollock, an extraordinary gallery of high quality, identified photos of park flora and fauna are available at: https://www.flickr.com/photos/39432681@N05/sets/72157633922555737/

Photo: NPS/Pieper

Flooding of Bull Run in Manassas National Battlefield Park, May 16

Major storm events on April 30 and May 16 caused flooding in many NCR streams, including those with I&M continuous data loggers. Not only did the loggers capture dramatic high water level readings (logged every 15 minutes), but also temperature, dissolved oxygen, and conductivity levels as well.

One unexpected consequence of these large storms? They buried many of I&M's loggers under cobble, gravel, and sand—up to a foot and a half deep! Most have since been dug out and the I&M Water Crew is currently working on strategies to avoid similar events in the future.

Calendar

JUNE

26. Invasive Plant Training by DC Cooperative Weed Management Area and the National Capital Region Exotic Plant Management Team. Wolf Trap National Park for the Performing Arts. 8:30 am -3:30 pm.

JULY

2. Weed Scavenger Hunt at Great Falls. 9am-3:30pm. Register by NPS email with Mark Frey.

17. NAT (Natural Resources Advisory Team) Meeting. ROCR. 10 am.

29. CAT (Cultural Resources Advisory Team) Meeting. Museum Resource Center.

OCTOBER

9. NAT (Natural Resources Advisory Team) Meeting. CATO. 10 am.

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Program Manager: Patrick Campbell
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Data Manager: Geoff Sanders
GIS Specialist: Mark Lehman
Hydrologic Technician: Jim Pieper
Hydrologic Technician: Tonya Watts
Quantitative Ecologist: John Paul Schmit
Science Communicator: Megan Nortrup

Visit NCRN I&M online at:

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