



NCRN Natural Resource Quarterly

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Civil War Battlefields: A Haven for Declining Grassland Birds

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In a forest, you may hear or see many different species of birds—but probably not a grasshopper sparrow. These cautious birds, named for one of their favorite foods and the bug-like way they sing, prefer open grasslands. That's why you're more likely to see them at one of the region's Civil War battlefield parks—Manassas, Monocacy, or Antietam. In these parks, warm-season (native) grasslands, shrublands, and even cow pastures serve as much needed habitat for grassland-reliant species like grasshopper sparrow.

Starting in 2014, to learn more about birds that rely on park grasslands and look at the effects different management actions may be having on them, the National Capital Region Inventory & Monitoring Network (NCRN I&M) began monitoring the grassland birds at Manassas National Battlefield Park. In 2015 monitoring expanded to include Antietam National Battlefield and Monocacy National Battlefield.

A crew of four trained technicians surveyed a total of 206

grassland plots and found a full complement of grassland reliant birds in all 3 parks. Many species showed up in grasslands

that we don't encounter during forest surveys, including Grasshopper Sparrow, Field Sparrow, Vesper Sparrow, Blue Grosbeak, Eastern Meadowlark, Yellow-breasted Chat, and American Kestrel.

Management by Mowing

Grassland habitat is in decline in the eastern United States due to natural succession to forest, fire suppression, and reduction in open agricultural fields. So grassland

birds must contend with habitat loss, as well as land management practices that can limit their populations. To prevent saplings and shrubs from establishing into a grassland and reverting it back to forest, grassland habitat requires a regular disturbance regime. Historically, this disturbance was primarily fire, but now most managers maintain grasslands through mowing. Mowing is mainly done in NCR parks to maintain a Civil War era landscape, with clear views and sightlines so visitors can easily imagine troop movements on the rolling hills. Unfortunately, mowing can oc-

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Grasshopper sparrow (*Ammodramus savenarum*)

Photo: NPS/Sasha Robinson

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cur in the middle of summer, before the breeding season for many birds has ended. In Manassas in mid-July this year, it was not uncommon to see meadowlarks looking out of place on a newly mowed field. Mowing during the breeding season can destroy nests, cause direct mortality of fledglings, and possibly affect the foraging resources and behavior of many grassland species¹.

Agricultural land

In addition to the managed grasslands, NCR's battlefield parks have large areas of agricultural fields in corn and soybeans, as well as livestock pasture. These agricultural habitats

1. Peterjohn (2006) suggests that mowing be delayed until at least after July 15 to allow most birds to successfully rear broods, and that waiting until Aug 15 would be sufficient for virtually all birds to rear young. He also discusses how mowing mostly controls woody vegetation and can change the structure of the grassland (more or less leaf litter depending on removal or not) compared to fire management which brings the area to early successional grass species.

Peterjohn, B. 2006. Conceptual Ecological Model for Management of Breeding Grassland Birds in the Mid-Atlantic Region. NPS/NER/NRR—2006/005. <https://irma.nps.gov/App/Reference/Profile/633381>

I&M Winter Field Schedule

For specific dates contact Megan Nortrup by NPS email or check the "NCRN I&M Activity" calendar which has been shared with NCR staff through BisonConnect gmail.

The calendar shares dates when I&M field staff will be working in your park. You and your interns and volunteers are welcome to join in the field to learn about how NCRN I&M monitors natural resources in your park.

December 2015, and January and February 2016	Water (quarterly)	Water (continuous)
Antietam National Battlefield	X	X
Catoctin Mountain Park	X	X
Chesapeake & Ohio Canal NHP		
George Washington Memorial Parkway	X	X
Harpers Ferry NHP	X	
Manassas National Battlefield Park	X	X
Monocacy National Battlefield	X	
National Capital Parks - East	X	X
Prince William Forest Park	X	X
Rock Creek Park	X	X
Wolf Trap NP for the Performing Arts	X	

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

host a different suite of grassland birds than do the warm season grasslands. Surprisingly, agriculture supported the highest numbers of Horned Larks and Vesper Sparrows.

Birds and Battlefields - A Symbiosis

National Park battlefields are important bird refuges since grasslands maintained for historic reasons have the side effect of preserving habitat for declining grassland birds. In depth monitoring of these areas is vital for figuring out species abundance levels and the importance of land cover in maintaining these populations. Monitoring grasslands will also document the effects of good grassland management through mowing regimes and fire. Ultimately, this management can lead to the preservation of many declining bird species in the eastern U.S.

To learn more about bird monitoring across NCR, visit http://science.nature.nps.gov/im/units/ncrn/monitor/forest_birds/index.cfm.

Fall Wildflower Walk at Manassas

On September 25, a group including Manassas and other NPS staff, met for a fabulous fall wildflower walk in the Deep Cut area of Manassas National Battlefield Park. NCRN Botanist Liz Matthews and NPS volunteer Sheryl Pollock led the group in identifying all manner of grasses, asters, goldenrods, and other late-flowering plants. NCR Historical Landscape Architect Maureen Joseph discussed historical features of the landscape including the stone patterns echoing long-gone worm fencing.

Explore NCRN I&M activities at Manassas at: <http://science.nature.nps.gov/im/units/ncrn/parks/mana.cfm>.



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

Rare Goldenrod Re-Discovered at C&O Canal

Liz Matthews, Wes Knapp, and Megan Nortrup

The last time riverbank goldenrod was collected in Maryland was August of 1903. It was found by Mr. T.H. Kearney, a man perhaps better known for being a founding member of the Washington Biologists' Field Club (in 1900) and for his work on cotton and date palm breeding. He found the small goldenrod growing on Plummers Island, about 5 miles downstream from Great Falls. But since then, it has been elusive. That is, until 2015...

The Potomac Gorge is well-known for its biological diversity, including its high density of rare plant species. Approximately 300 plant species that occur in the gorge are state species of concern, tracked by Maryland or Virginia. One of these species is riverbank goldenrod (*Solidago rupestris* Rafinesque), a perennial, fall-flowering herb that occurs in riverside habitats periodically scoured by floods (Weakley et al. 2012). It is considered rare throughout its range, which is centered in Kentucky and northern Tennessee but extends east into the Mid-Atlantic states (VA Botanical Associates 2015). In the National Capital Region, riverbank goldenrod is listed as S1 (critically imperiled¹) in Virginia and SH (historic/extirpated²) in Maryland (Maryland Natural Heritage Program 2010; Townsend 2014). A population of riverbank goldenrod is known from the Virginia shore of the Potomac River in Great Falls Park, but the species had not been documented in Maryland since Kearney's 1903 collection.

As part of a larger project hunting for rare plants, Wes Knapp (Botanist, Maryland Department of Natural Resources) identified a list of high priority species that are known from counties in states bordering Maryland but are not currently recognized as occurring in Maryland. A few of the species on the list are likely to occur in the Potomac Gorge, including New Jersey Tea (*Ceanothus herbaceus*), which is known from DC, but is historic in Maryland, and riverbank goldenrod, which is known from Virginia. Given the distribution of the rare riverbank goldenrod, Knapp was confident that it might be re-discovered on the Maryland shore of the Potomac River and organized a field excursion to search for the species in late September 2014. A small group, including

Below: The rare riverbank goldenrod *Solidago rupestris*.

Right: Kylie Watson, Allen Dupre, and Wes Knapp during the search for *Solidago rupestris* at Great Falls.



Photo: Wes Knapp



Photo: NPS/Liz Matthews

Michelle Carter and Andrew Landsman (CHOH), Gary Fleming (Virginia Department of Conservation and Recreation), Cris Fleming (Maryland Native Plant Society), and Liz Matthews (NCRN Inventory & Monitoring), joined Knapp to search potential habitat on Olmstead and Bear Islands. Although the group encountered sites that closely resembled the habitat of the Virginia population, they didn't locate riverbank goldenrod that day.

Undaunted, Knapp organized another excursion in September 2015 with a smaller group of participants including Matthews, Allen Dupre (NCRN Inventory & Monitoring), and Kylie Watson (Salisbury State University intern). The search began at Plummers Island and moved north to the Carderock area. At a rocky, riverside boulder woodland near Carderock, the group found a patch of goldenrod that was past peak flowering, but closely matched the plants seen in Virginia and was consistent with *S. rupestris* according to the Flora of Virginia (Weakley et al. 2012). The group photographed the site and the plants and collected a specimen for additional verification. After later herbarium work and confirmation from *Solidago* expert John Semple (Waterloo Herbarium), we are confident that the Maryland population is indeed riverbank goldenrod! This rediscovery will result in the rank of the species moving from SH to S1 in Maryland. Given that this is the only known location of riverbank goldenrod in the state, the population at Carderock takes on great importance in maintaining Maryland's biodiversity.

References

- Maryland Natural Heritage Program. 2010. Rare, Threatened and Endangered Plants of Maryland. April 2010 edition. Maryland Department of Natural Resources, Wildlife and Heritage Service, Annapolis, Maryland.
- Townsend, J.F. 2014. Natural Heritage Resources of Virginia: Rare Plants. Natural Heritage Technical Report 14-02. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Unpublished report. February 2014. 58 pages plus appendices.
- Virginia Botanical Associates. 2015. Digital Atlas of the Virginia Flora (<http://www.vaplantatlas.org>). Virginia Botanical Associates, Blacksburg.
- Weakley, A.S., J.C. Ludwig, and J.F. Townsend. 2012. Flora of Virginia, 1st edition. Botanical Research Institute of Texas Press, Fort Worth, Texas.

1. Critically imperiled: at very high risk of extirpation from the state due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

2. Possibly extirpated: historically known from Maryland, but not verified for an extended period, with the expectation that it may be rediscovered.

NCR's Centennial BioBlitz and the iNaturalist App

To honor the 100th birthday of the National Park Service, the National Capital Region (NCR) will host a Centennial BioBlitz on May 20-21, 2016. This BioBlitz is one of many special Centennial events, projects, and activities happening in 2016 and will take place in multiple parks in and around Washington, DC.

A BioBlitz is a quest to discover living organisms through public involvement. It is a largescale series of public-oriented events that explore biodiversity. In the NCR, the Centennial BioBlitz is co-hosted by NPS and the National Geographic Society.

According to the Natural Resource Stewardship and Science (NRSS) Directorate, the concept for NCR's BioBlitz is that teams of scientists, teachers, children, and other community members will work together to identify as many species as possible. An accompanying Biodiversity Festival will take place on the National Mall at Constitution Gardens. It will showcase hands-on educational activities, speakers, and exhibits, and species data will be broadcast from simultaneous BioBlitzes around the country.

The iNaturalist App

The primary data collection tool for the NCR and other Centennial BioBlitzes is a digital application (app), hosted by the California Academy of Sciences, called



A park ranger helps visitors identify insects during the 2006 BioBlitz in the Potomac Gorge.

iNaturalist [www.inaturalist.org/].

This website/app allows people to record just about

anything they encounter in the natural world, get help with identifications, collaborate with others to collect information for a common purpose, or access observational data collected by other iNaturalist users. It's a crowd-sourced species identification system and an organism occurrence recording tool.

Beyond BioBlitzes, iNaturalist users include hikers, hunters, birders, professional land managers, and people who just like to learn about what they see outside.

iNaturalist content modified from Sharron, Ed. 2015. Temperate Times. Newsletter of the Northeast Temperate Network. Volume 9, Issue 1, Winter 2015.

For More BioBlitz Information:

Centennial BioBlitz webpage: <http://www.nature.nps.gov/biology/biodiversity/bioblitz2016.cfm>

Internal NPS Biodiversity site: <http://www1.nrintra.nps.gov/brmd/partnerships/biodiversity.cfm>

Calendar

2016

JANUARY

21. Natural Resources Advisory Team (NAT) Meeting. NACE.

APRIL

21. Spotlight on National Park Resources Biennial Meeting.



NCTC, Shepherdstown, WV.

MAY

20-21. NCR Centennial BioBlitz. Sites in and around Washington, DC with a "Biodiversity Festival" on the National Mall. <http://www.nature.nps.gov/biology/biodiversity/bioblitz2016.cfm>

Visit NCRN I&M online at:

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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

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