Addressing Amphibian Declines in NCR

There is strength in numbers. So when it comes to fighting amphibian declines, 11 parks working together can have more effect than one park working alone. That is one of the reasons that the National Capital Region Network, Inventory & Monitoring program (NCRN I&M) is organizing a strategy for park amphibian management.

NPS Photo

Green frog

Amphibian Declines

Across the country from 2002-2011, the number of wetlands inhabited by amphibians has dropped 3.7% a year (Adams et al. 2013). At the C&O Canal, eight of twelve species have declined (2005-2011), causing the number of amphibian species in each wetland to drop (Grant et al. 2013). Trends predicted through 2020 continue to deteriorate.

One of the species that exhibited the strongest declines (2005-2011) is the northern green frog (*Lithobates clamitans*). Northern green frog tadpoles often overwinter in wetlands and take two seasons to transform into adults. As a result of this long development period, changes in the timing and amount of precipitation can have especially detrimental effects on its persistence.

Group Effort

To combat future declines, the NCRN is partnering with scientists from the USGS Patuxent Wildlife Research Center and Michigan State University to work with parks in developing network-scale management strategies. Through a process called structured decision-making (SDM), the team will:

(1) Identify specific objectives for amphibian populations across NCR parks, and for each individual park.

(2) Identify potential park-level management actions.

(3) Develop and compare a set of models (using existing amphibian data) which predict the system response to proposed management actions stated in Step 2.

(4) Investigate the success of the proposed actions in achieving our full set of objectives stated in Step 1.

2017 Amphibian Workshop

During the first workshop (targeted for Fall/Winter 2017) participants will define amphibian population objectives for each park and across NCR, and identify potential management actions. For more information, please contact Alex Wright at adwright@msu.edu.

Further Reading

Adams, M.J., et al. 2013. Trends in amphibian occupancy in the United States. PloS one, 8(5), e64347.

Grant, E. H. C., et al. 2013. A strategy for monitoring and managing declines in an amphibian community. Conservation Biology 27(6), 1245–1253.

Photo: USGS/Dietrich

This albino spotted salamander larvae (near metamorphosis) was found in Oxon Cove (NACE) in 2016. It surprised NCRN amphibian crew member Andrew Dietrich who had never seen one before outside of Patuxent Wildlife Research Center, or one so mature.

I&M Winter Field Schedule

The NCRN water monitoring crew fearlessly continues field work this winter. In January, they hope to visit all 37 of the established stream monitoring sites in ANTI, CATO, GWMP, HAFE, MANA, MONO, NACE, PRWI, ROCR, and WOTR.

As always, park staff and volunteers are welcome to join us in the field to learn about how NCRN I&M monitors natural resources in parks. Just be sure to dress warm and bring your boots! For more information contact Margie Shaffer at 202-339-8315 or visit:

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

Photo: NPS/Pieper

Tonya Watts takes a stream flow measurement in Youngs Branch at Monocacy National Battlefield. Tonya and the NCRN water crew visit small, non-tidal streams throughout NCR on a quarterly basis to check nutrient levels, chemical parameters such as pH, specific conductance, dissolved oxygen, and temperature; and take flow, discharge, and depth measurements.