



# Amphibian Update 2013

## Rock Creek Park

### Overview

This update presents data from 2013 on stream and vernal pool-breeding amphibians in Rock Creek Park (ROCR). The National Capital Region Network Inventory & Monitoring program (NCRN I&M) and Rock Creek staff have monitored amphibians yearly in ROCR since 2005.

The goals of amphibian monitoring include determining the current distribution and status of amphibian populations, determining possible causes for changes to amphibian populations, and providing park managers with the information necessary to make management decisions.

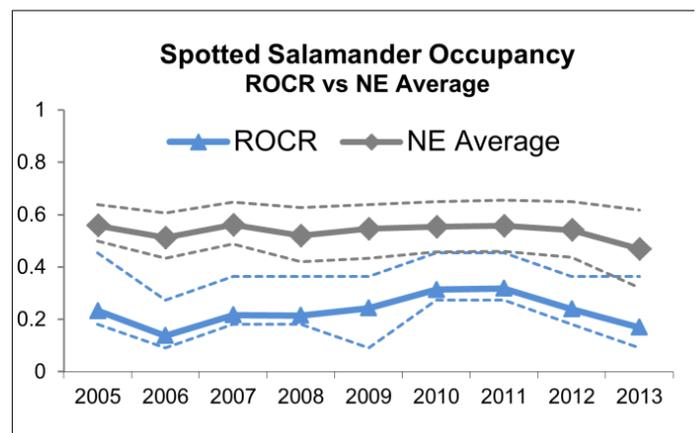
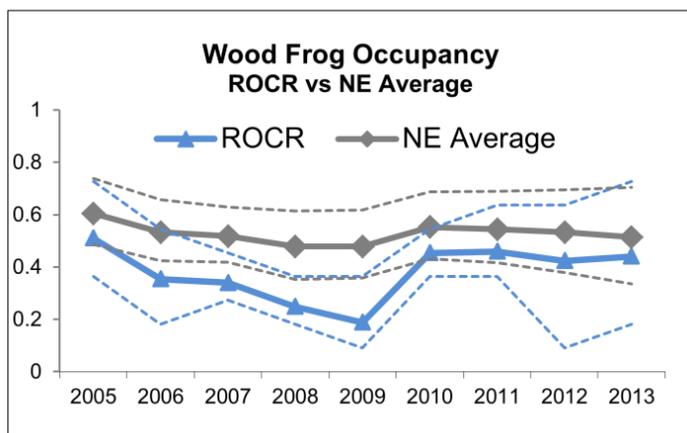
### Vernal Pool Species Occupancy

In 2013 Rock Creek staff visited 6 vernal pools in ROCR up to three times during the year to detect breeding activity.

Data from these pools were compared to data from similar monitoring locations at fifteen other national parks and wildlife refuges across the northeast United States. Across the northeast, there was little difference in the average estimated occupancies of breeding effort between wood frogs (*Lithobates sylvatica*) and spotted salamanders (*Ambystoma maculatum*); credible intervals overlapped substantially across all years of the study. There were no substantial declines in occupancy of egg masses at the regional level, though a shallow downward trend is indicated in the data for both species.

At ROCR, both wood frogs and spotted salamanders have lower occupancy (of egg masses) than the average across the northeast. Early drying of sites has been observed in multiple consecutive years, resulting in likely reproductive failure of these species. Considering the small number of habitats in the park, populations are limited by habitat availability and may be at increased risk of local extinction.

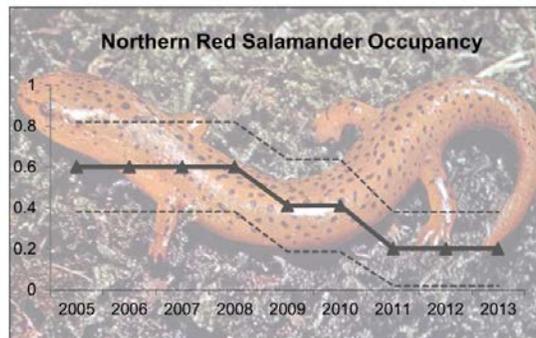
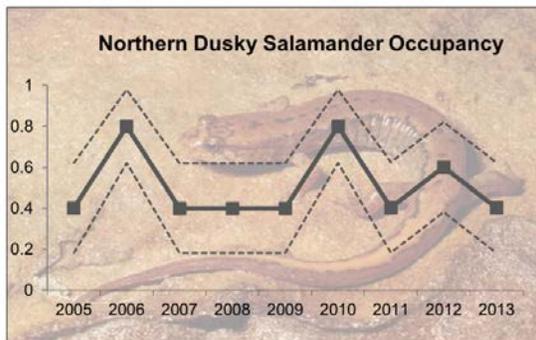
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## Stream Species Occupancy

In 2013, we visited 11 monitoring sites on 5 ROCR streams. We encountered three species of stream salamanders in Rock Creek: northern dusky salamander (*Desmognathus fuscus*), northern two-lined salamander (*Eurycea bislineata*), and northern red salamander (*Pseudotriton ruber*). The occupancy rate for these stream salamanders at Rock Creek is relatively stable. However, stream drying in recent years has decreased our ability to detect some species, even though populations may remain unchanged. Future modeling efforts will incorporate the dynamics of the stream habitat to better estimate the effects of these changes on our observed salamander occupancy.

One may notice differences in these estimates of occupancy by comparing updates from previous years to this 2013 update. Prior to 2013, we focused our estimates on the regional scale to more precisely estimate trends for each species. In order to be more informative to individual parks, this has been changed so that each park's reported occupancies are now independently estimated.



Solid lines represent mean occupancy estimates.

Dotted lines represent 1 standard error around the mean.

## More Information

NCRN I&M Amphibian Monitoring Webpage: <http://science.nature.nps.gov/im/units/ncrn/monitor/amphibians/index.cfm>

Campbell Grant, E. H., E. F. Zipkin, and A. B. Brand. 2011. National Capital Region Network 2009 amphibian monitoring: Synthesis of 2005-2009 data. Natural Resource Technical Report. NPS/NCRN/NRTR—2011/414. National Park Service, Fort Collins, Colorado. [https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=423765&file=NCRN\\_Amphibian\\_Monitoring\\_Report\\_2010.pdf](https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=423765&file=NCRN_Amphibian_Monitoring_Report_2010.pdf)

Mattfeldt, S. D., E. H. C. Grant, and L. L. Bailey. 2008. Amphibian Monitoring in the National Capital Region: A focus on lentic and lotic habitats. Natural Resource Technical Report. Natural Resource Report NPS/NCRN/NRTR—2008/088. National Park Service, Center for Urban Ecology, National Capital Region, Washington, DC. [https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=152608&file=NCRN\\_Amphib\\_Monitoring\\_Rpt\\_2007.pdf](https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=152608&file=NCRN_Amphib_Monitoring_Rpt_2007.pdf)

Northeast Amphibian Research and Monitoring Initiative of the USGS: [www.pwrc.usgs.gov/nearmi/](http://www.pwrc.usgs.gov/nearmi/)