



EarthWatch Rhode Island



Topic: Inspecting and Mapping Vernal Pools

Date: April 24, 2009

Location: Arcadia Management Area in Exeter

Background

The Department of Environmental Management is working to create an inventory of vernal pools in the Wood-Pawcatuck watershed. DEM wetland staff and trained volunteers from the Wood-Pawcatuck Watershed Association are collecting data, conducting field work and surveying 678 potential vernal pools in the watershed that were previously mapped from aerial photographs provided by The Nature Conservancy of Rhode Island and researchers at URI's Department of Natural Resources Science. Assistance is being provided by the New England Interstate Water Pollution Control Commission and the Rhode Island Natural History Survey. The project is funded by a US EPA wetlands Clean Water Act grant.

Vernal pools are unique and important wetlands. These small bodies of water form in shallow depressions on the landscape; the pools do not hold water permanently, but they fill between late fall and early spring, from rising groundwater, melting snow, and rainfall. The seasonal nature of these pools is what makes them so valuable, particularly as breeding sites for certain amphibians. Periodic drying prevents the establishment of permanent fish populations that would prey on vernal pool animals. Vernal pools provide important habitat for many wildlife species, including at least 11 species of amphibians (frogs, salamanders, and toads), reptiles (such as the spotted turtle), waterfowl (such as the wood duck), mammals, insect-eating songbirds, dragonflies, and fairy shrimp.

The characteristics that make vernal pools so valuable to wetland wildlife also make them difficult to identify and protect. Because they are seasonally flooded wetlands, what is a thriving amphibian breeding pool in spring may be a dry woodland or grassy depression in the fall that can easily be overlooked. And, although they are generally associated with woodlands, vernal pools are scattered throughout a variety of natural and developed landscape settings. Each individual vernal pool, along with its surrounding habitat, contributes collectively to the value of the area for wildlife dependent on it for survival. This makes public knowledge of the locations and functions of vernal pools very important so landowners and citizens can help to protect them.

In Rhode Island, the wood frog, (*Rana sylvatica*), spotted salamander, (*Ambystoma maculatum*), marbled salamander, (*Ambystoma opacum*), and Eastern Spadefoot toad (*Scaphiopus holbrookii*) critically depend on vernal pools drying and hence the absence of a fish population for successful breeding and development. The quality of the habitat surrounding a vernal pool is also critical to juvenile and adult amphibians that rely on it for their survival after the pools dry.

In Rhode Island, most vernal pool-breeding amphibians migrate to the pools between late February and early April. Perhaps you have heard a wood frog chorus?

In the example of the wood frog, individuals mate and each female deposits a gel-like mass containing several hundred eggs. The eggs hatch within a week or so and the larvae develop in the pool for about four months, at which time they leave the pool as young frogs, called metamorphs. Most wood frogs spend the remainder of their lives in upland forests, first as juveniles and then as adults, except during early spring when they return to the vernal pools again to breed.

To learn more about Rhode Island vernal pools view the following WebPages:

DEM Rhode Island Wetlands: Vernal Pools -

<http://www.dem.ri.gov/programs/benviron/water/wetlands/vernal.htm>

DEM Vernal Pool Brochure - <http://www.dem.ri.gov/programs/benviron/water/wetlands/pdfs/vernbroc.pdf>

Rhode Island Vernal Pools - <http://www.uri.edu/cels/nrs/paton/>

Vernal Pool Association - http://www.vernalpool.org/vernal_1.htm

U.S. EPA Vernal Pools and other Seasonal Pools - http://www.epa.gov/bioindicators/html/vernal_pools.html

Identification and Documentation of Vernal Pools in New Hampshire -

http://www.wildlife.state.nh.us/Wildlife/Nongame/RAARP/Vernal_pool_manual.pdf

Maine Citizen's Guide to Locating and Documenting Vernal Pools -

http://www.maineaudubon.org/conserves/citsci/v_guide.pdf

Interviewees:

Marty Wencek, Supervisory Environmental Scientist, DEM Wetlands Program, talked about the ongoing project to map the vernal pools, and the importance of vernal pools, and provided background information about the importance of vernal pools for some amphibians and invertebrates.

Visuals:

- DEM wetlands biologist surveying the vernal pool and pointing out amphibian egg masses and tadpoles
- Setting of the pool and the pool itself and inspections of the pool will provide good visuals