



## Vernal Pool Exploration

Lake Accotink, April 14, 2018

On a recent sunny April afternoon, educator and vernal pool expert Michael Hayslett led a captivating exploration of vernal pools in the Accotink Creek watershed. Vernal pools, or ephemeral pools are seasonal wetlands, temporary and magical ecological features that provide essential habitat for a variety of life and breeding grounds for frogs and salamanders. Hayslett is conducting an inventory of vernal pools in Fairfax County as part of an initiative by the Fairfax County Park Authority, and he shared his vast knowledge with locals from conservation volunteer groups, youthful naturalists and local governments. Vernal pools are vulnerable to a variety of threats associated with human impact, and this inventory will support efforts to monitor and protect them.



Hayslett began the tour in the parking lot by decontaminating his boots, scrubbing them in a tub of bleach and water to protect amphibians from the dreaded chytrid fungus that is causing severe population declines and extinctions of amphibian species around the world. He encouraged everyone present to scrub their footwear if it had been worn in other watersheds; this is an easy and important step to protect our local frog and salamander populations. As the group walked downstream to a pool near the Cross County Trail below Lake Accotink, American toads were singing love songs over along the creek.

Wading in and swooping around with a net, Hayslett explained that in order for a pool to be classified as a vernal pool, it must house at least one indicator species. In this region there are four indicator species; the presence of wood frogs, spotted salamanders, marbled salamanders, or the less common fairy shrimp would indicate that the water is a vernal pool.



Hayslett scooped tadpoles into Ziploc® bags filled with water and handed them to his enthralled crowd, talking them through the steps to identify the tadpoles. Did we have an indicator species? How long were the tadpoles? Were their backs very black? Did their bellies have a golden tinge? Bingo. They were wood frog tadpoles, an indicator species: this was a vernal pool.

Hayslett had hoped to also find fairy shrimp. When he first entered the pool, he had startled a duck and that can indicate the presence of a fairy shrimp which ducks love to eat. While we did not find any fairy shrimp that afternoon, Hayslett has discovered some in Fairfax County, and he took time to explain their fascinating life cycle. Unlike frogs and salamanders, fairy shrimp never leave the pool even as it dries out, but their eggs can remain viable in a dry environment for hundreds of years, hatching only when rains replenish the pool. The eggs can be transported to other pools by wind and by birds.



Around the pool the group also found pickerel frogs, spring peepers, a garter snake, and a variety of invertebrates; not vernal pool indicators but certainly crowd pleasers. And for the plant lovers on the tour, there were spring ephemerals: Turk's cap lilies and spring beauties in fragile bloom, alongside species that favor vernal pools, such as skunk cabbage.

In Virginia, vernal pools range from natural upland wetlands independent of a stream, some of which date back twenty-thousand years, to manmade structures that become functional vernal pools.

But why would anything adapt to a pool that's constantly drying out? The biggest advantage is that fish can't inhabit them so there's no competition or predation from hungry fish. The disadvantage, of course, is that these fleeting pools can dry up before the creature has matured from its aquatic to its terrestrial stage, for example from being a tadpole that needs water to survive, to a frog that can live on land and only needs water to breed.



As the hike proceeded up the trail along the west side of the lake, the group stopped to observe (at binocular's distance) a bald eagle in its nest, then moved on to a large manmade pond along the old railroad bed. Some surmise the pond, which is about the size of a baseball field, was built in the 19<sup>th</sup> century to hold water for the steam locomotives. Although the pond had held more than a foot of water a month ago, it was now a mud flat. The reason? A stand pipe, that was built to keep the water below a certain level, had been deliberately caved in, the concrete pipe had been smashed (see photo) allowing the pond to drain, escaping under the railroad bed to the lake. A dead and dried-out mass of wood frog eggs indicated that the pond could be productive as a vernal pool if it was not intentionally drained.



Ironically, many such drainage efforts in the 20<sup>th</sup> century were intended to control mosquitoes. But as it turns out, the mud flats are highly productive mosquito breeding grounds, whereas the damselflies and salamanders who thrive in vernal pools actually feed on mosquitoes and decimate mosquito populations. This provided an object lesson in how vernal pools have been destroyed through incorrect practices, but they could be brought back to productivity

with relatively simple restorative measures.

(Of note is that, because the pond was drained, the group collected something that has become more prevalent than amphibians in the Accotink watershed: trash, including a fire extinguisher, a bicycle and two full disgusting bags of filthy plastic water bottles.)

While the weather in Northern Virginia this year has not kept vernal pools wet long enough for species to succeed, deliberate drainage by humans has not helped. Further down the complex of pools we found several pools that were desiccated from this year's drought and intermittent warm sunny conditions in between cold snaps. Water levels in this pool complex though, as in every case this writer has looked at in Lake Accotink Park, have been controlled by culvert pipes installed to drain high water toward Accotink Creek. Fairfax County's vernal pools are vulnerable to a variety of threats associated by human impact on the environment, and hopefully Hayslett's inventory will support efforts to protect them.

Hayslett encouraged anyone who has knowledge of a vernal pool that may not have been inventoried to contact him: Principal Consultant, Virginia Vernal Pools, LLC, [www.virginiavernalpools.org](http://www.virginiavernalpools.org)

*By: Dave Lincoln and Beverley Rivera, Friends of Accotink Creek*

## Friends of Accotink Creek

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