

# **PENNSYLVANIA VERNAL POOLS**

## **GETTING STARTED**

### **FINDING POOLS**

Vernal pools are by nature difficult to find. A simple method is to take nighttime walks or drives through the woods in the early spring months of March and April. The quacking chorus of wood frogs carries a good distance and is a sure sign a seasonal pool is nearby. If you live close to state owned lands, you might start with a call to the land manager or park naturalist. You can find larger seasonal pools on USGS 1:24,000 topographic maps. Mapping tools on the internet such as Google or Bing Maps have aerial maps that show great detail on the ground. Look for wetland areas that are not connected to streams or lakes such as isolated depressional wetlands in uplands, riparian areas, on slopes, and in forested areas.

Another source for finding potential vernal pools is the U.S. Fish and Wildlife National Wetland Inventory maps. Look for the following wetland types that may contain some seasonal pools (EPA 2005):

- ❖ PUB: Ponds, palustrine unconsolidated bottom
- ❖ POW: Ponds, palustrine open water
- ❖ PEM: Marshes and wet meadows (palustrine emergent)
- ❖ PAB: Palustrine aquatic bed
- ❖ PSS: Shrub swamps (palustrine scrub shrub)
- ❖ PFO: Forested wetlands (palustrine forested).

### **TIMING YOUR VISIT**

The best time to visit a vernal pool is in the early spring when you have the best chance of observing the species mentioned above. Typically two or more visits are needed to a particular pond to catch amphibian movements, or to document a pool when it has water and when it is dry.

### **SAFETY**

A few notes on how to be safe when visiting a vernal pool.

- 1) Wear protective clothing to ward off hungry mosquitoes and thorny or stinging plants. Insect repellent is a good measure to deter mosquitoes and ticks. West Nile Virus is a concern, but the mosquitoes that carry the virus are more commonly found in backyards, not backwoods.
- 2) Your first visit to a pool should be during the daytime. Be sure to have a compass or GPS unit with you to help you find your way. Instructions for how to find your way with

a map and compass can be found at the following USGS website:  
<http://egsc.usgs.gov/isb/pubs/factsheets/fs03501.html>

- 3) Walk the perimeter of the pool and note patches of briars, broken glass, or fallen logs. If you plan to sample in the pond, walk slowly and gently through the pond to determine the depth and condition of the substrate. Look for obstacles in the pond such as fallen logs, old tires, etc.
- 4) Do not walk on the ice of a frozen seasonal pool. Ground water often seeps into these pools and weakens the ice.

The Vernal Pool Association provides tips for teachers and students planning to visit a vernal pool to ensure that they and the animals they seek both have a safe visit:  
<http://www.vernalpool.org/vrntip00.htm>

### **FIELD SURVEY EQUIPMENT AND SUPPLY LIST**

Navigation and Safety: compass and GPS unit, maps, cell phone, flashlight, insect repellent, sunscreen, water, extra batteries, first aid kit

Data Collection: clipboard, waterproof notebook or paper, pencil, vernal pool registry or scientific survey data sheets

Field Survey: rain gear, hip or chest waders (without felt soles), water proof bags, camera, binoculars, tape recorder, measuring tape or range finder, dip net, turkey baster, soft-tipped forceps, water / air thermometer, water chemistry equipment, disinfectant for gear, extra batteries, fishing license, other collecting permits if needed

Identification: field guides, hand lens or magnifying glass, white pan, specimen vials, plastic bags, clear jar

### **EQUIPMENT CLEANING PROTOCOLS**

Always clean and disinfect gear between sites to prevent the spread of diseases and invasive species. Wear rubber-soled footwear for field work since it is difficult to properly disinfect felt-soled boots. See also the Pennsylvania Fish and Boat Commission's Biosecurity Measures for Commission Operations, Facilities, and Equipment ([http://www.fish.state.pa.us/ais/pfbc\\_biosecurity.pdf](http://www.fish.state.pa.us/ais/pfbc_biosecurity.pdf)) for more information.

#### **Technique 1:**

This technique works well if you are visiting a single site and won't visit another vernal pool site for a number of days.

Take your equipment home and scrub away loose dirt, vegetation, algae, etc. with soapy water. Let equipment dry completely at less than 70% relative humidity for a minimum of 48 hours. Equipment includes clothing and any sampling gear that comes in contact with the pool water.

## Technique 2:

This technique is necessary if you are visiting multiple sites in a day or on subsequent days and don't have time to let gear completely dry out as in Technique 1.

Take equipment away from the vernal pool or any other natural water body. Clean any equipment that came in contact with the pool water (nets, boots, etc.). Start by rinsing equipment with water and scrub away loose dirt, vegetation, algae, etc. Use a sturdy spray bottle to spray the equipment with a 50-50 household bleach-water mixture. Let stand for one minute. Rinse well with water.

Spray equipment with a solution of sodium thiosulfate at 800 ppm solution (3 grams per gallon of water) to neutralize any lingering bleach. Sodium thiosulfate is available online or from some pool supply stores.\* Rinse well with water.

\*Sodium thiosulfate available in SE Pennsylvania at Buchmyer's Pools, 713 Arsenal Rd., York, PA 17406. Phone 717-757-2828; email <http://www.buchmyerspools.com/>

## FIELD GUIDES

We recommend use of the following guides to help you identify the reptiles, amphibians, and invertebrates that may be found in or near vernal pools. Note that these guides contain some species that may be uncommon, rare, or not found in Pennsylvania. **Table 1** lists species that may use vernal pools but are uncommon or rare in Pennsylvania. If you do encounter these species, take photographs if possible and contact the Western Pennsylvania Conservancy. Please take extra care not to disturb or harm these animals. It is especially important that you not take any vernal pool animals into captivity.

Brown, L. J. and R. E. Jung. 2005. An Introduction to Mid-Atlantic Seasonal Pools, EPA/903/B-05/001. U.S. Environmental Protection Agency, Mid-Atlantic Integrated Assessment, Ft. Meade, Maryland. The 'EPA 2005' publication can be downloaded from this website last accessed October 1, 2012: <http://www.epa.gov/bioiweb1/pdf/EPA-903-B-05-001AnIntroductiontoMid-AtlanticSeasonalPools.pdf>.

Hulse, A. C., C. J. McCoy, and E. J. Censky. 2001. Amphibians and Reptiles of Pennsylvania and the Northeast. Cornell University Press, Ithaca, New York.

Kenney, L. P., and M. R. Burne. 2000. A Field Guide to the Animals of Vernal Pools. Massachusetts Division of Fisheries & Wildlife Natural Heritage & Endangered Species Program. Westborough, MA.

**Table 1.** List of species that may use vernal pools but are uncommon to rare in Pennsylvania. If found, please take photographs and contact the Western Pennsylvania Conservancy.

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status in PA</b>	<b>References</b>
<b>FROGS &amp; TOADS</b>			
Northern Cricket Frog	<i>Acris crepitans</i>	Rare (S1) in southeastern PA in the coastal plain, piedmont, & eastern-most portion of the ridge & valley province.	Hulse, 2001
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>	Presence in PA uncertain, possibly rare in southwestern PA	Hulse 2001
Mountain Chorus Frog	<i>Pseudacris brachyphona</i>	Rare (S1) in southwest corner of state in counties west of the Allegheny Front	Hulse 2001
Western Chorus Frog	<i>Pseudacris triseriata</i>	Rare (S1) in the western-most PA counties in the Allegheny Plateau.	Hulse, 2001
Upland Chorus Frog	<i>Pseudacris feriarum</i>	Uncommon (S3) in the piedmont of Chester & Montgomery Counties. Also in the south and central portions of the Ridge & Valley Province.	Hulse, 2001
New Jersey Chorus Frog	<i>Pseudacris kalmi</i>	Rare (S1) in the extreme southeast corner of the state in the coastal plain.	Hulse, 2001
Northern Leopard Frog	<i>Lithobates pipiens</i>	Rare to uncommon (S2S3)	Hulse 2001
Southern Leopard Frog	<i>Lithobates sphenoccephalus utricularius</i>	Rare (S1), only known from southeast portion of state in the coastal plain of the lower Delaware Valley.	Hulse 2001
Eastern Spadefoot	<i>Scaphiopus holbrookii</i>	Rare (S1) in Cumberland & Susquehanna Valleys.	Hulse 2001
<b>SALAMANDERS</b>			
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Rare (S1) in three counties.	Hulse 2001
Eastern Tiger Salamander	<i>Ambystoma tigrinum</i>	Gone / extirpated (SX) from PA.	Hulse 2001
<b>TURTLES</b>			
Blanding's Turtle	<i>Emydoidea blandingii</i>	Rare (S1), occasional individuals in northwestern-most corner of the state.	Hulse 2001

Questions or comments? Please contact:

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