



New Hampshire Vernal Pool Documentation Form

Purpose: This form is to provide a way to collect appropriate information necessary to document the presence of a vernal pool or potential vernal pool in New Hampshire. It is also appropriate to use this form to document the *absence* of certain physical and, especially, biological characteristics to describe a pool or depression within a wetland that may not meet the definition of a vernal pool.

I. Observer Contact information

Observer name	
Observer phone #:	
Observer email	
Observer Mailing address:	

II. Location and Owner Identification

Town:	
Property name (if applicable):	
Location Description/ Property street address:	
Vernal Pool Coordinates <i>Coordinates obtained by GPS or other means. Report in degrees minutes seconds or decimal degrees: Latitude 43.2164 Longitude -71.5192. Datum: Use NAD83 or WGS84 for all coordinates</i>	Latitude: Longitude:
Source of coordinates: (circle one): GPS unit, Google Maps/Google Earth, Topo map, other	Tax map and lot # (if known):
Is observation on public land? Yes / No	Landowner permission obtained? Yes / No
Landowner name (if known)	
Landowner address (if different than property address)	
Landowner phone or email	

Note: Provide a map that shows property and location of vernal pool (tax map/ USGS)

Vernal Pool Site Name: _____

Project affiliation

- None
- Harris Center/AVEO
- Town _____
- Consultant
- Other _____

III. Survey Information

Date of survey:		Visit # (for season):	1	2	3	4	___
Survey start time:	:	am /pm	Survey end time:	:	am /pm		
Air temperature (F):							

Weather/Other Comments: provide any information about precipitation, cloud cover, wind, humidity, ice cover, etc here:

IV. Vernal Pool Description

Photos: 1-3 photographs of vernal pool taken and provided with datasheet Yes / No

Pool characteristics

Vernal pool type (choose most appropriate description)

- Upland-isolated pool (not associated with a larger wetland)
- Wetland complex (pool within or associated with a larger wetland habitat, such as red maple swamp, marsh pond edge.
- Floodplain pool

Origin of pool (select one)

- Unknown
- Natural depression
- Natural, but altered
- Small pond / constructed pond
- Quarry/sand pit excavation
- Ditch along road or rut from vehicle
- Created wetland/ pool (such as for wetland mitigation purposes)
- Other: _____

Pool size (dimensions): _____ feet X _____ feet (Area of open water in the pool depression)

If round, measure diameter; if long and narrow, provide length and width dimensions.

(check one): Measured Paced Estimated Other: _____

How long does the vernal pool hold water? (Hydroperiod)

- Seasonal (drying out entirely in most years)
- Semi-permanent (drying partially in most years)
- Permanent (Typically maintains water)
- Unknown

Maximum water depth on survey date

- < 6 inches (ankle deep)
- 6 inches – 1 foot (shin deep)
- 1 - 2 feet (knee deep)
- 2 - 3 feet (hip deep)
- 3 - 4 feet (chest deep)
- > 4 feet

Pool Outlet: Did you observe water flowing out of the pool on this date? **Y / N**

Overstory/Shading of vernal pool depression

(Overstory is trees, shrubs, and associated limbs and leaves that block sunlight from penetrating the pool surface)

- Mostly shaded by trees (> 50%)
- Less shaded by trees (< 50%)
- Shaded only by vegetation **in** the pool (such as shrubs)

Vegetation in Pool (vernal pool depression)

Check (X) **Vegetation type and proportion of vegetation in the pool** (percent coverage) that can provide egg attachment or offer concealment to aquatic or developing larvae.

Vegetation type	Percent coverage of pool by vegetation in the pool		
	<10%	10-50%	>50%
Shrubs			
Emergent vegetation (Grasses, sedges, rushes, cattails)			
Submergent vegetation			

Are **dead branches and downed woody material** (branches/twigs) available in pool for egg attachment?
(Select one category) **None** **1 - 10** **greater than 10**

Pool substrate (select all that apply)

- Leaf litter
- Sand/gravel
- Muck
- Bedrock
- Other: _____



Disturbance to vernal pool observed (select all that apply)

Observe any disturbance to the pool (direct or indirect by siltation, for example)

- Dumping
- Ditching/draining
- Ruts from wheeled vehicles
- Runoff /siltation from human sources
- Other: _____
- None

Surrounding habitat (within 100 feet of the pool)

Check habitat type and select/circle appropriate percentage

- Forest (< 10%, 10-50%, > 50%)
- Open (shrublands, agriculture, grassland, etc.) (< 10%, 10-50%, > 50%)
- Wetlands (< 10%, 10-50%, > 50%)
- Open water (lakes/ponds, rivers/streams) (< 10%, 10-50%, > 50%)
- Residential (lawn, little amount of pavement/structures) (< 10%, 10-50%, > 50%)
- Industrial/Urban (mostly pavement and structures) (< 10%, 10-50%, > 50%)
- Paved Roads/driveways (< 10%, 10-50%, > 50%)
- Unpaved roads/driveways (< 10%, 10-50%, > 50%)

Describe any disturbance observed in the 100 foot area around the pool: _____

V. Survey for vernal pool fauna (amphibians and macroinvertebrates)

NOTE: Provide photographs when possible.

Species information - Primary Vernal Pool Indicators

Species observed	Adults			Egg masses (#)		Tadpoles, Salamander Larvae and Transforming Juveniles	
	Seen #	Courtship/ amplexus (Y/N)	Heard Y/N	Counted	Estimated	Tadpole/ Larvae estimated	#Transforming juveniles (#)
Wood frog							
Spotted salamander			NA				
Marbled salamander			NA				
Blue spotted/ Jefferson salamander			NA				
Mole salamander (unknown species)			NA				
Fairy shrimp		NA	NA	NA	NA	NA	NA

Record **other amphibian and reptile species** observed (such as spring peepers, etc.):

Species observed	Adults			Egg masses (#)		Tadpoles, Salamander Larvae and Transforming Juveniles	
	Seen #	Courtship/ amplexus (Y/N)	Heard Y/N	Counted)	Estimated	Tadpole/ Larvae estimated	#Transforming juveniles (#)

Was entire pool surveyed for egg masses? Yes/ No If Yes, what percent of the pool? _____

(If the entire pool was not surveyed, is any part of the pool on an adjacent property? (Y/N)

Sampling methods used during your survey (check all that apply):

- Visual search
- Audible detection (Recorded: : Yes / No)
- Dip net
- Trapping
- None (incidental observation)

Were **spermatophores** observed (see photo right) ? Yes / No

Were **fish** observed in the pool? Yes / No



Secondary vernal pool indicators - Invertebrates

During or after amphibian breeding season, there are other organisms whose presence or remains (larval cases, exuviae, or shells) indicate the presence of a vernal pool. These organisms are considered secondary vernal pool indicators.

The families or groups listed in the following table are among those **secondary vernal pool indicators** under the New Hampshire wetlands rules (Env-Wt 100). Additional species (family or groups) may qualify as secondary vernal pool indicators, hence blank spaces are provided to enter other species you observe.

Macroinvertebrate Common name of group	Common name of family members	Macroinvertebrate family	Observed? (X)	Photo?
Caddisfly larvae or cases	Unknown type	Unknown type		
	Northern caddisflies	Limnephilidae		
	Giant case makers	Phryganeidae		
	Tube or trumpet caddisflies	Polycentropodidae		
Clam shrimp or shells	Unknown type	Unknown type		
	Clam shrimp	Laevicaudata		
	Clam shrimp	Spinicaudata		
Fingernail clams or shells	Fingernail clams	Sphaeriidae		
Aquatic beetle larvae	Unknown type	Unknown type		
	Diving beetle	Dytiscidae		
	Whirligig beetle	Gyrinidae		
	Crawling water beetle	Haliplidae		
	Water scavenger beetle	Hydrophilidae		
Dragonfly larvae or exuviae	Unknown type	Unknown type		
	Darners	Aeshnidae		
	Skimmers	Libellulidae		
Damsel fly larvae or exuviae	Unknown type	Unknown type		
	Narrow-winged damselflies	Coenagrionidae		
	Spread-winged dragonflies	Lestidae		
True fly larvae or pupae	Unknown type	Unknown type		
	Mosquitoes	Culicidae		
	Phantom midges	Chaoboridae		
	Non-biting midges	Chironomidae		
Spire-shaped snails or shells	Unknown type	Unknown type		
	Tadpole snails or pouch snails	Physidae		
	Pond snails or limpets	Lymnaeidae		
Flat-spire snails or shells	Wheel snails, orb snail, or ram's horn snails	Planorbidae		
Other*:				
Other*:				

Completed datasheets can be submitted to NH Wildlife Sightings at: <http://nhwildlifesightings.unh.edu/> or mailed to NH Fish & Game Department, Nongame & Endangered Wildlife Program, 11 Hazen Drive, Concord NH 03301.

NH Vernal Pool Documentation Instructions

Sections:

- I. Observer Contact Information
 - II. Location and Owner Identification
 - III. Survey Information
 - IV. Vernal Pool Description
 - V. Survey for Vernal Pool Fauna (amphibians and macroinvertebrates)
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The **Vernal Pool Documentation Form** is used to record observations made during visits to a vernal pool or potential vernal pool. Your data can be submitted to NH Fish and Game, entered in the Wildlife Sightings online system, as well as used locally to inform your town's conservation efforts.

A minimum of two visits to a site are recommended -- one in the spring during breeding periods of amphibian indicator species (late March – early May) and a second visit a month or more later as the pool is drying. If you find a pool late in the season or are unable to make more than one visit, document the results of your survey at that time. Larval cases, exuviae, or shells of some secondary vernal pool indicators can be found when the pool is dry and used to document the presence of the indicator species and the vernal pool.

We encourage observers to fill in as many fields as they have information for. However, data may still be valuable if datasheets are only partially filled out. For example, if you didn't measure water depth or pool size but recorded the presence of fairy shrimp, this is valuable information.

I. Observer Contact Information

- Provide your **name** (as the observer) and contact information, including email address, in the appropriate spaces.

II. Location and Owner Identification

- In the **Location** section, provide basic information about the **location** of the vernal pool – town, street address (if possible), tax map and lot number of the property. If you are not the landowner, indicate if the landowner is known and whether permission was obtained.
- In addition to location descriptions and maps, location-specific data (such as a point location) is valuable. If a GPS unit is available, your location can be recorded as latitude and longitude in various formats (degrees, minutes, seconds, decimal degrees). The **datum of the GPS unit** should be set to NAD83, or record the datum (such as WGS 84). If a GPS unit is not available, latitude/longitude coordinates can be obtained from some online map services, such as Google Maps or Google Earth. If you have a smart phone with location capabilities enabled, record your location and indicate what phone and software was used to obtain the location. If you are taking photos with your smart phone (or some digital cameras), the location information may be captured with each photo you take. Indicate if that is the source of the location information.
- Vernal Pool Site Name – This is used for reference; use unique name for every pool identified. Exact pools previously identified on a different date should use same Site Name.
- If you are conducting the survey as part of a project sponsored by the town or another organization, provide that information. If the vernal pool has been assigned an ID number or name by another organization, enter that information as the site name.
- Provide a sketch/field map of the pool in addition to other maps to illustrate the pool location.
- Photos of the pool, surrounding habitat and animals found are encouraged. Indicate if photos are being provided or available.

III. Survey Information

- Provide the **date** of your visit and the **Survey Start Time** and **Survey End Time** of your search at the pool.
- Note whether this is your **first or a subsequent visit (Visit #)** documenting the resources of the pool this season. More than one visit to a pool is recommended to observe the pool from its high water to its drying stage.
- Record **weather** information such as **air temperature**, precipitation, humidity, cloud cover, wind, ice cover.

IV. Vernal Pool Description

Pool characteristics

- Identify the **vernal pool type**. Is the pool isolated and in an upland, part of a wetland complex or within a floodplain? Choose the best option.
- Identify the **origin of the pool**, if it is known. Options include “unknown” and “other” (with explanation).
- Determine **pool size** (area of open water) by measuring the pool, pacing the perimeter or estimating the size (at each visit). Indicate if size is estimated or measured. If you are using a GPS unit, you may be able to record your tracks around the pool (if that is possible), or you could take point measurements and connect them to determine size. The accuracy of your GPS may not be appropriate to measure smaller pools, so estimating the size would be good backup information for any GPS-based distance measurements you collect.
- Provide information about the **hydroperiod of the vernal pool**. If this is the first time you are visiting the pool, can select ‘unknown’ and report on the hydroperiod after your next visit to the pool.
- Measure and record the **maximum water depth** during each visit, according to the increments and descriptions provided.
- Identify whether or not there is an **outlet** to the pool, and if present, did you observe water flowing out of it during today’s visit?
- Identify to what extent the pool is *shaded* by **overstory** vegetation (more than 50% or less than 50%).
- Observe and estimate the type of **vegetation** (shrub, emergent, etc.) and proportion of the pool covered by vegetation. This is limited to the vegetation in the pool that can provide surfaces for egg attachment or conceal developing aquatic larvae.
- Observe and estimate the amount of **dead and downed woody material** (branches/twigs) available in pool for egg attachment? Select one category, none, 1-10, or greater than 10.
- Identify the **pool substrate** (choose more than one, as necessary).
- As you approach the pool, observe and record the type(s) of **surrounding habitat** and land use that surround the pool -- within 100 feet of the pool. Select more than one type as appropriate. For example, if half of the pool is within a forested area and the other half is within 100 feet of a residential lot with managed lawn select the 10-50% category for both of those habitat/land use types.
- Note if you observe any **disturbance to the pool**, or if no disturbance was observed.

V. Survey for Vernal Pool Fauna (amphibians and macroinvertebrates)

In addition to breeding amphibians that use vernal pools, you will be looking for aquatic macroinvertebrates.

Primary Vernal Pool Indicators – Amphibians and Fairy Shrimp

- During the breeding season you will be looking for and recording information about species that require the habitat of vernal pools as part of their life cycle. These species are referred to as **primary vernal pool indicators**. Record your observations about the type and number of these animals that you hear or see – whether in egg, larval or adult form – in the table.
- If you observe other amphibian and reptiles, record them in the table that follows the primary vernal pool indicators.
- If you hear chorusing wood frogs, you may obtain an audio recording and submit a digital audio file of the full chorus -- where calls are constant, continuous and overlapping -- as evidence of breeding.
- Indicate how much of the vernal pool was surveyed for egg masses. If you were not able to survey the entire pool, indicate if it is the result of the pool occupying an adjacent property when no landowner permission was obtained.
- Identify the sampling methods that you used during your survey.
- Indicate if you observed spermatophores (sperm packets deposited by male mole salamanders)
- Indicate if you observed any fish.

Secondary Vernal Pool Indicators – Invertebrates Only

There are additional macroinvertebrates, other than **fairy shrimp**, that use vernal pools. By definition in the NH Department of Environmental Services wetland rules, without the presence of a primary vernal pool indicator, at least **three** of these secondary vernal pool indicators need to be identified to consider a pool a “vernal pool.”

Note that some of these may also be identified outside of the amphibian breeding season, and even after a pool has dried. Document whatever you observe. You may find that additional resources may be needed to identify the macroinvertebrates you find. Collect a macroinvertebrate specimen in vernal pool water. Long term preservation may be done in 70% rubbing alcohol.

You may observe other species that are not listed in the table on the form but are in the vernal pools, and record them on the form.

- Record species observed, both primary and secondary vernal pool indicator species.
- Record the species and indicate whether what was observed was living larvae or “remnants” were present (shells or exuviae).

VI. Documentation - Photographic and Otherwise

As you observe the habitat pool characteristics and animal species, take photos to document your observations. Depending on when your survey(s) occur(s), you may observe empty shells (of fingernail clams and clam shrimp), exuviae (of damsel and dragonfly larvae), or larval cases (caddisfly) -- all of them document the vernal pool's wetter stage. Photographing these secondary invertebrate indicators is important and collecting them for further identification may be considered. As many amphibians and reptiles, and their egg and larval stages can be easily misidentified, it is important to provide photographs whenever possible.

Reporting Your Observations

You have collected valuable information. The data on this form may be entered directly into Wildlife Sightings, an online tool for capturing observations at vernal pool and of other wildlife (<http://nhwildlifesightings.unh.edu>). If you are not using **NH Wildlife Sightings**, submit data forms, maps, photos and associated information to the Nongame and Endangered Wildlife Program at the **N.H. Fish and Game Department** and your **town Conservation Commission**, if appropriate.

Thank you for taking the time identify these valuable natural resources of New Hampshire!

NH Fish and Game Department
11 Hazen Drive, Concord, NH
<http://www.wildlife.state.nh.us>

NH Department of Environmental Services - Wetlands Bureau
PO Box 95, 29 Hazen Drive, Concord, NH
<http://des.nh.gov>