

Maine Department of Inland Fisheries and Wildlife Significant Vernal Pool Data Sheet



A Community Based Approach to Mapping Vernal Pool Resources



These slides were compiled to provide assistance during field assessment of vernal pools for determination of Significant Wildlife Habitat. In the notes section of each slide you will find information pertaining to each of the images included in this presentation.



Significant Vernal Pool Data Collection Form



INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: _____

1. PRIMARY OBSERVER INFORMATION

Contact Information and credentials previously provided? No (complete all of section 1)
 Yes (only name and phone number required)

a. Contact Information

Name: _____ Company: _____
 Street: _____ City: _____ State: ____ Zip: _____
 Phone: _____ Email: _____

b. Credentials

■ Please check all that apply; Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required by nonprofessional observers. Label all photographs with the Observer, Pool Location, and Date of Image.

- | | |
|--|--|
| <input type="checkbox"/> Professional Herpetologist and/or Ecologist | <input type="checkbox"/> Trained Citizen Scientist |
| <input type="checkbox"/> Professional Wetland Scientist | <input type="checkbox"/> Self-informed Naturalist |
| <input type="checkbox"/> Professional Biologist (concentration: _____) | <input type="checkbox"/> Other: _____ |

■ Please indicate your professional education, training, or certification that qualifies you to conduct biological surveys of vernal pools: _____

The ideal times to visit vernal pools and count egg masses for wood frogs and the two species of salamanders in Maine differs by about two weeks. Each pool should be visited two times, first to record information and count wood frog egg masses, and then a second time, roughly two weeks later to ensure a complete count of salamander egg masses. For each visit, please count all egg masses for all species present, even if you counted the same masses during a previous visit.

a. Provide your name and contact information.

b. If you are a community member volunteering with a town-wide mapping project, check “Trained Citizen Scientist”.

For your credentials, indicate where you were trained, the date, and who provided the training.

If you have additional credentials they should be noted as well.



Significant Vernal Pool Data Collection Form



2. VERNAL POOL LOCATION INFORMATION

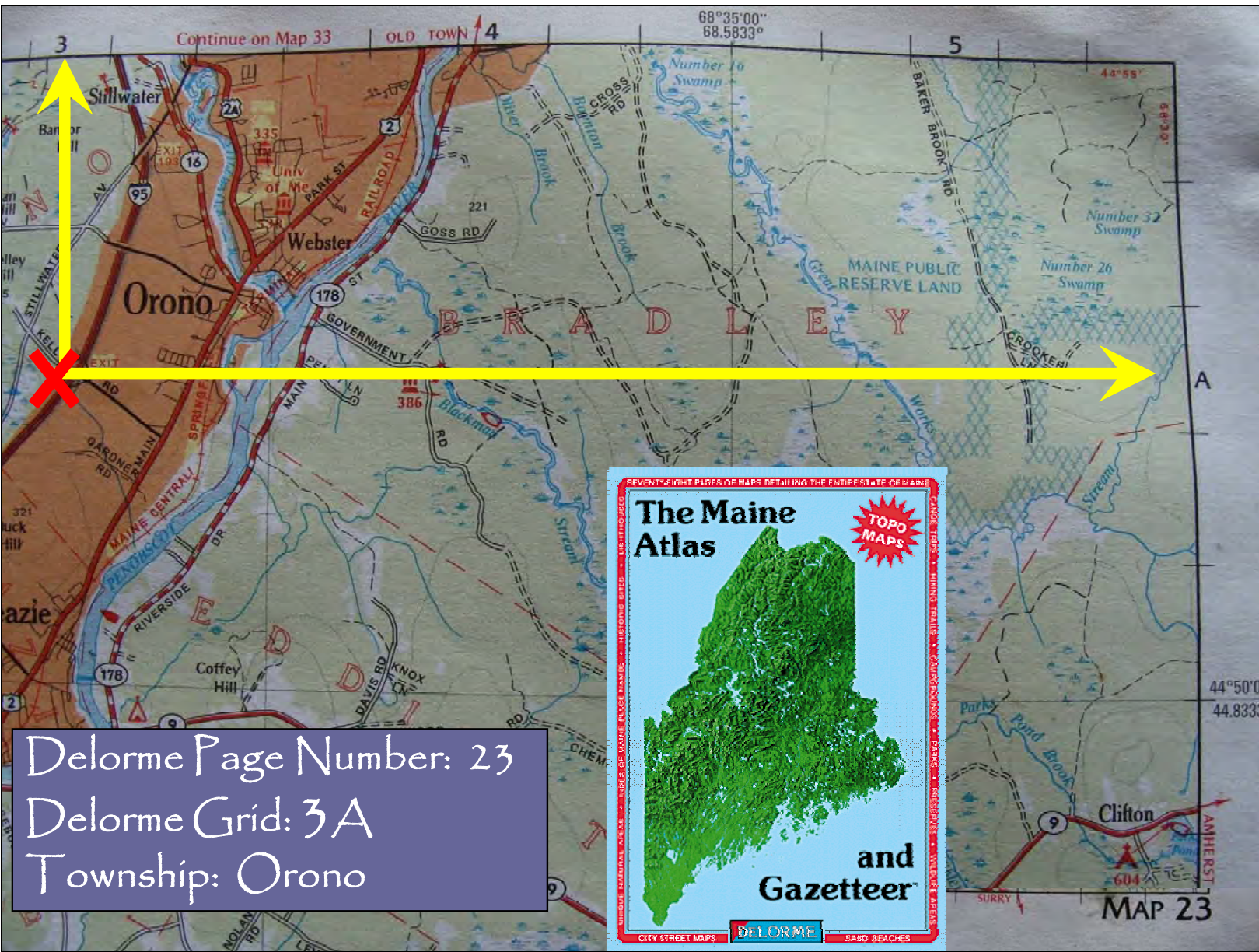
a. Location

DeLorme page and grid (e.g. 04E2): _____ Township: _____

Brief site directions to the pool (using mapped landmarks): _____

Vernal Pool Location Information

Include the town name and page number from the Delorme *Maine Atlas and Gazetteer* where your pool is located and the map grid coordinates. (See following slide for example).



Delorme Page Number: 23
 Delorme Grid: 3A
 Township: Orono

If a vernal pool was found at the location of the large red “X” on this map, then you would record the township of Orono, page number 23, the horizontal grid axis as 3, and the vertical grid axis as A.



Significant Vernal Pool Data Collection Form



b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

- USGS Topographic Map or USGS NWI Map (1:24,000 scale) with pool clearly marked.
- Large Scale Aerial Photograph (1:12,000 scale or better) with pool clearly marked.
- GPS Coordinates (complete section below).

GPS location of vernal pool (UTM, NAD83 preferred.)

Longitude/Easting: _____ Latitude/Northing: _____ Datum (e.g. NAD83): _____

Brand and model of GPS unit: _____

- Check one: The pool perimeter is delineated by multiple GPS points. (best option)
 - Include map or spreadsheet with coordinates.
- The above GPS point is at the center of the pool. (good option)
- The center of the pool is approximately _____ m /ft in the compass direction of _____ degrees from the above GPS point. (acceptable option)

Mapping Requirements

GPS coordinates and or two types of maps showing the location of the vernal pool must accompany each completed data form.

For town-wide mapping projects, community volunteers will be provided with an aerial photograph showing potential vernal pools, roads, and property boundary lines for use in locating pools. You may find it helpful to use the Delorme Gazetteer as well. GPS coordinates for each potential vernal pool will be marked on your aerial photograph. At the end of the field season, please turn in your aerial photographs with each data form.

If you have access to a GPS receiver, please carry it with you in the field. Should you happen upon unmapped pools, please either describe and mark the location to the best of your knowledge on a map, or record the coordinates using a GPS.



Significant Vernal Pool Data Collection Form



c. Landowner Contact Information

- Are you the landowner? Yes No If no, was landowner permission obtained for this survey? Yes No
- Does SVP Habitat (pool + 250') extend across abutting landowner parcel? Yes No Unknown
- Landowner's contact information (if known) Name: _____ Phone: _____
Street Address: _____ City: _____ State: _____ Zip: _____

Landowner Contact Information

Landowner consent must be granted in writing prior to any visits on private property. For town projects, volunteers will be provided with contact information for landowners who have permitted access to their properties. In some cases, landowners may wish to be notified prior to a field assessment, or may be interested in sharing the locations of what they believe to be vernal pools. Aerial photographs with property boundary lines and potential vernal pools will help in determining whether pools extend across abutting parcels.



Significant Vernal Pool Data Collection Form



3. VERNAL POOL SURVEY INFORMATION

a. Survey Date(s): _____



Wood Frog



Spotted Salamander



Blue-spotted Salamander



Survey Dates

Record the date of your visit.

The animals dependent upon vernal pools for long-term breeding success are often lumped together in a single category of “vernal pool breeding amphibians,” despite their variation in reproductive timing and strategy. Wood frogs are sometimes referred to as “explosive breeders,” meaning that each year there is an “explosion” of activity that lasts for as little as a few days when mating and egg-laying occurs. Wood frogs are short lived in comparison to spotted and blue-spotted salamanders and tend to reproduce despite unfavorable weather conditions. With a longer lifespan, the salamanders tend to be more particular about waiting for ideal travel conditions for migrating to breeding pools, and as a result may arrive on rainy nights over the course of a few weeks (may be as long as 6 weeks) in the spring, or during very dry years, they may not breed at all.

When surveying a vernal pool for egg masses, it is best to visit once, shortly after the peak breeding season for wood frogs, and then again no sooner than **two weeks later** once the salamanders have had a chance to arrive at the pool, mate and lay their eggs. You will be asked to visit each pool two times. During visit 1, the peak of wood frog breeding, you will record general information and count wood frog egg masses. Your second visit, a minimum of 2 weeks later will target peak salamander breeding. For each visit, please count all egg masses for all species present, even if you counted the same masses during a previous visit.



Significant Vernal Pool Data Collection Form



b. Wetland Habitat Characterization

■ Choose the best descriptor for the physical setting:

Isolated upland depression

Pool associated with larger wetland complex

Floodplain depression

Other: _____

Wetland Habitat Characterization

Isolated: All of the land surrounding the pool is upland and the pool is not permanently connected by surface water to other bodies of water or contained within a larger wetland complex.

Floodplain depression: Pool is located within floodplain of river system and is subject to periodic flooding, particularly in spring.

Larger wetland complex: Pool is part of a wetland such as a red maple, cedar, or spruce-fir swamp, shrub wetland, or marsh.

The following slides provide examples of each habitat type listed above.

Isolated Upland Depressions

Note, these depressions are not “isolated” ecologically and may have subsurface hydrologic connections to other wetlands.



Isolated Upland Depression

Pool within a discrete depression in an upland deciduous forest. This is an example of a classic vernal pool typical of southern Maine and southern New England. Note the easily distinguishable and well defined perimeter.



Isolated Upland Depression

Pool within an isolated depression located in an upland coniferous forest. Pools may have very irregular margins.



Isolated Upland Depression

Sedge dominated pool within an isolated depression in Acadia National Park.



Isolated Upland Depression

Sedge and fern dominated pool within an isolated depression in northern Maine.

Floodplain Depressions



Floodplain Depression

Expansive pool within a silver maple floodplain forest on the edge of a large river system. Pool depressions fill with water from over bank flooding from an adjacent river, as well as from snowmelt and rainfall.



Floodplain Depression

Over bank flooding of the Penobscot river floodplain inundates this string of pool depressions at spring high water.



Floodplain Depression

Pools within floodplain depressions also occur along the margins of smaller streams (Ducktrap Stream).

Part of a larger
wetland complex



Pool in Larger Wetland Complex

Dominated by sphagnum moss, this pool associated with this scrub shrub wetland.



Pool in Larger Wetland Complex

Vernal pools within forested wetland complexes can be difficult to identify because breeding habitat may consist of multiple small water-filled depressions in hummock and hollow micro-topography which is typical of forested wetlands. Lacking a single discrete pool with well-defined margins, amphibians may deposit egg masses in connected hollows.



Significant Vernal Pool Data Collection Form



■ Check all wetland types that best apply to this pool:

Forested swamp

Wet meadow

Slow stream

Shrub swamp

Shallow pond

Floodplain overflow

Peatland (fen or bog)

Abandoned beaver flowage

Headwater seepage

Emergent marsh

Active beaver flowage

Other: _____

Check all of the wetland types that occur within the breeding pool. The following slides provide visual examples of what each of the wetland types listed in this question might look like. However, the appearance of these wetland types may show a great deal of variability. For this reason, it is essential that you provide thorough photo documentation for each pool visited.



Deciduous Forested Swamp

This deciduous forested wetland is dominated by red maple and green ash with an herbaceous layer of royal fern, skunk cabbage, and cinnamon fern.



Coniferous Forested Swamp

This coniferous forested wetland is dominated by black spruce, with an understory of winterberry and high bush blueberry, an herbaceous layer consisting of skunk cabbage, and ground cover including sphagnum moss.



Shrub Swamp

This shrub swamp is dominated by sweet gale, steeple bush, winterberry and meadowsweet.



Peatland: Forested fen

Forested fens commonly include vernal pools particularly in eastern Maine. This red spruce fen supports a variety of sedges and a ground cover dominated by sphagnum and stepping stone mosses. Pools may also develop in the lags or motes at the edges of bogs.



Emergent Marsh

This emergent marsh is dominated by cattails. In Maine, emergent marshes may contain plants such as water plantain, sedges, spike-rushes, pond-lilies, pickerel weed, arrowheads, bulrushes, and cattails.



Wet Meadow

Wet meadows are typically dominated by grasses and sedges with herbaceous plants such as sensitive fern, soft rush, and blue flag iris.

Shallow Pond



Variability in shallow ponds is largely due to how long the pool contains standing water. Shallow ponds range in hydroperiod from very ephemeral pools, which only fill during rain events, to permanent ponds which contain water year round.



Beaver flowages commonly provide breeding habitat for a number of amphibian species including green frogs, bull frogs, spring peepers, and eastern newts. Spotted salamanders may breed successfully in a subset of beaver flowages. Abandoned flowages that dry each year often host breeding populations of wood frogs and spotted salamanders.



Active Beaver Flowage

Although beaver flowages do provide breeding habitat for a number of amphibian species, they do not meet the criteria outlined in Maine's legislative definition for a Significant Vernal Pool.



Slow Moving Stream

Depending upon the substrate on the stream bottom, amount of woody debris contained within the water column, and vegetation growing in the water and along its margins, slow moving streams may vary greatly in appearance.



Floodplain Overflow

This floodplain depression located on the shore of the Penobscot river filled during spring high water. With a canopy dominated by silver maple, this floodplain contains a dense herbaceous layer of sensitive fern.



Headwater Seepage

Within a young deciduous forest, this headwater seep, which is easily discernable by the extent of early spring vegetation, supplies water to the depression in the foreground, which is used as a breeding pool by wood frogs and spotted salamanders.

c. Vernal Pool Status Under the Natural Resources Protection Act (NRPA)

i. Natural Origin

- Select the pool's origin: Natural Natural-Modified Unnatural Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the wetland:

Natural

Natural-Modified

Unnatural



Isolated pool
surrounded by upland



Pool within forested wetland
that was historically dredged
for livestock drinking water



Remains of old gravel pit

Natural: A pool that occurs naturally on landscape where the hydrology has not been influenced by human activity.

Natural Modified: Pools that occur within natural wetlands that have been modified in some way, but still function as breeding pools.

Two examples include: an excavated area within a forested wetland where there may have been breeding habitat prior to modification, or in a wet area where road construction resulted in a change in water flow and pools were created.

Unnatural: Depressions or impoundments that were created for other purposes but are being used by vernal pool breeding amphibians. No matter how many egg masses may occur within an old gravel pit or farm pond, these bodies of water do not occur naturally on the landscape. Under the Significant Wildlife Habitat legislation, unnatural pools do not meet the criteria to be considered Significant Vernal Pools. However, note that the Army Corps of Engineers may regulate these if they are important amphibian areas.

Unknown: Pools of unknown origin. Please make notes about the site and take photographs to document the pool and surrounding habitat.

ii. Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

Permanent

Semi-permanent
(drying partially in all years and
completely in drought years)

Ephemeral
(drying out during the growing
season in most years)

Unknown



Permanent



Semi-permanent



Early Spring



Late Summer

Ephemeral

This question addresses whether or not the pool holds water at all times, or if it dries completely at some point during each year. **Permanent bodies** of water hold water year round and as a result are able to support species of predatory fish and amphibians, especially those with long larval stages (2-3 yrs). Because the bottom of permanent pools is never exposed to the air, the substrate in these water bodies tends to be peat, muck, or mud. **Semi-permanent pools** dry down partially every year and dry completely during years of drought. The substrate in semi-permanent pools tends to contain peat, muck, or mud only in the center and deepest area of the pool where water is retained the longest. **Ephemeral pools** typically contain water during the spring and early summer, but then dry completely later in the growing season. Because the pool bottom is exposed to the air and the substrate dries each year, the thick layers of organic material found at the bottom of more permanent water bodies do not accumulate in ephemeral pools.

Vernal pools occur along a gradient of ephemeral to semi-permanent bodies of water. However, permanent pools with fish and bull frogs and green frogs dramatically reduce the reproductive success of vernal pool species.

Bull frog and green frog tadpoles have a long development period which requires them to over winter in permanent bodies of water. Presence of large tadpoles (greater than an inch in length) is a good indication that the hydrology of the pool tends towards permanency.



Significant Vernal Pool Data Collection Form

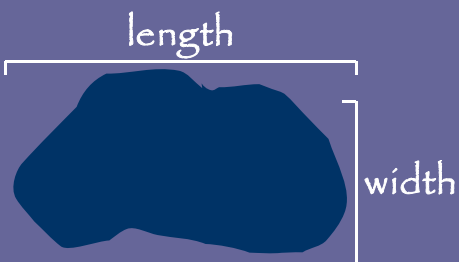


■ Maximum depth at survey: 0-12" (0-1 ft.) 12-36" (1-3 ft.) 36-60" (3-5 ft.) >60" (>5 ft.)

Estimate the depth in the deepest area of the pool.



■ Approximate size of pool (at spring highwater): Width: _____ m ft Length: _____ m ft



The length and width may be approximated by pacing on dry ground parallel to the length and width axes of the pool.

Maximum Depth at Survey

Estimate the approximate depth in the deepest area of the pool.

Approximate Size of Pool (at spring high water)

The approximate length and width of the pool will be used to calculate a rough estimate of the pool's area. If you know your pace, you can estimate these distances by walking on dry ground parallel to the length and width axes of the pool.

■ Predominate substrate:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck/mud) shallow or restricted to deepest portion

Organic matter (peat/muck/mud) deep and widespread

Mineral Soil

leaf litter bottom

Mineral Soil

sphagnum moss present

Organic Matter

peat/muck/mud shallow or restricted to deepest portion

Organic Matter

peat/muck/mud deep and widespread



Ephemeral

Short Hydroperiod

More Permanent

Long Hydroperiod

This question will provide information that will support your earlier determination of hydrology.

The substrate types listed on the data sheet occur along a continuum from the driest (shortest hydroperiod) which is characteristic of ephemeral pools, to the wettest (longest hydroperiod), typical of more permanent pools.

Mineral Soil: Tend to be the driest pools with shortest hydroperiods. These ephemeral pools are often associated with princess pine or ground pine (*Lycopodium spp.*) and upland mosses such as haircap moss which grow in drier forested sites. When you walk in these pools the pool bottom feels solid under your feet.

Mineral Soil with Sphagnum Moss: The presence of sphagnum moss indicates that the site is cool and wet throughout the growing season. Pools that contain sphagnum tend to have slightly longer hydroperiods.

Organic Matter: Semi-permanent and permanent pools hold some or all of their water throughout the year. Little oxygen and low acidity results in build up of peat, muck, or mud on the pool bottom. Semi-permanent pools tend to have their accumulation of organics thinly distributed, or restricted to the deepest portion of the pool, whereas permanent bodies of water have organic material that is deep and widespread. Walking through a pool that is dominated by an organic substrate may feel as though the pool is trying to swallow your feet (or maybe entire body!.....please bring a buddy along when conducting field assessments). Particulate matter that has settled to the bottom of more permanent pools is easily disturbed. Please minimize your impact and take extra precaution by walking slowly and carefully in pools with organic substrate.

The more permanent the body of water, the more sensitive it is to disturbance. Walking around semi-permanent and permanent pools stirs up sediment which resettles and coats the outside of egg masses. Careful navigation within pools that contain leaf litter or sphagnum and occur on hard packed mineral soil is not detrimental to the pool or egg masses present.

■ Nonwoody pool vegetation indicators (check all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) | <input type="checkbox"/> Sphagnum moss (anchored or suspended) |
| <input type="checkbox"/> Dry site ferns (e.g. spinulose wood ferns, lady fern, polypody fern) | <input type="checkbox"/> Wet site ferns (e.g. royal fern, cinnamon fern, interrupted fern) |
| <input type="checkbox"/> Moist site ferns (e.g. sensitive fern, marsh fern, New York fern) | <input type="checkbox"/> Wet site graminoids (e.g. grasses, sedges, cattails) |
| <input type="checkbox"/> Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle) | <input type="checkbox"/> Aquatic vascular spp. (e.g. pickerelweed, arrowhead) |
| | <input type="checkbox"/> Floating or submerged aquatics (e.g. water lilies, water shield, pond weeds, bladderwort) |

Previous
Year's Growth



New Growth



Cattail

Evidence of vegetation from the previous year's growing season may be used when new growth is not yet visible.

Previous Year's Growth



New Growth



Royal Fern

Check all non-woody pool vegetation present within the breeding pool. Ranking the predominance of each vegetation type and including observational notes is very helpful. If you are unsure of plant identification, you may photograph dominant plant species. Please label all photographs with the pool number and landowner's name.

Non-woody vegetation types listed on the data sheet are in order from species that occur in very dry sites such as most Lycopodium and haircap moss, to the vegetation types that occur in very wet sites and include floating or submerged aquatics such as water lilies, pond weeds, and bladderwort.

In the early spring when the new growth of some vegetation types is not yet visible, detective work may be necessary to find evidence of persistent vegetation remaining from the previous growing season.

The following slides provide visual examples of common plant species as described in the list above.

Terrestrial
Nonvascular
Species

Haircap Moss



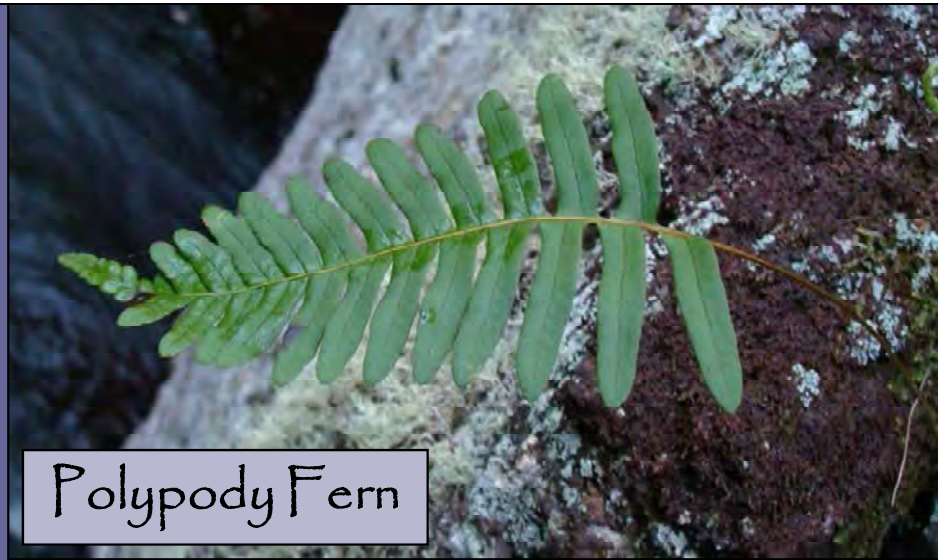
Lycopodium



Dry Site Ferns



Spinulose
Wood Fern



Polypody Fern



Lady Fern

Note: some of the Wood Ferns are more common in wetlands, especially crested shield-fern (*Dryopteris cristata*) and American shield-fern (*Dryopteris intermedia*)

Moist Site Ferns

New York Fern



Marsh
Fern



Sensitive Fern

These ferns commonly occur in hydric or wetland soils.

Moist to Wet Site Vascular Species



Swamp Candle



Jewel Weed



Blue Flag Iris



Skunk Cabbage

Note, skunk cabbage is an obligate wetland species and indicates a very wet site.



Sphagnum Moss

Wet Site Ferns



Wet Site Graminoids

Cattail



Carex sp.



Rice Cut Grass



Tussock Sedge



Blue-joint Reed Grass



Woolly Sedge



Aquatic Vascular Species



Pickerelweed

Arrowhead



Floating or Submerged Aquatic Species



Bladderwort



Water Lilies



Water Shield



Pond Weed



Significant Vernal Pool Data Collection Form



■ Faunal indicators (check all that apply):

- Fish (list species if known: _____) Bull frog or green frog tadpoles



Pools able to sustain populations of fish or breeding bull and green frogs do not provide suitable habitat for the successful reproduction of vernal pool species and are therefore excluded from pools providing Significant Wildlife Habitat. Do note that in exceptionally wet years, bull and green frogs MAY breed in a vernal pool only to dry out the following season.

Quietly approaching a pool with binoculars is the best way to spot fish swimming, or jumping at the surface of the water.

iii. Inlet/Outlet Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- No inlet or outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
 Ephemeral inlet or outlet Other or Unknown (explain): _____



No Inlet or Outlet

Ephemeral Inlet

Permanent Outlet

Bodies of water with permanent inlets or outlets may allow fish passage. Pools with permanent channels that connect them to other bodies of water do not meet the definition of a Significant Vernal Pool.

By walking the perimeter of a pool, it should be easy to determine whether there are any inlets or outlets. Ephemeral inlets and outlets may not dry until mid- to late summer. If there is water flowing in or out of the pool, establishing whether they are permanent or ephemeral may be difficult. Describe what you see and take photographs for later reference and confirmation.

Indicators of Vernal Pools that may be visible when pools are dry



Cases of
Caddis Fly Larvae



Fingernail Clams



Water Stained Leaves

During the drier months of the year when ephemeral and semi-permanent pools do not contain water, cases of caddis flies, fingernail clam shells, and water stained leaves may indicate the presence of a potential vernal pool.

i. Survey Date(s): _____



Although often lumped together as “vernal pool breeding species,” the reproductive timing for each species vary. For this reason, at least two visits per pool are necessary to adequately assess potential significance. NOTE: blue-spotted salamander timing is similar to spotted salamanders.

i. Survey Date(s): _____

Southern Maine

Ice Out

Northern Maine

First WF Chorus

Peak WF Chorus

First WF Egg Mass

SS Spermatophores

WF Egg Masses Complete

SS Egg Masses Complete

WF Egg Masses Hatch

SS Egg Masses Hatch

Early April

Late April

Mid-Late April

Early-Mid May

Late April-Early May

Mid May-Early June

In addition to being influenced by the site location of the breeding pool and annual weather patterns, the timing of vernal pool breeding activity varies by region of the state. You may use this timeline to estimate the timing for visits to your pools.



Significant Vernal Pool Data Collection Form



ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, method of verification, and confidence level for each life stage. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adults of Fairy Shrimp)						Tadpoles/Larvae					
	#		Method of Verification*		Confidence Level**		Method of Verification*		Confidence Level**			
Wood Frog												
Spotted Salamander												
Blue-spotted Salamander												
Fairy Shrimp												

*Method of verification: S = Seen, H = Handled, P = Photographed **Confidence level in observation: 1= <60%, 2= 60-95%, 3= >95%

Significant Vernal Pool status is determined based upon the abundance of indicator species, or upon the presence of rare, threatened or endangered species.

Abundance Criteria

Indicate whether the entire pool perimeter was surveyed for egg masses. Please do not stop counting egg masses once you have reached the threshold number for determining significance (see next slide). It is important to record (to the best of your ability) the number of egg masses present in a pool. (In some cases, a pool may span more than one property for which permission was not granted from all landowners.) For tips on egg mass identification and counting strategies, see the video on this web page).

For each indicator species, indicate the number of egg masses, tadpoles/larvae, and adults present. There are three cells under each category so that you can record numbers for multiple visits throughout the breeding season.

Options for your method of verification include: seen, handled, and photographed. Data collection forms filled out by nonprofessional observers including trained citizen scientists, should all be accompanied by photographic documentation of at least one representative photograph for each egg mass, tadpole/larvae, and adult observed at each pool. Photographic documentation will allow state officials to verify the occurrence of species at each pool.

Abundance Criteria



40 or more Wood Frog Egg Masses



20 or more Spotted Salamander Egg Masses



10 or more Blue Spotted Egg Masses



Presence of Fairy Shrimp

Above is one egg mass (containing multiple eggs). You are counting *egg masses*, not individual eggs (see exception on video for pure blue spot populations)

In order for a breeding site to be considered a Significant Vernal Pool, it must contain at least ONE of the following:

40 or more wood frog egg masses

20 or more spotted salamander egg masses

10 or more blue Spotted egg masses

Presence of fairy shrimp

Pools that meet the significance criteria are likely to contain higher numbers of egg masses than the threshold values listed above. To the best of your ability, please provide as accurate a count as possible of the egg masses present (see video clip for egg mass counting strategies).



Significant Vernal Pool Data Collection Form



iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes above, indicate which species were targeted: _____
- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations must be accompanied by a Rare Animal Form (available from MDIFW) and photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*				CL**	SPECIES	Method of Verification*				CL**
	V	P	H	S			V	P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Method of verification: V = Vouchered, P = Photographed, H = Handled, S = Seen

**CL - Confidence level in observation: 1= <60%, 2= 60-95%, 3= >95%

Rarity Criteria

Documented presence of vernal pool use by state listed rare, threatened, or endangered species meets the rarity criteria for vernal pool significance.

Blanding's, spotted, and wood turtles, ribbon snakes, and the ringed boghaunter dragonfly are all state -listed species that have been documented to use vernal pools. Most of these species occur in southern Maine and use vernal pools later in the season after amphibian egg laying is complete . This timing means that it is unlikely you will encounter these species during amphibian egg mass assessments.

Trained volunteers participating in town-wide mapping projects will not be conducting targeted surveys for state -listed species, however, if you do happen upon one of these species, it is important to record the sighting and attempt to photograph the individual(s).

Rarity Criteria



Ringed Boghaunter Dragonfly



Spotted Turtle



Ribbon Snake



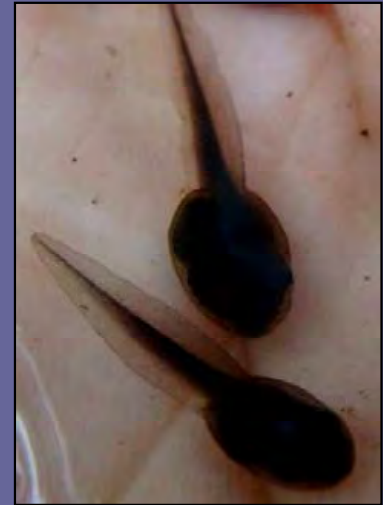
Blanding's Turtle



Wood Turtle

The state-listed species in Maine tend to most often be found in and around vernal pools during the summer months and are not likely to be present during spring time field assessments.

Photo Documentation for each Potential Vernal Pool visited



At least one photograph of each adult, egg mass, or larvae for each species present



Overview of pool

Photographic documentation will be used to verify the observations recorded on each data form. Data forms filled out by trained volunteers **MUST** be accompanied by photographs for species identification and habitat verification.

Towns are not able to accept data from citizen scientists without photo-documentation. If you do not have access to a digital camera, please try to borrow one, or team up with a volunteer that has access to a camera.

Include at least one photograph of each adult, egg mass or larvae for each species present. This information will be used to confirm identification for species listed on the data form.

An overview photograph will document the vegetation present and quality of habitat within the pool.

Photo Documentation for each Potential Vernal Pool visited

Dominant Substrate

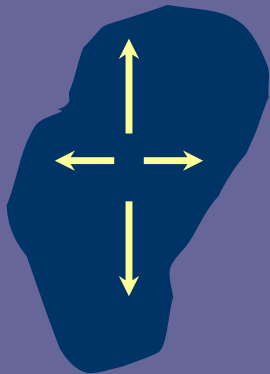


Please include at least one photograph showing the dominant substrate on the pool bottom.

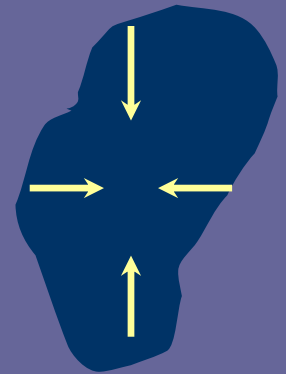
Photo Documentation for each Potential Vernal Pool visited

Option 1: photograph from
pool center looking out

Option 2: photograph from
perimeter of pool looking across



Four photos to document the
habitat surrounding each pool



to the north



to the east



to the south



to the west

If the pool has a solid bottom (ephemeral in nature with a mineral soil substrate), and you are wading into the pool to count egg masses, you can stand in the middle and take four photographs in each direction to document the surrounding habitat. If you prefer to remain on shore, a second option is to photograph the opposite shore in four locations as you walk around the pool's perimeter.

Photo Documentation for each Potential Vernal Pool visited

PVP with no Evidence of Vernal Pool Species



to the east



to the south



to the west



to the north

pool overview

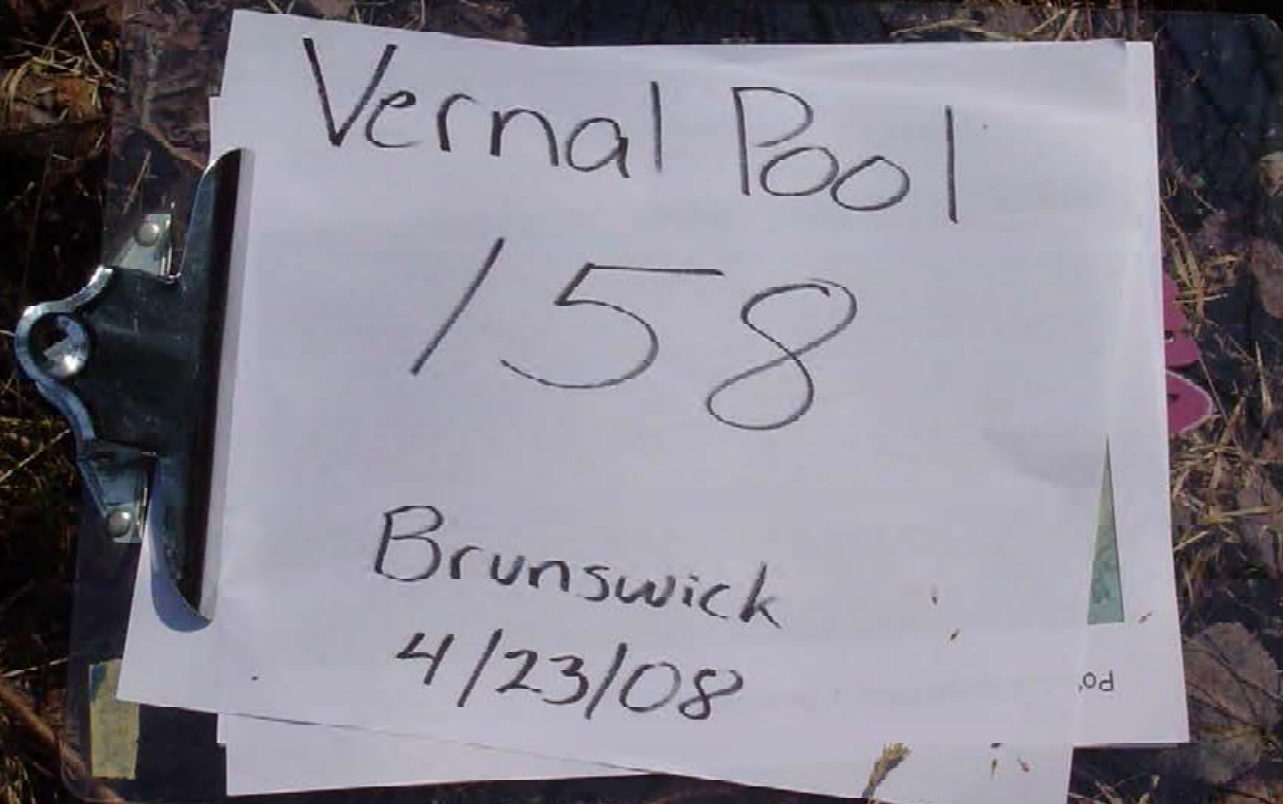


substrate obscured by sediment in water



If you arrive at the location of a potential vernal pool that is marked on the map, and it is either not a pool at all, or is a small body of water but does not contain evidence of fairy shrimp or vernal pool breeding amphibians (adults, spermatophores, egg masses, or tadpoles), please document your observations with photographs of the site, surrounding habitat, and dominant substrate. If you cannot find a mapped potential vernal pool, please note your attempt on a data form and seek assistance.

Tips for Photo-documentation



Photograph the PVP identification number written on a piece of paper prior to documenting site with required photographs

If you plan to conduct field assessments at multiple potential vernal pools in one day, you may find it useful to take a photograph of the identification number of each PVP prior to photographing the pool, surrounding habitat, substrate, and examples of egg masses present. This simple organizational technique will save you time and potential confusion when photographs are printed or downloaded.

Tips for Photo-documentation

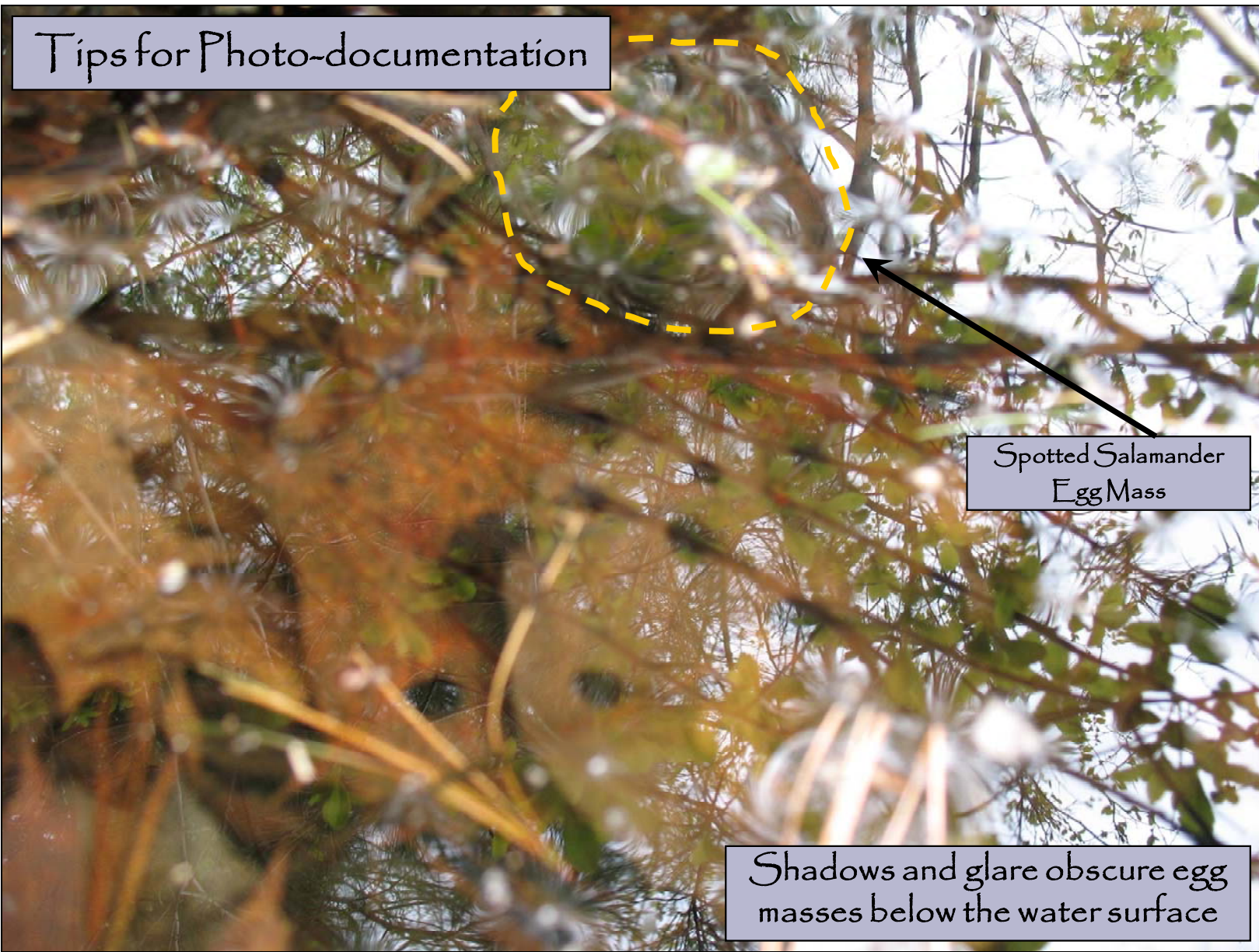
The thick outer coating of jelly membrane indicates that this egg mass was laid by a spotted salamander



You do not have to be a professional photographer to effectively document egg mass presence.

Clear, well-focused images are preferred, but as you can see in this example, if identifying characteristics are discernable, low quality images may still be useful for documentation.

Tips for Photo-documentation



Spotted Salamander
Egg Mass

Shadows and glare obscure egg
masses below the water surface

When possible, avoid photographing egg masses in dappled light where shadows and glare obscure egg masses below the water surface. Using your body, or a large object to create a complete shadow to eliminate glare may in some instances prove effective.

Tips for Photo-documentation



wood frog egg mass below water surface



wood frog egg mass at water surface

Photographs of egg masses show greater detail if they are gently raised to the water surface.

You will find that it is often possible to gently lift egg masses to the surface of the water without removing them from their attachment site. **BE SURE YOUR HANDS ARE FREE OF INSECT REPELLENT AND SUN SCREEN!!!!**

Tips for Photo-documentation



Please do not remove egg masses
from their attachment sites

Returning egg masses attached to vegetation to same location and depth in the water column is very difficult. Please do not remove egg masses from their attachment sites.

Labeling Photos

for each Potential Vernal Pool visited

sample computer file name for digital images

PVP 47 Perry 2009 Orono

examples of image file names

 PVP 44 SS egg mass - 1st visit.JPG
 PVP 44 looking east from pool center - 1st visit.JPG
 PVP 44 looking north from pool center - 1st visit.JPG
 PVP 44 looking south from pool center - 1st visit.JPG
 PVP 44 looking west from pool center - 1st visit.JPG
 PVP 44 overview of pool - 1st visit.JPG
 PVP 44 predominant substrate - 1st visit.jpg
 PVP 44 disintegrating WF egg mass - 1st visit.JPG
 PVP 44 overview of pool - 2nd visit.JPG
 PVP 44 WF tadpoles - 2nd visit.JPG
 PVP 44 clear SS egg mass - 2nd visit.JPG
 PVP 44 cloudy SS egg mass - 2nd visit.JPG

For each potential vernal pool that is visited, please include all images within a computer file folder with a name that reflects:

1. the pool identification number
2. the observer's last name
3. the year
4. the name of the town

In order to assure an accurate assessment of egg masses and the presence/absence of fairy shrimp, each pool should be visited two times during the spring time breeding season. Photos for each of the two visits may be included within the same folder.

Once digital images are downloaded onto a computer, they can be re-named to reflect site specific descriptive information. Please include title information for each pool that reflects:

- the pool identification number
- the subject of the photograph (substrate, pool overview, surrounding habitat, egg mass species, etc.)
- whether the photograph was taken on the first or second visit

If you do not have a digital camera, and are not able to borrow one, photographs may be labeled using the same technique and submitted in a separate envelop for each pool visited.



Significant Vernal Pool Data Collection Form



e. General Comments and/or Observations of Other Wildlife Species:

4. OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

Signature _____ Date _____

All submissions and supporting documents will be retained by the Maine Department of Inland Fisheries and Wildlife. Information submitted on this form and accompanying documents is part of the public record.

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
 Attn: Vernal Pools
 650 State Street, Bangor, ME 04401
 Tara.King@maine.gov



Please provide additional site-specific comments about each pool as well as observations made regarding evidence of pool use by other wildlife species.

Volunteers assisting in town-wide mapping projects should return completed data forms to the contact person in the town office.