VERNAL POOL PROTOCOL

In order for the NJ Dept. of Environmental Protection's Land Use Regulation Program to utilize your data to certify a vernal habitat, and thereby protect it, there are four possible requirements that must be satisfied. They all pertain to the definition of a vernal pool.

1) **The area occurs in a defined basin depression without a permanent flowing outlet.** The area must be a depression in the surrounding ground, confined by areas of higher upland or wetland ground. It must not have a permanently flowing outlet but may have a periodic outlet through which water flows during periods of heavy rain events, flooding or seasonally high water tables.

   Best evidence: Photographs, taken from several angles showing the area's isolation from any permanent water body.

2) **The pool features evidence of breeding by one or more species of fauna adapted to reproduce in ephemeral aquatic conditions.** These species are divided into obligate breeders (for which vernal habitats are the only type of habitat used for breeding) and facultative species (those using a vernal habitat for various activities but which can also use other types of habitats). SEE ATTACHED LIST OF OBLIGATE AND FACULTATIVE SPECIES

   You only need to find one obligate breeding species. Refer to your Field Guide (*Salamanders, Frogs and Turtles of New Jersey's Vernal Pools a Field Guide*) for pictures.

   The following constitute evidence of breeding :

   a. Breeding adults of an obligate species
      (1) Frog breeding chorus – Refer to your CD.
      (2) Mated pairs of frogs
      (3) Salamander courting individuals
   b. Two or more egg masses of any obligate species – Refer to your Field Guide for pictures.
   c. Frog tadpoles – Refer to your Field Guide for pictures.
   d. Mole salamander larvae (in your Field Guide); and/or
   e. Transforming juveniles – Refer to your Field Guide for pictures:
      (1) Wood frogs with tail stubs evident; and/or
      (2) Salamanders with gill remnants evident

   Best evidence: Photograph. Other acceptable evidence: videotape recording, taped audio recording, or detailed written description preferably with field notes and a drawing of any animal.

   If criteria 1) and 2) (one obligate species) are met, the pool can be certified and your survey can be considered complete.

Facultative species: You need to find at least two facultative species. Evidence of presence is all that is required but you must also document requirements 3) and 4) below. To document any breeding, use the same list above as for obligate species.

3) **The area maintains ponded water for at least two continuous months between March and September of a normal rainfall year.**

Best evidence: Logbook containing a record of observations, made approximately weekly, of the presence or absence of standing water. For each date, record the approximate depth and dimensions of the area covered by standing water. You can also submit, instead, a list of one or more amphibian or reptile species that were observed using the area for breeding purposes (including dates).

4) **The pool is free of fish throughout the year, or dries up at some time during the year.**

Best evidence: Photograph and/or statement of direct observation, including date of observation, showing the area to be dried up.

To document the location of a new vernal pool (not on the database already), please try to provide the following:

1) GPS coordinates; or
2) An aerial photograph where the vernal habitat is clearly visible, with the exact site pinpointed on the photo; and
3) A detailed description of features in the immediate vicinity of the vernal habitat.

For additional information on the Land Use Regulation Program Protocol for Freshwater Wetlands Vernal Habitat, or to read the reasoning behind these requirements, go to www.nj.gov/dep/landuse/vernal.

Two other resources:
Frog and Salamander Guide: http://www.npwrc.usgs.gov/narcam/idguide/index.htm
Tadpole Guide: http://www.pwrc.usgs.gov/tadpole

Obligate and Facultative Vernal Pool Breeding Amphibians:
(All species may be found in South Jersey except those marked "North Jersey")

Obligate Vernal Pool Breeding Amphibians:

Eastern tiger salamander (*Ambystoma t. tigrinum*) Endangered
Marbled salamander (*A. opacum*) Special Concern
Spotted salamander (*A. maculatum*)
Jefferson salamander (*A. jeffersonianum*) Special Concern – North Jersey
Blue-spotted salamander (*A. laterale*) Endangered – North Jersey
Wood frog (*Rana sylvatica*)
Eastern spadefoot toad (*Scaphiopus holbrookii*)

Facultative Vernal Pool Breeding Amphibians:

Green frog (*Rana clamitans melanota*)
Bullfrog (*R. catesbiana*)
Pickerel frog (*R. palustris*)
Southern leopard frog (*R. utricularia*)
Carpenter frog (*R.virgatipes*) Special Concern
Northern cricket frog (*Acris crepitans*)
Northern spring peeper (*Psuedacris crucifer*)
New Jersey chorus frog (*P. triseriata kalmii*)
Upland chorus frog (*P. triseriata ferarium*) – North Jersey
Northern gray treefrog (*Hyla versicolor*)
Southern gray treefrog (*H. chrysocelis*) Endangered
Pine Barrens treefrog (*H. andersonii*) Threatened
Four-toed salamander (*Hemidactylium scutatum*)
Long-tailed salamander (*Eurycea l. longicauda*) Threatened – North Jersey
American toad (*Bufo americanus*) – North Jersey
Fowler's Toad (*B. fowlerii*) Special Concern

In addition to amphibians, there are several reptiles that inhabit vernal pools on a seasonal basis, primarily to eat the eggs and larvae of amphibians:
Wood turtle (*Glyptemys insculpta*) Threatened
Spotted turtle (*Clemmys guttata*) Special Concern
Mud turtle (*Kinosternon subrubrum*)
Eastern painted turtle (*Chrysemys picta picta*)
Common snapping turtle (*Chelydra serpentina serpentina*)

(Definitions for Endangered, Threatened and Special Concern)

Endangered: Applies to a species whose prospects for survival within the state are in immediate danger due to one or several factors, such as loss or degradation of habitat, over-exploitation, predation, competition, disease or environmental pollution, etc. An endangered species likely requires immediate action to avoid extinction within NJ.

Threatened: Applies to species that may become Endangered if conditions surrounding it begin to or continue to deteriorate. Thus, a Threatened species is one that is already vulnerable as a result of, for example, small population size, restricted range, narrow habitat affinities, significant population decline, etc.

Species of Special Concern: Applies to species that warrant special attention because of some evidence of decline, inherent vulnerability to environmental deterioration, or habitat modification that would result in their becoming a Threatened species. This category would also be applied to species that meet the foregoing criteria and for which there is little understanding of their current population status in the state.