

Developing an Approach for Identifying, Mapping and Assessing Vernal Pools in MI

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Vernal Pool Working Definition/Description:

Vernal pools are naturally occurring, small (typically less than 1 ha/2.5 acres), temporarily-flooded wetlands found in depressions primarily in forested settings throughout Michigan. Vernal pools also can occur in grasslands, thickets, and other natural communities (e.g., sand dunes). As confined-basin depressions, they lack continuously flowing inlets or outlets, and they have no continuous surface-water connection with permanently flooded water bodies. Vernal pools may be surrounded by uplands or may be connected to other wetlands or part of larger wetland complexes as long as those wetlands are also confined and not continuously connected to permanent water bodies. In most years, vernal pools are filled with water in the spring, and dry up or significantly draw down by summer or early fall, exposing all or most (i.e., >50%) of the pool bottom and retaining only a fraction of the peak volume. Vernal pools typically fill with water in the spring but also can fill in the fall or winter, and generally contain water for a minimum of two months in the spring in most years. Because vernal pools dry out every year or on a regular basis, vernal pools lack permanent fish populations.

Vernal pools are generally shallow ponds during the wet season that later become exposed basins during dry periods. Vegetation in vernal pools may vary seasonally and/or annually and may be dominated by woody species (trees and shrubs), marsh or wet meadow species, aquatic species, or may be devoid of vegetation. Substrates are comprised of hydric soils and often covered by leaf litter. Vernal pools are important for wildlife because they provide essential habitat for many animals, including amphibian and invertebrate species that depend on them for part or all of their life cycle.

Vernal Pool Required Attributes:

Origin	Naturally occurring
Size	Small (typically less than 2.5 ac/1 ha)
Geomorphology	Confined basin/depression with no continuously flowing surface water inlet or outlet; no continuous surface water connection with permanently flooded water bodies. Vernal pools can be connected to other wetlands or part of larger wetland complexes as long as those wetlands are also confined and not continuously connected to permanent water bodies.
Hydrology	Temporarily flooded; fluctuating water regime with alternating periods of flooding and drying; typically filling with water in spring and drying down or significantly drawn down in summer in most years; also can fill in the fall or winter but must have water in the spring; typically hold water for minimum of two months in most years. Some vernal pools are semi-permanent, and may only dry in some years (e.g., 3 out of every 5 years).
Substrate	Hydric soil
Biological Community	Fishless or free of a permanent fish population. Evidence of breeding (i.e., egg masses, larvae, breeding/mating adults) by vernal pool indicator species is not required for a vernal pool, but indicates a vernal pool if present. Vernal pool indicator species in Michigan include the Wood Frog, Spotted Salamander, Blue-spotted Salamander, and fairy shrimp.