
Photograph by Rebecca Chalmers

WETLAND FACT SHEET

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Topic: Vernal Pools

April 2008

WHAT IS A VERNAL POOL?

Vernal pools, also called seasonal or ephemeral pools, are small, temporary water bodies that do not contain water long enough to sustain breeding fish populations. These depressions in the landscape collect water from precipitation, runoff, and groundwater and lose water as the growing season progresses by evaporation and transpiration. Vernal pools are significant wetlands for their importance as breeding habitat for amphibians and aquatic invertebrates. They must remain wet long enough to allow for maturation of amphibian larvae into the terrestrial (land-based) stage and for invertebrate larvae to hatch and reproduce before the pool dries.

Vernal pools are unique habitats that contain specialized invertebrates and amphibians that depend on these ephemeral pools for the aquatic portion of their life cycle. Species that typically breed only in vernal pools include fairy shrimp, wood frogs, Jefferson's salamanders, blue-spotted salamanders, and spotted salamanders. Species that may be found feeding in vernal pools or that breed opportunistically in vernal pools and other, more permanent, bodies of water include fingernail clams, caddisflies, damselflies, dragonflies, many species of aquatic beetles, American bullfrogs, green frogs, northern leopard frogs, pickerel frogs, gray treefrogs, spring peepers, American toads, Fowler's toads, four-toed salamanders, and eastern newts.

VERNAL POOL PROTECTION

The easiest time to identify vernal pools is in the spring, after snow melt, when the pools are full and obligate breeding vernal pool species are present as breeding adults or nymphs. Evidence of a vernal pool can be identified year-round, however, by other features such landscape position and evidence of aquatic invertebrates such as fingernail clam shells, dragonfly and damselfly exuvia (shed exoskeletons), or caddisfly cases (Kenney and Burne 2001). The pool bottoms, even after they dry out can also be distinct; evidence of water can be seen as water stains on tree trunks and debris, wetland plants can be seen even though there is no standing water, and generally sparse vegetation in comparison with surrounding habitat.

Protection of pool vegetation and hydrology is essential to preserve the wildlife function of a vernal pool, as is maintaining a naturally vegetated buffer around the pool. Trees and woody debris in and around the pool provide shading that prevents water from evaporating before the eggs mature, as well as amphibian habitat for feeding, overwintering, and protection from predators. Studies have shown that core habitat for many amphibian species breeding in vernal pools can be over nine hundred feet from the breeding pool (Semlitsch and Skelly 2007) during terrestrial stages, making protection of upland feeding and overwintering sites an essential element to the survival of vernal pool species.

Each vernal pool, while often isolated, is important to the species that are dependent on it. Many invertebrates never leave a pool and are lost if the pool is filled in; other species come back to the same pool year after year to breed. Therefore, the loss of one vernal pool can have significant impact on a local population of amphibians

and invertebrates. Intact forested areas that contain several pools in close enough proximity for amphibian migration are those areas that should be targeted for extra protection. These landscape conditions may help ensure a sustainable population that can withstand unfavorable periods when problems such as predators or early drying prevent successful egg maturation.

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