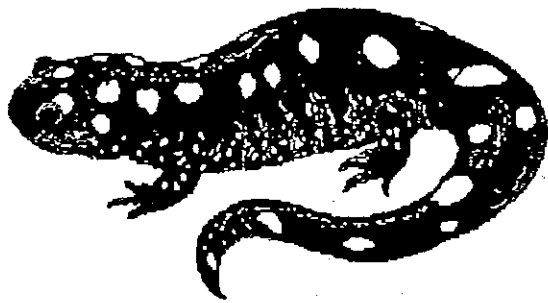


# Preserving Sudbury's Natural Heritage

## *Vernal Pools*



Sudbury Conservation Commission  
Sudbury, Massachusetts 01776

### ◆ *What is a Vernal Pool?*

A vernal pool is a unique and increasingly rare type of wetland habitat. It is a *temporary* pond that holds water for a minimum of two continuous months in the spring/summer, and sometimes in the fall as well. For the rest of the year the "pool" may be completely dry, with little to indicate its special wetland significance other than a floor of dark stained leaves and perhaps some herbaceous vegetation.

Vernal pools form when a confined depression fills with water from snowmelt, stormwater runoff, or high ground water inundation. They may form anywhere including in the middle of upland woods, in agricultural fields, adjacent to other wetlands, or even in depressions abutting roadways.

Vernal pools take on a wide variety of shapes and sizes. One may be no larger than a child's wading pool and less than a foot deep. Another may appear to be a full size pond reaching several feet in depth. Some are long narrow ditches. But in general vernal pools tend to be small and unobtrusive ponding areas.

*Their small size and temporary nature explain why these vital wetland wildlife habitats are rapidly disappearing.* They are extremely sensitive to small changes in local tree canopy and vegetative cover, storm water runoff, and nearby development. In fact many vernal pools are plowed under or paved over without anyone ever realizing they were there.

### ◆ *Why are Vernal Pools Important?*

Vernal pools provide vital habitat for a wide variety of wildlife — an amazing assortment of birds (including migrating waterfowl), mammals, reptiles, amphibians, and invertebrates. Migrating ducks, geese, herons, and other waterfowl depend on these pools during their semiannual migrations for rest and feeding. For deer, rabbits, and other mammals vernal pools offer water and edible vegetation.

Most importantly, *vernal pools furnish irreplaceable breeding space for a number of Massachusetts' threatened and endangered species.* Some species, such as the wood frog (*Rana sylvatica*) and all Massachusetts' mole salamander species (genus *Ambystoma*) breed exclusively in vernal pools. In a flurry of activity that usually lasts at most a few weeks these amphibians mate in the pools and lay their eggs there. Several weeks later the young larvae hatch and race to mature in the pools before they dry up by mid summer.

Many of these vernal pool creatures are surprisingly beautiful. The spotted salamander (*Ambystoma maculatum*, shown on the cover), for example, is a chunky amphibian that reaches lengths of eight inches. Its smooth glossy jet-black skin covered with big bright yellow polka dots makes it appear as though it was designed by an elementary school art class.

Unlike most animals vernal pool species will breed only in their ancestral pool, returning to the same place year after year to mate and lay eggs. They will not move on to

breed elsewhere if their birth pool is destroyed. Consequently, the destruction of a single vernal pool can mean the total extinction of local populations of these animals.

Obviously each and every vernal pool is important. There are no known strategies for successfully replicating vernal pools to replace those that are lost.

*If there is a vernal pool on your property you have a wonderful opportunity to help preserve a vital part of Sudbury's natural heritage and to enjoy a spectacular mini-wildlife refuge in your own yard.* Your benign stewardship of this important wetland habitat will contribute greatly to the Town's conservation goals. (See below: *What Can I Do to Care for a Vernal Pool on My Property?*)

### ◆ *What Legal Protection Exists for Vernal Pools?*

Vernal pools are protected legally by federal regulation, state law, and by Sudbury's Wetlands Administration Bylaw. All of these laws prohibit the destruction of vernal pools, including partial discharging, dredging, or filling. Some also regulate work within 100 feet of a vernal pool.

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers has jurisdiction over wetlands development under section 404 of the Federal Clean Water Act. No discharging (including stormwater runoff), filling, or dredging may take place in a vernal pool without a permit from the Army Corps of Engineers. In Massachusetts the Army Corps will as a matter of course deny a permit for work

involving any vernal pool certified by the Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (hereafter denoted as a *certified* vernal pool). The base fine for violating federal permit regulations is \$10,000.

Similarly the Massachusetts State Water Quality Standards (314 CMR 4) lists certified vernal pools as Class-B "outstanding resource waters." Those standards prohibit any discharge into, or alteration of the water quality of, certified vernal pools.

The Massachusetts Wetland Protection Act, which is administered locally by the Sudbury Conservation Commission, does not recognize vernal pools as a wetland resource in themselves. It does, however, protect vernal pools that fall within jurisdictional wetlands as defined by the Act. In these instances the Act does give special protection to vernal pools that are either certified, or for which credible evidence that could lead to certification is presented at a public hearing under the Act.

Sudbury's Wetlands Administration Bylaw recognizes vernal pools as a vital wetland resource in their own. It extends very strong protection to all vernal pools regardless of whether they have been certified by the Natural Heritage and Endangered Species Program. The Bylaw defines a vernal pool as:

...any confined basin or depression not occurring in existing lawns, gardens, landscaped areas, or driveways which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer,

contains at least 200 cubic feet of water at some time during most years, is free of adult predatory fish populations, and provides essential breeding and rearing habitat functions for amphibian, reptile, or other vernal pool community species.

Several features of the Bylaw's protection of vernal pools are worth noting. First, *the Bylaw presumes that any topographic feature matching the above description is a vernal pool.* This presumption is reasonable because field work in Sudbury has shown that 99% of all such features in Town actually provide vernal pool habitat.

Nonetheless an applicant can overcome the presumption of vernal pool status by presenting evidence to the Sudbury Conservation Commission which in the Commission's view demonstrates that the basin does not serve as a vernal pool. (Procedures for overcoming this presumption are described in the Bylaw's regulations.)

Second *the Bylaw imposes a 100-foot buffer surrounding all vernal pools.* All proposed work within 100 feet of a vernal pool must be reviewed by the Conservation Commission. Depending on the local topography and hydrology, the quality of the vernal pool, the species inhabiting it, and the characteristics of proposed work the Conservation Commission can require that all or part of the 100-foot buffer remain undisturbed. (*The Bylaw contains special exemptions when the proposed project involves residences that existed prior to July 27, 1994.*)

Third, the Bylaw provides for a \$100 per day fine for each violation of its provisions and regulations.

Copies of Sudbury's Wetlands Administration Bylaw and corresponding regulations can be obtained from the Conservation Commission.

### ◆ *How Do I Determine if My Project Involves a Vernal Pool?*

The simplest and most direct action is to contact the Sudbury Conservation Commission and request a site visit. The Conservation Commission will be happy to walk the area with you and informally discuss any issues prior to your applying for a permit. At a minimum the Conservation Commission might be able to suggest some ways to lessen the project's impact on the vernal pool before you have committed large resources to engineering and design. In fact *the Conservation Commission prefers that you completely avoid the need to file for a permit by keeping your project and all related work outside the 100-foot buffer.*

In all likelihood the Sudbury Conservation Commission will be the only permitting authority with which you will need to work. The Conservation Commission is the administering authority for both the Massachusetts Wetlands Protection Act and the Sudbury Wetlands Bylaw. No federal permit is required when either of these two authorities prevent actual work in, or alterations to, a vernal pool — which will always be the case in Sudbury.

### ◆ *What Can I Do to Care for a Vernal Pool on My Property?*

There are a number of things you can do to preserve the habitat value of your vernal pool. The basic rule is to leave the pool alone. It does not need a caretaker: Be a passive observer. Do not weed it, clean it, dredge it deeper, or remove dead branches.

Equally important: do not disturb the buffer zone. Leave all trees, shrubs, snags (dead trees), ground cover, woody debris, and leaf litter in place. This buffer zone vegetation and material helps to regulate the water quality in the pool, controlling water volume, temperature, chemistry, and biology. It also provides shelter and food for mature vernal pool creatures which usually live within a couple of hundred feet of the pool.

Avoid the use of lawn and garden fertilizers, pesticides, and other toxic chemicals on your property. Even small amounts can harm sensitive amphibians and birds.



*If you think you may have a vernal pool on your property and would like specific suggestions on things you might do to enhance its aesthetic and wildlife values, contact the Sudbury Conservation Commission.*