

Beekman Road Vernal Pools and Amphibian Community Overview

East Brunswick is fortunate to have excellent vernal pool habitats along Beekman Road between Church Lane and Irelands Brook. These vernal pools are located in the woods along both sides of Beekman Road and are important breeding wetlands for many amphibians including spotted salamanders, wood frogs, green frogs, spring peepers, Fowlers toads and chorus frogs. The vernal pools are temporary woodland ponds that fill with water during the winter and spring and dry out during the summer. For many amphibian and reptile species (as well as dragonflies, mammals, birds), the vernal pools are nothing short of an oasis. Some species, like spotted salamanders and wood frogs are completely dependent upon the vernal pool for breeding. Quite simply, without a vernal pool, these species cannot occur. This importance has been recognized by the New Jersey Department of Environmental Protection and they have recently revised New Jersey's wetland laws to prohibit any encroachment into vernal pools (visit the NJDEP vernal pool website at <http://www.njfishandwildlife.com/ensphome.htm> for more vernal pool information).

In early to mid-March, on warm (50°+F), rainy evenings, or wet nights right after daytime rains, many species of salamanders and frogs leave their winter hibernation spots in upland forests and migrate (often en masse) to the vernal pools. Scientific evidence suggests that they follow the same migratory pathways every year. They often hibernate great distances from the vernal pool (as much as 1,000 ft).

At the vernal pool, mating takes place, eggs are deposited by the females, and the adults leave the pool and enter the surrounding woods. The adults spend the summer in these woodlands slowly retreating back to the winter hibernation areas, before repeating the entire process again in the spring. These patterns have likely continued without pause for centuries or even millennia. During the spring, the newly laid eggs hatch and the larva (called tadpoles for frogs and toads, larva for salamanders) mature in a race against the drying of the vernal pool. Although the adults spend most of their life on land, the larva are aquatic and must reach maturity before the water is gone. Those that don't, simply perish. The presence of water is so critical, that during drought years, many species of frogs and salamanders will not even breed. Those larva that do mature in time, will like the adults, leave the pool and move into the surrounding woods. Many of the vernal pool species are only easily found in the spring when they congregate at the pools, before widely dispersing into the summer woodland habitats. Some species, such as the spotted salamander are considered "fossorial", because they spend most of their life underground except for the short periods when they surface to migrate to the vernal pools.

In fragmented landscapes where roads intersect the spring migration (like Beekman Road), many species of frogs and salamanders are put at risk and suffer high mortality from roadkills. These roadkills can reduce the number of adults reaching the breeding pools so significantly, that overtime, local extinctions can occur. These extinctions may be a direct result of the roadkills or occur in concert with other impacts such as drought, disease, or high predation. The smaller the breeding population gets, the more likely it is that it will not be able to weather impacts and will be lost. So reducing roadkills can help insure that an adequate number of adults reach the vernal pool in order to maintain the population and to buffer against these other natural impacts. Along Beekman Road the vernal pools are widely separated and once a breeding population is lost from one of them, it is not likely to be replaced. Fortunately, roadkill mortality can be easily reduced through temporary road closings during periods of heavy migration helping to protect East Brunswick's vernal pools for the future. Maintaining local biodiversity is a difficult and challenging responsibility and the East Brunswick Environmental Commission's Beekman Road Vernal Pool Protection Plan (Amphibian Roadkill Reduction Plan) can be an important component. It is hoped that the protection and monitoring of the Beekman Road migration can become an enjoyable, annual, community-wide event showcasing East Brunswick's wonderful biodiversity and wildlife habitats.