

Conservation Matters

A monthly column focused on conservation education, as the result of collaboration among several area conservation commissions and organizations. If your town's commission or conservation organization would like to contribute articles, please contact Jessica Tabolt Halm jesshalm78@gmail.com

Title: Vernal Pool Adventure

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For the last ten years, in early April, I set a goal of being present at the mating of spotted salamanders close to my house. This means checking the vernal pool regularly when snow has gone, but ice may still be in the water. Vernal pools have water in the spring and usually dry out later in the summer. Amphibians breed in vernal pools where they can avoid their major predators: fish and turtles. Wood frogs, spotted salamanders, blue-spotted salamanders and Jefferson salamanders lay eggs which hatch into tadpoles and larvae. Quick development is necessary before the pools dry out.

An adult spotted salamander is about 7 inches in length. It is dark gray to black in color with 30 to 50 yellow to orange obvious spots. After salamander eggs are deposited in a vernal pool, it takes 4 to 8 weeks before any larvae emerge. They have exterior gills for breathing under water and are about one half inch long. They are carnivorous. After several more months these juveniles lose their gills and tail fins. They have the appearance of adults, but are about 2 inches long. On a rainy night, they leave the pool, travelling into the woods, where they will spend several years under cover until reaching full maturity. Then they return to the same vernal pool to breed. These salamanders can live for 10 years.

The mating ritual of the spotted salamander is very interesting. After a long winter in hibernation, the salamanders emerge from underground when the air temperature is above 40 F and it is raining. Males travel first to the vernal pool of their origin where they deposit sperm in small white cones called spermatophores. Females travel several days later, always on wet nights. At night, males and females twist around each other in a "congress". A female takes sperm into her body through the cloaca. Her eggs will be fertilized by these sperm as they pass out of her body a few days later. The egg masses laid are 2 to 4 inches in diameter with 50 to 150 eggs each. There is a clear, firm gelatinous outer layer protecting each egg mass.

Wood frogs are vocal, sounding a bit like quacking ducks. I have seen them mating on sunny days and under a full moon. Wood frog mating has been on the same night as the spotted salamander event or as much as one week earlier. Their egg masses are very dark when first laid but expand with water absorption. They may contain over 1,000 eggs. Communal masses are common with over a hundred clutches. The thick layer of clear material around each mass found with salamanders is not present. In about 3 weeks tadpoles will emerge.

Six times I have been present on the big night when hundreds of salamanders twist together, gulp air, and dive under leaves. The dates have been from April 22nd to May 10th. It is always dark and wet. It is my spring ritual. It brings wonder, joy, and an appreciation for New Hampshire forests and wildlife.

** This is an abbreviated and updated version of an article that was first written up in Bog Notes, a publication of the Pemi-Baker Land Trust/Quincy Bog*



Photo caption: *Adult spotted salamanders live secluded lives for most of the year, except in early to mid-spring, when they leave their underground habitats, seeking out vernal pools to mate and incubate their eggs. Despite their bright yellow spots, they are quite camouflage underneath the surface of hemlock needle-speckled pools, and best viewed late on a select few rainy nights, when they are most active.*