

Wild Things in Your Woodlands

Wood Frog



The wood frog (*Rana sylvatica*) is medium-sized, with a dark brown mask through its eyes, a dark line that connects the mask to the tip of the snout, and a white stripe along the upper lip. It also has pronounced ridges (folds of skin) that extend down each side of its back. The body coloration varies from light tan to dark brown, and changes with temperature; the darker color is more common for wood frogs in cold breeding ponds. The underside is white, occasionally with gray marks. Adults generally measure from 3.4 to 7 cm (1 1/3 to 2 3/4 in.).

With the first warm rains of the year, usually in late March or early April, adult wood frogs move across the forest floor and enter shallow pools or ponds to breed. Adult wood frogs do not remain in the ponds for long and, after a short and intensive breeding period lasting from 1 to 2 weeks, they return to the woods, where you may occasionally encounter them moving about during the day. They are the first frogs to breed, often moving to water even before the snow and ice have melted away.

Once they reach the water, the males often are seen floating on the water surface with their hind legs submerged below the surface. The male's call resembles a short quack of a duck, and can not be heard from a very great distance. Females are attracted to the males' call and the expansion of the light-colored pair of vocal sacs on the males' throats. After being grasped by the male, they deposit from 1000 to 3000 eggs in large globular masses, which are attached to submerged vegetation, sticks, or other substrate in the water. Often several females will lay eggs together, resulting in very large clusters up 1/2 m (1 1/2 ft.) in diameter, containing many thousands of eggs.

Wood frog eggs usually hatch in less than 1 month. In May and June, small temporary ponds may be full of wriggling wood frog tadpoles. The tadpoles can take an average of 9 weeks to develop into tiny wood frogs, which then leave the water and take to the woods. Tadpoles feed on anything small enough, but mainly algae. On land, wood frogs are carnivores, consuming insects, slugs, spiders, and worms. They remain on land for 2 to 3 years before returning to the water to breed.

Wood frogs are common, and found throughout New York State. They have the most extreme northern range of any amphibian on the North American continent. Some wood

frogs are found on the Canadian Tundra; others live in Alaska, north of the Arctic Circle. During winter they hibernate at surprisingly shallow depths under the leaf litter on the forest floor. They do not burrow deeply into the ground or retreat below the water during winter to escape freezing temperatures. Instead, they distribute high levels of glucose throughout their bloodstream, which keeps cells from freezing while their other bodily fluids freeze. In the spring, the animal slowly thaws out, and picks up where it left off before the freeze.

The wood frog is an important component in both aquatic and terrestrial communities. They prey upon a variety of small animals, and are prey for larger animals such as snakes, birds, mammals, and other amphibians. Because of their complex habitat requirements, wood frogs can be affected by the loss of both wooded and aquatic habitats. Furthermore, their tendency to migrate between these habitats during the breeding season makes them vulnerable to mass mortality. Roads that separate upland sites from breeding ponds are particularly hazardous.

To provide habitat for spotted salamanders, landowners can enhance and protect both their aquatic breeding sites and the surrounding woods. Shallow woodland pools that dry up during late summer or fall (and do not support predatory fish) provide particularly valuable breeding habitat. Protecting these and other breeding sites from pollution (chemicals, sediments from erosion) and disturbance is essential for these animals. By marking the boundaries of breeding pools during the wet season, landowners can help prevent disturbances within the boundaries of the pools during drier times.

In surrounding woodlands, maintaining a mostly closed forest canopy (> 75 percent within 100 feet, and > 50 percent within 400 feet of the pool or pond) will provide optimum habitat for the wood frog and many other amphibians. A closed canopy shades the forest floor, keeping soils moist and leaf litter abundant. Coarse woody debris (logs, tree tops, etc.) can also be left on, or added to, the forest floor to provide safe havens for the wood frog throughout much of the year.

Maintaining minimal disturbance between breeding pools and adjacent woodlands allows wood frogs to move freely between the two. Disturbances such as road construction, skid trails, or large ruts can create barriers to travel if they occur close to breeding pools and ponds. Locating skid trails away from (400 feet) breeding pools, and harvesting timber when the ground is either frozen or completely dry, provides extra consideration for wood frogs and other vernal pool wildlife.

More information on managing habitat for wildlife, as well as upcoming educational programs at the Arnot Forest can be found by visiting the Arnot Conservation Education Program web site at arnotconservation.info

For more information on timber harvesting guidelines for vernal pool animals, ordering information for *Forestry Habitat Management Guidelines for Vernal Pool Wildlife* can be found at <http://www.wcs.org/international/northamerica/mca/publications>

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Is there a certain species of wildlife that you would like to see featured in an upcoming "Wild Things" column? If so, email Kristi Sullivan at kls20@cornell.edu

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