



Department of  
Environmental  
Conservation

## Woodland Pool Conservation

Woodland pools are a type of small, temporary wetland (or vernal pool) found in forested landscapes. They occur in isolated, shallow depressions that typically fill during the spring or fall, but dry by late summer or during droughts. Woodland pools are also found in floodplains, at the headwaters of streams, or in larger wetland complexes such as hardwood swamps, but they're usually not connected to permanent surface water flows. Instead, they fill from rain, snowmelt, or groundwater.

### Breeding Habitat

Woodland pools provide critical breeding habitat for a number of amphibians and invertebrates that have adapted to their unique conditions. In the

Hudson Valley, these include the [mole](#)

[salamanders](#), [wood frogs](#), and [fairy shrimp](#) ([PDF](#)).

Fish, on the other hand, cannot tolerate the cycles of filling and drying in woodland pools. Without predatory fish, the pools are ideal nurseries for developing eggs and aquatic young of frogs and salamanders. The abundance of life associated with these relatively small wetlands has earned them the moniker, "the coral reefs of Northeastern forests."



*A woodland pool (I. Haeckel)*

### Forest Food Web



*An adult spotted salamander (L. Heady)*

owls. Through this complex food web, the energy that was originally stored in fallen leaves at the bottom of the pool cycles through many animals and ultimately returns to the forest system - maintaining important connections between aquatic and terrestrial landscape elements.

More than just breeding habitat, woodland pools are also important links in forest food webs. Leaves fall into pools from surrounding trees, and nourish invertebrates and tadpoles, which in turn become prey to salamander larvae as well as other animals that forage in pools, such as turtles and wading birds. Many of the amphibians that breed in woodland pools spend 90% of their lives in the surrounding forest, where they consume invertebrates like earthworms, slugs, and spiders, and themselves become consumed by larger forest animals such as shrews, raccoons, and

### Watershed Connections and Ecosystem Health

The hydrologic role of woodland pools is less understood, but they likely contribute to storage and filtration of surface water, and recharge of aquifers. Although the value of one small wetland may be difficult to discern from a watershed perspective, the collective benefits of thousands of small wetlands to a watershed may be

profound. And the presence of pool-breeding, woodland amphibians can be indicators of the ecological health and integrity of our larger forest systems, which also contribute to water quality and quantity, and our ability to adapt to climate change.

## Conservation Needs

Due to their small size, woodland pools are usually not afforded protection by state and federal wetland regulations. In New York State, [wetlands \(PDF\)](#) smaller than 12.4 acres (5 hectares) in size are not protected by the Freshwater Wetlands Act (Article 24 of the Environmental Conservation Law) unless they are determined to be of 'Unusual Local Importance' by DEC. Federal protections generally do not apply to small, isolated wetlands (those without a permanent surface water connection to larger water bodies), leaving them vulnerable to filling, draining, and other impacts. Due to their temporary nature woodland pool are often missed during land-use planning reviews. Even when pools are protected through local initiatives, the surrounding forested habitat is often fragmented.

There are few mechanisms in place to conserve both the pool and adequate upland forest necessary to support populations of pool-breeding amphibians, which may move as far as a quarter mile from the pool. In addition, the forecasted droughts and severe precipitation events associated with climate change may impact the timing of inundation in woodland pools, which is so closely linked to amphibian breeding cycles. Such changing conditions will make it especially important for future conservation plans to prioritize clusters of woodland pools in contiguous forested areas.

Some communities in the Hudson River estuary watershed are acting to make sure small wetlands aren't "falling through the cracks" of conservation. Local government approaches include mapping wetlands, incorporating wetland maps and policies into comprehensive planning and zoning, adopting wetland protection regulations, and acquiring fee or conservation easements for wetlands and their buffers. Best Development Practices for Conserving Pool Breeding Amphibians suggests approaches to protect both pool and forest habitat for amphibians.



*An adult wood frog (L. Heady)*