

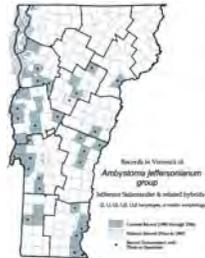
Native Vermont Amphibians

Part 2

Salamanders

Vermont has ten native species of salamanders that are currently well-documented in the state. Their exact distributions within Vermont are still being determined. In order for these species to survive and flourish, they need our help. One way that you can help is to report the salamanders that you come across in the state. Include in your report as much detail as you can on the appearance and location of the animal, also include the date of the sighting, your name, and how to contact you. Photographs are ideal, but not necessary. When attempting to identify a particular species, check at least three different field markings so that you can be sure of what it is. During the day, most salamanders keep from drying out or being eaten by remaining under rocks, logs, or leaf litter. On moist warm nights many of these species can be found out in the open. To contribute a report, or for more information, please contact Jim Andrews, Sunderland 114, Middlebury College, 802-443-5648, <http://community.middlebury.edu/~herpatlas>, or The Vermont Nongame and Natural Heritage Program, Vermont Department of Fish and Wildlife, 103 South Main Street, Waterbury, Vermont 05671-0501.

Jefferson Salamander (*Ambystoma jeffersonianum*)



The Jefferson Salamander is one of Vermont's three mole salamanders. They grow to 7 inches long. This species has a solid gray-brown body with tiny white flecks on the belly and lower sides. They are a chunky salamander with strong legs, a wide head, and a laterally-compressed tail (like a fish). The head and snout are wider and longer in this species than in Blue-spotted. Jefferson Salamanders are found in upland forests near semi-permanent pools. They usually lay their eggs in sausage-shaped gelatinous masses of 10-30 eggs. This species has produced hybrids with the Blue-spotted Salamander; consequently, some individuals can be hard to identify. The Jefferson Salamander is a species of special concern in Vermont. They are found scattered in low hilly regions of the state.



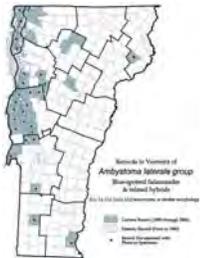
This species has been designated as a high priority species of greatest conservation need.

Blue-spotted Salamander (*Ambystoma laterale*)

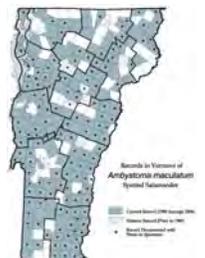
The Blue-spotted Salamander is the smallest of Vermont's three mole salamanders. They grow to 5 inches long and are black with small light blue spots on their backs and sides. They are found in lower elevations in or near flood plains, semi-permanent pools, marshes, shrub swamps, or forested red maple/cedar swamps. This species has historically hybridized with Jefferson Salamanders and a wide variety of hybrids can be found. This sometimes makes identification difficult. Pure Blue-spotted Salamanders lay single gelatinous eggs but hybrids reportedly deposit masses with up to 12 eggs. The Blue-spotted Salamander is a species of special concern in Vermont. It is found primarily in the Champlain lowlands with scattered populations elsewhere.



This species has been designated as a medium priority species of greatest conservation need.



Spotted Salamander (*Ambystoma maculatum*)



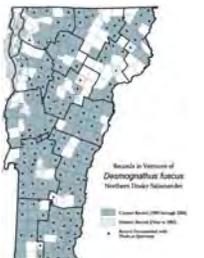
The Spotted Salamander is the largest of Vermont's three mole salamanders. It grows up to 9 inches long. It is a black salamander with bright yellow spots. Spotted have strong legs and a broad flat head. They feed and over winter in upland hardwood and mixed forests and breed in vernal pools, beaver ponds, or old farm ponds. They spend most of the year under ground in shrew, mole, or mouse tunnels, hence the term mole salamander. They move to deeper tunnels to over winter below the frost line. The Spotted Salamander is found statewide.



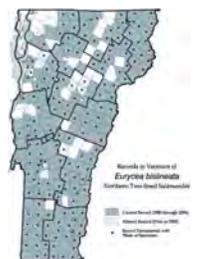
This species has been designated as a medium priority species of greatest conservation need.

Northern Dusky Salamander (*Desmognathus fuscus*)

The Northern Dusky Salamander is a grayish-brown salamander that is noticeably chunkier than the Northern Two-lined Salamander. Adults range from 3-5.5 inches long. White lines outlined in black start at the eye and angle down to their jaw. Their back legs are larger and stronger than their front legs, and their tail is partially keeled. The Northern Dusky is found in saturated soil near streams or in seepages in forested areas. They do not travel very far from their streams and seeps. They lay their eggs under moss, and the females remain with the eggs until they hatch. Northern Dusky Salamanders are found statewide, but less often in the Northeast Kingdom.



Northern Two-lined Salamander (*Eurycea bislineata*)

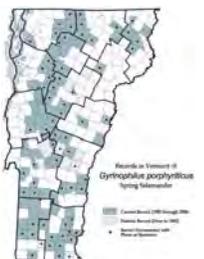


The Northern Two-lined Salamander is one of our three small, slender salamanders in Vermont along with the Red-backed and the Four-toed. Adults range from 3-5 inches long. They have a yellow-brown stripe down the middle of their backs. On either side of the stripe there are two thin black stripes that start at the eye and extend the length of their bodies. The underside of their tail is a bright yellowish-orange. All four of their legs are about the same size, slender and thin. They prefer wet soil along streams, seeps, and springs. They may travel a couple hundred feet away from these areas when the ground is wet. They attach their white eggs to the undersides of rocks in streams, springs, and seepage areas. As an adult, they are able to climb a couple feet up a tree or fern. They are found statewide.

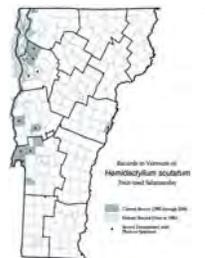


Spring Salamander (*Gyrinophilus porphyriticus*)

The Spring Salamander is one of the larger salamanders in Vermont; it can grow to 8 inches long. It is salmon-pink to reddish with black mottling. White lines outlined in black run from their eyes to their nostrils. Their tails are laterally compressed (like a fish) and all of their legs are thick and strong. The Spring Salamander requires well-oxygenated, cold, clear streams or springs. On rainy nights they often feed on land in the vicinity of the stream. Spring Salamanders lay 16-160 eggs attached to the underside of rocks in the water. The Spring Salamander is found statewide in or near mountains.



Four-toed Salamander (*Hemidactylum scutatum*)



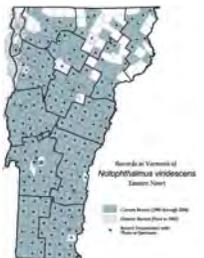
The Four-toed Salamander is one of our three small, slender salamanders along with the Red-backed and Northern Two-lined. Adults range from 3-4 inches long. It is our only terrestrial salamander that has four toes on its rear feet. Four-toeds have black flecks on a reddish-brown back and grayish-brown upper sides. Their belly and lower sides are bright white with black scattered spots. Large, healthy adults have a constriction at the base of their tails, which is where their tail can break off if grabbed by a predator. It will later grow back. The females lay 15-64 eggs in moss or debris near water. The Four-toed Salamander is a species of special concern that is known primarily from the Lake Champlain Basin but also from two locations in the Connecticut River Valley.



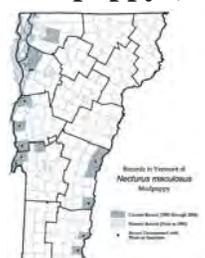
This species has been designated as a medium priority species of greatest conservation need.

Eastern Newt (*Notophthalmus viridescens*)

The Eastern Newt as a juvenile is reddish-orange with slightly bumpy skin. As an adult, the Eastern Newt turns olive green and their bellies reveal scattered black spots on a bright yellow background. They reach 5 inches in length. Juveniles and adults both have a dark horizontal line going through their eyes and rows of red spots outlined in black along their backs. The juveniles, called Red Efts, live on land for up to eight years. As an adult they return to the permanent water of beaver ponds, small lakes, man-made ponds, or marshes, where they breed and lay their eggs individually on underwater vegetation. The Eastern Newt is fairly common almost statewide but requires large mosaics of interconnected hardwoods and wetlands.



Mudpuppy (*Necturus maculosus*)



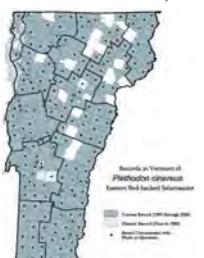
The Mudpuppy is our only completely aquatic salamander, and our largest. In Vermont, individuals measuring up to 14 inches long have been reported. Juvenile Mudpuppies have broad yellowish stripes. As adults they become all brown with black blotches. Their tail is laterally compressed (like a fish) and their snout is broad and squared. They live their lives usually near cover at depths of up to 60 feet in permanent bodies of water. They may move upstream or to shorelines to shallower water to lay their eggs. Their eggs are attached one-at-a-time to the underside of rocks or logs. They are remarkably active during the winter and are occasionally caught by anglers while ice fishing. The Mudpuppy is a species of special concern in Vermont. They are native to Lake Champlain but it is assumed that they were introduced to the Connecticut River watershed.



This species has been designated as a high priority species of greatest conservation need.

Eastern Red-backed Salamander (*Plethodon cinereus*)

The Eastern Red-backed Salamander is one of the three slender and delicate salamanders in Vermont along with the Four-toed and the Northern Two-lined. It usually has a red-brown back with darker sides. Adults range from 3.5-5 inches in length. Their belly is a salt and pepper mix of white and gray that looks like granite. Occasionally salamanders missing the red color (lead phase) or missing the dark sides (red phase) can be found. The Red-backed can usually be found in damp locations under leaf litter or the coarse woody debris of mature deciduous or mixed hardwood forests. They are not normally found where the soil is saturated or acidic. Red-backs are entirely terrestrial and lay their eggs in grape-like clusters of 3-17 out of the sun under or in moist logs. They over winter underground. The Eastern Red-backed is found statewide.



Breathing

All of our salamanders breathe through their skin, the linings of their mouths, and when very young, through external gills. The Mudpuppy keeps its gills to adulthood and the Red-backed Salamander loses its gills before hatching from its egg. The Mudpuppies, Newts, and Mole Salamanders also have lungs. You can see the external gills on a juvenile Spring Salamander below.



Migration and Connectivity

Mole Salamanders along with Wood Frogs, Spring Peepers, and other amphibians move from their overwintering locations in wooded uplands to their breeding pools and ponds during the first warm and wet nights of spring. This often means they need to travel over snow and ice to reach their breeding sites. They need to arrive early in order for their eggs to hatch, and their larvae to mature and leave the pools before the pools dry out in late summer. We need to maintain connectivity between uplands and breeding sites for these species to survive.

Other Possible Breeding Species

Marbled Salamander (*Ambystoma opacum*)

The Marbled Salamander is a mole salamander that has been reported from Vermont but never verified with a photo and location information. They reach up to about 5 inches long and are very chunky, looking over-inflated. They sport pewter bands on a black background. They breed and deposit eggs in the late summer/early fall on the margins of vernal pools in deciduous forests. After the eggs hatch, the larvae over winter in the pool to be ready to feed on other species' larvae the following spring. There is a historical unverified report from Fair Haven, and other records from nearby New Hampshire, New York, and Massachusetts. A Vermont population may yet be discovered, most likely, in southern Vermont or along the Connecticut River drainage.



Sexual Differences

During the breeding season, it is possible to determine the sex of many adults. For example, male mole salamanders, when breeding, have a large swollen vent that makes them fairly easy to recognize. Breeding male Northern Two-lined Salamanders have two long teeth with which they scratch through the skin of the females to release pheromones directly into their blood. Adult male Newts have a flattened tail used to waft pheromones in the face of females. They also have black tips on their toes and black claspers on the inner surfaces of their hind legs for gripping females during courtship. The black claspers of a male Newt can be seen below.

