

## 30. REPTILES AND AMPHIBIANS

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### SUMMARY

Reptiles and amphibians represent an interesting group of species in Vermont and play an important role in the overall ecology of the landscape. Many species of reptiles and amphibians perform tasks that benefit people, such as insect and rodent pest control. Most reptiles and amphibians, or “herps” as they are commonly referred to, require water for some stages of their life. To manage your land for reptiles and amphibians, conservation of streams, ponds, wetlands, and vernal pools is essential for these animals’ survival. Other habitat features that benefit herps include intact forest buffers along water, rock walls, brush piles, downed trees, and hollowed stumps. On stream banks with low levels of erosion, maintain sandy areas for turtle nesting. For more information, check out the *Vermont Reptile and Amphibian Atlas* referenced in [Resources](#).

### NATURAL HISTORY

Vermont has a rich diversity of salamanders, frogs, snakes, and turtles living in the state. With 40 different species, we should be mindful of the vital role these often over-looked species play in our ecosystems.

Reptiles and amphibians are beneficial to Vermonters. Salamanders, frogs, toads, lizards, and some snakes can consume large quantities of harmful insects. The larger snakes eat mice, rats, and other rodents. Some turtles act as scavengers in lakes and ponds, and others prey on snails, which act as intermediate hosts for parasites. In addition, reptiles and amphibians provide an important food source for other animals, including fish and birds. These creatures are interesting to observe and study and most species carry out their ecological roles without conflict with people.

Amphibians and reptiles are vertebrates, much like birds and mammals. However, unlike mammals and birds, herps are “cold-blooded,” meaning that they do not produce their own body heat but instead absorb heat from their environment. Because body heat comes from external sources rather than from their own metabolism, herps do not need to feed on a regular basis and can be inactive for extended periods of time. For example, some large snakes require only one large meal per year. Terrestrial salamanders feed primarily during several warm, wet nights within their active seasons. Most herps are inactive during cold seasons. Without the protection of fur or feathers, temperature and moisture dictate when and where amphibians and reptiles are active.



## HABITAT REQUIREMENTS

Amphibians and most reptiles require water for some part of the year. Turtles usually inhabit permanent water resources such as lakes, ponds, or slow-moving sections of rivers. Aquatic snakes spend much of their lives in and near the shallow edges of lakes and streams. Frogs, toads, and most salamanders lay their eggs in water and spend the early part of their lives as gill-breathing larvae or tadpoles. Many breed in temporary ponds such as vernal pools and other shallow wetlands free of fish. Some frogs remain in or near lakes and ponds, but others disperse into surrounding areas. Northern leopard frogs, for example, prefer damp meadows with permanent ponds, but gray treefrogs, wood frogs, spring peepers, and many salamanders inhabit shady wet woodlands with temporary seasonal ponds. (Refer to Chapter 12, “Wetland Habitats Management” for more information on vernal pools.)

### ***Management Practices for Frogs, Toads, and Salamanders***

Although more than 3,400 species of frogs and toads occur worldwide, only 11 of these species live in Vermont. Of these 11 species only one, boreal chorus frog is listed as endangered, while the Fowler’s toad is considered a species of special concern. Vermont is also home to ten species of salamanders, including the eastern newt, Jefferson salamander, blue-spotted salamander, four-toed salamander, and mudpuppy, a species of special concern in the state.

Water is critical to the survival of most frogs, toads, and salamanders, because they seek shallow wetlands and vernal pools in which to breed and lay eggs. When the shallow wetlands/vernal pools remain wet and free of egg and larvae-eating fish, young, gill-breathing amphibians, will make the transition from egg to larvae to adult in one summer. Dry years can result in few eggs and/or hatchings. Species that do not require large wet areas may lay their eggs in ditches with just enough water to encourage breeding.

Some frogs and salamanders lay their eggs attached to submerged sticks and vegetation. Others like the bullfrog and green frog lay their eggs in a large film that floats on the surface. Mudpuppies look under rocks and logs in warm shallow water for their nest chambers, and the four-toed salamander lays its eggs under sphagnum moss near the edges of wetlands.

Salamanders consume worms, snails, slugs, and both waterborne and terrestrial insects and their larvae. In the woodlands, salamanders seek leaf mold, decaying logs, and moist spots under rocks for food and shelter. The diet of frogs and toads include insects, spiders, mites, and worms. Leaving intact leaf litter and rotten logs in your woods will help provide these animals with important cover. Toads in particular are beneficial to gardeners because they consume insects that are harmful to flowers,

**Figure 30.1 a,b,c**

(l-r) Vernal pool; Spotted salamander; Spring peeper

Vermont is home to 11 species of snakes, and most of these species are less than 3 feet long.

vegetables, and other plants. Attract toads by placing an old stump or hollow log in your garden. Propping up pieces of wood or turning a flower pot on its side, will give toads a damp, shady daytime haunt.

When working in the woods, leave lots of coarse woody debris in the form of branches, downed logs, and dead trees. Woods that look like city parks are not good habitat for amphibians, reptiles, or other wildlife. This organic material provides moisture, food, and cover. Abundant shade keeps the woods cool and moist.

Many amphibians depend on streams or seepage areas to feed, lay their eggs, overwinter, or maintain their body moisture. Keep streams shaded and free of sediment and leave a naturally vegetated buffer where they can feed during night-time rains. (For more on this, see **Chapter 14, "Riparian Habitat Management."**)

### ***Management Practices for Snakes***

Unlike amphibians, reptiles do not have a water-dependent larval stage. However, many species live in or near wetlands and waterways where they find food and shelter. Creating, restoring, and enhancing wetlands is generally beneficial to snakes and turtles as well. Aquatic snakes spend much of their time in or near the shallower edges of lakes and streams. Nearby uplands are the feeding grounds favored by most snakes, Vermont's one lizard species, the wood turtle and the eastern box turtle.



**Figure 30.2**  
Brown snake. Courtesy of  
Jim Andrews.

Vermont is home to 11 species of snakes, and most of these species are less than 3 feet long. However, most Vermonters would be surprised to learn that Vermont is home to one of the largest snakes in North America. The eastern ratsnake can grow up to 8 feet long and has been seen at lengths of nearly 6 feet here in Vermont. Unfortunately this docile snake is often killed out of fear. Vermont is also home to the timber rattlesnake, a venomous snake that inhabits rockslides, ledges, and nearby forests. Although this snake is not at all aggressive, it is venomous and should not be handled.

Vermont's most abundant snake is the common garter snake, which occupies open woodlands, meadows, and old fields. Another Vermont snake that prefers a similar habitat type is the eastern milk snake, which can also frequent barns and sheds. Wet lowland meadows, marshes, and the grassy edges of lakes and streams are preferred by the eastern ribbon snake. The smooth green snake prefers upland pastures, power lines, and beaver meadows. Vermont's only water snake, the northern water snake, inhabits lowland shallow wetlands with emergent vegetation and nearby rocks. This snake is primarily found near scattered marshes in the Lake Champlain Basin.

Following are some options you should consider when managing habitat for snakes:

- When trimming trees or shrubs or harvesting timber, leave brush in piles to provide shelter.
- Maintain stone piles and stone walls that get lots of sun on well-drained slopes, which are attractive basking and hibernation locations and also provide shelter from predators.
- Maintain open, sunny places for basking within dense woodlands to help snakes regulate temperature.

- Leave at least a 50-foot uncut buffer around ponds and water edges for feeding sites and cover.
- Mowing fields and baling hay are threats to snakes. Cut open areas only as frequently as is necessary, cut as high as possible, and leave the clippings if not being used for hay.
- Be careful how and where you use a string trimmer. Snakes will hide from predators in tall grass on the edge of lawns, and are often killed by electric trimmers.

### **Management Practices for Turtles**

Vermont is home to seven species of turtles. Probably the most-recognized turtles in Vermont are the snapping turtle and the painted turtle. These turtles require slow-moving or still water with soft bottoms and emergent vegetation such as cattails. Vermont's less common turtles include the wood turtle and the northern map turtle. Wood turtles are primarily river turtles that prefer streams with moderate slopes and speeds. They feed primarily in the upland and field sites adjacent to the stream systems and rely on the streams for refuge and wintering sites. Map turtles in Vermont are primarily aquatic; they come on land only to bask and lay eggs. Vermont's rare turtles are the spiny softshell, spotted, and eastern musk or stinkpot turtles. Spiny softshells are entirely aquatic and are found only in the northeastern region of Lake Champlain. Spotted turtles are both terrestrial and aquatic; they travel between uplands and wetlands. Eastern musk turtles are also entirely aquatic, preferring shallow weedy still water.

All of Vermont's female turtles dig a nest hole in the ground with their hind legs to bury their eggs. Nest sites are located in moist soils or sand in open, sunny areas near water with little or no obstructing vegetation. When nesting sites are not available, turtles may travel a considerable distance to find them, thus increasing their vulnerability. Stream bank stabilization, though an excellent conservation tool, can often eliminate nesting sites for wood turtles.

Most female turtles lay their eggs in May to early June and the young hatch in late summer or early fall. Because some hatchlings may overwinter in the nest, these sites must remain undisturbed all year. Turtle eggs are a popular food for nest predators such as raccoons, skunks, and opossum.

As a landowner, you can provide nesting habitat by creating small sand or gravel piles in slightly elevated, sunny places near pond or lakeshores to prevent flooding of the nest. These piles need to be kept free of all tall vegetation. Turtle eggs can tolerate grass roots but other roots will kill them. Because some aquatic turtles spend the winter on the bottoms of lakes and ponds, the sites must not freeze to the bottom in the winter. Lakes and ponds with depths of 5 feet or more are proven wintering habitat for aquatic turtles. Eastern box turtles (a possible Vermont breeder) dig into the leaf litter and hibernate in the forest.

Many species of turtles need to bask in order to raise their body temperatures. Leave downed trees along the edges of ponds, rivers, wetlands and lakes to provide adequate basking locations.



## **RESOURCES**

Partners in Amphibian and Reptile Conservation. 2006. *Habitat Management Guidelines for Amphibians and Reptiles of the Northeastern United States – Technical Publication HMG-3.*

Vermont Reptile and Amphibian Atlas. <http://vtherpatlas.org/>

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