PRIVATE LAND PARTNERSHIPS
WORKING TOGETHER FOR WILDLIFE

FROGS, TURTLES & SNAKES

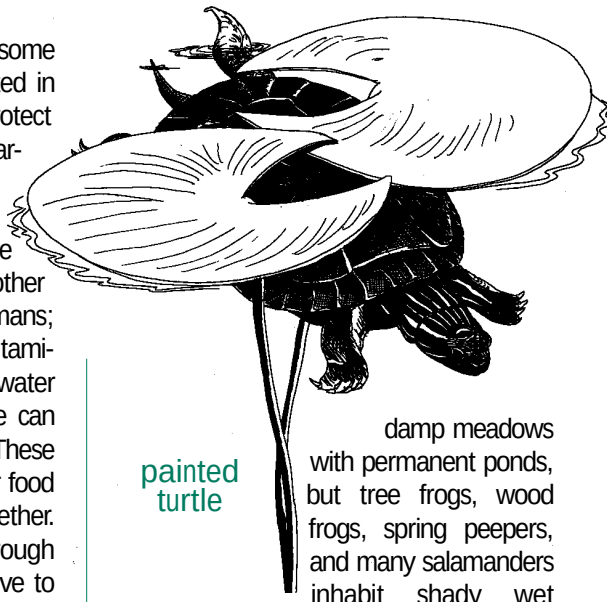
Michigan reptiles include turtles, snakes, and one lizard species. Michigan amphibians include frogs, toads, and salamanders. Much of the time we are not aware of these creatures; when we are aware, their presence sometimes annoys or frightens us. Snakes, in particular, have been the subject of unwarranted fear and prejudice, but fortunately this attitude is beginning to change. Reptiles and amphibians are important to study because they are sensitive to subtle environmental changes such as water quality or ozone depletion in the atmosphere that permits more ultraviolet light to reach the earth from the sun. As "environmental indicators", reptiles and amphibians help us to monitor these and other changes that may eventually be harmful to us.

They also play an essential role in our ecosystem. Frogs, toads, lizards, and some snakes can destroy 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, including the one that causes "swimmer's itch." 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.

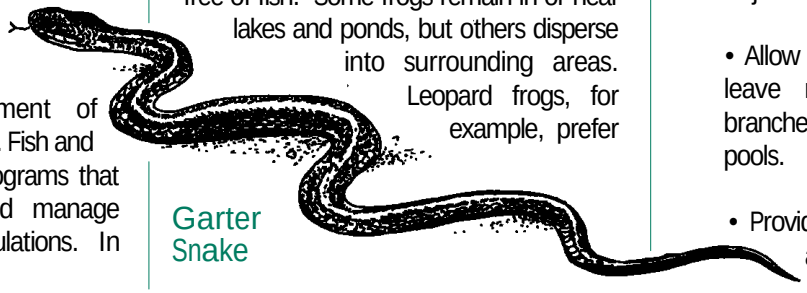
The Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service administer programs that help us to understand and manage amphibian and reptile populations. In recent years declining numbers of some amphibians and reptiles have resulted in state and federal laws designed to protect them. Reasons for the decline are varied and complex. They include the fragmentation and destruction of wetland areas; exploitation by people for food, pet trade, fishing bait, and other purposes; direct persecution by humans; and exposure to environmental contamination. Pesticides entering the water where many of these creatures live can impact their ability to survive. These chemicals can also contaminate their food source (insects) or eliminate it altogether. Because amphibians breathe through their skin, they are especially sensitive to toxins in the air or water.

Overall Habitat Considerations

Amphibians and most reptiles require moist lowland areas that have available water at least on a seasonal basis. Turtles usually inhabit permanent water resources such as lakes, ponds, or slow-moving parts 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. Leopard frogs, for example, prefer damp meadows with permanent ponds, but tree frogs, wood frogs, spring peepers, and many salamanders inhabit shady wet woodlands with temporary seasonal ponds.



painted turtle



Garter Snake

Because most frogs, turtles, and snakes require different habitats at various times of the year, they become vulnerable when travel is involved. Roadway traffic, for example, claims large numbers of migrating breeders in the spring. When their habitat needs are in close proximity to each other, the need to travel lessens reducing mortality. Neighboring property owners can often cooperate to restore, protect, or create new critical habitats. To do this you can:

- Provide sun-basking opportunities such as logs, boulders, and other objects that these animals seek.
- Allow leaf litter to accumulate, and leave rotting logs and downed branches in woodlots and woodland pools.
- Provide plants in ponds, marshes, and other bodies of water.

Amphibians in particular rely on submergent aquatic plants (water plantain, coontail, and bladderwort) to support their egg masses, to act as nursery areas for larvae, and to offer feeding areas for adults. They use emergent plants (cattails, waterlilies, sedges, and rushes) for protection against predators.

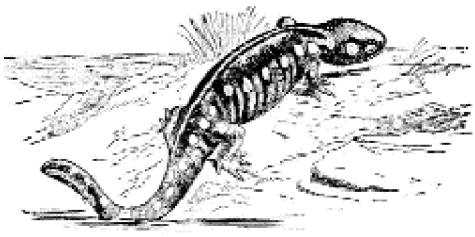
Managing Habitat for Frogs, Toads and Salamanders

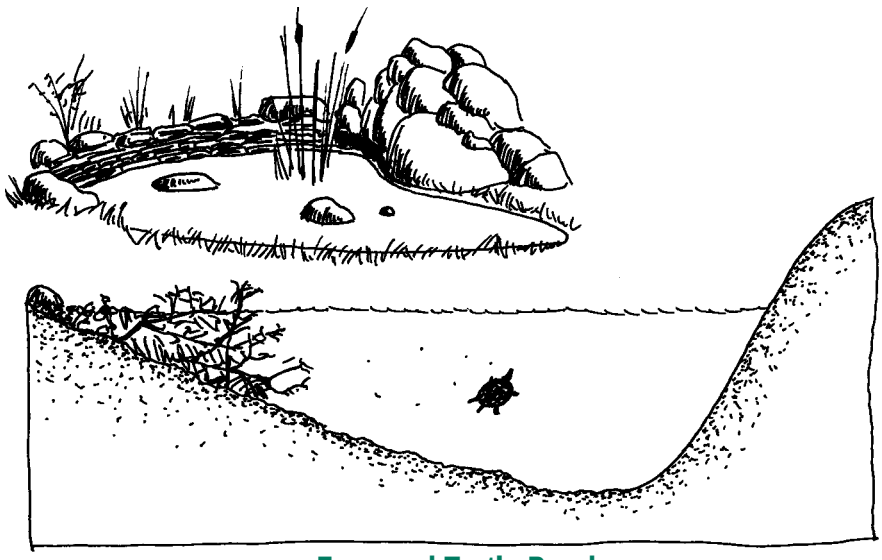
Although more than 3,400 species of toads and frogs occur worldwide, only 14 live in Michigan, and two of them -- the Blanchard's cricket frog and the boreal chorus frog of Isle Royale -- are uncommon. Michigan is also home to eight species of salamanders, including the Eastern newt. Rare species, protected by the Endangered Species Act, are the marbled salamander and the smallmouth salamander.

Water is critical for population survival because these creatures seek shallow wetlands and vernal pools in which to breed and lay their eggs. When the shallow wetlands remain wet, and are free from egg and larvae-eating fish, most young, gill-breathing amphibians will make the transition from egg to larvae to adult in one summer. Dry years can result in very few eggs or hatchlings, or minimal survivability to adulthood. Species that do not require a large wet area may lay their eggs in ditches with just enough water to encourage breeding.

Most frogs, toads, and salamanders lay their eggs on submerged sticks and plants. However, the green frog and bullfrog lay their eggs in a large mass that floats on the surface or attaches to vegetation. The mudpuppy uses rocks in warm, shallow water for its nest chamber. The four-toed salamander is especially adapted to boggy cedar swamps containing sphagnum moss where it lays its eggs.

Spotted Salamander





Frog and Turtle Pond

Other species with specialized habitat needs or unusual life cycles include:

- The **mink frog** lives in ponds, bogs, lakes and slow-moving streams of the Upper Peninsula.

- The **eastern newt** hatches into a larval form in shallow water, transforms into a land-loving juvenile, and then at two years of age or older becomes a fin-tailed adult that returns to water.

- The **pickerel frog** prefers cool, unpolluted water and will not inhabit bogs, lakes, or streams with excessive nutrients, suspended sediments, or contaminants.

- The Fowler's toad lives in open woods and sandy-soiled fields located along southern Lake Michigan sand dunes with ponds and wetlands.

Landowners interested in building ponds should consider creating them broad, weedy, and shallow, and plant natural vegetation along at least part of the pond margin. Surrounding the pond with beach sand or mowing to the water's edge will be of little or no use to amphibians. Because many larger frogs (bullfrogs, green frogs, and leopard frogs) hibernate in the bottom of ponds and lakes, you should provide an area deeper than five feet to prevent the water from freezing to the bottom in winter. Avoid stocking ponds or lakes with fish that will eat amphibian eggs and larvae. Consider building two ponds -- one for game fish and one for amphibians.

Salamanders consume worms, snails, slugs, and both waterborne and terrestrial insects. In the woodlands, salamanders seek leaf mold, decaying logs, and moist spots under rocks for food and shelter.

Frogs and toads eat insects, spiders, and mites. Leaving leaf litter and rotten logs in your woods will provide frogs and toads with important cover. Toads in particular are beneficial to gardeners because they consume insects harmful to flowers, vegetables and other plants. Attract toads by placing an old stump or hollow log in your garden. Propping up pieces of wood

Toad Home: Create by placing a shallow depression under flat rocks. To create an entrance, punch a hole in an 8-inch flower pot and slide into depression.

or turning a flowerpot on its side will also give toads a damp, shady daytime haunt.

Managing Habitat for Snakes

Reptiles do not have a water-dependent larval stage as do amphibians, but many species live in or near wetlands and waterways where they find food and shelter. Creating, restoring, or enhancing wetlands is generally beneficial to snakes and turtles too. Aquatic snakes spend much of their time in or near the shallower edges of lakes and streams. Uplands are also favored by most snakes, all lizards, and the eastern box turtle.

Michigan is home to 17 species of snakes. Seven species lay eggs; the other 10 bear their young live. Egg-laying snakes bury their eggs in sand or soil in late spring or early summer. Many people are familiar with the common garter snake, but few have seen Michigan's only venomous snake, the massasauga rattlesnake, which is shy and unassertive. Another uncommon snake is the black rat snake and three other species (the Kirtland's snake, the copperbelly water snake, and the Eastern fox snake) are considered rare and are protected. The Kirtland's and northern copperbelly inhabit wet meadows, tamarack swamps, river-bottoms, woodland ponds, and open swamp-forests in the southernmost counties of the Lower Peninsula.

The eastern massasauga rattlesnake frequents marshes and swamps but will move into meadows and woodlands in summer. Wet meadows, marshes, and the grassy edges of lakes and streams are preferred by the butler's garter snake, northern ribbon snake, blue racer, eastern fox snake, and the eastern smooth green snake. The northern ringneck snake and black rat snake like moist woodlands. The hognose snake and western fox snake inhabit open sandy woodlands and wooded dunes.

Michigan's most common snake, the eastern garter, occupies open woodlands, meadows and old fields. Also preferring these habitats are the brown snake, the northern red-bellied snake, and the eastern milk snake, which also frequents barns and sheds.

The following are options to consider when managing habitat for snakes:

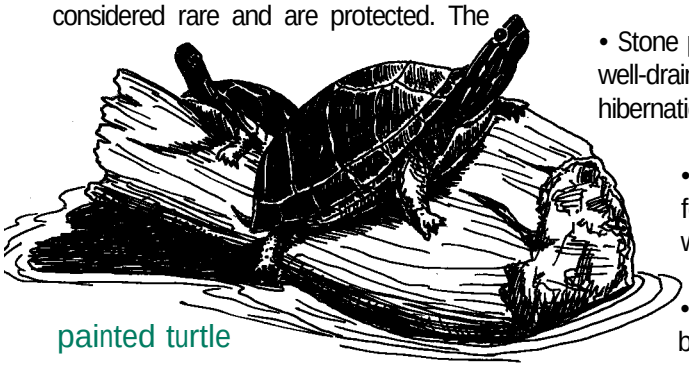
- When trimming trees and shrubbery or harvesting timber, leave the debris in piles of brush or logs to provide warmth and cover.

- Stone piles that face south along a well-drained slope are attractive as hibernation chambers.

- Maintain open, sunny places for basking within dense woodlands.

- In winter, maintain rodent burrows, natural cavities around tree roots, and cracks in old house and barn foundations as places for hibernation.

- Keep grasses uncut along the water's edge, which provides cover.



painted turtle

You may wish to create a snake hibernation mound for use along the forest edge. It is essentially an underground brushpile designed to provide burrow sites for hibernating snakes. Build these mounds along forest openings, road cuts, timber landings, or any land clearing with slash and stumps. It is important that sunlight reaches the mound so it should be located on the north side of a clearing.

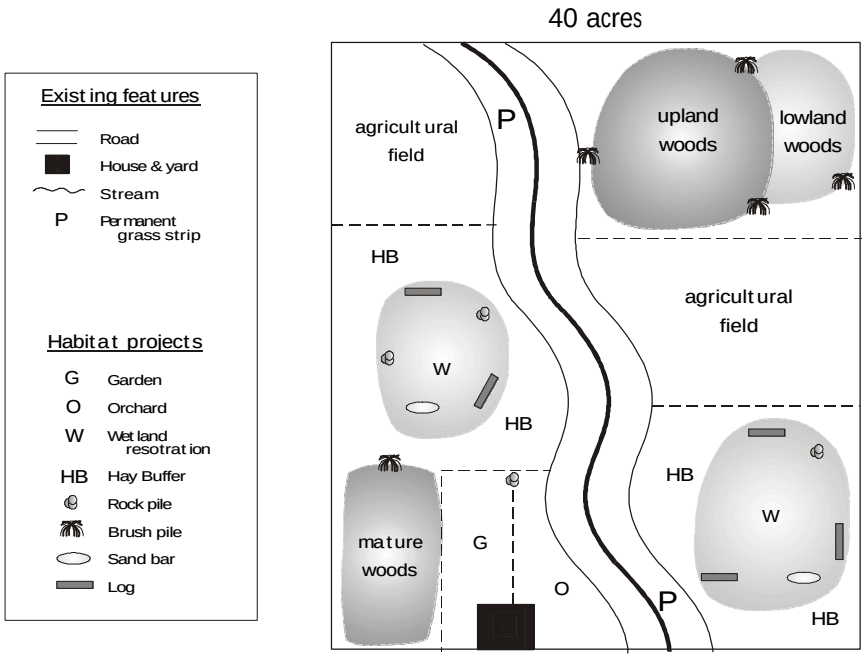
Trees on the site should be cut to approximately 12 to 18 inches above the ground level. Then cut the trunks into 10-foot lengths and remove all branches. Dig a trench eight feet deep and nine feet across. Fill the bottom of the trench with a layer of logs and continue filling the trench with some stumps and branches. Soil should then be pushed into the trench to ground level. The 10-foot logs should then be laid on top of trench side by side. Keep placing soil, logs, and branches until the mound is approximately 10 feet high. Please see figure above.

snake hibernation mound

Managing Habitat for Turtles

Four of the ten species of turtles living in Michigan are considered uncommon.

FROGS, TURTLES & SNAKES



This map is an example that demonstrates the many management options discussed throughout this chapter. The option(s) you choose should depend not only on your goals, but the location, condition, and present use of your land.

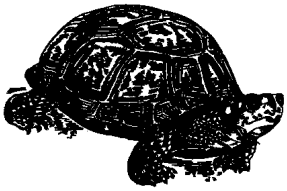
They include the spotted turtle, wood turtle, Blanding's turtle, and the eastern box turtle. The wood turtle prefers sandy-bottomed rivers and streams in the Upper Peninsula and northern Lower Peninsula. The eastern box turtle likes open woodlands near water in the western and southern Lower Peninsula. Both the spotted and Blanding's turtle seek clean, shallow water with a vegetated mud bottom. Slow-moving rivers, marshes, and mud-bottomed lakes provide habitat for painted, snapping, and spiny softshell turtles. The musk turtle prefers shallow lakes with marl, sand, or gravel bottoms. The map turtle inhabits larger lakes, river, and the oxbow sloughs of rivers.

All Michigan female turtles dig a nest hole in the ground with their hind legs to bury their eggs. The nest site is moist soil or sand in an open, sunny area near the water with little or no obstructing vegetation. Stream bank stabalization, though a good conservation tool, can eliminate nesting sites for wood turtles. When nesting habitat is not available, turtles may travel a considerable distance to find it, thus increasing their vulnerability.

Most females lay their eggs in June, and the young are hatched in late summer or fall. Because hatchlings may overwinter in the nest, the nest site must remain undisturbed all year. Turtle eggs are a popular food item among nest predators like the raccoon, skunk, and opossum.

Landowners can provide nesting habitat by spreading sand in a slightly elevated, open place near a pond or lakeshore to prevent flooding of the nest. Because aquatic turtles burrow into the bottom mud of lakes and ponds, the sites must not freeze completely in winter. Lakes and ponds with depths of five feet and greater provide over-wintering habitat for aquatic turtles that burrow into the mud. Land-based species dig into the leaf litter and hibernate in the forest, and emerge again in the spring. Note that pet turtles should not be released into the wild due to the spread of disease.

However you decide to manage your property, it is important to realize that education is the most important tool. There are many myths that exist about many of the species within this chapter that frighten people into thinking they should not exist on their land. Amphibians and reptiles play important roles in nature as do songbirds and insects. Inform yourself about the positive and negative effects that may occur due to the changes you implement.



box turtle

FOR ADDITIONAL CHAPTERS CONTACT:
Michigan United Conservation Clubs
PO Box 30235
Lansing, MI 48909
517/371-1041

Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this guide provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: *CONTACT YOUR LOCAL CONSERVATION DISTRICT*