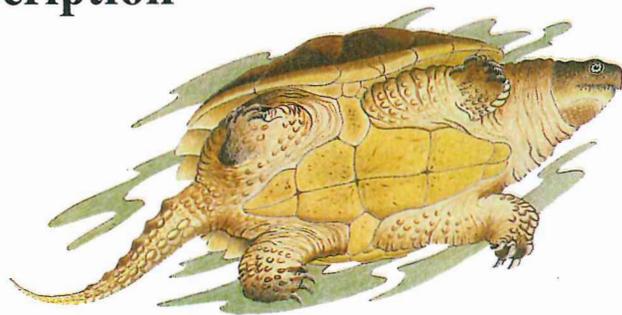


## Species Description

### Common Snapping Turtle

*Chelydra serpentina serpentina*

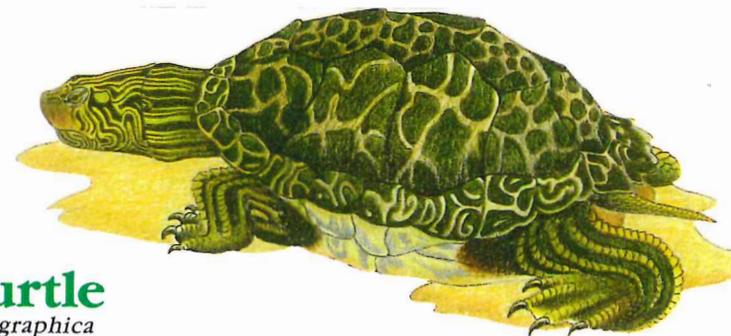
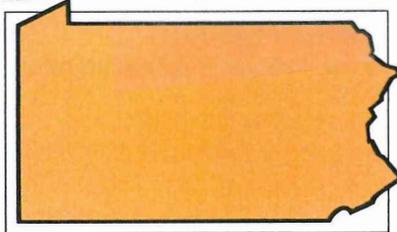


**General characteristics.** The common snapping turtle is sometimes referred to as the freshwater “loggerhead,” and is the only turtle in Pennsylvania with any economic value. This turtle is commonly sought for its meat, which is considered a delicacy and a base for snapper soup. In Pennsylvania a fishing license is required to take snapping turtles and traps or set lines may be used.

Many people think the snapping turtle is ugly, both in appearance and disposition. Although on land it may lash out viciously, it is generally inoffensive when submerged in water where it spends most of its time. It does not bask in the sun nearly as much as many other turtles do. The snapping turtle is a good swimmer but more often than not prefers to walk across the bottom of its watery habitat, which it does quite well. Confronted on land, the common snapping turtle is quick to assume its offensive stance, in which the hind quarters are elevated above the rest of the body, and the jaw is opened wide, at which time the turtle may lunge forward repeatedly. During such shows of strength, the snapper may emit a loud hissing sound to discourage further any would-be adversary. The common snapping turtle is one of our largest turtles. Its carapace may measure up to 12 inches in length.

**Habitat.** An aquatic reptile, the snapping turtle has little preference for the type of water in which it resides. Snappers have been found in small streams as well as large rivers, in the smallest ponds to the largest lakes. It likes soft mud bottoms, especially if abundant vegetation is convenient. Rarely seen basking, the snapper prefers to rest in shallow water with just the eyes and nostrils exposed. The snapping turtle hibernates beneath the water. It ends its hibernation in April, emerging from an overhanging mud bank, muskrat hole or from under a collection of vegetative debris.

**Range.** This large turtle resides in a broad area of the country. Its natural range extends from southern Canada to the Gulf of Mexico, and from the east coast to the Rocky Mountains. Thus, the common snapping turtle is distributed throughout Pennsylvania.



### Map Turtle

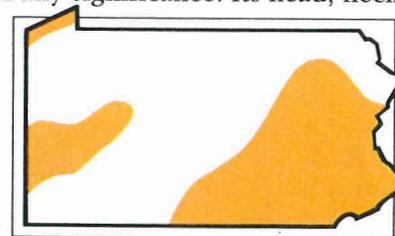
*Graptemys geographica*

**General characteristics.** A moderately large turtle, though certainly not the largest found in Pennsylvania, the map turtle reaches an average seven to 11 inches in shell length. It is fairly common throughout its Pennsylvania range. Perhaps due to limited basking sites, individual turtles often pile on top of one another while basking on rocks or logs, which is a favorite pastime. But it also is a shy animal and if disturbed will slip quickly into the water to avoid a potential predator.

**Identification.** The carapace of the map turtle is greenish to olive-brown. Its irregular pattern of thin, yellow-orange lines networking randomly across the upper shell like roads on a map give this turtle its name. The carapace is somewhat flattened and marked with a distinct keel. The plastron is yellowish and bears no markings of any significance. Its head, neck and tail are accented with narrow yellow lines. A yellow, somewhat triangular spot appears behind each eye.

**Range.** The distribution of the map turtle in Pennsylvania is scattered into one larger and two smaller portions of the state. It is found along Lake Erie and in a small portion of the Ohio River Drainage. Its largest range encompasses a major portion of the Susquehanna River Basin and the lower Delaware River Basin. An interesting, recently developed theory suggests that the map turtle reached the lower Delaware by way of a series of canals. According to some experts, the map turtle was able to leave its native Lake Erie home and travel through canals to the Hudson River, which in turn gave it access to the Delaware River through a similar system of canals. In any event, the distribution of the map turtle in Pennsylvania is scattered and broken into several sections. Elsewhere, this turtle is found across upper New York to Wisconsin and then south into Louisiana.

**Habitat.** The map turtle prefers slow-moving, large rivers over smaller, faster waters. Lakes, rather than ponds, are considered choice habitat. Mud bottoms with profuse stands of vegetation top its list of preferred habitat. It is not in any hurry to hibernate and comes out of hibernation sooner than other species of turtles.



## Midland Painted Turtle

*Chrysemys picta marginata*

**General characteristics.** The attractive painted turtle is the most widespread of any in North America. One subspecies with intergrades, which may show characteristics from other subspecies in adjoining areas, is found in Pennsylvania. Not a particularly large turtle, it attains adult sizes of four to six inches along the upper shell, or carapace.

**Identification.** The carapace is olive or black, oval, smooth, and somewhat flattened. Red and black markings on the edges of the shell, in the form of bars or crescent-shaped patterns, are good identifying characteristics. The plastron is an unmistakable yellow or red with a dark blotch in its center. Each side of the head is marked with bright-yellow spots and stripes (See Figure IV-9), and yellow and red stripes define the neck, legs and tail. The upper jaw is notched.

**Range.** Its range extends from southern Quebec and Ontario in Canada southward to Tennessee. It misses most of Virginia and North Carolina. In Pennsylvania, the painted turtle is found from border to border in all directions.

**Habitat.** It is fond of basking and often is observed sunning itself on a large rock beside a slow-moving stream or river. Shallow areas of lakes or ponds also attract the painted turtle. It particularly likes streams with soft bottoms, generously sprinkled with vegetation and dotted with submerged logs.

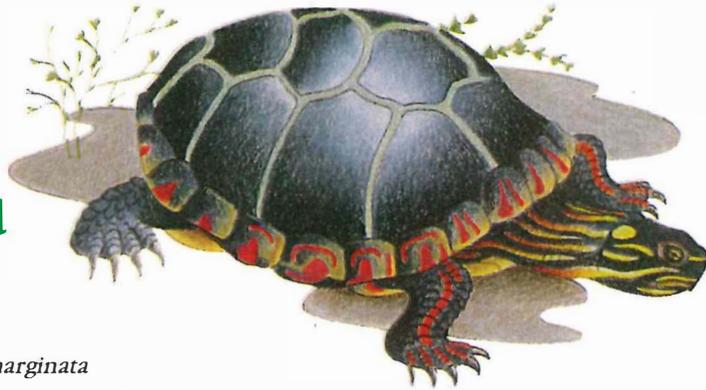
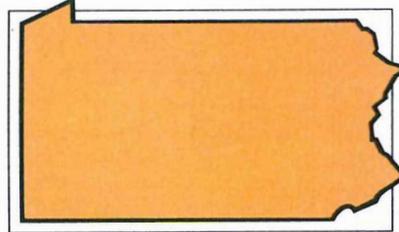


Figure IV-9  
Bright yellow spots and stripes mark the side of the head of the painted turtle.



## Red-Eared Slider (*Trachemys scripta elegans*)

**General characteristics.** Red-eared sliders are non-native to Pennsylvania. They are included in this book because they have gained a foothold in Pennsylvania waters and wetlands and are seen with increasing frequency. Red-eared sliders from Pennsylvania have been recorded with shell lengths of up to 10 inches. This species is native to the southcentral and southeastern United States. However, for decades these turtles have been sold in pet stores in Pennsylvania and other states outside of its natural range. People have illegally released their pet turtles into the wild in Pennsylvania, thereby creating self-sustaining populations. This is ecologically undesirable because these turtles compete with native species for food, basking areas and nesting areas.

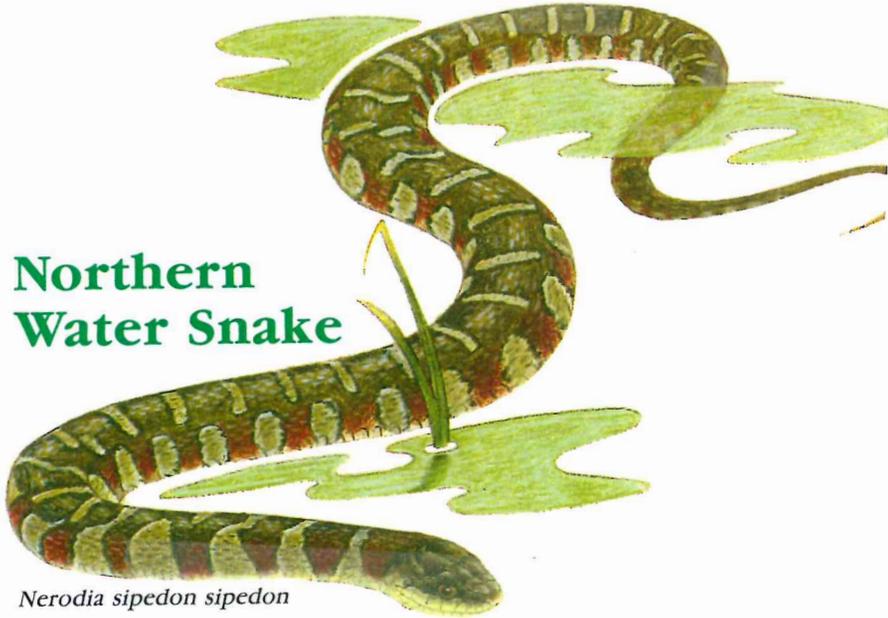
**Identification.** Red-eared sliders could be confused with map turtles, red-bellied turtles and even painted turtles because they exhibit some characteristics common to each of these species. However, only the red-eared slider contains, as its name suggests, a bright-red patch or stripe immediately posterior to the eye on the side of its head.

**Range.** New information comes in each year regarding the distribution of red-eared sliders in Pennsylvania. They are well-established in many waters of the Delaware River drainage, around some of the larger cities in the state and in several isolated locations. Their clustered distribution in areas around cities is directly related to the release of former pets into neighboring parks, lakes and rivers.

**Habitat.** This turtle prefers areas that offer slow-moving water, soft, muddy bottoms and an abundance of aquatic vegetation. These habitats can be found in large rivers, canals, ponds and lakes. Basking sites are important for proper thermoregulation and may cause sliders to congregate.

**Reproduction.** Depending on the growth rates of an individual, the age of first reproduction can range from two to eight years, with age three to four a typical average. Little is known about the specifics of reproduction in Pennsylvania populations, but elsewhere, egg laying occurs during May, June

## Northern Water Snake



*Nerodia sipedon sipedon*

**General characteristics.** This is the largest of Pennsylvania's three water snakes, reaching an adult size that may range from 24 to over 50 inches. The male is usually smaller than the female.

Often killed by people out of fear, the northern water snake is not a water moccasin and it is not poisonous. The water moccasin, or cottonmouth, common to the South, is not found naturally in Pennsylvania and does not appear farther north than extreme southern Virginia.

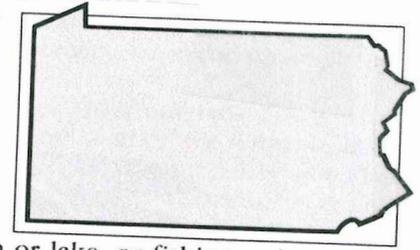
The northern water snake has a tendency to display a nasty disposition and becomes quite formidable when angered. It flattens its head and heavy body when striking, and although it flees if it can, it strikes repeatedly if cornered. It has strong jaws, powerful enough to inflict a severe bite. Bites by the northern water snake also may bleed profusely due to an anticoagulant quality of the snake's saliva. It does not inject a poisonous venom.

The northern water snake is active both day and night and appears in sufficient numbers to be seen on a regular basis.

**Identification.** It is possible to see the northern water snake in an array of colors. On some adults, the patterns may even become obscure, blending into the background color. Generally, the northern water snake is reddish, brown or gray to brownish black. There are dark crossbands on the neck region. These bands become dark blotches, alternating in position from the back to each side as they progress down the body and onto the tail. The dark patterns are wider than the spaces between them. White, yellow or gray covers the belly, which is interspersed with reddish-brown or black crescent-shaped spots. The head of the northern water snake is distinct, well-defined from the neck. Its scales are keeled and it has a divided anal plate.

**Range.** The northern water snake can be found from Maine, across Quebec, reaching down to Colorado in the west. It extends south to North Carolina. All of the state's 67 counties are host to the northern water snake.

**Habitat.** Scattered statewide, it is possible to encounter one of these aquatic-loving animals when hiking near a stream or lake, or fishing or boating. It prefers quiet water. Still, the northern water snake is found in fast-moving streams as well as lakes, ponds, bogs and swamps and rivers or slower streams. Submerging, it swims underwater seeking protection among the pondweeds and other aquatic plants. When basking, it likes to drape itself over the branches of a nearby shrub or gather the warmth from a sun-baked rock near the water's edge. It may seek relief from the hottest days of summer by becoming at least partially nocturnal.



## Bullfrog

*Rana catesbeiana*

**General characteristics.** The bullfrog is a large aquatic frog. It, or at least its call, is familiar to anyone who has ever been near a large body of water during the evening or early morning hours in the summer. It is a solitary creature, more so than any of our other frogs, and does not engage in chorus singing even during the breeding season. In fact, the mating season may be the only time the bullfrog is prone to socialize at all, and then only with its mate. A bullfrog jealously guards its territory. Other males are aggressively kept from its calling site.

Adult sizes range from 3½ to six inches. It is not the longest jumper. That record goes to the leopard frog, which may outjump a bullfrog by as much as 10 inches, hitting the three-foot mark. However, the bullfrog is a powerful swimmer with long, strong hind legs. The bullfrog uses these powerful appendages to push rapidly through the water. When swimming underwater, the bullfrog is able to lower its eyes to a level even with the head by pulling the eye sockets into the roof of the mouth. Thus protected, the eyes also are closed so that the frog can swim only short distances before having to stop, or at least slow down, to view the surroundings before moving on again at a rapid speed.

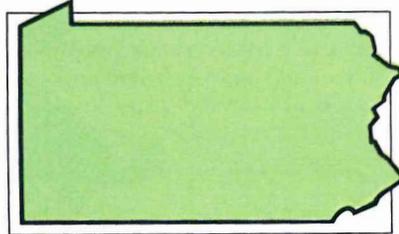
When under water, the entire surface of the skin acts as a large gill, allowing the frog to breathe. The nostrils and lungs are not required when submerged, and the frog can remain under water for months at a time during hibernation.

The legs of the bullfrog are considered a culinary delight by many people. In Pennsylvania, this amphibian is regulated by seasons and bag limits. Check your *Summary of Fishing Regulations and Laws* for details.

**Identification.** The body of the bullfrog is broad and full. In a crouched position, the body is nearly parallel to the ground, rather than in the more-or-less upright position assumed by most other frogs. The head is broad and flat with large, protruding—almost bulbous—eyes. There is no outer ear as we know it in most mammals, which is typical of the frogs and toads. However, the external eardrum is present and is flush with the surface of the head; on the male adult bullfrog, the diameter of the eardrum is larger than the eye. In the bullfrog the folds of skin, referred to as dorsolateral ridges, begin at the eye, run around the eardrum and down to the forelegs. Its legs are long and well-muscled, suited to providing powerful swimming strokes. Except for the last joint of the longest (fourth) toe, the hind feet are fully webbed, which also aid its underwater mobility.

The bullfrog is green to yellowish above with a random mottling of dark gray. The belly is cream to white and also may be mottled with gray. The throat of the male, especially, may have a mottling of gray or yellow. The legs are often spotted or marked with dark bars.

**Range.** The bullfrog is a statewide resident with populations in many of Pennsylvania's rivers and streams and hundreds of lakes and ponds. At one time, the Pennsylvania Fish and Boat Commission raised and planted bullfrogs throughout the state, and this may account, in part at least, for the bullfrog's widespread distribution. Outside of Pennsylvania it ranges from Nova Scotia to the Rocky Mountains.



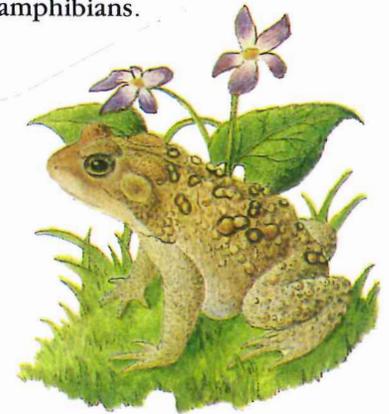
**Habitat.** The bullfrog prefers lakes and ponds (nearly every farm pond has some bullfrogs) and slow-moving water as long as there is sufficient vegetation to afford it proper cover. It likes large waters in which many of our other frogs might not “feel” comfortable.

The bullfrog is aquatic, though it often sits, sometimes warily, other times contentedly, among the grasses lining the water's edge. If frightened, it could flee with a giant leap into the safety of the water. Still, it is not apt to strike out on land on an extended excursion.

As autumn turns to winter and temperatures continue to fall, the bullfrog enters the water one last time, swims to the bottom and burrows into the soft mud. Here it hibernates until spring when the water again warms.

**Reproduction.** Emerging late from hibernation, the bullfrog breeds after many other amphibians have already performed this annual ritual. May to at least July arrives before the male actively begins to call a mate. By now air temperatures are in the 80s and water temperatures have climbed into the 70s. These higher readings apparently trigger the breeding instinct. The male, aggressive and territorial, vigorously defends his calling site, and later, his breeding site.

**Food.** The diet of the bullfrog is more varied than most other frogs, and almost any moving object is a potential meal, including other smaller bullfrogs. Crayfish seem to be favorites, but insects, other frogs, small fish, bats, birds, snakes and even turtles contribute to making a bullfrog's dinner menu quite different from that of many other amphibians.



## Eastern American Toad

*Bufo americanus americanus*

**General characteristics.** The eastern American toad, closely related to Fowler's toad, is more widely distributed in Pennsylvania. It can be confused with Fowler's toad, although there are several characteristics separating the two. They are noted here and in the description of Fowler's toad. Average adult size of the eastern American toad is two to 3½ inches, about the same as Fowler's.

The eastern American toad, however, can tolerate colder temperatures and thus goes into hibernation a bit later than Fowler's and emerges a few weeks earlier in the spring. The eastern American toad is primarily nocturnal and spends most of its day sheltered among piles of leaves or burrowed under loose rocks. So even though it is an abundant toad throughout most of its range, its nighttime habits prevent it from being seen very often.

This is the common "hoptoad," so-called because of its "hopping" in moving from one area to another, rather than "leaping," as frogs do. Characteristic of other toads, toxic secretions from skin glands can irritate mucous membranes. People do not, however, get skin warts from this or any other toad.

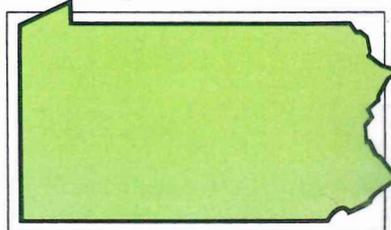
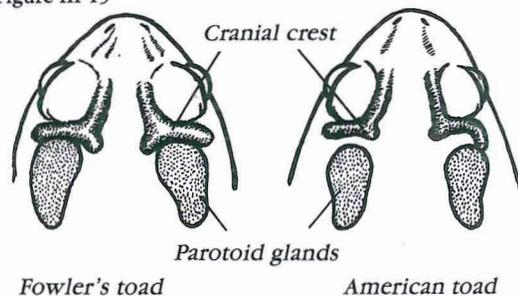
**Identification.** Various patterns or patches in light colors, usually buff or yellowish, mark the eastern American toad. These patterns occur over a background color that usually is brown, but that also can be olive to brick red. In some specimens, a light stripe runs down the center of the back. The forward part of the belly, or abdomen, and the chest are spotted, compared to the plain underparts on Fowler's toad. Dark spots in brown or black range over the back. Each of these larger spots contains only one or two warts; Fowler's has three warts in each. These warts are red, yellow, orange or sometimes dark brown. The warts on each thigh are enlarged, bigger than on Fowler's toad. The parotoid gland (located behind the eye) is more kidney-shaped than the elongated gland of the Fowler's toad (See Figure III-15). On the eastern American toad, this gland does not touch the cranial crest (a bony ridge) behind the eye, or if it does, it is connected only with a slight spur. On the other hand, the gland on Fowler's toad comes in direct and full contact with this crest (See Figure III-12).

The eyes of the eastern American toad are elevated well above the head. The pupils are horizontally shaped and black; the iris is golden on this toad, compared to Fowler's bright yellow.

**Range.** Distributed statewide in Pennsylvania, the eastern American toad is a wide-ranging amphibian residing east of the Rocky Mountains. It is found from the warm climes of Louisiana to the cold of the Labrador Peninsula in Canada.

**Habitat.** This amphibian has adapted to a variety of habitats and can be found in populated areas to remote wilderness regions, from well-manicured lawns to grassy fields and heavily forested, often rocky mountains. It has two requisites for suitable habitat over most anything else: The area must be moist and include an area of shallow water for breeding, and the area must have an abundance of insects. It is often seen foraging over plowed fields

Figure III-15



## Northern Green Frog

*Rana clamitans melanota*



**General characteristics.** This abundant frog is primarily nocturnal. That is, it is most active at night, but moves about and forages a bit during the day as well. Along with the bullfrog, it is more aquatic than many frogs. It is a medium-sized frog, slightly smaller, but otherwise similar in appearance to the bullfrog. Adult average sizes range from 2 1/4 to 3 1/2 inches. The northern green frog is more gregarious than the bullfrog, but it still maintains a more aloof attitude than some other frogs, living mostly a solitary lifestyle. It is not as wary as many other frogs, although when basking in the sun it sits alert, facing the water. This posture provides a quick escape into the water if danger threatens. A quick dive and it soon is lost among the bottom detritus, or gravel.

The green frog may molt four or more times a year, in or out of the water. If the outer covering is shed while the green frog is in the water, the skin simply floats away, carried by the wind or current. If the molting process takes place on land, the old skin may be eaten by the green frog, a practice also common to the leopard frog and American toad.

In Pennsylvania, the green frog is protected by seasons and bag limits identical to those protecting the bullfrog.

**Identification.** The green frog appears in an assortment of colors and patterns. It may be a brilliant metallic green, or vary from greenish brown, or brownish to tan. Dark-brown or gray spots, some large enough to be called blotches, appear on the back, frequently in large numbers. The head and upper lip are green, which is especially noticeable in the adult male. A yellowish band runs along the jaw to the shoulders. The belly is white with dark lines or spots under the legs. The throat of the male is yellow, often brilliantly colored; the throat of the female is white with dark spots. Close examination of the eyes reveals a black, oval pupil with a gold iris.

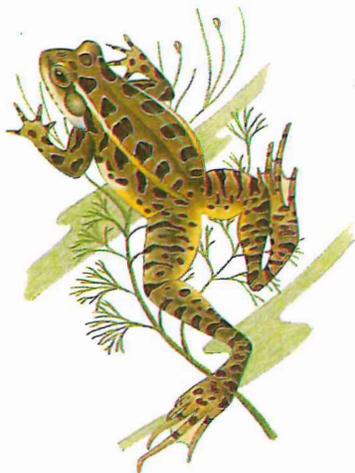
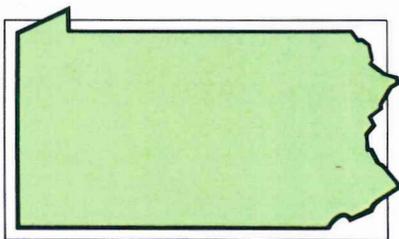
The forward part of the head ends in a blunted point. The external eardrum is large, and on the male, bigger in diameter than the eye. The tympanum is flat, brown and covered with a thin, moist layer of skin.

Folds of skin, called dorsolateral ridges, help separate the green frog from the bullfrog. In the green frog, these folds extend from above the eardrum along the back; in the bullfrog they do not. Unlike many frogs, however, the folds on the green frog do not extend all the way back to the groin, but stop about midway along each side.

6

**Range.** The green frog is distributed statewide and is found in all Pennsylvania counties, many with abundant populations. Outside of the state, its range extends from the Maritime Provinces of Canada south to North Carolina. It goes west to Minnesota and Oklahoma.

**Habitat.** The green frog stays close to shallow water. Although this frog is thought of typically as a frog of brooks and small streams, it also resides in most types of ponds, or in swamps and springs. Fallen logs, with their moist, decaying matter, provide shelter to the green frog. The green frog may remain active through 12 months of the year if the winters are not too severely cold. In the event winter does force it to seek refuge, the mud or moss of a pond or other shallow water offers sufficient protection.



## Pickerel Frog

*Rana palustris*

**General characteristics.** Going back to the earliest years of the 20th Century and before, this frog had been a popular bait used by anglers fishing for “pickerel”—hence its name. Today, although frogs still are used as bait, anglers should be aware that regulations affect the number of frogs they may have in possession at any one time. The pickerel frog is a medium-sized amphibian that averages from 1¾ to three inches as an adult.

It benefits from a built-in defense mechanism particularly effective against snakes and other animals that normally prey on amphibians. And once experienced, snakes seem to avoid pickerel frogs—and even their lookalikes—thereafter. The pickerel frog secretes a substance from its skin that is at least irritating, but often toxic to would-be predators. It is distasteful and emits an extremely unpleasant odor that even humans find obnoxious. The secretion is toxic to frogs other than its own species and has been known to be fatal to other frogs when placed in the same water-filled container.

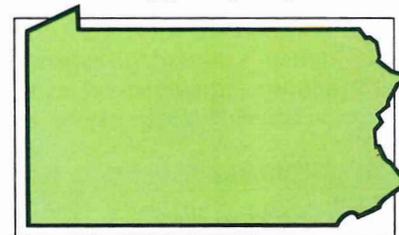
The pickerel frog does not rely totally on its toxic skin secretions for protection. When frightened, it quickly leaps to find cover under shoreline mosses, or by suddenly diving beneath the water, it buries itself in mud lining the pond or stream bottom.

**Identification.** The pickerel frog is a spotted frog similar in appearance to the leopard frog, but with distinctly different markings. The pickerel frog has two rows of squarish spots down the back, but the leopard frog’s spots are rounded and usually not in rows as well-defined as are those on the pickerel frog. Also, the leopard frog’s wide head is more blunt than the pickerel’s somewhat pointed snout.

The skin of the pickerel frog is smooth with an almost metallic-like lustre. The background color is tan or a light grayish to light brown. The two rows of parallel spots or blotches down the back are contained between the dorsolateral folds. The spots are squarish and although irregularly shaped with uneven lines, clearly are not round. They are black to dark brownish or reddish brown. Small, square-like spots also appear on the sides of the pickerel frog. The belly is whitish up front, becoming bright yellow to orange toward the rear. Dark bars mark the upper surface of the hind legs, which are bright yellow to orange underneath. The leg markings also help distinguish this frog from the leopard frog. The folds of skin, the dorsolateral ridges, are prominent and extend to the groin. They are yellowish or creamy to a golden color. A light streak outlines the upper lip or jaw.

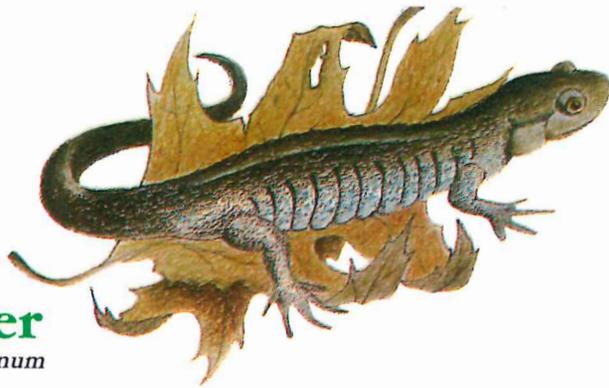
**Range.** The pickerel frog is distributed from Canada’s Maritime Provinces in the north to the Carolinas in the south. Its western boundary runs from Wisconsin to eastern Texas. In Pennsylvania, each of the 67 counties has its share of pickerel frogs.

**Habitat.** This amphibian spends more time out of the water than in it. For the most part, water is used only as a breeding site and a haven from enemies. The pickerel frog prefers slow-moving water. This frog is at home in marshes, but it can also be found along streams and cool springs. During the summer it moves far into grassy fields or meadows that are moist, seeking out damp areas thick with low vegetation. Grassy areas along streams and woodland ponds also provide suitable habitat. The pickerel frog hibernates from October until March, but usually does not go into its winter retreat until pushed there by autumn’s first frost.



## Jefferson Salamander

*Ambystoma jeffersonianum*



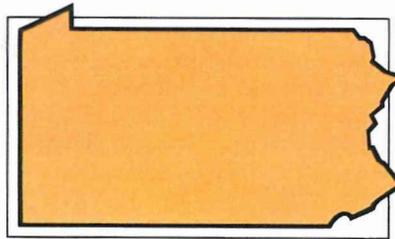
**General characteristics.** The Jefferson salamander has close ties to Pennsylvania, aside from the belief that this area always has been a part of its natural range. This plain-looking amphibian was named for Jefferson College, located in Canonsburg, Washington County. The college, in turn, honors Thomas Jefferson, a noted naturalist who also happened to become president of the United States.

The Jefferson is one of our largest salamanders, attaining adult sizes that range from just over four to seven inches. Aside from its relative, the tiger salamander, only the mudpuppy and hellbender grow to lengths appreciably longer than that.

**Identification.** This salamander is long and slender with a wide snout. Its toes are proportionately longer than those of most other salamanders. The back and sides are brownish gray; the belly is a shade lighter. The area surrounding the vent is usually gray. Small, bluish marks speckle the head, limbs and sides, but these tend to disappear with age. This salamander has 12 costal grooves.

**Range.** The Jefferson salamander is believed to occur in limited numbers in all 67 counties. Elsewhere, its range extends northward to New York and western New England and southward to parts of Virginia, Kentucky and southern Indiana.

**Habitat.** The Jefferson prefers damp forestland, especially a deciduous woods located near swamps or ponds. It finds shelter under fallen trees, rotting vegetation and other debris, often digging into the soil in the process. Like most Pennsylvania amphibians that breed in the water, the Jefferson salamander needs a close and stable source of water during its breeding period. Although these waters may dry up after breeding has been completed, they usually fill up again by the time breeding occurs the following year.



## Marbled Salamander

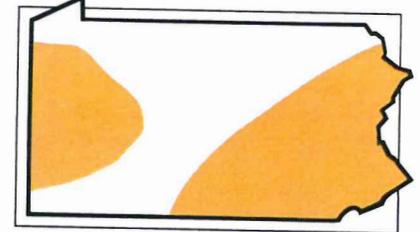
*Ambystoma opacum*



**General characteristics.** Another of the so-called mole salamanders, the marbled salamander is a secretive creature, not often seen even by people who regularly spend time in the outdoors. Most of the reported sightings occur during the breeding season when the male and female leave their well-hidden shelter to mate. This amphibian reaches adult lengths that range from 3½ to just over four inches.

**Identification.** The marbling effect that sets off this chunky salamander is a study in strong contrast. The body is dark gray to black, with bold white or silvery crossbands. On the female, these bands tend to be a bit more gray. Occasionally the crossbands run together on the sides, encasing a black area within a striking outline of white. The belly is black and unmarked. The marbled salamander has 11 or 12 costal grooves.

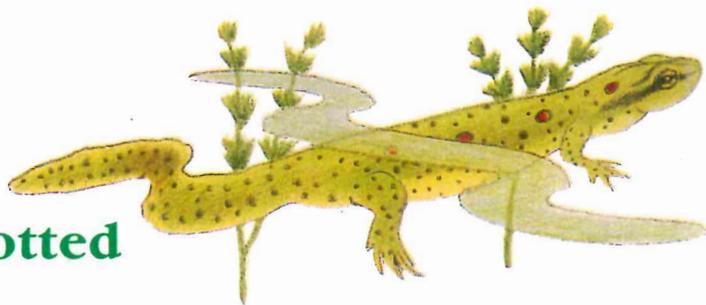
**Range.** The marbled salamander inhabits the entire East Coast of the United States from New England to Florida. In Pennsylvania, two populations have been identified, with the smaller one in the western part of the state from Westmoreland and Indiana counties to Crawford County. For the most part, the Allegheny Mountains appear to form a western barrier to the species. Residing also in southeastern Pennsylvania, the range extends up to Centre County, then takes a swing to the northeast entering Wyoming and Pike counties. It is more numerous in this southeastern range than in the northwest.



**Habitat.** The marbled salamander adapts to a variety of habitats encompassing woodlands and low, swampy areas to relatively dry hillsides. Sandy, even gravel-laden terrain supports the marbled salamander, which prefers a drier habitat than other members of its genus.

*Worms and grubs are a favorite prey of marbled salamanders.*





## Red-spotted Newt

*Notophthalmus viridescens viridescens*

**General characteristics.** The red-spotted newt is actually the adult stage of an amphibian that progresses through three different stages of life: the aquatic larval stage, which immediately follows hatching from the egg; the terrestrial sub-adult stage known as the red eft; and finally, the mature adult, the aquatic red-spotted newt. Each stage has its own coloration and patterns and consumes somewhat different prey, although each retains the usual salamander preference for a carnivorous diet.

The adults remain moderately active all year long. Even during the winter months, red-spotted newts can be seen prowling the stream bottom even though ice may cover the surface.

The newts have a built-in protective device, effective in keeping predators at a distance. Even fish avoid the newt, which secretes a toxic substance from glands in its skin. This poisonous matter can at least irritate mucous membranes and is sufficient to discourage would-be predators from making a meal of the newt.

On the average, the red eft is slightly smaller than the newt. The red eft can be  $1\frac{3}{8}$  inches to  $3\frac{3}{8}$  inches long, compared to the adult newt's length of  $2\frac{7}{8}$  up to four inches.

**Identification.** This amphibian is greenish yellow in its larval stage. It has two grayish lines, located just off center on either side of the back; the lines run the length of the body. At hatching, the larva has gills and just a hint of forelegs.

Two to three months into the larval stage, the forelegs and hindlegs have been developed, the gills are lost and the skin becomes granular and textured to the touch. At this point metamorphosis takes place, the land-dwelling red eft stage is entered and the body becomes a brilliant red to orange-red. A row of black-bordered, round red spots appears on either side of the back; the belly is yellow during this sub-adult stage. Not yet an adult but no longer a larva, the red eft remains terrestrial for one to three years before transforming to become a red-spotted newt.

At the end of the eft stage and within a week of entering the water to live out its life as an adult, the skin of the newly transformed red-spotted newt becomes smooth, and the tail fin develops, becoming compressed vertically to look rudder-like. Its color now is drab olive to yellowish brown or dark brown. The belly remains yellow and is sprinkled with numerous small black spots. A row of red spots, bordered with black, also covers the newt's



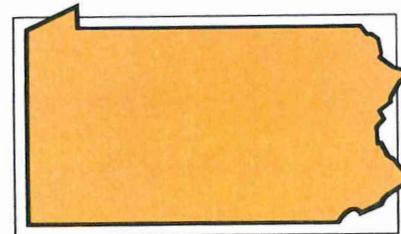
back on each side. In neither the eft nor newt stages are the costal grooves distinguishable.

**Range.** Its range extends from central Georgia and Alabama, northward to southern Canada, and as far west as the Great Lakes. Each one of the state's 67 counties probably has some population of red-spotted newts.

**Habitat.** Considering its broad distribution, the newt is able to select from a variety of water in or near which to make its home. It prefers water that is more or less still—ponds, shallow lakes, marshland and quiet stretches of streams. Clean water is required and if it is covered with a dense stand of submerged vegetation, that's a plus. The newt alternately can be seen scrambling among the stems of aquatic plants in search of food and crawling methodically across the bottom where sometimes it pauses to rest before swimming away to some other rendezvous.

The newt lives in water, but the land-based eft takes up residence in neighboring damp woods. Preferring forested areas, the red eft likes to avoid exposure to direct sunlight. Even so, it may casually, and with an almost fearless air, stroll across the open floor of its forest home, seemingly oblivious to anything else around it. The red eft is especially active on a rainy day.

Like the adult newt, the sub-adult terrestrial eft may remain mobile all year and only occasionally seek relief from the rigors of winter. When it does decide to hibernate, it does so underground where a more moderate and stable temperature is available.





## Spotted Salamander

*Ambystoma maculatum*

**General characteristics.** The spotted salamander is one of our more common salamanders, although it is not often seen because it prefers to live underground. It generally is considered nocturnal. It reaches adult sizes that range from six to nearly eight inches, equaling or slightly exceeding the Jefferson salamander in average size.

**Identification.** As might be imagined, large spots are a predominant means by which to identify this salamander. Two rows of yellow or orange spots run somewhat erratically the length of the body. Beginning on the head and near the eyes, the spots end at the tip of the tail. The spots on the head usually are orange even though the spots on the rest of the body could be yellow. The ground color ranges from black, to blue-black, to dark gray or dark brown. The belly is slate gray. A stout body begins with a round snout that is blunt and punctuated with large, dark eyes. There are 12 costal grooves.

**Range.** In Pennsylvania the range of the spotted salamander extends from border to border in all directions. Except for Florida, southern New Jersey and the Delmarva Peninsula, it extends over the eastern one-third of the country.

**Habitat.** The state's numerous hardwood forests offer a potential home to this amphibian, providing a pond (which could be temporary) or other wetland is nearby. Hillsides and other areas around woodland ponds seem almost irresistible. The spotted salamander spends most of its time beneath ground level, but also conceals itself in moist areas beneath moss-covered rocks or stones and among piles of leaves or other debris.

