



# AMPHIBIANS OF OHIO *field guide*

DIVISION OF WILDLIFE



# INTRODUCTION

The term amphibian comes from the Greek *amphi*, which means dual, and *bios*, meaning life. Many amphibians live a double life — spending part of their lives in water and the rest on land. In the class Amphibia, there are three extant orders: Gymnophiona (caecilians – found only in the tropics); Caudata (salamanders); and Anura (frogs and toads). Nearly 280 million years ago, amphibians were the first creatures to emerge from the seas to begin life on land. Ohio is fortunate in having a great diversity of amphibian species.

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## AMPHIBIANS OF OHIO

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# INTRODUCTION

Most amphibians are small, 6 inches or less, and brightly colored, but there are a few large ones, like the Eastern hellbender that reaches a length of almost 2 feet. All amphibians are cold-blooded animals with a soft, glandular, often moist skin which is capable of absorbing oxygen into the body. Amphibians don't drink water rather they absorb it through their skin. Salamanders can be confused with lizards (which are reptiles) but their skin is not scaly; nor do they have claws on their toes.

Amphibian eggs must remain moist if they are to hatch. The eggs do not have shells but rather are covered with a jelly-like substance. Amphibians, depending on the species, lay eggs singly, in masses, or in strings in the water or in some other moist place. The young undergo what is known as metamorphosis. They pass through an aquatic larval stage before drastically changing form and becoming adults. Adult amphibians are carnivorous, while larval Anurans are generally

herbivores and larval Caudates are carnivores. They play critical roles in many of the state's wetland ecosystems, both as prey and predators. Wetlands with salamander larvae have been found to have 98% fewer mosquito larvae than those without salamanders.

Amphibians are typically secretive animals. Most amphibians prefer to come out at night. Although generally inconspicuous most of the year, during the breeding season, especially following a warm, early spring rain, amphibians may appear or call in great numbers. Those which migrate in mass to the breeding grounds are often killed by cars in large numbers trying to cross roads. Fortunately, however, many species reproduce in great numbers.

As with all Ohio wildlife, the main threat to their continued existence is habitat degradation and destruction. Only by conserving suitable habitat today will we enable future generations to study and enjoy Ohio's amphibians.



TIGER SALAMANDER  
BY JAMES DEBOER

# SALAMANDERS

Frogs and toads make themselves known with their loud calling, but salamanders are voiceless and shy. They often go unnoticed, but there are more salamanders in North America than in all the rest of the world together. They prefer to spend their daylight hours hiding beneath rocks or in other moist places. They move about during breeding season and some congregate in masses, but only for a brief time. Some have elaborate courting rituals.

Many of Ohio's salamanders measure only a few inches in length. They range in color from earth tones to red, orange, and yellow and often have spots, stripes, or dots. Most of Ohio's 25 species of salamanders belong to either the Lungless Family (Plethodontidae) or the Mole Family (*Ambystomatidae*). Some salamanders retain gills throughout life. Others have both gills and lungs. Some start with gills and later develop lungs.

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## MOLE SALAMANDERS

The family *Ambystomatidae* includes the large, stout-bodied mole salamanders which spend most of their lives underground. All have well-developed lungs. Mole salamanders lack the nasolabial groove. The Eastern Tiger, Spotted, Marbled, Jefferson, Blue-spotted, Streamside and Small-mouthed Salamanders all belong to this family.



MARBLED SALAMANDER  
BY ERIC ISSELEE

## LUNGLESS SALAMANDERS

The lungless salamanders of the family *Plethodontidae* are slender and have neither gills nor lungs. Oxygen is absorbed through the moist skin and the lining of the mouth. Lungless salamanders should not be held in one's hands for more than a few seconds. If their skin should dry out, they will suffocate due to their inability to absorb oxygen through their skin. Air is drawn through the nostrils into the mouth by means of muscles in the throat. Some lungless salamanders will drown if submerged in water for long periods of time. Members of this family are also characterized by a shallow groove, the nasolabial groove, from the nostril down to the lip, although this feature is not always conspicuous.

## UNISEXUAL MOLE SALAMANDERS

In the past, hybridization of mole salamander species produced a dizzying array of salamanders having characteristics of two or more species. Today, thousands of generations later, these all female salamanders use the sperm from either Blue-spotted, Jefferson, Small-mouthed, or Tiger salamanders to produce offspring in a reproductive system that is unique to this group. In many cases these offspring have one, two, or even three extra sets of chromosomes and can closely resemble any of the parental species. It is usually impossible to give a species name to these unisexual salamanders without complicated DNA analysis. They are the most common group of mole salamanders in Ohio.

ENDANGERED

*Cryptobranchus alleganiensis alleganiensis*  
**EASTERN HELLBENDER**

In spite of its formidable appearance, the Eastern Hellbender is quite harmless. Hellbenders can reach 27" in length making it the largest amphibian in the state. Found mostly in unglaciated (south and east) Ohio, Hellbenders prefer large, swift flowing streams where they hide during the day under large rocks.

Although Hellbenders have lungs, the major organ of oxygen/carbon dioxide exchange is the loose wrinkled skin. Adult Hellbenders do not have gills but they do

have a single gill slit located on each side of the neck. They breed in late August or September. The female lays up to 500 eggs in a nest the male excavates under a large flat rock. Sometimes several females use the same nest. Hellbenders differ from other salamanders in that the male does not fertilize the eggs until after they have been laid. Young Hellbenders hatch in two to three months and retain their gills until they are about 1½ years old.



LENGTH: 11½ – 27 in. (30-51 cm.)

GIANT SALAMANDER  
FAMILY CRYPTOBRANCHIDAE

PHOTO BY ISAAC SZABO ©  
Courtesy Engbretson Underwater Photography

*Necturus maculosus maculosus*  
**COMMON MUDPUDDY**

Mudpuppies inhabit Lake Erie, large rivers, and streams, throughout Ohio. Since they are essentially nocturnal and will tolerate deep, muddy water, they are seldom seen. They feed on crayfish, aquatic insects, and just about anything else they can scavenge.

Notice the broad, flattened head, the distinctive, squarish snout, tiny inconspicuous eyes, and the bushy red

gills. These give the mudpuppy a sinister appearance. Despite their looks, Mudpuppies are completely harmless to people.

Young Mudpuppies mature when they are about five years old and eight inches long. They never undergo complete metamorphosis and retain their gills throughout life.



LENGTH: 8–13 in. (20–33 cm.)

PHOTO BY AL STAFFAN

# *Notophthalmus viridescens* RED-SPOTTED NEWT

Although most salamanders do not become land dwellers until they have reached a terrestrial juvenile stage, just the opposite is true with newts. About three or four months after hatching, the tiny larva loses its gills, acquires lungs, and begins life on land in the Red Eft immature state. Unlike the adult newt, the eft's bright red-orange skin is somewhat dry and rough. Its tail is rounded, much like a lizard's, rather than wedge-shaped.

During the next two to three years, it will forage on the forest floor, often wandering about during the day, especially during or just after a rain. Although it is conspicuous during this Red Eft stage, other animals seldom both-

er it because its skin glands produce irritating secretions. During the third year of its life, a remarkable transition occurs. The skin changes from orange to olive green. The tail becomes broad and wedge-shaped, and the body looks more like that of a salamander than a lizard. Newts maintain a rather granular skin throughout their life. At this point, the salamander returns to water to breed and remains there for the rest of its life as a mature Red-spotted Newt.

Newts occur sporadically throughout our state in permanent or semi-permanent bodies of water bordered by relatively undisturbed woodlands.



LENGTH: 3 – 4 in. (7.5-10 cm.)



RED EFT

PHOTO BY AL STAFFAN

PHOTO BY JIM MCCORMAC ©

# *Ambystoma barbouri* STREAMSIDE SALAMANDER

It is almost identical to the Small-mouthed Salamander in appearance, but differs in several small, important characteristics. It was recognized as a species and split from the Small-mouthed salamander in 1989. Earlier literature for this species is under *Ambystoma texanum*. Unlike most members of this family, the streamside prefers to breed in headwater streams lacking predatory

fish, rather than ponds. Eggs are attached singly to the underside of rocks in the stream. The aquatic larvae complete metamorphosis and move onto land 7-9 weeks after hatching. The Streamside Salamander occurs only in southwestern Ohio and is often seen crossing roads to enter streams in February and March.



LENGTH: 4½ – 5½ in. (11.5-14 cm.)



PHOTO MARK WILHELM ©

*Ambystoma jeffersonianum*  
**JEFFERSON SALAMANDER**

This salamander looks somewhat like the Spotted Salamander species without the yellow spots. Notice, however, the long toes and the sprinkling of small silver-blue specks concentrated on the sides of the body on younger specimens.

It lives in moist woodlands throughout most of the state.

It is very secretive and seldom seen except in early spring when it enters shallow woodland breeding ponds.

The Jefferson Salamander was named in honor of Jefferson College, and hence, indirectly for Thomas Jefferson. He was not only a famous statesman and president, but was also an accomplished naturalist.



LENGTH: 4½ – 7 in. (11.5-17.5 cm.)



PHOTO BY AL STAFFAN

*Ambystoma laterale*  
**BLUE-SPOTTED SALAMANDER**

The Blue-spotted Salamander very closely resembles the Jefferson Salamander in appearance. However, it can usually be identified by a profusion of blue flecks on its bluish-black body. This produces an impression of the coloration of old-fashioned enamelware. The Jefferson

Salamander has relatively few bluish flecks and these are, for the most part, confined along the creature's sides. Blue-spotted Salamanders are only found in a few locations in extreme northwestern counties.



LENGTH: 4 – 6 in. (10-15 cm.)



PHOTO BY AL STAFFAN

*Ambystoma maculatum*  
**SPOTTED SALAMANDER**

Spotted Salamanders are found throughout Ohio in low-lying moist woodlands adjacent to swamps, ponds, and creeks. Because of their secretive nature and their love for tunneling underground, they are seldom seen except in early spring. Then they migrate in large numbers to breeding ponds. Even then, they are active only at night. Often the only evidence of their presence is a fist-sized egg mass containing less than 100 eggs which

is attached to a submerged stick or plant. How does a six-inch salamander pass a fist-sized egg mass? The eggs are not that large when laid, but the jelly-like substance that covers them swells when the eggs come in contact with the water.

This large, chunky salamander has two irregular rows of yellow or greenish-yellow spots. Occasionally, the spots on the back of the head are orange.



LENGTH: 6 – 7¾ in. (15-20 cm.)



PHOTO BY AL STAFFAN

# *Ambystoma opacum* MARBLED SALAMANDER

The male's bright white bands on a black body and the female's grayish-white on black make this one of our more distinctively marked salamanders. However, a rare individual may lack the white bands which complicates an otherwise easy identification. Marbled Salamanders make their homes in a variety of habitats from dry wooded slopes to moist sandy areas. They are fond of hiding under rocks and logs on wooded slopes, sometimes in surprisingly dry places. Marbled Salamanders are distributed along some of the lakeshore counties, but are more

common in southern Ohio.

Marbled Salamanders breed in the fall. They migrate to low-lying wooded areas and swamps to perform their courtship. They differ from other mole salamanders in that their courtship takes place on land rather than in water. Females lay eggs under logs or other debris along the sides of dried up temporary ponds. The female remains with the eggs until the autumn rains refill the pool, causing the eggs to hatch.



LENGTH: 3½ – 4½ in. (9-11.5 cm.)



PHOTO BY AL STAFFAN

*Ambystoma texanum*  
**SMALL-MOUTHED SALAMANDER**

Named for its conspicuously small mouth, this animal also has a relatively small, narrow head. Its dark earth-tone color may be accented with light flecks of pigment, especially along its sides and bottom.

The Small-mouthed Salamander is one of the least particular in its choice of habitat. It can be found in just about any situation throughout all but the extreme east-

ern edge of the state, and like most members of this family it breeds in temporary ponds and wetlands.

This species can be difficult to differentiate from the "unisexual *Ambystoma*" and recent genetic investigations have complicated our understanding of its distribution in the state.



LENGTH: 4½ – 7½ in. (11.5-14 cm.)



PHOTO BY AL STAFFAN

*Ambystoma tigrinum*  
**EASTERN TIGER SALAMANDER**

Like the smaller Spotted Salamander, Tiger Salamanders are burrowers making sandy or friable soils a key habitat requirement. Occasionally they can be seen during fall rains or during their breeding season in late winter and early spring. The massive migration of adult Tiger Salamanders to larger bodies of water where they breed is a spectacular sight.

Once at their breeding grounds, these salamanders en-

gage in an elaborate pushing, nose-rubbing courtship dance during which the male deposits sperm packets. The female takes these into her body to fertilize her eggs. After she lays her eggs, the egg mass swells to the size of a fist. The eggs hatch in about three weeks and live as larvae for a period of two to three years. They eventually lose their external gills and become full adults in the summer or may remain in the wetland over winter.



LENGTH: 7 – 8¼ in. (18-21 cm.)



PHOTO BY AL STAFFAN

*Aneides aeneus*  
**GREEN SALAMANDER**

One of our more interesting salamanders, the Green Salamander, is limited in Ohio to a very few rock ledges in Adams, Lawrence and Scioto counties. It prefers the deep moist cracks in otherwise mostly dry limestone and sandstone cliffs. Its flattened head and body are well suited for moving about in such tight places. Here the Green Salamander spends the day hiding, but as night approaches, it ventures out onto the face of the cliff and adjacent trees in search of food.

The tiny, round eggs number from 10 to 20 and are laid in late summer within crevices of the cliff. The female stays with the eggs until they hatch, but shows little or no parental care.

This salamander is rare in Ohio and is listed as endangered by the Division of Wildlife. This is a secretive species and additional populations are occasionally discovered.



LENGTH: 3¼ – 5 in. (8-13 cm.)



# *Eurycea bislineata* **NORTHERN TWO-LINED SALAMANDER** & *Eurycea cirrigera* **SOUTHERN TWO-LINED SALAMANDER**

These are common brookside inhabitants found in all but the northwestern quarter of our state. They prefer small rocky woodland streams as well as springs and seeps, where they spend the day hiding beneath flat rocks and logs. Like the Northern Dusky Salamander, with which they often associate, Two-lined Salamanders are very abundant. They are easy to find but extremely difficult to catch and hold.

As its name implies, the Two-lined Salamander has two dark lines, one on either side of its bright yellow or golden brown back.

The Northern Two-lined Salamander (*E. bislineata*) is typically found north of Interstate 70, while the Southern Two-lined Salamander (*E. cirrigera*) occupies the southern portion of the state.



LENGTH: 2½ – 3¾ in. (6.5-9.5 cm.)

*Eurycea longicauda longicauda*  
**EASTERN LONG-TAILED SALAMANDER**

This is a strikingly beautiful salamander with a distinctive long tail. The tail accounts for more than half the total length of the mature adult while young salamanders have relatively short tails.

For the most part, the Long-tailed Salamanders are restricted to heavily wooded, hilly regions. They prefer wet shale banks and other seep areas. They are most often found hiding under stones or logs. They may also

be encountered under such objects along clear, flowing woodland streams.

Little is known about the life history of the Eastern Long-tailed Salamander, but it probably closely parallels that of other members of the same genus, such as the two-lined salamander.

As their aquatic larvae do not complete metamorphosis for over a year, their presence is often used to classify perennial (vs. ephemeral) streams.



LENGTH: 4 – 6½ in. (10-16.5 cm.)



PHOTO BY AL STAFFAN

*Eurycea lucifuga*  
**CAVE SALAMANDER**

The Cave Salamander occurs in Adams, Hamilton and Butler counties. Because of its highly limited occurrence in Ohio, the Cave Salamander is one of the four salamanders given protection as an endangered species by the Division of Wildlife.

As the name implies, this amphibian prefers the dimly lighted zone near the entrance of wet limestone caves.

However, it may also be encountered in wooded areas or along streams with a connection to groundwater, far removed from any known caves.

Cave Salamanders are similar in appearance to the Long-tailed Salamander, but Cave Salamanders are more reddish and have no vertical black markings on the sides of the tail.



LENGTH: 4-6 in. (10-15 cm.)



PHOTO BY AL STAFFAN

*Desmognathus fuscus*  
**NORTHERN DUSKY SALAMANDER**

Northern Dusky Salamanders can be easily recognized by the light-colored line which extends from the back corner of the eye diagonally downward to the back corner of the mouth, and by the hind legs which are conspicuously larger than the front. Otherwise, coloration and body markings are extremely variable.

Northern Dusky Salamanders may be found under rocks and similar debris in shallow woodland brooks,

springs, and seepage areas in all but the northwestern quarter of Ohio. The most abundant and easily found of all our native salamanders, they are also one of the most difficult to catch. Northern Dusky Salamanders are alert, slippery, run swiftly, and are surprisingly good jumpers.

Members of this family differ from all other salamanders in having an immovable lower jaw. The dusky must lift its head in order to open its mouth.



LENGTH: 2½ – 4½ in. (6.5-11.5 cm.)



PHOTO BY AL STAFFAN

*Desmognathus ochrophaeus*  
**ALLEGHENY MOUNTAIN DUSKY SALAMANDER**

Although easily confused with its close cousin the Northern Dusky Salamander, the Mountain Dusky Salamander has a rounded rather than a wedge-shaped tail. Also, look for the light tan or brownish stripe down the back, bordered on either side by a black or very dark brown line. Often there is a row of dark V-shaped spots running down the center of the back. Older specimens may be very dark and lack any pattern whatsoever.

Although they are reported to be somewhat more land-dwelling than most other species of dusky salamanders, they are normally found in the same habitat as the Northern Dusky and the Northern Two-lined Salamanders. In Ohio, Allegheny Mountain Dusky Salamanders are restricted to the extreme northeastern corner of the state.



LENGTH: 2¾ – 4 in. (7-10 cm.)



PHOTO BY AL STAFFAN

*Plethodon cinereus*  
**EASTERN RED-BACKED SALAMANDER**

This is a small, slender salamander which, unlike most other salamanders, has three distinct color phases. In the red-striped phase, a broad reddish-brown stripe bordered by dark pigment runs down the salamander's back; in the leadback phase, the animal is dark gray or gray-black. A red phase is restricted to northeastern Ohio.

Found throughout the state, the Red-backed Salamander is most often seen in early spring beneath rocks and logs, especially on floodplains. Both red-striped and

leadback phases may occur together.

This salamander is entirely land-dwelling and usually will not go to water even to breed. The eggs are laid in summer, hanging like a miniature cluster of grapes from the underside of a moist log or rock. The larvae pass through most of their gill-breathing stage while in the egg. When the eggs hatch in late summer, the gills have decreased significantly. Within 24 to 48 hours after hatching, the gills shrivel up and are barely noticeable.



LENGTH: 2¼ – 3½ in. (6-9 cm.)



PHOTO BY NINA HARFMANN

*Plethodon electromorphus*  
**NORTHERN RAVINE SALAMANDER**

The Northern Ravine Salamander occurs in much of southern and eastern Ohio. As the name implies, it prefers the moist slopes of wooded ravines where it can be found hiding beneath rocks and logs. Like other members of this genus, it's completely land-dwelling. Its eggs are even laid and hatched on land. Although frequently encountered in spring and fall, the Northern Ravine Sala-

mander is seldom seen in midsummer when it's buried deep in the ground seeking moisture.

At first glance, the Northern Ravine Salamander looks quite a bit like the leadback phase of the Red-backed Salamander. However, closer examination will reveal that its belly is a plain dark color and not mottled with black and white specks like those of the Red-backed Salamander.



LENGTH: 3 – 4½ in. (7.5-11.5 cm.)



PHOTO BY AL STAFFAN

*Plethodon glutinosus*  
**NORTHERN SLIMY SALAMANDER**

The Northern Slimy Salamander mainly inhabits the unglaciated eastern and southern portion of the state and some areas near the glacial border. Here it likes to hide under or in rotting logs and stumps. Although entirely land-dwelling, it prefers a damp habitat. Moisture is essential for all lungless salamanders. It breathes by means of its moist skin and the lining of the mouth cavity.

The Northern Slimy Salamander is appropriately named. Its skin secretions are exceptionally slimy. When handled, the secretions dry on hands as a dark film that is very difficult to wash off. These secretions deter would-be predators, such as a ring-necked snake.



LENGTH: 4 $\frac{3}{4}$  – 6 $\frac{3}{4}$  in. (12-17 cm.)



PHOTO BY AL STAFFAN

*Gyrinophilus porphyriticus*  
**SPRING SALAMANDER**

The status of Spring Salamanders in southeastern Ohio is still somewhat unsettled. There are two different races occurring in our state, both of which are uncommon. The Kentucky Spring Salamander (*Gyrinophilus porphyriticus duryi*) has been reported from Adams, Highland, Pike, Ross and Scioto counties and is a well defined race. The Northern Spring Salamander (*Gyrinophilus porphyriticus porphyriticus*) occurs throughout southeastern counties as well as in Hamilton County.

All Spring Salamanders prefer to live in clear woodland

brooks and springs where they hide under large flat stones. Occasionally they may be found hiding under objects in neighboring woodlands, but always in wet places. Larvae are more commonly seen than adults. Adults are known to feed on other salamanders, but little else is known about their life histories.

Both races of Spring Salamanders have a conspicuous light and dark line running from the eye to the nostril. The spring salamanders might be confused with the red and mud salamanders; however, they have no such dark line.



LENGTH: 4¾ – 7 in. (12-18 cm.)



PHOTO BY AL STAFFAN

*Hemidactylium scutatum*  
**FOUR-TOED SALAMANDER**

SPECIES OF CONCERN

Although this salamander ranges throughout all of Ohio, it is irregularly distributed and rare over much of this range.

All salamanders have four toes on their front feet except the Mudpuppy and the Four-toed Salamander — other salamanders have five toes. The Four-toed Salamander is also readily identified by its striking snow-white belly, boldly speckled with black.

The Four-toed Salamander usually lives close to boggy woodland ponds and swamps where it hides beneath moss, logs, rocks, slabs of bark and even leaves. Here it lays its eggs in early spring and remains with them until they hatch. The tiny larvae wriggle their way into the water and remain there until completing metamorphosis later that summer. Four-toed Salamanders often overwinter inside of rotting logs, sometimes in very large congregations.



LENGTH: 2 – 3 in. (5-7.5 cm.)



PHOTO BY AL STAFFAN

*Pseudotriton montanus diastictus*  
**MIDLAND MUD SALAMANDER**

Midland Mud Salamanders are most often encountered under large, flat stones along shallow, sluggish woodland streams, springs, and seeps. As implied by their name, they indeed seem to prefer muddy areas.

In Ohio, this species is somewhat uncommon and is

limited to a few counties in the extreme southern part of the state.

Although easily confused with the Northern Red Salamander, the Mud Salamander normally has a brown rather than yellow iris and a few black spots.



LENGTH: 3½– 6 in. (9-15 cm.)



PHOTO BY AL STAFFAN

*Pseudotriton ruber ruber*  
**NORTHERN RED SALAMANDER**

The Northern Red Salamander stands out from most of the other large, red-colored salamanders found in Ohio because of its distinctive, bright yellow-gold iris and its stout body.

Northern Reds can be located under logs, moss, and rocks in and around cold, clean springs and adjacent

brooks. With the exception of a small colony reported in the vicinity of Cincinnati, these salamanders occur only in the eastern half of the state.

Although adults are usually a striking bright red with scattered black dots, old specimens are less brightly colored, often somewhat purplish.



LENGTH: 4¼ – 6 in. (11-15 cm.)



PHOTO BY TIM DANIEL

# FROGS AND TOADS

In general, frogs tend to have moist, relatively smooth skin and leap. Toads have dry, warty skin and hop. Toads are members of the family Bufonidae.

Toads have erroneously long been blamed for causing warts and have been associated with witchcraft since earliest times. In reality, toads are extremely beneficial to man. Toads eat slugs, earthworms, sowbugs, and a wide variety of insects and their larvae. One report estimated that an average toad eats almost 10,000 harmful insects during a three-month period. The bumps that appear to be warts are actually glands. All of them produce a liquid that burns the sensitive mouth tissues of other animals. This is especially true of the large bump behind each eye—the parotoid gland. Most predators quickly

drop a toad because of this irritation and learn to avoid the toad in the future. Toads may also expel water from their bladder when they are picked up. Both substances are completely harmless to people, though they can burn the mouth and eyes.

Ohio's frogs and toads are members of four families:

**Bufonidae** – Eastern American toad and Fowler's Toad

**Hylidae** – Gray Treefrogs, Chorus Frogs, Spring Peeper, and Cricket Frog.

**Ranidae** – Bullfrog, Green Frog, Leopard Frog, Pickerel Frog, and Wood Frog.

**Scaphiopodidae** – Eastern Spadefoot



## ATTENTION!

Southern Leopard Frogs have been documented in Athens and Lawrence Counties in the 1960s and Scioto County in 2008. If you find one please take a photo and submit data to the Division of Wildlife. You have found something very special!



*Anaxyrus americanus*  
**AMERICAN TOAD**

American Toads are common in Ohio from urban backyards to remote woodlands. In spring, they congregate in large numbers in just about every available shallow breeding pond.

Their courtship activities go on night and day for a month or more. Then the toads abandon the ponds abruptly, leaving behind long strands of eggs. One female may lay as many as 12,000 eggs. These soon hatch into tiny, jet-black

tadpoles. By early June, they transform into pea-size toads that emerge from the ponds by the thousands. There have been reports of American Toads living to be 30 years of age.

American Toads tend to have one, two, or three warts in each of the dark dorsal spots and a belly peppered with black spots. Fowler's Toads generally have three or more warts in each of the larger dorsal spots and a white belly with a single black spot.



LENGTH: 2 – 3½ in. (5-9 cm.)

PHOTO BY TIM DANIEL

*Anaxyrus fowleri*  
**FOWLER'S TOAD**

This toad was named in honor of S. P. Fowler, an early naturalist from Massachusetts. It appears to be very similar to the American Toad, but there are several differences. Fowler's Toads have a single dark spot on the chest and belly while the chest and belly of the American Toad is usually spotted with a dark pigment. There are no greatly enlarged warts on the thighs of a Fowler's Toad as there are on the American Toad. The Fowler's song is

an unmusical nasal w-a-a-h lasting from one to four seconds. The American Toad's song is a high-pitched musical trill lasting from six to 30 seconds.

As with the American Toad, Fowler's Toads range throughout the state, but seem to prefer a more sandy habitat than do American Toads. The matter is further complicated because the two toads may cross-breed with each other.



LENGTH: 2 – 3 in. (5-7.5 cm.)

PHOTO BY AL STAFFAN

*Scaphiopus holbrookii*  
**EASTERN SPADEFoot**

The Eastern Spadefoot gets its name from the sickle-shaped horny spade or heel on the bottom of each hind foot used for digging. The Eastern Spadefoot is an accomplished backwards burrower.

Small warts are scattered over its relatively smooth skin. Notice the pupil is vertical rather than horizontal and that there are no conspicuous parotoid glands be-

hind the eyes. The spadefoot eats flies, spiders, caterpillars, earthworms, snails, moths, and crickets. It will breed after a heavy rainfall.

The Eastern Spadefoot is not a toad. It is exceptionally rare, and is known to occur in Athens, Coshocton, Lawrence, Meigs, Morgan, Scioto, Tuscarawas, and Washington counties. This is a state endangered species.



LENGTH: 1¾ – 2¼ in. (4.5-6 cm.)



PHOTO BY AL STAFFAN

*Acris blanchardi*  
**BLANCHARD'S CRICKET FROG**

Blanchard's Cricket Frogs are generally restricted to the western two-thirds of Ohio where they inhabit the shores of sparsely vegetated permanent ponds and streams. Although similar in size to its close relative the Chorus Frog, the Cricket Frog has warty rather than smooth skin and a dark triangle between the eyes. Because its color is influenced by its surroundings, there tends to be much variation in color and pattern. It tends to get lighter in color in a bright light, high temperature, or a dry atmosphere. Some have a bright green or brick

red stripe on their back. Unlike most other members of the treefrog family, which have broad rounded toe disks, Cricket Frogs' toe disks are no wider than the width of the tips of their toes.

Blanchard's Cricket Frog become active in very early spring, but do not begin their courtship serenade until late spring or early summer. Their call consists of a series of sharp clicking notes similar to the sound of someone tapping two marbles together in rapid succession.

SPECIES OF CONCERN

LENGTH:  $\frac{5}{8}$  - 1½ in. (1-4 cm.)

PHOTO BY AL STAFFAN

# *Pseudacris brachyphona* MOUNTAIN CHORUS FROG

Although very similar in appearance to the Spring Peeper, the Mountain Chorus Frog has two dark, curved stripes on the back which look like reversed parentheses. On some individuals these lines form a crude "X" or "H" causing it to be easily confused with the Spring Peeper. It also usually bears a dark triangle between the eyes and a white line on the upper lip. Its call is similar to that of the Western Chorus Frog, but distinctly more nasal and

higher pitched, with a faster trill rate.

This is a woodland species which occurs in Ohio only in the southeastern hill country, often some distance from the water. These frogs are usually inconspicuous, but in late spring they give themselves away as they call from their breeding pools, springs, brooks, or just about any other shallow body of water.



LENGTH: 1 – 1¼ in. (2.5-3 cm.)

PHOTO BY AL STAFFAN

*Pseudacris crucifer*  
**SPRING PEEPER**

At the first hint of spring, the Spring Peeper makes its appearance, often while traces of ice still remain on the shallow breeding ponds.

Although small enough to sit comfortably on a dime, this tiny tree frog has a shrill, birdlike peep or whistle which can be heard for a surprisingly great distance. The Peeper can easily be identified by the prominent dark "X"

marking on its back, as well as by its characteristically rounded tree-frog toe pads.

After the breeding season, Peepers move upland to moist woodlands where they spend the summer hiding among the shrubs and feeding on insects and other small organisms.



LENGTH:  $\frac{3}{4}$  –  $1\frac{1}{4}$  in. (2-3 cm.)



PHOTO BY AL STAFFAN

# *Pseudacris triseriata* WESTERN CHORUS FROG

The Western Chorus Frog is often confused with the Spring Peeper since they're similar in size and live in similar habitats. Like the Peeper, the Chorus Frog emerges from hibernation with the thawing of the ice and congregates by the hundreds in small ponds. The Chorus Frog's call resembles the sound made by rubbing one's finger over the teeth of a hard plastic comb instead of the bird-like whistle of the Peeper.

There are usually three distinctive dark stripes on the back extending from the nose across the eyes and on along the length of the body. In some populations the three stripes are broken into three rows of spots.

After the breeding season, Chorus Frogs are seldom seen. They probably retreat deep into mud to escape the heat of summer. Originally, this was chiefly a frog of the prairies, but it was able to extend its range as the eastern woodlands were cleared for agriculture.



LENGTH:  $\frac{3}{4}$  - 1½ in. (2-4 cm.)



PHOTO BY AL STAFFAN

# *Hyla versicolor* GRAY TREEFROG & *Hyla chrysoscelis* COPE'S GRAY TREEFROG

The gray treefrogs are the largest treefrog in the northern states. Both species live in trees and shrubs and change colors from gray-green to a light pearl-gray, depending on the background on which they rest. One of the best camouflaged of all frogs, a gray treefrog can blend in so well with a tree that even a careful observer has trouble spotting it.

A light-colored spot on each side of the head, just beneath the eyes, does not change color. Also, look for the bright yellow coloration on the inside surface of the thighs. Well developed, sticky adhesive toe discs enable

the gray treefrog to climb rapidly. This frog often goes through a series of frantic acrobatics trying to catch an insect several feet away. Afterwards, it may dangle by one foot until it can achieve a better balance.

They spend their lives aloft, calling out from trees and shrubs, especially just before or after a summer rain. These frogs seldom come down from the trees except during breeding season when they congregate at ponds. The call of both species is a loud trill, one to three seconds in duration. The gray treefrog's trill rate is slower and more melodious than the harsher trill of Cope's Gray Treefrog.



While the Gray Treefrog is found throughout Ohio, Cope's Gray Treefrog is restricted to the southern one-third of the state.

LENGTH: 1 ¼ – 2 in. (3-5 cm.)



PHOTO BY AL STAFFAN

*Lithobates catesbeianus*  
**AMERICAN BULLFROG**

The American Bullfrog is the largest frog in North America. The deep resonant call of the male Bullfrog can be heard reverberating from Ohio ponds, marshes, and large slow-moving streams from late April through late summer. Sometimes their call can be heard a mile away.

Like most other frogs and toads, its tongue is fastened in the front of the mouth, enabling it to catch a wide variety of creatures. Its diet includes crayfish, insects, mice, small snakes and turtles, and other frogs. There have

been reports of finding birds, and even bats in the stomachs of Bullfrogs.

As with its cousin the Green Frog, male and female Bullfrogs are distinguished from each other by the size of the ear drum. Females have ear drums about the size of their eyes; they are much larger in the males. Except during breeding season, when they go through an aggressive, loud, splashing courtship, Bullfrogs are rather solitary and are very territorial. The large tadpoles may take two or three years to complete metamorphosis.



LENGTH: 3½ – 6 in. (9-15 cm.)

PHOTO BY NINA HARFMANN

# *Lithobates clamitans melanota* NORTHERN GREEN FROG

This is by far the most abundant and widely distributed frog in Ohio. Although similar in appearance to the Bullfrog, the Green Frog is smaller and has two very pronounced ridges or dorsolateral folds down the back which are not found on Bullfrogs.

The Green Frog does not start singing until long after most other frogs have finished breeding. Its call sounds like the plucking of a bass string on a banjo at

well-spaced intervals. When disturbed, this frog utters a short, high pitched cry as it dives into the water. Even as an adult, the Green Frog is very aquatic and stays near water season after season.

The tadpoles closely resemble Bullfrog tadpoles, but are smaller. Green Frog tadpoles metamorphose the same year if they hatch from eggs laid in May or June. Eggs laid later result in tadpoles that overwinter, then undergo metamorphosis the next spring or summer.



LENGTH: 2¼ – 3½ in. (6-9 cm.)



PHOTO BY AL STAFFAN

# *Lithobates palustris* PICKEREL FROG

Although similar in appearance to the Northern Leopard Frog, the Pickerel Frog is slightly smaller, tends to be light brown instead of green, and has two rows of squarish rather than roundish spots running down its back. Also characteristic is the bright yellowish-orange coloration on the inside surfaces of its hind legs.

Pickerel Frogs tend to favor the cool, clear waters of streams as opposed to the warm, sluggish waters of ponds and lakes. They occur throughout the eastern half

of Ohio and all of the counties that border the Ohio River.

They also inhabit the Great Miami River drainage from Logan and Shelby counties south to Miami and Greene counties.

Many predators tend to avoid eating Pickerel Frogs. Their skin secretions are reported to be somewhat toxic, a trait apparently not shared by their close look-alike, the leopard frogs.



LENGTH: 1¾ – 3 in. (4.5-7.5 cm.)

PHOTO BY AL STAFFAN

*Lithobates pipiens*  
**NORTHERN LEOPARD FROG**

Northern Leopard Frogs are so named for the black "leopard spots" on their back, sides, and legs. They are fairly common throughout Ohio in a wide variety of habitats, ranging from the margins of lakes and rivers to marshes and wet meadows. During summer, they are often encountered in meadows away from any permanent body of water, hence the common names "Grass Frog" and "Meadow Frog."

From mid-March through May, ponds, streams, marshes, and even temporarily flooded fields are used for breeding grounds. The male's call is a low, guttural grunting like the sound produced by rubbing a thumb over a balloon. Leopard Frogs sing even when totally submerged in water.



LENGTH: 2 – 3½ in. (5-9 cm.)

PHOTO BY AL STAFFAN

# *Lithobates sylvaticus* WOOD FROG

This frog's wide range extends north to the tundra of Labrador and Alaska, farther north than any other North American amphibian. This frog is brown, tan, or pinkish with a dark mask across its eyes. It is our most terrestrial frog, preferring moist woodlands to the ponds more commonly frequented by other frogs. It even hibernates on land beneath leaf litter where it survives partial freezing of its tissues.

During the brief breeding period in late February to early April, often before the ice has completely melted, woodland ponds may be suddenly full of courting Wood Frogs. Their call is a series of five or six explosive clucking notes. A week or so after breeding, the ponds are completely abandoned by these solitary masked mavericks.



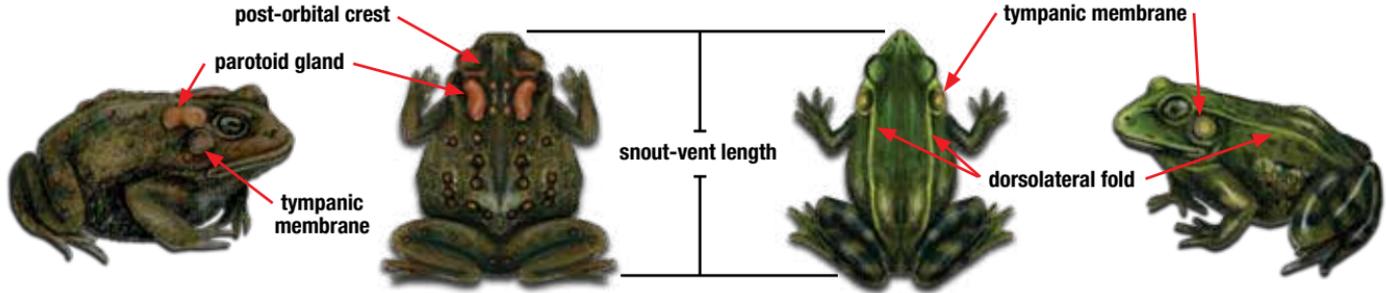
LENGTH: 1½ – 2¾ in. (4-7 cm.)

PHOTO BY AL STAFFAN

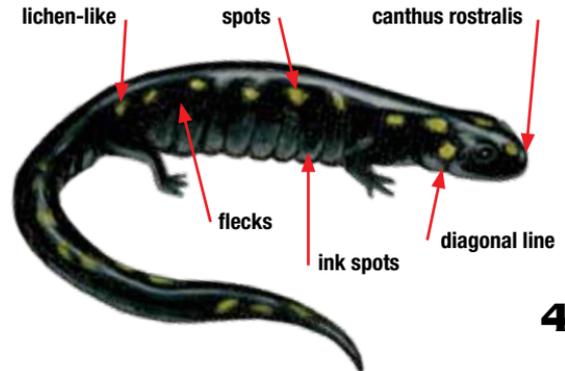
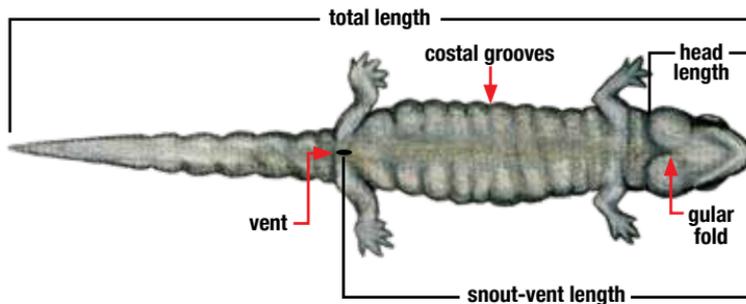
# TOAD AND FROG IDENTIFICATION

## TOAD

## FROG



# SALAMANDER IDENTIFICATION



# WISE WORDS FOR WILDLIFE EDUCATORS

Bringing wild animals into the classroom is a great way to connect students to the natural world. However, before bringing these animals into the classroom, it is important to understand that there are regulations and laws (Ohio Revised Code 1532.02 and 1533.08), as well as certain permits required for possessing any native wild animal in Ohio.

The Division of Wildlife offers Wild Animal Permits as a way for people to possess or study wild animals native to Ohio. A scientific collection permit is available for research, survey and inventory purposes. An education permit is available for static display of native wildlife or programming purposes.

Applicants must be affiliated with an educational or scientific institution. These permits are issued by the Division of Wildlife

Law Enforcement Section's permit coordinator. Please note that amphibians taken from the wild may not be returned after 30 days of possession and those held in captivity must be PIT tagged once they are a certain size or

prior to transferring them to another permit holder. You must also keep track of dates of possession and relinquishment, where the animal was taken from and, if not returned to the wild, the date of death or name of person to whom the animal was given. Additional written permission from the chief is required if you wish to take possession of any state-listed endangered or aquatic nuisance species.

Personal possession of native amphibians may be permitted through a noncommercial propagating license. Only "collectable" species of reptiles and amphibians may be taken from the wild with the exception of Green Frogs and Bullfrogs which can be harvested with a fishing license. All other species may only be acquired from a propagated source.



For further information on this please contact the  
**Division of Wildlife's Permit Office at**  
**1-800-WILDLIFE.**

## FAST FACTS

- Amphibians play a critical role as both predators and prey. As just one example, a single salamander larvae can consume more than 400 mosquito larvae in a day, and one study found wetlands with salamanders had 98% fewer mosquitos than those without.
- Ohio's most aquatic amphibian species are the Hellbender and Mudpuppy, which rarely if ever leave the water. Surprisingly, our least aquatic amphibian may be the immature stage of the Red-spotted Newt, which is known as a Red Eft. Efts range about very dry forested habitats, seldom if ever venturing into water.
- Brazilian Gold Frogs, *Brachycephalus didactylus*, are possibly the world's smallest amphibian, measuring less than half an inch long. In Ohio, the Spring Peeper is the tiniest, with most individuals averaging about an inch in length.



- Bullfrogs can live at least nine years in the wild, and captive individuals have survived for 16 years. American Toads have been reported to live for 30 years.
- Few animals are more accomplished jumpers than frogs. Some species can bound over 20 times the length of their body. To match that, a person would have to leap about 100 feet.
- The world's largest amphibian is the Chinese Giant Salamander, *Andrias davidianus*. The biggest individual yet found measured 5' 11" and weighed 143 pounds. The largest North American amphibian is the Two-toed Amphiuma, Amphiuma means, of the southeastern U.S. They can approach four feet in length and bite fiercely. In Ohio, Hellbenders hold the title for overall massiveness.

## LICENSING AND REGULATIONS

The ODNR Division of Wildlife adopted a regulation in May 2000, Ohio Administrative Code (O.A.C.) Section 1501:31-25-04, concerning the possession, purchase, sale, or trade of reptiles and amphibians native to our state. The purpose of this regulation is to protect and conserve native reptiles and amphibians while maintaining the educational and economic benefits derived from them. Contact your district wildlife office for further information.

# ***RECOMMENDED READING***

## **OHIO FROG AND TOAD ATLAS**

by Jeffrey G. Davis and Scott A. Menze

Ohio Biological Survey Miscellaneous Contributions

Number 6, 2000

Presents the distribution (includes county maps), abundance, and life history of 15 species of frogs and toads reported from Ohio.

## **AMPHIBIANS OF OHIO**

by R.A. Pflingsten, J.G. Davis, T.O. Matson, G.J. Lipps, Jr.,

D. Wynn, and B.J. Armitage (editors), 2013

Ohio Biological Survey Bulletin New Series. Volume 17

Number 1 xiv + 899 p.

## **IN OHIO'S BACKYARD: FROGS AND TOADS**

by Jeffrey G. Davis and Scott A. Menze

Ohio Biological Survey 2002.

Includes color photos, distribution maps of Ohio's frogs and toads, and a CD of their calls.

## **SALAMANDERS OF OHIO**

edited by Ralph A. Pflingsten and Floyd L. Downs

Ohio Biological Survey Bulletin, Volume 7, Number 2, 1989

Includes color plates of species and habitats and the life history and distribution of Ohio's salamanders.

## **THE AUDUBON SOCIETY FIELD GUIDE TO AMERICAN REPTILES & AMPHIBIANS**

by J.L. Behler and F. Wayne King.

Alfred A. Knopf, 1979

Field guide to North American species

## **A FIELD GUIDE TO REPTILES AND AMPHIBIANS OF EASTERN AND CENTRAL NORTH AMERICA**

by Roger Conant and Joseph T. Collins.

Houghton Mifflin Co., 1998 (revised edition)

Includes color plates, distribution maps and brief text about each species.

## **A NATURAL HISTORY OF AMPHIBIANS**

by Robert C. Stebbins and Nathan W. Cohen

Princeton University Press, 1995

## **OHIO SALAMANDER ATLAS**

by Ralph Pflingsten and Timothy O. Matson

Ohio Biological Survey Miscellaneous Contributions

Number 9, 2003

Presents the distribution (includes county maps), abundance, and life history of 28 species of salamanders reported from Ohio.



For more information about Ohio's native wildlife, please contact the ODNR Division of Wildlife:

**1-800-WILDLIFE**

(1-800-750-0750 Ohio Relay TTY only)

**WILDOHIO.GOV**

If you enjoy this book, mail a donation to:

Wildlife Diversity Fund  
2045 Morse Road, Bldg. G.  
Columbus, OH 43229-6693

## ***PUBLICATION FUNDING***

Funding for this publication was provided in part by donations to the state income tax checkoff program, sales of the cardinal license plate, and the Ohio Wildlife Legacy Stamp.

### **To purchase a Legacy Stamp:**

Call the ODNR  
Division of Wildlife:  
**1-800-WILDLIFE** or visit  
**WILDOHIO.GOV**



### **To make a donation:**

Go to the second page of the 1040 income tax form for the tax checkoff program



### **To purchase a license plate:**

Visit your local registrar's office or call the BMV at  
**1-888-PLATES3**



## ***OTHER DIVISION OF WILDLIFE FUNDED BOOKLETS***

Pub 5127 - Stream Fishes of Ohio  
Pub 5140 - Common Spiders of Ohio  
Pub 5204 - Butterflies & Skippers of Ohio  
Pub 5320 - Dragonflies & Damselflies of Ohio  
Pub 5334 - Sport Fish of Ohio

Pub 5344 - Mammals of Ohio  
Pub 5348 - Amphibians of Ohio  
Pub 5349 - Warblers of Ohio  
Pub 5354 - Reptiles of Ohio

Pub 5386 - Raptors of Ohio  
Pub 5414 - Common Birds of Ohio  
Pub 5418 - Waterbirds of Ohio  
Pub 5423 - Owls of Ohio

Pub 5467 - Moths of Ohio  
Pub 5473 - Lichens of Ohio  
Pub 5488 - Common Bees & Wasps of Ohio  
Pub 5494 - Wildflowers of Ohio  
Pub 5509 - Trees of Ohio



# DIVISION OF WILDLIFE

## OHIO DEPARTMENT OF NATURAL RESOURCES



### MISSION STATEMENT

To conserve and improve fish and wildlife resources and their habitats for sustainable use and appreciation by all.

The ODNR Division of Wildlife is the state agency responsible for managing Ohio's fish and wildlife resources. The primary source of funding for the division comes from the sale of hunting and fishing licenses, federal excise taxes on hunting, fishing, and shooting equipment, and donations from the public. We care about all wildlife and maintaining stable, healthy wildlife populations. Our challenge is to balance the needs of wildlife, habitat, and people.

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