

Dedicated to the Memory of
Commissioner Enoch S. "Inky" Moore Jr.



PLAY

Spring
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Pennsylvania • League • of • Angling • Youth

by Miranda Smith and Andy Desko

Pennsylvania's Handsome Hoppers



Pickerel
Frog

We hear about frogs and toads everywhere in our culture. They are in stories, art, music and television. In Pennsylvania, there are 16 species and subspecies of frogs and toads. Why are these creatures so cool?

First, they are predators. They eat insects and control pest populations. They are also amazing singers, and each species has its own distinctive call.

Frogs don't waste their time walking. They jump. They have strong hind legs to propel their bodies and allow them to ambush prey or leap away from predators. Some even climb trees. Toads are a little different in that they crawl on all four feet to stalk their prey.

Frogs and toads don't start life with these powerful legs. They have an interesting way of turning from eggs into adults. To find out more, read on.

This issue is all about frogs and toads, and you can learn even more about them on our website at www.fishandboat.com.



Eastern American Toad

Growing Up Amphibian

Frogs and toads are a type of animal called an amphibian. Amphibians don't just hatch from eggs and look like adults. They go through metamorphosis.

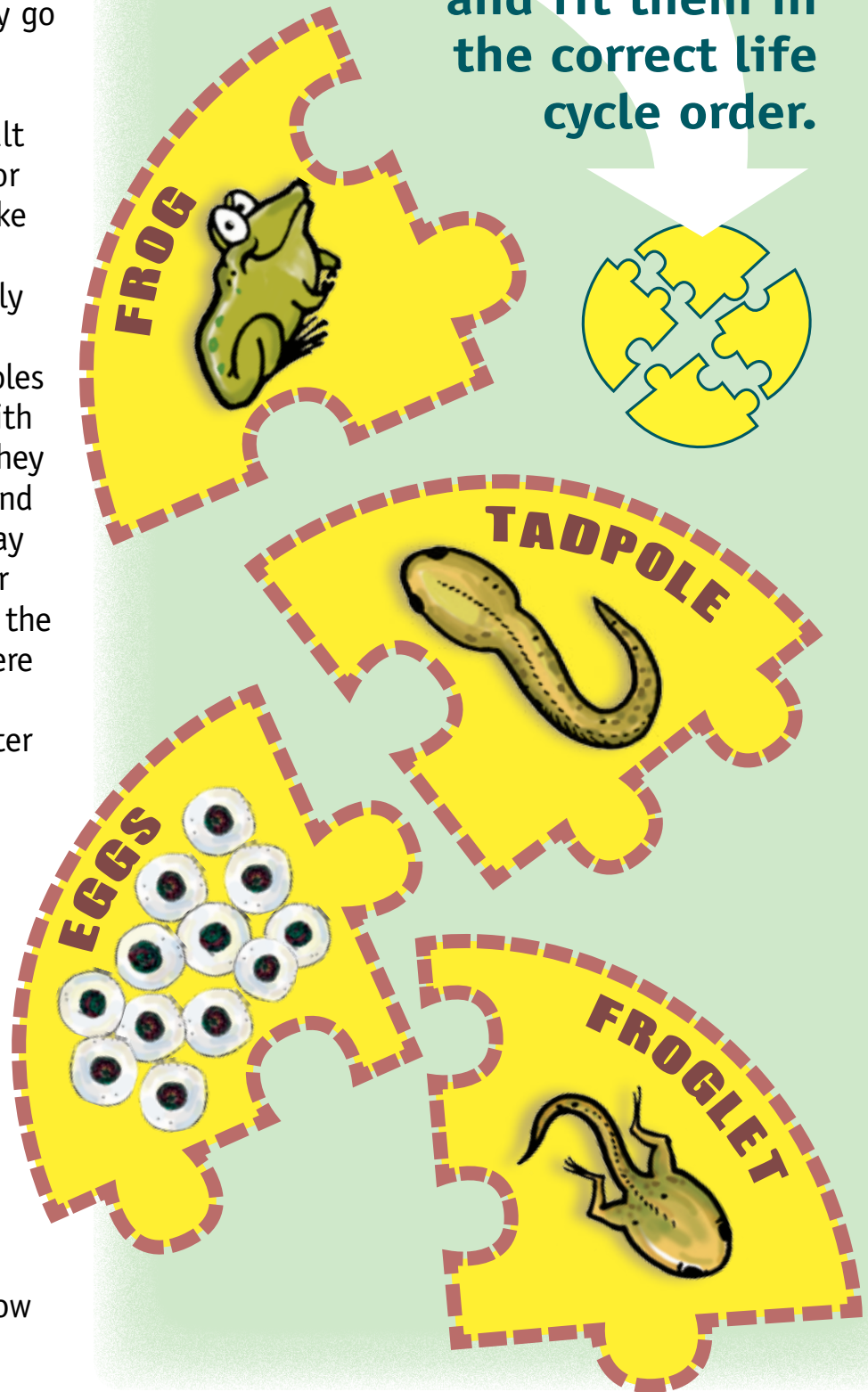
The first stage of the life cycle is egg development. Adult frogs and toads lay hundreds or thousands of eggs in a jelly-like mass in lakes, ponds or even puddles. The eggs hatch usually within one or two weeks.

When the eggs hatch, tadpoles emerge. Tadpoles are a body with a tail, mouth, eyes and gills. They wiggle their tails to move around and feed on algae. Tadpoles may live this way for a few weeks or up to two years, depending on the species or type of frog and where they live.

Eventually, the tadpoles enter the froglet or toadlet stage and will grow lungs and start breathing air. Next, their skin grows over their gills. The back legs start growing and the front legs follow. The tail is absorbed into the body, and the young froglets and toadlets climb out of the water to explore land for the first time.

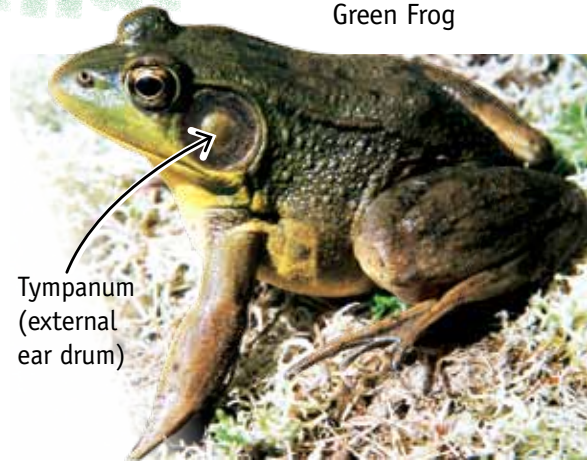
The froglets and toadlets then mature to adults. They no longer feed on algae but are now predators that can move freely between land and water.

Cut out the puzzle pieces, and fit them in the correct life cycle order.



Could You Croak that Again, Please?

Northern Green Frog



Tympanum (external ear drum)

Another cool fact about frogs and toads is that they have ears. They don't have lobes like us but instead have external ear drums, called tympanum. The tympanum is a ring of thin skin that can pick up vibrations. It is important for them to hear, because they call to each other. They don't even need phones.

Amphibian Sing-Off

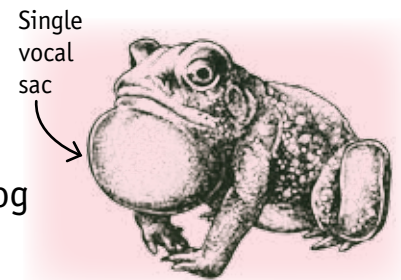


Northern Cricket Frog

Frogs and toads produce sounds in a voice box, and those sounds are boosted in a vocal sac. The vocal sac is a fold of skin filled with air. Some frogs and toads have just one vocal sac. Others have two vocal sacs.

Frogs and toads call for several reasons. They may call individually or in groups called a chorus. In most cases, the males are the only ones that call. They call to find a mate. Males make territorial calls to scare away other males. There is even a distress call frogs use when in danger.

Frogs and toads can be identified by their calls. The information below will help you identify some of the common frog and toad calls in Pennsylvania.



- Bullfrog** → "jug-o-rum, jug-o-rum"
- Wood Frog** → a duck quacking
- Spring Peeper** → a very high-pitched "peep, peep"
- Northern Green Frog** → a banjo string being plucked
- Eastern American Toad** → a long trill mistaken for crickets—
toads in spring, crickets in fall

Frog or Toad: Whats the Difference?

Amazing amphibians

Frogs and toads are part of a group of animals called amphibians. Amphibians are vertebrates. This means they have backbones just like you.

Amphibians go through metamorphosis. Their larval (immature) stage is very different from the adult.

People sometimes call amphibians "cold-blooded." A better term is ectothermic. "Ecto" means outside and "thermic" means heat. The body temperature of an ectotherm changes with the surrounding temperature outside.

Amphibians do not have claws or nails. They do not have scales, fur or feathers.



Bullfrog



Fowler's Toad

Give me some skin

Frogs have skin that is relatively smooth and moist, while toads have dry skin that is bumpy or warty. Amphibians can breathe through their skin on land and absorb oxygen through their skin while underwater.



Bullfrog foot

Leaps and bounds

Frogs have long legs that are great for leaping long distances. This helps them to escape predators. Frogs also have large, webbed back feet to move swiftly through water.

Toads have shorter legs. Toads have a secret weapon when it comes to avoiding predators. Keep reading to find out what it is.

Home sweet home

Frogs need to keep their skin moist, so they tend to live in more aquatic or damp habitats.

Mention "tree frogs" and most people think of the tropical rainforest. There are two species of tree frogs in Pennsylvania that live in trees and shrubs. They come to the ground only to breed. These two frogs, the spring peeper and the eastern gray treefrog, have sticky pads on their toes to help them climb.



Spring Peeper



Eastern Gray Treefrog

Toads do not need to live in moist environments, because their skin is dry. All toads in Pennsylvania live on or under the ground.

A sticky situation

Frogs and toads both have sticky tongues for catching prey. However, they use different methods for catching food.

Frog tongues are attached to the back of their mouth. Their tongues do not extend as far as a toad's tongue. Frogs tend to ambush prey by making a quick leap from a distance and using their tongue to grab prey.

Toads have long tongues attached to the front of their mouth. Toads actively crawl about looking for prey. When they spot something yummy, they get just close enough to reach it with a quick flick of their long tongue.



Pickerel Frog



Eastern American Toad

Winter hideaways

Frogs and toads are not active during winter. To survive during this time of hibernation, they must find a safe place to stay.

Frogs usually hibernate under the water. They go beneath the mud or leaves at the bottom of a stream or pond.

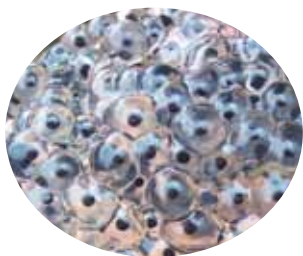
Toads hibernate on land. Toads use their back legs to dig a deep hole in the leaf litter or soft soil, where they stay safely below the frost line.

Extraordinary eggs

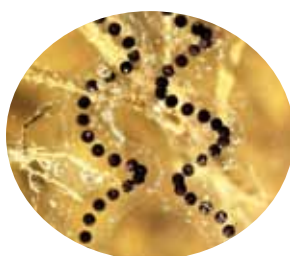
Frogs lay their eggs in free-floating clusters.

Most toads lay their eggs in strings.

You may also find salamander eggs. Some species of salamanders lay large clusters of eggs. However, salamander eggs are protected inside a gelatinous substance. The clusters are usually attached to an underwater branch or vegetation.



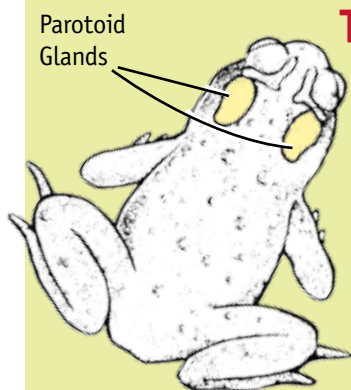
Wood Frog eggs



Eastern American Toad eggs



Marbled Salamander eggs



Toad-ally cool defense

Toads have a great way to keep predators away. They have two glands on their head, called parotoid glands, which secrete a poison when an animal bites them. This bad-tasting, toxic substance causes nausea and dizziness. Most predators quickly spit out the toad and learn that toads don't make good meals.

**MYTH-
BUSTED!**
**YOU
CANNOT
GET WARTS FROM
TOUCHING A
FROG OR TOAD.**



Hop to It!

Below are three groups of facts about Pennsylvania's amphibians.

Which group of fast facts belongs to the frogs, toads or both? On the blank line at the top of each column, label it with the correct word—"Frogs," "Toads" or "Both."

???????

???????

???????

- Dry, warty skin suited to live in dry habitats
- Short legs for hopping
- Active hunter that crawls, flicks out its long, sticky tongue to reach and catch prey
- Long, sticky tongue is attached to the front of its mouth
- Hibernates on land by using their back legs to dig deep burrows in leaf litter or soft soil
- Eggs usually laid in strings
- Secretes a poison from parotoid glands when an animal bites them

- Can breathe through their skin
- Have vocal chords to produce calls
- Ectothermic (body temperature changes with the temperature around them)
- Have a tympanum (external ear drum)
- As tadpoles, they eat algae, but they soon turn into predators, eating mostly insects, spiders and worms.
- Vertebrates (have a backbone)
- Go through metamorphosis

- Smooth skin
- Long legs for leaping
- Ambushes prey with a sudden leap, and grabs prey with its sticky tongue
- Tongue is attached to the back of its mouth
- Hibernates in water, under mud or leaves at the bottom of streams or ponds
- Eggs laid in clusters
- Lives in damp or wet habitats, because skin must stay moist

Frogs and Toads of Pennsylvania

Pennsylvania's Frogs and Toads Checklist

A complete list of Pennsylvania's **16** frogs and toads.

- Bullfrog
- Eastern American Toad
- Eastern Gray Treefrog
- Eastern Spadefoot
(endangered species)
- Fowler's Toad
- Mountain Chorus Frog
- New Jersey Chorus Frog
(endangered species)
- Northern Cricket Frog
(endangered species)
- Northern Green Frog
- Northern Leopard Frog
- Pickerel Frog
- Southern Leopard Frog
(endangered species)
- Spring Peeper
- Upland Chorus Frog
- Western Chorus Frog
- Wood Frog

Did you know that frogs and toads can tell us how healthy our environment is? They are considered "environmental indicators." They depend on both aquatic and land habitats for some part of their life cycle. If just one of those habitats is lost or ruined, they cannot survive. They also have thin skin that easily absorbs pollution. This makes them

sensitive to changes in air or water quality. A sudden decline in frog and toad numbers can be a sign that something is going wrong in the environment.

Frog and toad populations are declining worldwide at a high rate. In Pennsylvania, 25 percent of our listing of frog and toad species are currently endangered.

LOOK Before You Leap

Have you ever found a frog or toad? It may be tempting to take it home with you, but it's best to leave it in the wild. It can be difficult to provide frogs and toads with what they need to survive. They have everything they need in their natural habitat.

There are also regulations on killing or taking frogs and toads. First, everyone 16 years of age and older must have a current Pennsylvania fishing license if the animal is taken from a body of water. Some species are protected, which means you cannot take or kill them. Most other species have a limit of one.



Upland
Chorus Frog

For a current list of protected species and details about regulations, visit the Pennsylvania Fish & Boat Commission's website or look in the current *Pennsylvania Fishing Summary*.

PLAY

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