

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



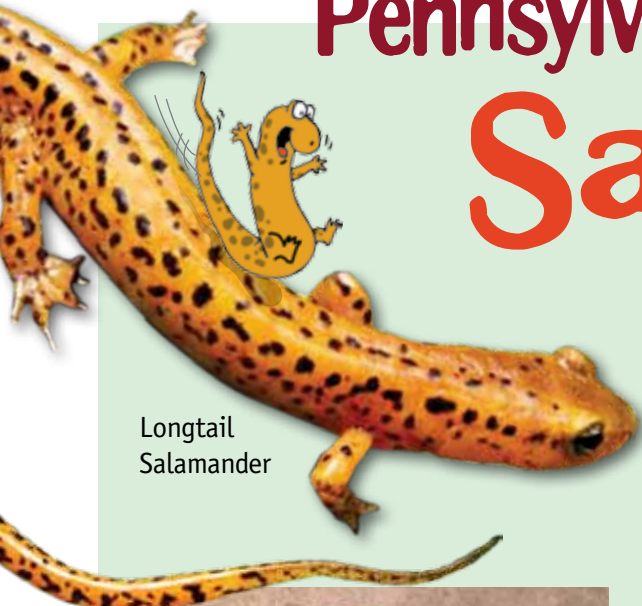
# PLAY

Summer  
2012

Pennsylvania • League • of • Angling • Youth

by Andrew Fedor

## Pennsylvania's Secret Salamander Treasures



Longtail  
Salamander



Northern Red Salamander



Four-toed Salamander

Salamanders are not Pennsylvania's most noticeable residents. You may have seen them swimming in the weeds near the shore of a lake, crossing roads in the evening after an early spring rain or while flipping over stones and logs in search of other critters.

Most of the time, salamanders are out of sight or misunderstood. Many are small, secretive and come out only when conditions are right. Some people think that they are lizards or have



a venomous bite. Neither of these myths are true. Salamanders are spectacular animals that are an important part of the environment. Read on to learn all about them.

# Growing Up Salamander

Many salamanders have a life cycle similar to frogs and toads. They begin by emerging from eggs as larvae and later change into adults. This transformation is called **metamorphosis**.

Adult female salamanders lay eggs in the spring, summer or fall. The eggs are laid individually, in small or large masses or in long strands. Eggs are laid in a moist environment, often a pond or **vernal pool** but sometimes under rocks or logs. A **vernal pool** is a seasonal pool of water that typically forms in the spring. They are usually dry by summer but may refill in autumn.

Salamanders and other amphibians like to breed in **vernal pools**, because predatory fish do not live there. Many species **brood** or stay with their eggs to protect them from predators until they hatch.

Eggs that are laid in ponds or streams hatch into larvae that must live in the water. The larvae look like miniature adults but with feathery gills extending near their

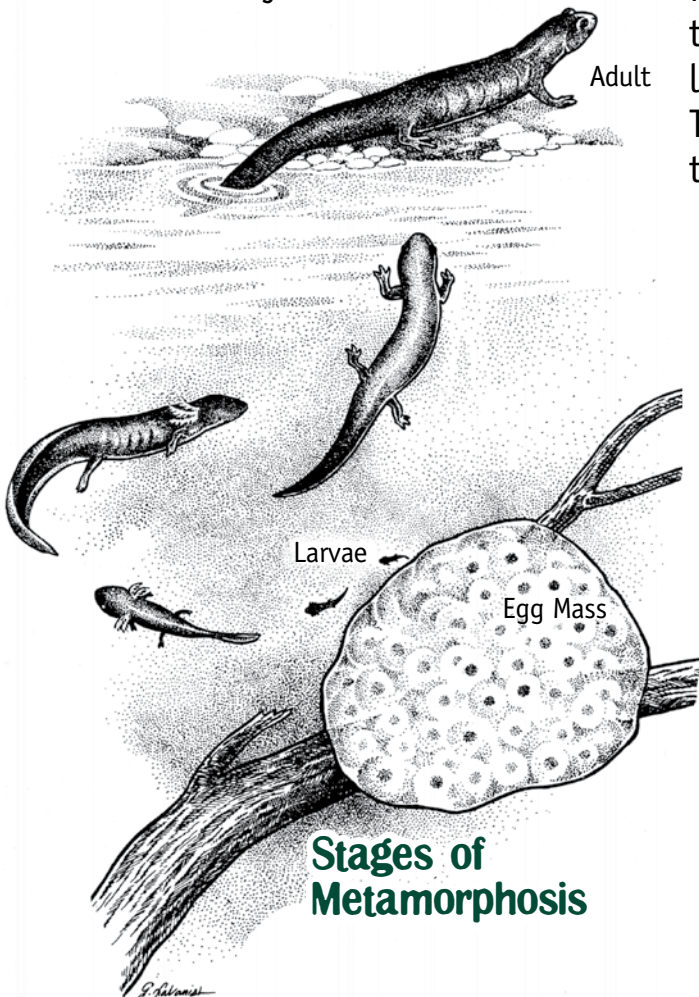
necks. The salamanders may remain larvae for a few weeks or even years, depending on the species. Pennsylvania salamanders that lay eggs on land do not have a larval stage. These salamanders develop fully while in the egg and hatch as miniature adults.



Marbled Salamander



Northern Dusky Salamander



## Pennsylvania salamanders without a larval stage:

- Eastern Redback Salamander
- Green Salamander
- Northern Ravine Salamander
- Northern Slimy Salamander
- Valley and Ridge Salamander
- Wehrle's Salamander

## VOCABULARY

(Watch for these words!)

**Brood** • **Carnivores** • **Larval**  
**Metamorphosis** • **Neoteny** • **Vernal pool**

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# Salamander Secrets

Salamanders may be found in rivers and streams, ponds and lakes, wetlands, **vernal pools** and even dry forests. Salamanders that live in the water are called aquatic. Those that live on land are called terrestrial. Salamanders have many special adaptations that allow them to survive in a wide variety of environments.

## A breath of fresh air

Not all salamanders breathe the same way. Each species may use one or more methods to breathe.

**Gills:** Some aquatic species have gills for their entire life, such as the mudpuppy. These gills look like feathery tufts on either side of the head. Keeping **larval** characteristics into adulthood is called **neoteny**.

**Lungs:** Some terrestrial salamanders have lungs. Their lungs are simple rather than complex like the lungs of mammals.

**Skin:** Some terrestrial species do not have lungs. They have thin skin that has many blood vessels near the surface that absorb oxygen.

## Life on land

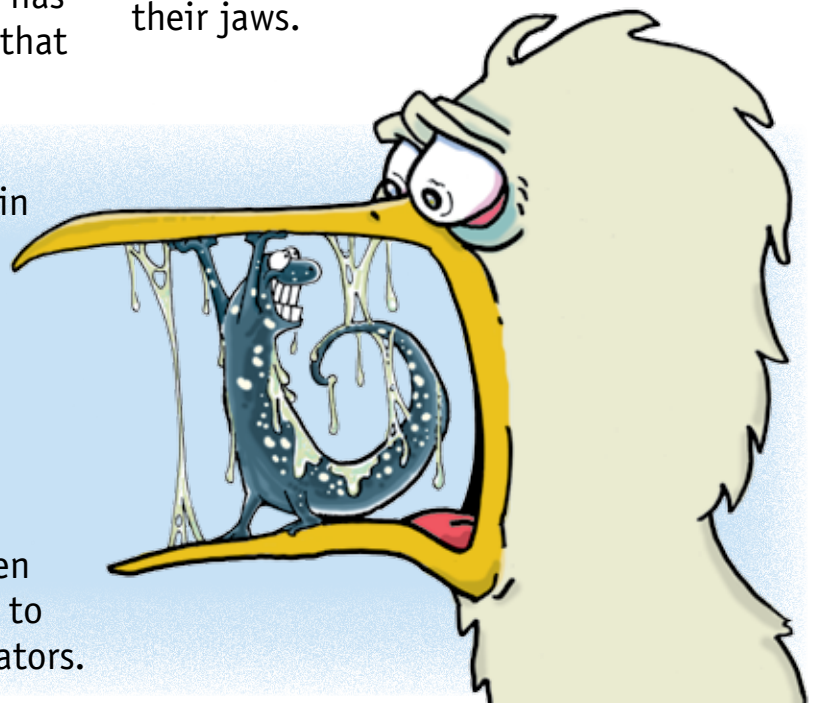
Salamanders must keep their skin moist. They stay under the cover of wet leaves or logs and rocks and only come out at night when the air is damp. They also have skin glands that secrete mucus to help keep them moist when on land. Some salamanders, such as the Northern slimy salamander, even secrete a toxic or sticky substance to help protect themselves from predators.

## Sneaky salamanders

Some salamanders, such as the seal salamander, can use their tail to escape danger. Their tail will break off and wiggle around if a predator catches them. The wiggling tail distracts the predator, giving the salamander a chance to escape. The missing tail may re-grow within a few weeks.

## Meal time

All salamanders are **carnivores** (meat-eating). Their diet depends on their size and habitat. Terrestrial salamanders usually catch food by extending a sticky tongue and pulling it into their mouths. Some will even lunge forward and grab prey with their jaws. Most aquatic species grab prey with their jaws.



# Pennsylvania's Most Fascinating Salamanders

## Eastern Hellbender

Eastern hellbenders are Pennsylvania's largest salamander measuring up to 20 inches long. They are gray or olive in color with heavily wrinkled skin. Their eyes are tiny, and they have a rudder-like tail. They live in fast moving streams with clear water and boulders or large stones. The number of Eastern hellbenders in Pennsylvania has been decreasing because of habitat destruction and pollution.

Some people think that they have a venomous bite, but they do not. If you accidentally catch one while fishing, you can easily take it off the hook. They are sometimes called "snot otters."



Eastern Hellbender



Mudpuppy

## Mudpuppy

Mudpuppies are the second largest salamander in Pennsylvania measuring up to 13 inches long. They are called mudpuppies, or waterdogs, because people once believed that they could make a barking sound like a dog.

Mudpuppies are gray to rusty brown in color with dark blue to black spots. They have external gills their entire life and four toes on their front and hind feet (most salamanders have five toes on the hind feet). They are found in lakes, rivers and streams in the western part of the state and are most active at night.



Spotted Salamander

## Spotted Salamander

Spotted salamanders are fairly common but rarely seen, because they spend most of their lives underground (like a mole). People are most likely

to see spotted salamanders when they migrate to **vernal pools**. This happens during warm, rainy nights in late winter or early spring.

Spotted salamanders are black or dark gray in color with two rows of large yellow or orange spots on their backs. They can be up to 8 inches long. These salamanders are found throughout Pennsylvania in hardwood forests with **vernal pools** or ponds.



Eastern Red-spotted Newt (efts)



Eastern Red-spotted Newt (adult)

## Eastern Red-spotted Newt

Eastern red-spotted newts are common in Pennsylvania and may be found in damp woods as eft (especially on rainy days). The larvae and adults may be found in ponds and lakes. This species is somewhat small, measuring up to 4 inches.

Eastern red-spotted newts go through three stages of life, each with its

own coloration. Larvae are greenish yellow. The efts are orange with black-bordered red spots on their back. This bright color warns predators that they secrete toxins. Adults are olive in color with a yellow belly and black speckles all over. They have black-bordered red spots on their backs.

## Pennsylvania's Salamanders Checklist

A complete list of Pennsylvania's **22** species of salamanders.

### Giant Salamanders

- Eastern Hellbender  
*Cryptobranchus alleganiensis alleganiensis*

### Mudpuppy Salamanders

- Mudpuppy *Necturus maculosus*

### Mole Salamanders

- Blue-spotted Salamander  
*Ambystoma laterale*  
(endangered species)
- Jefferson Salamander  
*Ambystoma jeffersonianum*
- Marbled Salamander  
*Ambystoma opacum*
- Spotted Salamander  
*Ambystoma maculatum*

### Newts

- Eastern Red-spotted Newt  
*Notophthalmus viridescens viridescens*

### Lungless Salamanders

- Allegheny Mountain Dusky Salamander  
*Desmognathus ochrophaeus*
- Eastern Mud Salamander  
*Pseudotriton montanus* (endangered)
- Eastern Redback Salamander  
*Plethodon cinereus*

- Four-toed Salamander  
*Hemidactylium scutatum*
- Green Salamander  
*Aneides aeneus*  
(threatened species)
- Longtail Salamander  
*Eurycea longicauda longicauda*
- Northern Dusky Salamander  
*Desmognathus fuscus*
- Northern Ravine Salamander  
*Plethodon electromorphus*
- Northern Red Salamander  
*Pseudotriton rube*
- Northern Slimy Salamander  
*Plethodon glutinosus*
- Northern Spring Salamander  
*Gyrinophilus porphyriticus porphyriticus*
- Northern Two-lined Salamander  
*Eurycea bislineata*
- Seal Salamander  
*Desmognathus monticola*
- Valley and Ridge Salamander  
*Plethodon hoffmani*
- Wehrle's Salamander  
*Plethodon wehrlei*

## Northern Slimy Salamander

Northern slimy salamanders are a woodland species, measuring up to 7 inches. Their skin secretes a sticky mucus that is difficult to wash off.

Northern slimy salamanders are black with many small, white or silver spots. They can be found beneath rocks and rotting logs. These salamanders are common throughout Pennsylvania.



Northern Slimy Salamander

# Travelling Salamanders

In late winter or early spring, several species of salamanders start to migrate to vernal pools on warm, rainy nights including Jefferson salamanders, four-toed salamanders, Eastern red-spotted newts and spotted salamanders. Search for these species at night with an adult, flashlight and rain gear.

## Should I keep it?

It may seem fun to keep a salamander as a pet, but it's best to leave them in the wild. It's difficult to match the habitat needs of salamanders in your home, and they may die. If you want to catch salamanders, there are rules and regulations that you need to follow. Please visit the Pennsylvania Fish & Boat Commission website at [www.fishandboat.com](http://www.fishandboat.com) or look in the current *Pennsylvania Fishing Summary* to learn about regulations on salamanders and other amphibians and reptiles.

Better yet, why not design your own salamander instead of keeping one as a pet? Color in the salamander at the right using this issue for ideas, or come up with your own species.

## Little Salamander Out in the Yard

These four salamanders are found throughout Pennsylvania and can be found in your backyard.



Eastern Redback Salamander



Northern Dusky Salamander



Northern Spring Salamander



Northern Two-lined Salamander



# Salamander SUDOKU

Which of the Pennsylvania salamanders at the right go into each empty space in the puzzle below? Each row, column and four-square box must contain all four salamanders to solve the puzzle. Cut along the dotted lines and place the missing salamanders in their proper spaces.



## PUZZLE SOLUTION

Four-toed Salamander	Green Salamander	Jefferson Salamander	Longtail Salamander
Longtail Salamander	Jefferson Salamander	Four-toed Salamander	Green Salamander
Jefferson Salamander	Longtail Salamander	Green Salamander	Four-toed Salamander
Green Salamander	Four-toed Salamander	Longtail Salamander	Jefferson Salamander

# PLAY

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