

# SALAMANDERS

of West Virginia



WEST VIRGINIA

**DNR**

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Marshall University



West Virginia Division of Natural Resources,  
Wildlife Resources Section

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**Cover image:** Red Salamander by Clayton Lane

## Your invitation to explore the remarkable world of West Virginia's salamanders

Deep in the heart of West Virginia, there is a hidden world full of mystery and wonder where the boundaries between land and water are blurred and creatures of magnificent design move with grace. It is here, among the shadows and dappled light of cool, damp forests and babbling brooks, that one of the earth's most fascinating creatures can be found — salamanders.

These mysterious amphibians are creatures of two worlds, perfectly adapted to the unique challenges of land and water. From their incredible ability to regenerate lost limbs to their role as bioindicators of environmental health, salamanders continue to captivate the imaginations of biologists and nature enthusiasts alike. And for good reason — there is still so much we have yet to learn about salamanders. And as we learn more about salamanders, we get a glimpse of what makes West Virginia one of the most beautiful and diverse places in the world.

From the elusive Hellbender to the colorful Spotted Salamander, each species has its own unique story to tell. So, join us on a journey through lush forests and sparkling streams where we will explore the beautiful and diverse world of West Virginia's salamanders.

## West Virginia Salamander Facts

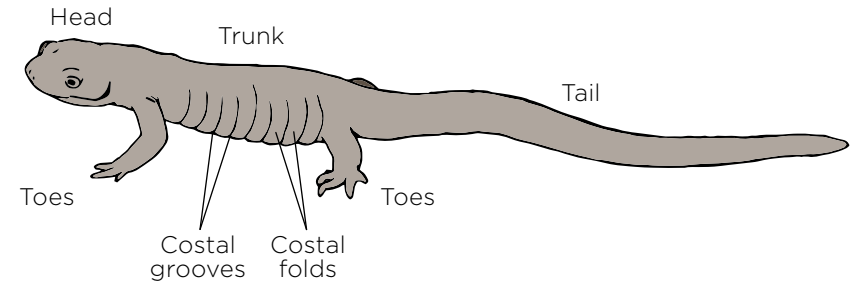
- West Virginia currently recognizes 36 species of salamanders. New species continue to be identified, as further research identifies the unique biodiversity within the state.
- Some people might call salamanders “spring lizards,” but they are amphibians and lack reptilian characteristics, such as body scales and clawed toes.
- The word amphibian comes from two Greek words that mean “double life” (amphi- and -bios).
- Some salamander larvae have external gills and live in water. The larval stage for forest-dwelling species happens in the egg.
- Salamanders live in a variety of habitat types, including rivers, creeks, springs, rock outcrops, caves and moist forests.
- Salamanders are ectotherms (“cold-blooded”), meaning surrounding temperatures regulate their body temperature.
- Salamanders are in the middle of the food chain, consuming insects and invertebrates while serving as prey to fish, birds, reptiles, insects, mammals and even other amphibians.



Mike Wilhelm

Spotted, Jefferson and Marbled salamanders are three species found in West Virginia.

## Salamander Anatomy



Adrienne Brand

Salamander habitat in the Monongahela National Forest.

## How can you help conserve and protect West Virginia's diverse salamanders?

Here are the **DOs** and **DON'Ts** of salamander conservation.

**DO** leave leaf litter and downed logs to provide habitat.

**DO** use appropriate decontamination methods on footwear, field gear and fishing tackle between wetlands and waterbodies to reduce the spread of amphibian disease.

**DO** reduce the use of chemical repellents and pesticides that are harmful to amphibians.

**DON'T** drain wetlands and ponds, or disturb vegetation in and around these habitats.

**DON'T** remove, disturb or stack rocks, such as creating cairns and fire rings, in streams, creeks or forests, as these actions destroy habitat.

**DON'T** remove salamanders from their habitat.

**DON'T** operate all-terrain vehicles or create trails in and around wetlands and other important salamander habitats.

## Species of Greatest Conservation Need

**Species of Greatest Conservation Need (SGCN)** have been established to identify species particularly at risk of extirpation from the West Virginia landscape. SGCN are part of the West Virginia State Wildlife Action Plan (SWAP), which was developed to provide a comprehensive wildlife conservation strategy to proactively conserve the full array of West Virginia's biological diversity, including salamanders. Several species of salamanders are currently identified as SGCN in the SWAP due to a variety of threats, including habitat loss, climate change and disease. However, the SWAP is dynamic, and the number of SGCN can change as new information becomes available, including the discovery of new species.

<b>ACKNOWLEDGEMENTS</b>	<b>ii</b>
<b>INTRODUCTION</b>	<b>iii</b>
<b>WEST VIRGINIA SALAMANDER FACTS</b>	<b>iv</b>
<b>SALAMANDER ANATOMY</b>	<b>v</b>
<b>SALAMANDER CONSERVATION</b>	<b>vi</b>
<b>GIANT SALAMANDERS (CRYPTOBRANCHIDAE)</b>	
Eastern Hellbender ( <i>Cryptobranchus a. alleganiensis</i> ) .....	1
<b>MUDPUPPIES (PROTEIDAE)</b>	
Common Mudpuppy ( <i>Necturus maculosus</i> ).....	2
<b>MOLE SALAMANDERS (AMBYSTOMATIDAE)</b>	
Small-mouthed Salamander ( <i>Ambystoma texanum</i> ) .....	3
Streamside Salamander ( <i>Ambystoma barbouri</i> ) .....	4
Jefferson Salamander ( <i>Ambystoma jeffersonianum</i> ).....	5
Spotted Salamander ( <i>Ambystoma maculatum</i> ).....	6
Marbled Salamander ( <i>Ambystoma opacum</i> ) .....	7
<b>NEWTs (SALAMANDRIDAE)</b>	
Eastern Newt ( <i>Notophthalmus viridescens</i> ) .....	8
<b>LUNGLESS SALAMANDERS (PLETHODONTIDAE)</b>	
<b>Dusky Salamanders (genus <i>Desmognathus</i>)</b>	
Northern Dusky Salamander ( <i>Desmognathus fuscus</i> ).....	9
Allegheny Mountain Dusky Salamander ( <i>Desmognathus ochrophaeus</i> ) .....	10
Seal Salamander ( <i>Desmognathus monticola</i> ).....	11
Kanawha Black-bellied Salamander ( <i>Desmognathus kanawha</i> ) .....	12
Black Mountain Salamander ( <i>Desmognathus welteri</i> ).....	13

**Brook Salamanders (genus Eurycea)**

Cave Salamander (*Eurycea lucifuga*).....14  
 Northern Two-lined Salamander (*Eurycea bislineata*) .....  
 Southern Two-lined Salamander (*Eurycea cirrigera*)..... 15  
 Long-tailed Salamander (*Eurycea longicauda*) ..... 16

**Woodland Salamanders (genus Plethodon)**

Eastern Red-backed Salamander (*Plethodon cinereus*)..... 17  
 Cheat Mountain Salamander (*Plethodon nettingi*)..... 18  
 Southern Ravine Salamander (*Plethodon richmondi*)  
 Northern Ravine Salamander (*Plethodon electromorphus*) ..... 19  
 Valley and Ridge Salamander (*Plethodon hoffmani*)  
 Shenandoah Mountain Salamander (*Plethodon virginia*)..... 20  
 Northern Slimy Salamander (*Plethodon glutinosus*)  
 Cumberland Plateau Salamander (*Plethodon kentucki*)  
 White-spotted Slimy Salamander (*Plethodon cylindraceus*)..... 21  
 Wehrle’s Salamander (*Plethodon wehrlei*)..... 22  
 Cow Knob Salamander (*Plethodon punctatus*) ..... 23  
 Yellow-spotted Woodland Salamander (*Plethodon pauleyi*) ..... 24

**Miscellaneous Genera**

Green Salamander (*Aneides aeneus*)..... 25  
 Mud Salamander (*Pseudotriton montanus*)..... 26  
 Red Salamander (*Pseudotriton ruber*) ..... 27  
 Spring Salamander (*Gyrinophilus porphyriticus*) ..... 28  
 West Virginia Spring Salamander (*Gyrinophilus subterraneus*)..... 29  
 Four-toed Salamander (*Hemidactylium scutatum*)..... 30

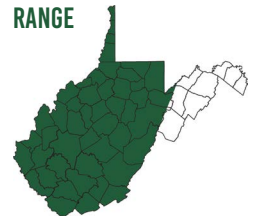
**EASTERN HELLBENDER (*Cryptobranchus a. alleganiensis*)\***

Hellbenders are large aquatic salamanders that may reach 24 inches in length. They are generally brown with uneven, dark spots on their backs. Unique characteristics include a flat head with small eyes, wrinkled folds of skin between the front and hind limbs and gill slits that remain through each life stage.

They live in permanent streams where they stay under flat rocks in riverbeds during the day and emerge at night to forage for food. While their major food source is crayfish, they also prey on a variety of insects and fish. They are probably active all year long.

Hellbenders mate in late summer and females lay their eggs from late August to early November. Males create nests under rocks or logs in streams where females lay 200-400 marble-sized eggs that resemble a beaded necklace. Hellbenders are the only salamanders in West Virginia that have external fertilization. Males remain with the eggs until they hatch in about 60 days. Once hatched, larval Hellbenders remain in the larva stage for about two years. Unfortunately, anglers often mistake Hellbenders to be venomous or major predators of sport fish and sometimes kill them when caught. Hellbenders are harmless and should be released if accidentally caught.

Hellbenders are found at all elevations in streams west of the Allegheny Front, though several observations have been made in eastern counties.



**RANGE**  
 Up to 24 inches

**LENGTH**  
 Up to 24 inches

**COLOR**  
 Generally brown with uneven dark spots on their backs

**\*CONSERVATION STATUS**  
 SGCN (For more information, see page vi.)



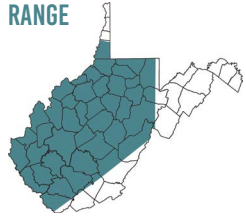
Todd Pierson

The Eastern Hellbender (*Cryptobranchus a. alleganiensis*) is harmless and should be released if caught while fishing.

## Mudpuppies (Proteidae)

### COMMON MUDPUPPY (*Necturus maculosus*)\*

#### RANGE



#### LENGTH

Up to 17 inches

#### COLOR

Dorsal coloration varies from rusty brown to bluish-black with numerous uneven dark spots

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Mudpuppies, also known as Waterdogs, are large aquatic salamanders that can reach 17 inches in length. Dorsal coloration varies from rusty brown to bluish-black with numerous uneven dark spots. Dark stripes on each side of the head extend from the nostrils to the gills. They are the only salamanders in West Virginia that have visible external gills during both their larvae and adult stages.

Other distinguishing characteristics of Mudpuppies include a compressed tail with a strong dorsal keel and four toes on their hind feet. (Four-toed Salamanders are the only other salamanders in West Virginia to have this characteristic).

Mudpuppies live in streams and impoundments where they hide under rocks and debris and can be found in furrows or under bank overhangs during the day. They become active at night when they forage for food, such as crayfish, small fishes, amphibians, mollusks, worms and aquatic insects. Mudpuppies are active throughout the year.

Mudpuppies mate in the fall and females lay their eggs on the underside of cover objects in early spring. Females remain with the eggs until they hatch, which takes approximately 50 days. Mudpuppies reach sexual maturity in five to six years.

Mudpuppies are found throughout the Allegheny Plateau in West Virginia.



Todd Pierson

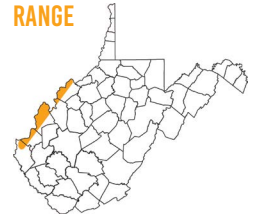
The Common Mudpuppy (*Necturus maculosus*) is harmless and should be released if caught while fishing.

## Mole Salamanders (Ambystomatidae)

All members of this family are referred to as mole salamanders because they stay underground most of the year only emerging to breed. Throughout the breeding season adults may be found under logs, bark, leaves, stones, and debris around temporary or fishless pools and streams. They feed on a variety of invertebrates such as earthworms, snails, slugs, centipedes, spiders and insects, as well as amphibian larvae.

### SMALL-MOUTHED SALAMANDER (*Ambystoma texanum*)\*

#### RANGE



Small-mouthed Salamanders have stout bodies that can reach about 7 inches in length. Compared to other mole salamanders, the head and mouth are both proportionally smaller than the body. They are black or dark brown and may have numerous bluish-gray or silvery-gray lichen-like markings along the sides of the body and tail.

Small-mouthed Salamanders emerge in late winter or early spring and migrate to small, fishless pools that are usually temporarily filled with water. Breeding happens in February and March when females lay single eggs or in loose clusters on twigs, leaves and other submerged vegetation. Eggs hatch in one to two months and the larval period lasts about three months.

Small-mouthed Salamanders are typically thought of as a species of the western United States. They reach the most eastern point of their range along the Ohio River in West Virginia.

#### LENGTH

Up to 7 inches

#### COLOR

Black or dark brown with bluish-gray or silvery gray markings

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)



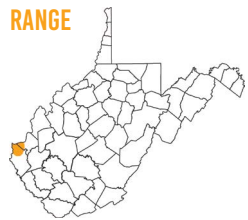
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Small-mouthed Salamander (*Ambystoma texanum*)

## Mole Salamanders (Ambystomatidae)

### STREAMSIDE SALAMANDER (*Ambystoma barbouri*)\*

#### RANGE



#### LENGTH

Up to 7 inches

#### COLOR

Black or dark brown with bluish-gray or silvery gray markings

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Streamside Salamanders and Small-mouthed Salamanders are sibling species and nearly identical in appearance. What distinguishes the two is the size and shape of their teeth and habitats. Streamside Salamanders generally breed in small fishless streams or pools fed by such streams.

Streamside Salamanders mate from December to April and females lay single eggs on the underside of rocks, which hatch in one to two months.

Like Small-mouthed Salamanders, Streamside Salamanders are typically considered a species of the western United States. They reach the most eastern point of their range in western West Virginia.



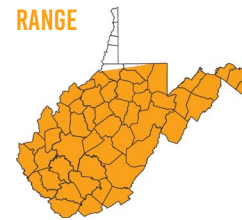
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Streamside Salamander (*Ambystoma barbouri*)

## Mole Salamanders (Ambystomatidae)

### JEFFERSON SALAMANDER (*Ambystoma jeffersonianum*)\*

#### RANGE



#### LENGTH

Up to 8 inches

#### COLOR

Brown or gray, may have small bluish flecks along sides of head, trunk, limbs and tail

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Jefferson Salamanders are large and slender, reaching 8 inches in length. They are brown or gray and may have small bluish flecks along the sides of the head, trunk, limbs and tail. Their belly is lighter gray, especially around the vent. Extremely long toes help separate them from other species in this genus.

Adults remain underground until late winter or early spring (February and March) when they come to the surface on rainy nights and migrate en masse to breeding pools. Females lay 25-30 eggs in clear gelatinous masses that may or may not be attached to submerged vegetation. Females can lay up to 200 eggs. Eggs usually hatch in two to four weeks and larvae transform in two to four months.



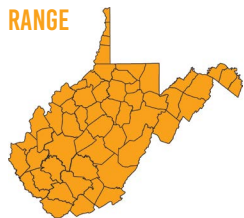
Todd Pierson

The Jefferson Salamander (*Ambystoma jeffersonianum*) has extremely long toes.

## Mole Salamanders (Ambystomatidae)

### SPOTTED SALAMANDER (*Ambystoma maculatum*)

#### RANGE



#### LENGTH

Up to 8 inches

#### COLOR

Slate-colored with two irregular rows of rounded yellow spots on the back

As its name suggests, Spotted Salamanders are typically slate-colored with two irregular rows of rounded yellow spots on the back from the head onto the tail. However, there is variation between individuals and populations in the number and presence of spots. They have numerous silvery or white flecks over the body and the belly is dark gray. They can reach 8 inches in length.

Adults emerge from underground refugia during late winter or early spring (February and March) rains and move in a group to breeding pools. Females lay up to 250 eggs in gelatinous masses that may or may not be attached to submerged vegetation. Egg masses are usually cottony white in appearance but some are clear. Eggs generally hatch in four to six weeks and larvae transform in two to four months.

Spotted Salamanders are the most common species of this genus in the state and can be found in every county from the highest to the lowest elevations.



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Spotted Salamander (*Ambystoma maculatum*)

## Mole Salamanders (Ambystomatidae)

### MARbled SALAMANDER (*Ambystoma opacum*)\*

#### RANGE



#### LENGTH

5 inches

#### COLOR

Black and white alternating crossbands down the back with a black belly; lighter dorsal bands are white in males, grayish in females

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Marbled Salamanders are stout-bodied salamanders that have black and white alternating crossbands down the back along with a black belly. The lighter dorsal bands are white in males and grayish in females. They reach about 5 inches in length.

Like other Mole Salamanders in West Virginia, Marbled Salamanders remain underground until the breeding period. Unlike the other species of this genus, they breed and lay eggs in the autumn. Mating happens on land, usually in or around dried temporary pools that fill with water during autumn rains. Females lay 60-130 eggs in small depressions in dried pools and usually remain with the nests for several weeks until the pools become inundated. Eggs hatch in autumn or early winter, depending upon the flooding of nests. Larvae spend the winter in pools and transform the ensuing summer.



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The Marbled Salamander (*Ambystoma opacum*) breeds and lays eggs in autumn.



## Newts (Salamandridae)

### EASTERN NEWT (*Notophthalmus viridescens*)\*

#### RANGE



#### LENGTH

4 inches

#### COLOR

**Efts:** Red to orange with black-bordered spots along each side

**Adults:** Olive-green back with scattered red spots and a yellow belly with small black dots

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Eastern Newts are among the most common salamanders in West Virginia. Adults are aquatic and have an olive-green back with scattered red spots and a yellow belly with small black dots. The juvenile terrestrial stage, red eft, is probably the most recognizable stage by people. Efts are red to orange with black-bordered red spots along each side. Adults are about 4 inches long and the tail is keeled (more pronounced in males).

Adults are usually found in permanent pools of water and efts typically occur in moist forest habitats. Eggs are attached singly to submerged vegetation in the spring and hatch in about three weeks into larvae that transform into red efts in late summer. The red eft stage lasts at least two years.



Todd Pierson

The red eft is the juvenile stage of the Eastern Newt and can last up to six years.



Todd Pierson

Adult Eastern Newts are olive green with red spots and have a keeled tail that is more defined in males.

## Lungless Salamanders (Plethodontidae)

Members of this family breathe through their skin and the lining of their mouth. Many are terrestrial while others live in streams and pools. In terrestrial species, the larval period happens in the egg. As with other salamanders, they are opportunistic carnivores. Their food includes invertebrates such as snails, centipedes, spiders, mites and insects.

### Dusky Salamanders (genus *Desmognathus*)

Members of this genus can usually be distinguished by their brown color, large jaw muscles, proportionally larger hind legs, and a light line from the posterior corner of the eye to the angle of the jaw. They are usually found in small streams or creeks.

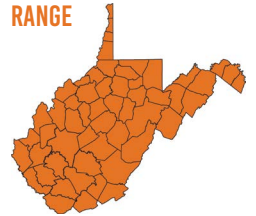
### NORTHERN DUSKY SALAMANDER (*Desmognathus fuscus*)

Northern Dusky Salamanders are variable in color and pattern. They usually have a reddish-brown, wave-bordered stripe down the back. Their belly is cream-colored and usually sprinkled with gray or brown flecks. Adults reach about 5 inches in total length and have a dorsal keel on the tail. Juveniles have five to eight pairs of reddish dots along the edges of the back between the front and hind legs.

Northern Dusky Salamanders are found in seeps, springs and small streams. From June to July, females lay about 10-20 eggs in cavities under rocks, logs, leaves or mosses close to water. Nests are guarded by the female and eggs hatch in late summer or early autumn. Larvae transform into juveniles in about one year.

Northern Dusky Salamanders are found throughout West Virginia from low elevations along the Ohio River to high elevations of the Allegheny Mountains.

#### RANGE



#### LENGTH

5 inches

#### COLOR

Variable; usually have a reddish-brown, wave-bordered stripe down the back



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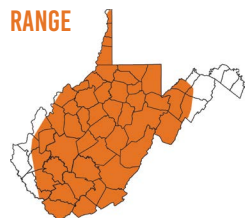
Northern Dusky Salamander (*Desmognathus fuscus*)

## Lungless Salamanders (Plethodontidae)

### ALLEGHENY MOUNTAIN DUSKY SALAMANDER

*(Desmognathus ochrophaeus)*

#### RANGE



#### LENGTH

4 inches

#### COLOR

Brown to black with straight-edged yellowish, reddish or gray dorsal stripe with several dots along the backbone in the middle of the stripe. Some may be completely dark brown to black. Unlike other species of dusky salamanders, the tail does not have a conspicuous keel.

Allegheny Mountain Dusky Salamanders are the smallest dusky salamander in the state, reaching about 4 inches in length. Most individuals have a straight-edged yellowish, reddish or gray dorsal stripe with several dots or V-shaped markings along the backbone in the middle of the stripe. Some may be completely dark brown to black. Unlike other species of dusky salamanders, the tail does not have a conspicuous keel.

Allegheny Mountain Dusky Salamanders are the most terrestrial dusky salamanders in West Virginia. They can be found under leaf litter, bark and stones, and in crevices of cliffs and rock outcrops. Eggs are laid and guarded by females in mid to late summer in cavities beneath logs or rocks along small streams or in seepages in stream banks. The larval period is short, lasting only a couple of weeks.

They are found throughout the mountainous counties of West Virginia.



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Allegheny Mountain Dusky Salamander  
*(Desmognathus ochrophaeus)*

## Lungless Salamanders (Plethodontidae)

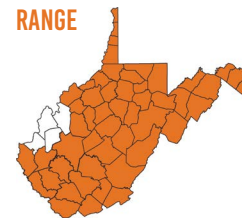
### SEAL SALAMANDER *(Desmognathus monticola)*

Seal Salamanders are 5 inches long and lack a dorsal stripe. They have scattered, dark worm-like markings on their back and their belly is uniformly pale gray. Their tail is compressed and sharply keeled. Larvae and juveniles are brownish with four to six pairs of reddish-orange spots on the back between the front and hind legs.

Seal Salamanders are found in burrows in banks or under rocks, logs and leaves in and near small streams.

In mid-summer, 15-20 eggs are attached individually to the undersides of stones in seepages along stream banks. Females guard the nests. Eggs hatch by early September and the larval stage lasts nine to 10 months.

#### RANGE



#### LENGTH

5 inches

#### COLOR

Tan to brown with dark, worm-like markings on back; belly is uniformly pale gray



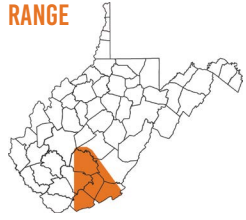
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Seal Salamander *(Desmognathus monticola)*

## Lungless Salamanders (Plethodontidae)

### KANAWHA BLACK-BELLIED SALAMANDER (*Desmognathus kanawha*)\*

#### RANGE



#### LENGTH

8 inches +

#### COLOR

Dorsal pattern lacks a stripe, varies from dark brown-black with scattered greenish or light brown blotches; two rows of light dots along each side; belly is uniformly black

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

These are the largest dusky salamanders in the state reaching more than 8 inches in length. The dorsal pattern of black-bellied salamanders lacks a stripe and varies from dark brown-black with scattered greenish or light brown blotches. They have two rows of light dots along each side and the belly is uniformly black in adults. The tail is sharply keeled on top.

Black-bellied Salamanders are found in swiftly flowing small streams with numerous boulders and waterfalls.

Females lay 20-40 eggs on the underside of rocks or logs in the stream bed in May and June. Females stay with the eggs until they hatch in late summer or early autumn and the larvae transform in about four years.

Black-bellied Salamanders are a southern species that reach the most northern point of their range near Gauley Bridge in Fayette County.



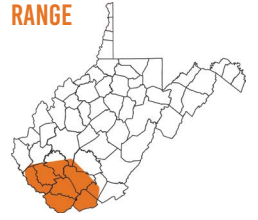
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Kanawha Black-bellied Salamander (*Desmognathus kanawha*)

## Lungless Salamanders (Plethodontidae)

### BLACK MOUNTAIN SALAMANDER (*Desmognathus welteri*)\*

#### RANGE



#### LENGTH

6-7 inches

#### COLOR

Back pattern varies, but usually light brown to gray-green with scattered black or dark brown blotches or small dots

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Reaching lengths of 6 to 7 inches, Black Mountain Salamanders are nearly as large as Kanawha Black-bellied Salamanders. Their back pattern varies but is usually light brown to gray-green with scattered black or dark brown blotches or small dots. They lack a dorsal stripe and the dark back is sharply separated from the lighter, mottled belly. Most have black toe tips and they have an obvious keel on the tail.

Black Mountain Salamanders inhabit small streams. Females lay 20-30 eggs in June on the underside of leaves, logs and rocks. The eggs hatch in September.



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Black Mountain Salamander (*Desmognathus welteri*)

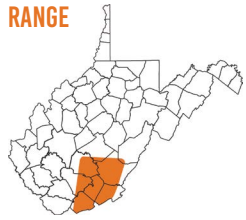
## Lungless Salamanders (Plethodontidae)

### Brook Salamanders (genus *Eurycea*)

Brook salamanders are long slender salamanders associated with small streams, springs and caves.

### CAVE SALAMANDER (*Eurycea lucifuga*)\*

#### RANGE



#### LENGTH

7 inches

#### COLOR

Orange to red with distinctive blackish spots that cover most of the dorsal surface of the head, body and tail

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Cave Salamanders are orange to red with distinct blackish spots that cover most of the dorsal surface of the head, body and tail. They are about 7 inches long and have slender bodies that are shorter than their tails.

Cave Salamanders are found in limestone and sandstone caves, usually in the twilight zone where outside sunlight is still present inside the cave. Prey items consist of invertebrates such as insects, spiders, isopods, mites, earthworms and snails.

Female Cave Salamanders lay eggs during the autumn on the undersides of rocks or sides of rimstone pools. Eggs hatch in November and larvae transform in 12-18 months.



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Cave Salamander (*Eurycea lucifuga*)

## Lungless Salamanders (Plethodontidae)

### NORTHERN TWO-LINED SALAMANDER (*Eurycea bislineata*)

### SOUTHERN TWO-LINED SALAMANDER (*Eurycea cirrigera*)

There are two sibling species of two-lined salamanders in West Virginia: the Northern Two-lined and Southern Two-lined. Both of these nearly identical species are about 4 inches long and have a dorsal color that varies from dull greenish-yellow to bright orange-yellow. They have a light dorsal stripe bordered on each side by dark lines that start at the eyes and extend onto the tail. These black lines extend less than halfway down the tail of Northern Two-lined Salamanders and more than halfway on Southern Two-lined Salamanders. Costal groove counts are different between the two species with 15-16 on Northern Two-lined Salamanders and 13-14 on Southern Two-lined Salamanders. The undersides of the body and legs of both species are yellow or orange-yellow.

Two-lined Salamanders are found in or near small streams with rocky bottoms, seepages and floodplains. They are frequently found under rocks and logs in moist forests.

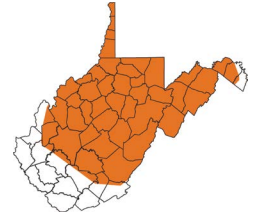
In March and April, female Two-lined Salamanders lay 35-60 eggs attached on the undersides of rocks or broadcast among small rocks and sand on the bottom of streams. If eggs are laid under rocks, females tend them. Eggs hatch in about 30 days and larvae transform in one to three years.



Jason Patrick Ross

#### RANGE

Northern Two-lined Salamander



Southern Two-lined Salamander



#### LENGTH

4 inches

#### COLOR

Dorsal color that varies from dull greenish-yellow to bright orange-yellow; light dorsal stripe bordered on each side by dark lines

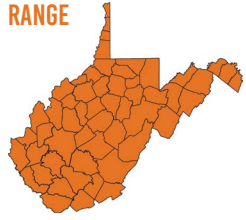
Above left, Northern Two-lined Salamander (*Eurycea bislineata*)

Left, Southern Two-lined Salamander (*Eurycea cirrigera*)

## Lungless Salamanders (Plethodontidae)

### LONG-TAILED SALAMANDER (*Eurycea longicauda*)

#### RANGE



#### LENGTH

6 inches

#### COLOR

Yellow to yellowish orange with black flecks

Long-tailed Salamanders are slender, yellow to yellowish orange with numerous black flecks. Their tail comprises more than half their total length and has black marks on the sides that form a herringbone pattern. They reach 6 inches in length.

Long-tailed Salamanders are usually seen along streams, in seepage areas and springs, and in caves. They can be found in terrestrial habitats. Female Long-tailed Salamanders lay eggs from autumn to early spring in underground crevices associated with aquatic habitats. Eggs hatch in one to three months and larvae transform in about a year.



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Long-tailed Salamander (*Eurycea longicauda*)

## Lungless Salamanders (Plethodontidae)

### Woodland Salamanders (genus *Plethodon*)

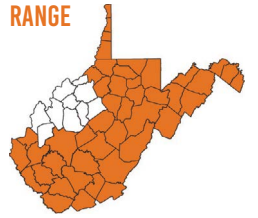
Woodland salamanders are creatures of the forests. They are terrestrial throughout life. Eggs are laid under rocks, bark, logs and rotting logs and the female remains with them until they hatch. The larval stage is in the egg. Woodland salamanders are generally divided into small species (4 to 5 inches long) and large species (6 to 8 inches long). The first six species described below are small species and the last five are considered large species.

### EASTERN RED-BACKED SALAMANDER (*Plethodon cinereus*)

Eastern Red-backed Salamanders are small and slender. They are the most common woodland salamanders in West Virginia. They usually have a straight-edged red-to-gray dorsal stripe. Some salamanders lack the dorsal stripe and are referred to as the lead-backed morph. The bellies of both color varieties are speckled black and white.

These salamanders mate in the autumn and spring and females lay about 10 eggs in May. Juvenile salamanders emerge from eggs after about three months.

#### RANGE



#### LENGTH

2-4 inches

#### COLOR

Straight-edged, red-to-gray dorsal stripe; lead-backed morphs lack the dorsal stripe



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Eastern Red-backed Salamander (*Plethodon cinereus*)



Todd Pierson

The lead-backed phase of the Eastern Red-backed Salamander (*Plethodon cinereus*)

## Lungless Salamanders (Plethodontidae)

### CHEAT MOUNTAIN SALAMANDER (*Plethodon nettingi*)\*

#### RANGE



#### LENGTH

4 inches

#### COLOR

Solid dark brown or black dorsum, usually dotted with brassy or white flecks

#### \*CONSERVATION STATUS

Federally Threatened, SGCN (For more information, see page vi.)

Cheat Mountain Salamanders are similar in size to Red-backed Salamanders but have a solid dark brown or black dorsum that is usually dotted with several brassy or white flecks. They lack a dorsal stripe and their undersides are solid dark gray to black.

Nesting activities are similar to the Red-backed Salamander.

Cheat Mountain Salamanders are native to West Virginia and a federally threatened species. They typically inhabit red spruce and yellow birch forests and can be found in eastern hemlock forests at higher elevations.



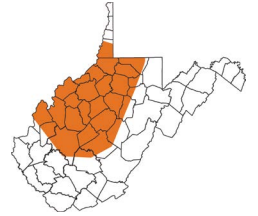
Cheat Mountain Salamander (*Plethodon nettingi*)

## Lungless Salamanders (Plethodontidae)

### NORTHERN RAVINE SALAMANDER (*Plethodon electromorphus*) SOUTHERN RAVINE SALAMANDER (*Plethodon richmondi*)

#### RANGE

Northern  
Ravine Salamander



Southern  
Ravine Salamander



#### LENGTH

3-4.5 inches

#### COLOR

Brown to black with  
gold or white flecks

Ravine Salamanders are long and slender with short legs and a long tail that accounts for about 50 percent of the total length. Their dorsal color is brown to black with many gold or white flecks, and their belly is uniformly dark with minute white mottling.

Ravine Salamanders mate and lay eggs in April and May. Eggs hatch in late summer or autumn.

Ravine Salamanders are found west of the high ridges of the Allegheny Mountains. There are two sibling species in the state. Northern Ravine Salamanders are found north of the New and Kanawha rivers, and Southern Ravine Salamanders are found south and west of these rivers.



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Northern Ravine Salamander (*Plethodon electromorphus*)



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Southern Ravine Salamander (*Plethodon richmondi*)

## Lungless Salamanders (Plethodontidae)

### VALLEY AND RIDGE SALAMANDER (*Plethodon hoffmani*)\* SHENANDOAH MOUNTAIN SALAMANDER (*Plethodon virginia*)\*

#### RANGE

Valley and Ridge Salamander



Shenandoah Mountain Salamander



#### LENGTH

3-5 inches

#### COLOR

Dark brown to blackish with scattered whitish or brassy flecks

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

These sibling species resemble Ravine Salamanders, but are found east of the Allegheny Mountains. Both have whiter throats than Ravine Salamanders and white mottling on the belly.

They likely mate in the spring and females lay eggs in April and May, but data specific to West Virginia is lacking. Young emerge from eggs in about three months.



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Valley and Ridge Salamander (*Plethodon hoffmani*)



Billy Flint

Shenandoah Mountain Salamander (*Plethodon virginia*)

## Lungless Salamanders (Plethodontidae)

### NORTHERN SLIMY SALAMANDER (*Plethodon glutinosus*) CUMBERLAND PLATEAU SALAMANDER (*Plethodon kentucki*) WHITE-SPOTTED SLIMY SALAMANDER (*Plethodon cylindraceus*)

These large sibling species are typically shiny black with whitish spots on the back and sides. Northern Slimy Salamanders generally have white dorsal spots with brassy flecking and a dark chin, throat and belly. Cumberland Plateau Salamanders have whitish spots with little brassy flecking and a lighter chin. White-spotted Slimy Salamanders have large white dorsal spots with numerous lateral white spots and a whitish chin.

When handled, Slimy Salamanders exude a whitish, slimy secretion from the skin. Mating likely happens in the spring and summer and females lay eggs in May and June. Eggs hatch in late summer and autumn.



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Northern Slimy Salamander (*Plethodon glutinosus*)



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Cumberland Plateau Salamander (*Plethodon kentucki*)



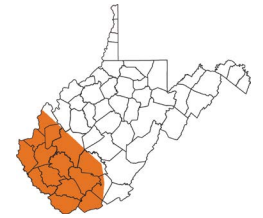
White-spotted Slimy Salamander (*Plethodon cylindraceus*)

#### RANGE

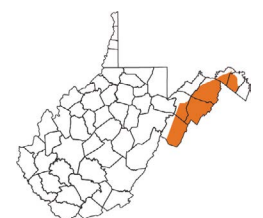
Northern Slimy Salamander



Cumberland Plateau Salamander



White-spotted Slimy Salamander



#### LENGTH

4.5-6.5 inches

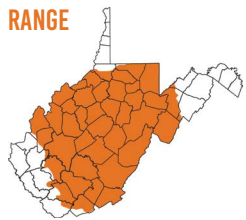
#### COLOR

Shiny black with whitish spots on the back and sides

## Lungless Salamanders (Plethodontidae)

### WEHRLE'S SALAMANDER (*Plethodon wehrlei*)

#### RANGE



Wehrle's Salamanders are dark gray with small, scattered white spots on the back. The sides of the body are heavily marked with whitish spots that fuse to form blotches. Two or three reddish-orange spots are frequently observed on the shoulders. The throat and chest have creamy white blotches, which may extend onto the chest. The belly is slate gray.

Mating happens in March and April and females lay eggs in April. Eggs hatch in about three months.

#### LENGTH

4-6 inches

#### COLOR

Dark gray with small, scattered white spots on back. Sides of body are heavily marked with whitish spots and fused into blotches.



Wehrle's Salamander (*Plethodon wehrlei*)

## Lungless Salamanders (Plethodontidae)

### COW KNOB SALAMANDER (*Plethodon punctatus*)\*

#### RANGE



Cow Knob Salamanders resemble Wehrle's Salamanders and Slimy Salamanders in size and appearance. They are grayish black with whitish dorsal spots, light throat and a dark belly. They lack the reddish dorsal spots found on some Wehrle's salamanders.

Mating happens in late winter and females lay eggs from February to April. Eggs hatch in late summer.

#### LENGTH

4-6 inches

#### COLOR

Grayish black with whitish dorsal spots

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)



Donald Brown

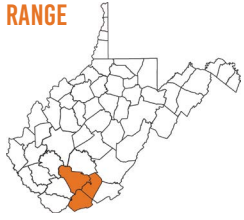
Cow Knob Salamander (*Plethodon punctatus*)



## Lungless Salamanders (Plethodontidae)

### YELLOW-SPOTTED WOODLAND SALAMANDER (*Plethodon pauleyi*)\*

#### RANGE



#### LENGTH

3-5 inches

#### COLOR

Similar in appearance to Wehrle's Salamanders but are smaller as adults and have two rows of six to 12 loosely paired yellow spots on the back, which become fainter in older individuals

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Yellow-spotted Woodland Salamanders are similar in appearance to Wehrle's Salamanders, but are smaller as adults. They have two rows of six to 12 loosely paired yellow spots on their back, which become fainter in older individuals. The belly is grayish and translucent with light mottling, whereas Wehrle's Salamanders have dark-pigmented venters with little mottling and an obvious lighter pigmented throat. All of the yellow-spotted woodland salamander's toes are webbed.

Because this is a newly described species (May 2019), characteristics of reproduction are not known. It is presumed, at least for now, that reproduction behavior is similar to Wehrle's Salamander.

Yellow-spotted woodland salamanders appear to be associated with rock outcrops of shale or sandstone. They climb on rock faces at night and retreat into rock crevices during the day much like green salamanders (*Aneides aeneus*). They can be found in Tennessee, Kentucky and West Virginia, all within the Central Appalachians south of the New River.



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Yellow-spotted Woodland Salamander (*Plethodon pauleyi*)

## Lungless Salamanders (Plethodontidae)

### Miscellaneous Genera

The following salamanders are in different genera and lack common characteristics other than they belong to the family of lungless salamanders.

### GREEN SALAMANDER (*Aneides aeneus*)\*

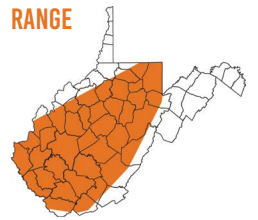
Green Salamanders are about 5 inches in length. Their greenish color makes them easy to identify. The ventral surface is pale and unmarked. Their flattened head and body along with expanded toe tips are modifications for climbing on trees and rocks.

Mating generally happens in late May and early June and females lay eggs in June in rock crevices. Females tend the eggs until they hatch in late September or early October.



Green Salamander (*Aneides aeneus*)

#### RANGE



#### LENGTH

5 inches

#### COLOR

Mottled green and black, gray or brown

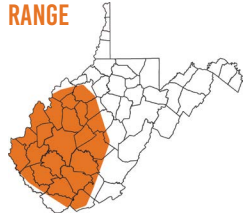
#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

## Lungless Salamanders (Plethodontidae)

### MUD SALAMANDER (*Pseudotriton montanus*)\*

#### RANGE



#### LENGTH

6 inches

#### COLOR

Red with 30-40 distinct black spots scattered over the upper surface of the head, back and dorsum of the tail

#### \*CONSERVATION STATUS

SGCN (For more information, see page vi.)

Mud Salamanders are red with 30-40 distinct black spots scattered over the upper surface of the head, back and dorsum of the tail. The undersurface is unmarked except for an occasional dark line on the edge of the lower jaw. They have brown irises and can reach 6 inches in length.

Mud Salamanders inhabit muddy springs, sluggish brooks and swampy forested areas where they may be found under logs and stones.

Females lay eggs separately to the undersides of dead leaves in pools of water in autumn or early winter. Eggs hatch in the spring and the larval period lasts one to two years.



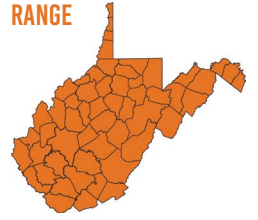
Todd Pierson

Mud Salamander (*Pseudotriton montanus*)

## Lungless Salamanders (Plethodontidae)

### RED SALAMANDER (*Pseudotriton ruber*)

#### RANGE



#### LENGTH

6 inches

#### COLOR

**Young:** Bright red with distinctive black dots

**Mature:** Black dots coalesce to dark or cloudy red dorsal pattern

Adult Red Salamanders are stout-bodied, reach about 6 inches in length and have short, fleshy tails. Young specimens are bright red with distinctive black dots, but in older individuals, the black dots coalesce giving them a dark or cloudy red dorsal pattern. They have gold or yellow irises.

They are found under rocks, mosses and leaves in springs and small streams.

Females lay eggs in the autumn on the underside of rocks that are usually embedded at the edges of springs, small streams, or fens. Eggs hatch in late winter and early spring and larvae transform in two to three years.



Todd Pierson

Red Salamander (*Pseudotriton ruber*)

## Lungless Salamanders (Plethodontidae)

### SPRING SALAMANDER (*Gyrinophilus porphyriticus*)

#### RANGE



#### LENGTH

8 inches

#### COLOR

Salmon to pinkish orange color with dark reticulations

#### \*CONSERVATION STATUS

SGCN, Kentucky Spring Salamander only (For more information, see page vi.)

The dorsal pattern of spring salamanders consists of salmon to pinkish orange color with dark reticulations. They have light lines that extend from the eyes to the nostrils. Their belly is flesh pink and the tail has an obvious keel. They can reach 8 inches in length.

Spring Salamanders are found in cool springs, small streams, fens and caves. Females lay eggs in the summer under rocks embedded in the banks of streams or other aquatic habitats. They hatch in late summer or autumn. The larval period lasts about three years.

There are two subspecies of Spring Salamanders in West Virginia. Kentucky Spring Salamanders (*Gyrinophilus p. duryi*)\* are found in the southwestern part of the state and Northern Spring Salamanders (*G. p. porphyriticus*) are found throughout the remainder of the state.



Todd Pierson

Spring Salamander (*Gyrinophilus porphyriticus*)

## Lungless Salamanders (Plethodontidae)

### WEST VIRGINIA SPRING SALAMANDER (*Gyrinophilus subterraneus*)\*

#### RANGE

Found in only one cave in Greenbrier County

#### LENGTH

8 inches

#### COLOR

Similar in appearance to northern spring salamander

#### \*CONSERVATION STATUS

Federally Endangered, SGCN (For more information, see page vi.)

To the knowledge of biologists, West Virginia Spring Salamanders are found only in one cave in Greenbrier County. They are similar in appearance to Northern and Kentucky Spring Salamanders but differ in that the lines from the eyes to the nostrils are indistinct, the dorsal color is paler with obvious darker reticulation, and the eyes are marginally smaller.

As far as it is known, the reproductive biology is similar to the Northern Spring Salamander.

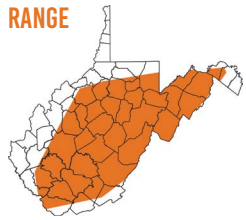


West Virginia Spring Salamander (*Gyrinophilus subterraneus*)

## Lungless Salamanders (Plethodontidae)

### FOUR-TOED SALAMANDER (*Hemidactylium scutatum*)

#### RANGE



#### LENGTH

4 inches

#### COLOR

Rusty brown back; white belly with black spots

Four-toed Salamanders are easy to identify due to their rusty brown back, white belly with black spots, constriction at the base of the tail and four toes on the hind feet. They are small, only reaching about 4 inches in length.

Males inhabit forests throughout the year while females are more frequently observed near nesting sites such as fens and other pools of water. Females lay eggs in April and May in hummocks of sphagnum moss in fens and occasionally in other species of mosses associated with pools. A single female lays about 40 eggs but several females may lay eggs in communal nests, resulting in several hundred eggs per nest. Larvae transform in nine to 10 weeks.



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Four-toed Salamander (*Hemidactylium scutatum*)

**Inside back cover image:** Cheat Mountain Salamander



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