

SALAMANDERS OF WEST VIRGINIA

by Thomas K. Pauley

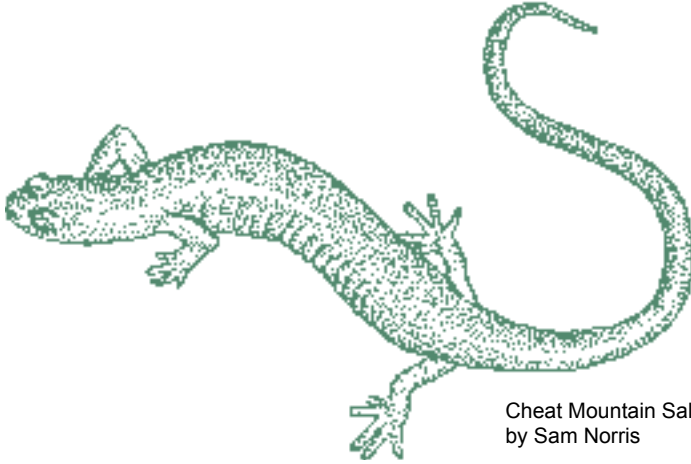


Marbled Salamander



Northern Red Salamander

WEST VIRGINIA
DIVISION OF NATURAL RESOURCES
WILDLIFE RESOURCES SECTION



Cheat Mountain Salamander
by Sam Norris

WEST VIRGINIA DIVISION OF NATURAL RESOURCES
WILDLIFE RESOURCES SECTION

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Cover photos by M.B. Watson

SALAMANDERS OF WV

West Virginia has 34 species of salamanders that range in length from 4 inches to 2 feet. Salamanders have an elongated body and a long tail, a body shape that resembles lizards, and for this reason, they are occasionally referred to as “spring lizards.” Salamanders, frogs and toads are amphibians, while lizards, turtles and snakes are reptiles. As amphibians, salamanders lack the reptilian characteristics of lizards such as body scales and claws on their toes. Because of their delicate, scaleless bodies, salamanders are restricted to aquatic to semi-aquatic habitats such as rivers, creeks, springs, and moist, forested hillsides.

Although the word amphibian means double life because many amphibians leave terrestrial habitats and return to water to deposit eggs, many species of salamanders are not obligated to this lifestyle. Most species that live in forests do not return to water to deposit eggs but lay them in moist terrestrial habitats, such as under rocks, logs and in rock crevices. Unlike reptiles, amphibians have a larval stage.



M.B. Watson

Eastern Red-backed Salamander

Larvae of salamanders generally resemble adults except they have obvious external gills in the neck region. In time, most larvae lose the gills and develop into adults. For most species the larval stage occurs in streams or ponds, but for species that nest in forests, the larval stage occurs within the egg.

Amphibians have permeable skin, gelatinous eggs and gilled larvae, which permit the absorption of pollutants from water and soil into their bodies. They are also ectotherms (“cold-blooded”), meaning ambient temperatures regulate their body temperature. These physical characteristics make amphibians more sensitive to changes in their surroundings than animals with protective features such as scales, feathers, hair and shells on eggs. Amphibians are nature’s “canary in the coal mines,” and are excellent bioindicators to alert us of potential dangers in the environment.

Salamanders consume enormous numbers of insects and other invertebrates in a variety of terrestrial and aquatic habitats. They, in turn, are food items for many predators such as fishes, birds and mammals.

Family CRYPTOBRANCHIDAE (Giant Salamanders)

Eastern Hellbender (*Cryptobranchus a. alleganiensis*)

Hellbenders are large aquatic salamanders that may reach 24 inches in length. They are generally brown with irregular, dark spots on the back. Unique characteristics include a flat head with small eyes, wrinkled folds of skin between the front and hind limbs, and gill slits that persist throughout life.

Hellbenders 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 item is crayfish, they will prey on a variety of items from insects to fish. They are probably active in all months.

Mating occurs in late summer and eggs are deposited from late August to early November. Males excavate nests under rocks or logs in streams where females lay 200 to 400 marble-sized eggs that are connected resembling 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. Larvae transform in approximately two years. Unfortunately, hellbenders are wrongfully



Jeff Humphries

Eastern hellbender

thought to be venomous and sometimes killed by anglers when caught. They are harmless and should be released if accidentally caught.

Eastern hellbenders are found at all elevations in streams west of the Allegheny Front.

Family **PROTEIDAE**

(Mudpuppies and Waterdogs)

Common Mudpuppy (*Necturus m. maculosus*)

Mudpuppies are large aquatic salamanders that can reach 17 inches in length. Dorsal coloration varies from rusty brown to bluish black with numerous irregular dark spots. Dark stripes on each side of the head extend from the nostrils through the eyes. They are the only salamanders in West Virginia that have conspicuous external gills throughout life.



WVDNR Photo

Common Mudpuppy

Four toes on the hind feet (Four-

toed Salamanders are the only other salamander in West Virginia to have this characteristic) and a compressed tail with a strong dorsal keel are other obvious distinguishing characteristics.

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

Mating occurs in the autumn and eggs are deposited on the underside of cover objects in early spring. Females remain with the eggs until they hatch, which takes approximately 50 days. Sexual maturity is reached by the end of the fifth or sixth year.

Like hellbenders, mudpuppies are harmless and should be released if caught while fishing.

Mudpuppies are found throughout the Allegheny Plateau in West Virginia.

Family AMBYSTOMATIDAE

(Mole Salamanders)

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 the breeding area. They feed on a variety of invertebrates such as earthworms, snails, slugs, centipedes, spiders and insects.

Small-mouthed Salamander (*Ambystoma texanum*)

Small-mouthed Salamanders have stout bodies that can reach about six inches in length. The head and mouth are both proportionally smaller in relation to the body when compared to other mole salamanders. 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 occurs in February and March when eggs are deposited singly



Zachary Loughman

Small-mouthed Salamander

or in loose clusters on twigs, leaves and other submerged vegetation. Eggs hatch in one to two months and the larval period is about three months.

Small-mouthed Salamanders are a species of the western United States. They reach the most eastern point of their range along the Ohio River in West Virginia. Specimens have only been found in Mason and Wood counties.

Streamside Salamander (*Ambystoma barbouri*)

Streamside Salamanders and Small-mouthed Salamanders are sibling species meaning that they are nearly identical in appearance. Major differences between the two are size and shape of their teeth and different

habitats. Streamside Salamanders generally breed in small fishless streams or in pools fed by such streams.

Breeding occurs from December to April. Eggs are deposited singly on the underside of rocks and hatch in one to two months.

Like Small-mouthed Salamanders, Streamside Salamanders are a species of the western United States that reaches the most eastern point of their range in western West Virginia. The only known population in West Virginia is in Wayne County.



Les F Meade

Streamside Salamander

Jefferson Salamander (*Ambystoma jeffersonianum*)

These relatively large, slender salamanders may reach a length of 8 inches. 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 surface at night during rainfall events and move in a massive migration to breeding pools.

Twenty-five to 30 eggs (up to 200 eggs per female) are deposited in clear gelatinous masses that may or may not be attached to submerged vegetation. Eggs usually hatch in two to four weeks and larvae transform in two to four months.



Zachary Loughman

Jefferson Salamander

Jefferson

Salamanders probably occur in every county in the state.

Spotted Salamander (*Ambystoma maculatum*)

Spotted Salamanders are slate colored with two irregular rows of rounded yellow spots on the back from the head onto the tail. They have numerous silvery or white flecks over the body and the belly is dark gray. They can reach eight 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. Up to 250 eggs are deposited in gelatinous masses that may or may not be attached to submerged vegetation.



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Spotted Salamander

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 occur in every county from the highest to the lowest elevations.

Marbled Salamander (*Ambystoma opacum*)

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.



WVDNR Photo

Marbled Salamander

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 deposit eggs in the autumn. Mating occurs on land, usually in or around dried temporary pools that fill with water

during autumn rains. Females deposit 60 to 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.

Marbled Salamanders occur in every county but probably not at elevations over 3,000 ft.

Family SALAMANDRIDAE (Newts)

Red-spotted Newt, Red Eft (*Notophthalmus v. viridescens*)

Red-spotted 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 most people. Efts are red with black-bordered red spots along each side. Adults are about 4 inches long and the tail is keeled (more pronounced in males). Two features that separate newts from other salamanders are the lack of costal grooves (the vertical

grooves on the sides of the body) and the presence of two longitudinal ridges on top of the head.

Adults are usually found in permanent pools of water and efts occur in 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.

Newts are found at all elevations throughout the state.

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Red-spotted Newt, adult



Red eft

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Family PLETHODONTIDAE

(Lungless Salamanders)

Members of this family respire through their skin and lining of the mouth. Many are completely terrestrial while others live in streams and pools. In terrestrial species, the larval period occurs in the egg. As with other salamanders, they are opportunistic carnivores. Their food includes mostly 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. These salamanders are sometimes referred to as spring lizards and are used for fishing bait. They are usually found in small fishless streams.

Northern Dusky Salamanders (*Desmognathus fuscus*)

Northern Dusky Salamanders are variable in color and pattern. They usually have a reddish-brown, wavy 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.



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Northern Dusky Salamander

Northern Dusky Salamanders are found in

seeps, springs and small streams. About 10 to 20 eggs are deposited from June to July 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.

Allegheny Mountain Dusky Salamander (*Desmognathus ochrophaeus*)

Allegheny Mountain Dusky Salamanders are the smallest dusky salamander in the state reaching about 4 inches. 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 deposited 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.



Allegheny Mountain Dusky Salamander

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Seal Salamander (*Desmognathus monticola*)

Seal Salamanders are 5 to 6 inches long and lack a dorsal stripe. They have scattered, dark wormlike markings on their back and their belly is uniformly pale gray. Their tail is compressed and sharply keeled. Larvae and juveniles are brownish with 4 to 6 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 to 20 eggs are attached individually to the undersides of stones in seepages along stream banks. Females guard the nests. Eggs hatch by



Seal Salamander

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early September and the larval stage lasts nine to ten months.

They probably occur throughout the state with the possible exception of the western counties of Cabell, Jackson, Mason and Putnam.

Black-bellied Salamander (*Desmognathus quadramaculatus*)

These are the largest dusky salamanders in the state reaching over 8 inches in length. The dorsal pattern of Black-bellied Salamanders lacks a stripe and varies from dark brown or 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.



Zachary Loughman

Black-bellied Salamander

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

Twenty to 40 eggs are attached to 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. In West Virginia, they are known from Fayette, Mercer, Monroe, Nicholas, Raleigh and Summers counties.

Black Mountain Salamander (*Desmognathus welteri*)

Black Mountain Salamanders are nearly as large as Black-bellied Salamanders reaching 6 to 7 inches in length. The back pattern varies but usually is light brown to gray-green with



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Black Mountain Salamander

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. Twenty to 30 eggs are deposited in June on the underside of leaves, logs, and rocks and hatch in September. They are known to occur in Logan, Wyoming, Mercer, Summers and McDowell counties.

Brook Salamanders (Genus *Eurycea*)

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

Cave Salamander (*Eurycea lucifuga*)

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. Prey items consist of invertebrates such as insects, spiders, isopods, mites, earthworms and snails.

Eggs are deposited during the autumn on the undersides of rocks or on the sides of rimstone pools. Eggs hatch in November and larvae transform in 12 to 18 months.

They have been reported from Pocahontas, Greenbrier, Monroe, Summers, Mercer and Fayette counties.

Northern Two-lined Salamander (*Eurycea bislineata*)

Southern Two-lined Salamander (*Eurycea cirrigera*)

There are two sibling species of two-lined salamanders in West Virginia, 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 half way down the

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Cave Salamander



Northern Two-lined Salamander

tail on Northern Two-lined Salamanders and more than half way on Southern Two-lined Salamanders. Costal groove counts are different between the two species with 15-16 on northern two-

lines and 13-14 on southern two-lines. 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 flood plains. They are frequently found under rocks and logs in forests.

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

Generally, Northern Two-lined Salamanders occur in the northern half of the state and Southern Two-lined Salamanders in the southern half.

Long-tailed Salamander (*Eurycea l. longicauda*)

Long-tailed Salamanders are slender, yellow to yellowish orange with numerous black flecks. Their tail comprises over half the 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 encountered along streams, in seepage areas and springs, and in caves. They may also occur in terrestrial habitats.



Long-tailed Salamander

Reproductive status has not been determined in West Virginia. Based

on studies in other states, they probably deposit 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.

Long-tailed Salamanders occur throughout West Virginia.

Miscellaneous Genera

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

Green Salamanders (*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 occurs in late May and early June and eggs are deposited in June in rock crevices. Females tend the eggs until they hatch in late



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Green Salamander

September or early October.

Green Salamanders are found throughout the Allegheny Plateau to the eastern highlands.

Midland Mud Salamander (*Pseudotriton montanus diastictus*)

Midland Mud Salamanders are red with 30 to 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. Length may reach 6 inches.



Western Kentucky Photo

Midland Mud Salamander

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

Eggs are attached 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

Their known range in West Virginia includes the southern half of the state.

Northern Red Salamander (*Pseudotriton r. ruber*)

Adult Northern Red Salamanders are stout-bodied, reach about 6 inches in length, and have a short, fleshy tail. 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 are found under rocks, mosses and leaves in springs and small streams.

Eggs are deposited in the autumn to 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.



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Northern Red Salamander

Northern Red Salamanders are found throughout West Virginia.

Spring Salamander (*Gyrinophilus porphyriticus*)

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 occur in cool springs, small streams, fens and caves. Eggs are deposited in the summer under rocks embedded in the banks of streams or other aquatic habitats. They hatch in late summer or autumn. Larval period lasts about three years.

There are two subspecies of Spring Salamanders in West Virginia.

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Northern Spring Salamander

Kentucky Spring Salamanders (*Gyrinophilus p. duryi*) occur in the southwestern part of the state and Northern Spring Salamanders (*G. p. porphyriticus*) are found throughout the remainder of the

state. Spring salamanders range throughout West Virginia from the lowest to the highest elevations.

West Virginia Spring Salamander (*Gyrinophilus subterraneus*)

West Virginia Spring Salamanders are known to occur 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 somewhat smaller.

The status of this salamander as a species has been questioned by biologists.

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



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West Virginia Spring Salamander

Four-toed Salamander (*Hemidactylium scutatum*)

Their rusty brown back, white belly with black spots, constriction at the base of the tail and four toes on the hind feet easily identify Four-toed Salamanders. They are small 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. Eggs are deposited in April and May in hummocks of sphagnum moss in fens and occasionally in other species of mosses associated with water

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 ten weeks.

Four-toed Salamanders occur throughout the state.



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Four-toed Salamander

Woodland Salamanders (Genus *Plethodon*)

Woodland salamanders are creatures of the forests. They are terrestrial throughout life. Eggs are deposited under rocks, bark, logs and in 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*)

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



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Eastern Red-backed Salamander

Mating occurs in the autumn and spring and about 10 eggs are usually deposited in May. Juvenile salamanders emerge from eggs in about three months.

Red-backed Salamanders are found throughout the state except in the Ohio Valley counties.

Cheat Mountain Salamander (*Plethodon nettingi*)

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

Nesting activities are similar to the Red-backed Salamander.

Cheat Mountain Salamanders are endemic to West Virginia and a federally threatened species. They

typically inhabit red spruce and yellow birch forests in higher elevations of Grant, Pendleton, Pocahontas, Randolph, and Tucker counties.



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Cheat Mountain Salamander

Southern Ravine Salamander (*Plethodon richmondi*)

Northern Ravine Salamander (*Plethodon electromorphus*)

Ravine salamanders are elongate and slender with short legs and a long tail that accounts for about 50% 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.

Mating and egg deposition occur in April and May. Eggs hatch in late



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Northern Ravine Salamander

summer or autumn.

Ravine salamanders are found west of the high ridges of the Allegheny Mountains. There are two sibling species in the state. In general, Southern Ravine Salamanders occur west of the New and Kanawha rivers and Northern Ravine Salamanders east of these rivers.

Valley and Ridge Salamander (*Plethodon hoffmani*)

Shenandoah Mountain Salamander (*Plethodon virginia*)

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 probably mate in the spring and deposit eggs in April and May. Young emerge from eggs in about three months.

Valley and Ridge Salamanders are found from Summers and Monroe counties north through the eastern panhandle. Shenandoah Mountain Salamanders occur on Shenandoah Mountain in Pendleton, Hardy, Hampshire and Grant counties.



Valley and Ridge Salamander

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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 secretion from the skin.

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Northern Slimy Salamander

Mating probably occurs in the autumn and egg deposition in May and June. Eggs hatch in late summer and autumn.

Northern Slimy

Salamanders occur throughout the state, Cumberland Plateau Salamanders are generally found west of the New and Kanawha rivers, and White-spotted Slimy Salamanders occur along the West Virginia/Virginia border in the eastern panhandle.

Wehrle's Salamander *(Plethodon wehrlei)*

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



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Wehrle's Salamander

on the shoulders. The throat and chest have creamy white blotches, which may extend onto the chest. The belly is slate gray.

Mating occurs in March and April and eggs are deposited in April. Eggs hatch in about three months.

Wehrle's Salamanders occur throughout most of West Virginia except the southwestern counties and counties in the eastern panhandle.

Cow Knob Salamander (*Plethodon punctatus*)

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 occurs in late winter and egg deposition occurs from February to April. Eggs hatch in late summer.

Cow Knob Salamanders are found along the Virginia border in Pendleton, Hardy and Hampshire counties.



Craig Stihler

The White-spotted Slimy Salamander, left, and the Cow Knob Salamander are difficult to distinguish from each other.

The West Virginia Division of Natural Resources lists fourteen species of salamanders as species of concern. Species are listed because: (1) their ranges barely enter the state; (2) they occur throughout the state but in small numbers; (3) they are found in various areas of the state but have restricted or disjunct distributions; (4) they are restricted to sensitive habitats such as caves, streams or red spruce forests of the high elevations.

Biologists are currently studying several of these species to determine their status and perhaps develop management plans to help prevent losing some of our native species.



DNR Photo

Woodland salamander habitat containing yellow birch and red spruce.

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