

Venomous Snakes in Virginia

PHOTOGRAPHS BY JACK LOONEY

There are over 120 species of snakes in the US. Most snakes are harmless and, much like bats, provide a valuable service around your home in the way of pest control (snakes control rodents, bats control insects). In fact, the presence of snakes around your property or in your house may indicate a rodent problem.

There are only three species of venomous (able to inject venom through hollow, needle-like teeth) snakes in Virginia. The copperhead (found statewide) is the most common; and while it is usually not found inside homes, it may be common in gardens

and woodlots. Timber rattlesnakes are commonly found in the mountainous regions of western Virginia and a small area of extreme southeastern Virginia where they are known as canebrake rattlesnakes (experts disagree whether the canebrake is a separate species or a sub-species of the timber rattlesnake). They are a state endangered species. Water moccasins, also frequently referred to as cottonmouths, are found to the south and east of Petersburg and are common only in wet areas.

The Blue Ridge Poison Center at the University of Virginia School of Medicine receives an average of 80 calls each year

about poisonous snakebites in our region. Nationwide, experts estimate there are about 3,000 venomous snakebites annually, although most believe that many more cases go unreported. Death from a venomous snakebite in the US is very rare, occurring in only a few cases each year.

Most venomous snakes have elliptical pupils (like a cat's eyes in bright light) instead of round ones, and a triangular, spade-shaped head instead of narrow, oval-shaped heads. This head shape can be tricky to distinguish, especially in baby snakes. When in doubt, assume the snake is poisonous.

Virginia's poisonous snakes all have venom that destroys blood cells, blood vessels, and other tissues. If you are bitten by one of Virginia's poisonous snakes, you may experience some of these symptoms:

- **Intense pain spreading out from the bite**
- **Puncture wounds from fangs**
- **Progressive swelling and bruising (may become severe)**
- **Sweating**
- **Weakness**
- **Nausea and vomiting**
- **A drop in blood pressure**
- **Muscle twitching**
- **Metallic taste in the mouth**

Stay calm! About 20% of the time, a snake does not inject any venom into its bite victim. Seek immediate medical care even if there are no symptoms, because occasionally symptoms can be delayed by several hours. Even non-poisonous snake bites can be harmful. The most important goal is to get the victim to a health care facility, where they can have access to medical care

and antivenom if needed. If possible, wash the bite with soap and water and immobilize the bitten body part. Swelling is likely, so remove constrictive items like jewelry or tight clothing near the bite. There are many myths and folk remedies for treating snake bites. Experts warn not to cut the wound, to use any form of suction to remove the venom, apply a tourniquet or ice, or use an ice bath. These "remedies" often do more harm than good. Contact the Blue Ridge Poison Control Center at 1-800-222-1222 with questions.

If someone has been bitten, DO NOT try to catch or kill the snake! This often results in another snakebite victim. Identifying the snake is helpful but not necessary for proper treatment. Trying to hunt down the snake only puts you at risk and wastes valuable time getting the victim to a health care facility.

Snakes do not want to bite you—they would prefer to be left alone, or to get away from harm. However, they will bite to defend themselves if they feel threatened. Often, this can happen accidentally, when you do not see the snake and therefore get too close.

Be alert in places where snakes may live, especially when hiking in tall grass or brush, rocky areas, fallen logs, bluffs,

swamps, marshes, and deep holes in the ground. Most bites happen between April and October, when snakes are active. When outdoors, watch where you put your hands and feet, or where you sit down. Wear long pants and shoes.

Never directly handle a snake, even if you think it is dead. Recently killed snakes may still "bite" by reflex. If you encounter a snake, just go around it.

Snakes can be found around your home or garden, seeking food. If you can eliminate the food source, the snakes will go elsewhere. To eliminate attraction for mice and cover for snakes, remove all rock and brush piles and keep grassy areas mowed short near the house. Seal all areas around pipes, vents, or other places that may provide small openings both for rodents and snakes. Check the roof for overhanging vegetation. Snakes are good climbers and can also enter through the attic where trees or shrubs provide access.

Enjoying the summer months in Virginia can include trips outdoors, hiking, camping, and enjoying the scenery. If you live in or plan to travel to the parts of Virginia where snakes are more common, including these three venomous snakes native to our region, please respect all Virginia wildlife while exploring their habitats.



cottonmouth (juvenile)
Agkistrodon piscivorus piscivorus



timber rattlesnake
Crotalus horridus

Northern Copperhead

Agkistrodon contortrix mokasen

VENOMOUS

Common Name: Northern Copperhead

Scientific Name: *Agkistrodon contortrix mokasen*

Genus: *Agkistrodon* is derived from the Greek word ancistrion which means “fish-hook.” This is in reference to recurved fangs.

Species: *Contortrix* is from the Latin word contortus which means “twisted” or “intricate” in reference to the dorsal pattern.

Vernacular Names: Dumb rattlesnake, red adder, red eye, red snake, white oak snake, deaf snake, beech-leaf snake, chuck head, copper adder, copper-bell, deaf adder, hazel head, popular leaf snake, thunder snake, harlequin snake.

Average Length: 24–36 in. (61–90 cm)

Record length: 53 in. (134.6 cm); Virginia Record Length: 48 in. (121.9 cm)

Physical Description: The length of this species is 24–36 inches and the color is coppery-red on the head with an hour-glass pattern. There are dark rounded spots at the sides of belly and the scales are weakly keeled. The dorsum of the body and tail are pinkish tan to dark brown and almost black, with hourglass shaped crossbands colored chestnut to dark brown. Most dorsal scales are sprinkled with black flecks. The head is triangular and the labial region of chin and the venter are cream colored. The neck is narrow and the dorsum of the head is flat. Adult males are generally larger than females. Juveniles have the same color patterns as the adults, except the tip of the tail is a sulfur yellow and lack the black flecking of the adults. There are some regional differences in body color and pattern throughout Virginia. The copperhead will often hibernate in the company of other snakes. The longevity record for this species is 9 years, 5 months.

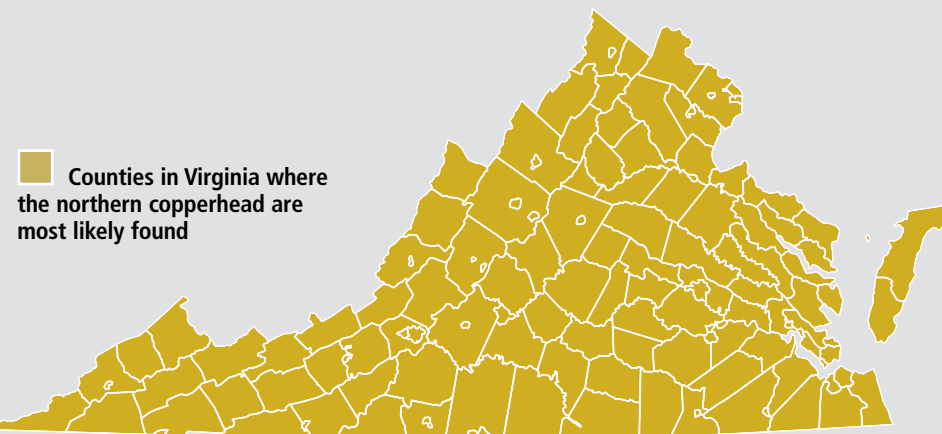
Behavior: This species is normally sluggish, and they rely on camouflage to escape detection. They are gregarious and largely nocturnal. They may vibrate the tail rapidly when alarmed. The summer cover is under logs, rocks,

piles of rubbish, in stone walls and cracks in foundations. In autumn, after birth of the young, at least 5 individuals may be found per acre of favorable habitat. Studies have shown that six or seven adult copperheads per acre can be found when conditions are optimal. They may wander into brush, grassland or weedy fields. The alert pose is a coiled body, with the head at a 45 degree angle. The snake vibrates its tail when disturbed and generally remains alert and motionless to hide itself. It is usually docile when caught but will strike if aggravated and gives off a pungent odor when very warm. Males sometimes engage in combat before the mating period. During mating, one observation found them to coil around each other, looking at each other and occasionally unwrapping one coil length and then recoiling with the heads always about 4 inches apart.

Foods: The prey eaten depends on the size of the snake, with juveniles taking more invertebrates and adults eating more small mammals such as rodents. Mice are the primary prey, but they also take lizards, small snakes, amphibians, small birds, and insects.



Range in Virginia: This snake is found statewide, with the exception of the barrier islands. It occurs at elevations below 910 meters in a wide variety of terrestrial habitats, including wetlands, forests, fields, and edge areas of all types. The copperhead is found in open areas with higher rock densities, and uses all types of structures for cover, including abandoned buildings, brush piles, and stone walls.



Timber Rattlesnake

Crotalus horridus

VENOMOUS

Common Name: Timber Rattlesnake

Scientific Name: *Crotalus horridus*

Genus: *Crotalus* is derived from the Latin word *crotalum* which means “rattle.”

Species: *horridus* is Latin for “dreadful.”

Vernacular Names: American viper, bastard rattlesnake, black rattlesnake, common rattlesnake, eastern rattlesnake, great yellow rattlesnake, mountain rattlesnake, northern banded rattlesnake, northern rattlesnake, pit viper, rock rattlesnake, velvet tail, yellow rattlesnake.

Average Length: 30–60 in. (90–152 cm)

Record length: 74.5 in. (189.2 cm); Virginia Record Length: 67.1 in. (170.5 cm)

PHYSICAL DESCRIPTION: Rattlesnakes have the following characteristics that distinguish them from similar looking non-venomous snakes: 1) short tail and rattle, 2) single row of transverse scales on underside of tail, 3) stout body girth, 4) facial pit, 5) small dorsal head scales, and 6) vertical pupils of the eyes. The length of this species is from 10–60 inches with the maximum of 6 feet. Males are generally larger than females, and southern populations are typically larger than northern populations. Adult males tend to be 12% longer than adult females. There are two major color phases, though individuals vary along a continuum between the light and dark phase. The yellow morph or phase is characterized by a yellow or tan ground color with dark brown or gray bands. There is occasionally a dorsal rust-colored band and a yellow or tan head. The belly is yellowish cream in color and the tail is a uniform black. The dark or black morph is characterized by a black ground color with black or dark gray dorsal bands or blotches. The head is black or gray. The belly is mottled yellow-gray and the tail is uniformly black.

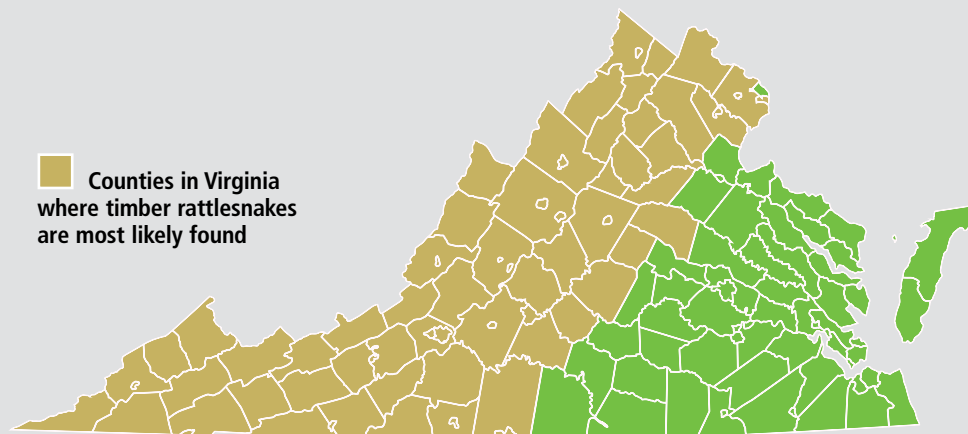
BEHAVIOR: Males will exhibit some territoriality and ritual fighting during

the mating season. Timber rattlesnakes overwinter and typically breed in communal dens. The three basic types of dens include: fissures in a ledge, bare rock talus or scree, and talus or scree partially covered with soil. Timber rattlesnakes will forage in just about any terrestrial habitat. They commonly coil along rodent scent trails and rest their heads on logs or on tree trunks. Timber rattlesnakes will begin emerging from the overwintering dens at mid-day early in the spring. During warm summer weather, rattlesnakes are active day and night. Migration toward dens occurs in September with most snakes entering hibernation during early and mid-October. All of the timber rattlesnakes' activities and periodicity are highly temperature dependent. The number of snakes in some dens may range from 30 to 60. Several species of both venomous (copperheads) and non-venomous snakes (including eastern rat snake) may share the den. The first warm, humid, summer-like evenings seem to trigger the start of the spring migration and foraging period.

Foods: The timber rattlesnake preys mostly on small mammals, but will also eat some frogs and birds.



Range in Virginia: This species occurs at elevations up to 6000 feet, and sometimes higher, in the Blue Ridge, in the far western mountains, and in the western Piedmont. It inhabits upland hardwood and mixed pine-hardwood forests, in areas where there are sunny, rocky slopes and ledges. This snake needs places to hibernate that allow it to stay below the frost line, such as large cracks in rocky outcroppings.



Eastern Cottonmouth

Agkistrodon piscivorus piscivorus

VENOMOUS

Common Name: Eastern Cottonmouth

Scientific Name: *Agkistrodon piscivorus piscivorus*

Genus: *Agkistrodon* is derived from the Greek word ancistrion which means “fish-hook.” This is in reference to recurved fangs.

Species: *Piscivorus* is derived from the Latin words piscis which means “fish” and voro which means “to devour.”

Vernacular Names: Water moccasin, black moccasin, black snake, blunt-tail moccasin, congo, copperhead, cottonmouth water moccasin, cotton-mouthed snake, gapper, highland moccasin, lowland moccasin, mangrove rattler, moccasin, water viper, rusty moccasin, saltwater rattler, stub-tail, stump moccasin, stump-tail viper, swamp lion.

Average Length: 30–48 in. (76–122 cm)

Record length: 74 in. (188 cm); Virginia Record Length: 60.5 in. (153.6 cm)

PHYSICAL DESCRIPTION: The length of this species is typically 2.5–4 feet, but they may reach 6 feet. This is a large aquatic snake. It is olive, brown or black above with the belly lighter. The crossbands have dark, more-or-less distinct borders. The centers of the crossbands are often invaded by a lighter ground color. Older adults may be completely dark and unpatterned. The snout is light in color and usually has a vertical dark line on each side of the rostrum. The scales are weakly keeled. Heads are triangular with a flat dorsum portion. The neck is much narrower. Males are larger than the females, and juveniles have the same patterns as adults but are brighter in color and the crossbands are more prominent. The body color may be more of a pinkish color and they have the sulfur yellow tip of the tail.

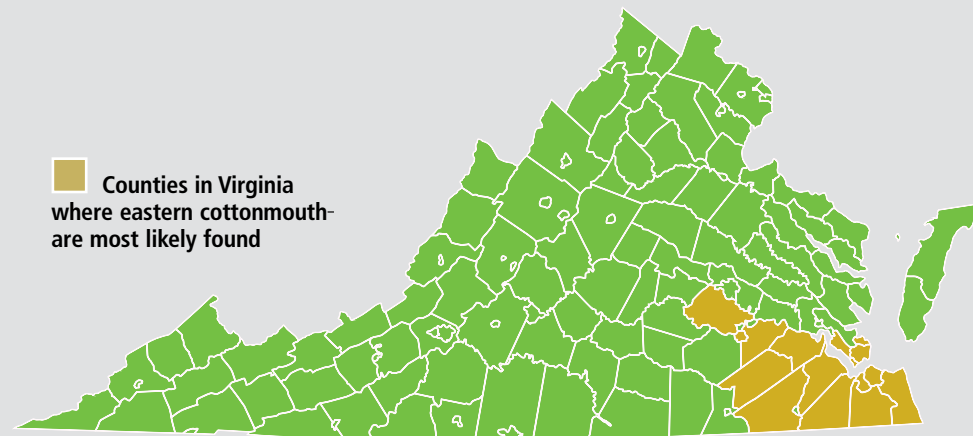
BEHAVIOR: The snakes are fond of basking on a rock, log, or stump during the day. They are very pugnacious. If approached, this species will stand its ground, or crawl away very slowly. If it stays, it will coil. It slowly vibrates its

tail, and will open its mouth, or gape, to reveal its white mouth. The snake will strike repeatedly against humans. When swimming, it carries its head out of the water and appears to be rather buoyant. Males are known to perform a combat dance and are generally not aggressive but do not hesitate to strike if molested. They emit a musk from a gland at the base of the tail and increase the amount given off when captured. This is a semiaquatic snake found in lowland habitats, including swamps, freshwater and brackish marshes, ponds, ditches, streams, rivers, and forested and grassland areas next to wet areas. It is often found in cultivated fields adjacent to swamp or sluggish streams.

FOODS: This species hunts on land or in the water for a variety of fish, reptiles, amphibians, small mammals, and invertebrates. Prey animals are usually grabbed and held while the venom works.

Range in Virginia: None have been found north or west of Colonial Heights. Most known populations occur south of the James River. This is a semiaquatic snake found in lowland habitats, including swamps, freshwater and brackish marshes, ponds, ditches, streams, rivers, and forested and grassland areas next to wet areas. It is often found in cultivated fields adjacent to swamp or sluggish streams.

Counties in Virginia where eastern cottonmouth are most likely found



cottonmouth (juvenile)
Agkistrodon piscivorus piscivorus

SOME NON-VENOMOUS SNAKES FOUND IN VIRGINIA



NEED HELP IDENTIFYING?

The Virginia Herpetological Society can help identify frogs, lizards, salamanders, snakes and turtles found in our Commonwealth. Wondering if that snake in your yard is venomous? Approximately 40% of snake identification requests to VHS were harmless eastern rat snakes. Contact them for help with animal identification and information at animal-identification@virginiaherpetologicalsociety.com.

To improve the identification process, provide the following when possible:

- Photo
- Locality (county/town, address is ideal)
- Place of encounter: yard, house, pond, woods, etc.
- Approximate size
- Disposition of animal: observed, released, killed, etc.

Organized in 1958, the Virginia Herpetological Society brings together people interested in advancing their knowledge of Virginia's reptiles and amphibians. The VHS encourages scientific study of Virginia herpetofauna and its conservation. Education continues to be an important Society function.

Society meetings are held twice each year, in spring and fall, at different locations throughout the state. The program is open to all members and guests and includes an educational workshop, a business meeting, and a contributed papers session during which members present information on their research and interest with Virginia's reptile and amphibians.

Meeting Workshops train members and educators on the identification, conservation, and captive care of common reptile and amphibian species, as well as those that are threatened and endangered. More information can be found at www.virginiaherpetologicalsociety.com. Consider joining their Facebook page at www.facebook.com/vaherpsociety.



Jack Looney is a full-time professional photographer whose specialties include weddings and events and architectural, commercial, editorial, and nature photography. His work has been featured in a wide range of regional, national, and international publications. He is a member of the National Press Photographer's Association, the Wedding & Portrait Photographers International, and Canon's Professional Services Team. Jack resides in Crozet with his wife and young children. When not photographing, he and his family maintain a stretch of Appalachian Trail in the southern district of Shenandoah National Park. www.jacklooney.com.