

SUMMARY

Water Moccasin/Cottonmouth (Venomous)

Do not occur naturally in most of northern Georgia. They bask on land or on logs and stumps near the water surface, and swim with their heads elevated above the water and their bodies riding on the water surface. They may vibrate their tails and gape their mouths when threatened. If banded, the bands are widest on the sides and narrow on top. They have a single row of scales on the underside of their tails, elliptical eye pupils, and a heat-sensing pit.



Juvenile



Adult- light phase



Adult - banded



Adult- dark phase

Water Snakes (Non-venomous)

Occur in aquatic habitats throughout Georgia. They bask in limbs overhanging water and typically swim below the water surface. If banded, the bands are widest on top and narrow on the sides. They have round eye pupils, and a double row of scales on the underside of their tails.



Red-bellied



Juvenile Red-bellied



Eastern Green



Brown



Banded



Northern

Is It a WATER MOCCASIN?



Adult red-bellied water snake

However, this information is not provided to point out which species to kill and which species not to kill. The water moccasin's rumored reputation as an aggressive snake far exceeds its true character. Research has demonstrated that this species rarely strikes defensively even when harassed, relying much more on bluffing behaviors. Venom is a precious commodity that water moccasins use for subduing prey. Wasting venom on anything that is not food may prevent a snake from catching its next meal. Further, the gaped display of the "cottony" inner-mouth of a water moccasin is not an act of aggression, but rather a warning of its toxicity—no different than the rattling behavior of rattlesnakes or the bright warning colors of the coral snake. Venomous snakes pose very little threat to humans who leave them alone. The vast majority of snakebites result from people attempting to capture, harass or kill them.

WATER MOCCASINS (COTTONMOUTHS) VS. WATER SNAKES

Five species of large water snakes are native to Georgia — eastern green water snake (*Nerodia floridana*), brown water snake (*Nerodia taxispilota*), red-bellied water snake (*Nerodia erythrogaster*), banded water snake (*Nerodia fasciata*) and northern water snake (*Nerodia sipedon*).

Some people ask this question when they see a snake in the water. Unfortunately, many people assume all snakes in the water are water moccasins and kill them "just in case." Yes, some species of snakes, including the water moccasin (*Agkistrodon piscivorus*), also known as the cottonmouth, are venomous and therefore potentially dangerous. However, of the 45 snake species native to Georgia, only six are venomous—all others are harmless. Among the 39 harmless non-venomous snakes, five species of water snakes (*Nerodia* spp.) are often unfortunate victims of mistaken identity: People think they are water moccasins. This brochure was developed to highlight the differences between water snakes and water moccasins with the hope that familiarity with these snakes will prevent further unnecessary killing of non-venomous snakes (which is illegal by state law) commonly found in aquatic habitats in Georgia.

Non-venomous water snakes, such as the brown water snake above, may be mistaken for venomous water moccasins



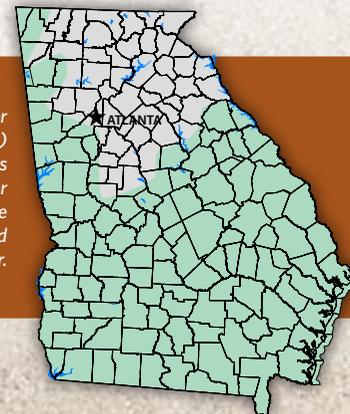
Eastern green water snake

Adult water snakes and water moccasins may be very similar in general appearance. Both are large, heavy-bodied snakes with rough scales and relatively dull coloration.

However, the following characteristics of habitat, behavior and appearance should help differentiate between them.

RANGE AND HABITAT

The first step in answering "Is it a water moccasin?" should be to refer to the distribution map that illustrates that species' range. Collectively, water snakes can be found in every county of Georgia, unlike the water moccasin, which does not occur in most of the northern half of the state. Although it is difficult to summarize the habitat preferences of these two snakes, in general water moccasins shy away from large, open reservoirs, whereas some water snake species thrive in them. Water moccasins tend to inhabit slow-moving streams, swamps and backwaters.



Range (in green) of the water moccasin (cottonmouth) in Georgia. Major reservoirs outside of the water moccasin's range include Lake Allatoona and Lake Lanier.

BASKING BEHAVIOR



Water moccasins rarely climb, whereas water snakes, like this brown water snake, typically bask on limbs that hang over the water

Stories of water moccasins falling from overhanging limbs into boats are most likely based on misidentification. Water moccasins typically bask on land, stumps or logs near the water surface, and only occasionally climb to low limbs when access is afforded by vines or gradually sloping branches. Water snakes,

however, are very agile climbers and spend a great deal of time basking on the limbs of shrubs and trees overhanging the water.

SWIMMING BEHAVIOR



Water moccasin swimming

When disturbed, water moccasins either hold their ground or swim away. When swimming, their head is usually elevated above the water and their body appears overly buoyant, riding on, or nearly on, the water surface. Water snakes, on the other hand, do not swim high on the water and their head is not elevated. When water snakes are disturbed, they almost always flee by diving beneath the water.

HEAD POSITIONING AND MOUTH-GAPING BEHAVIOR

Water moccasins typically keep their head cocked at an approximately 45-degree angle, and when threatened will gape their mouth, revealing the whitish inner lining. Although water snakes do not display either of these behaviors they, too, may have whitish coloration in the mouth lining. Therefore, dead water



Head alignment (angled) typical of water moccasins



Mouth-gape warning behavior typical of water moccasins

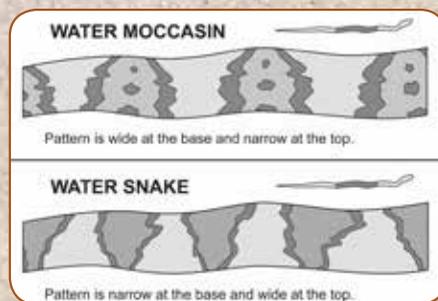
moccasins cannot be positively identified based solely on the color of their inner-mouth lining.

(Caution: Venom may remain fully toxic in dead snakes. It is best to leave dead snakes of uncertain identification alone.)

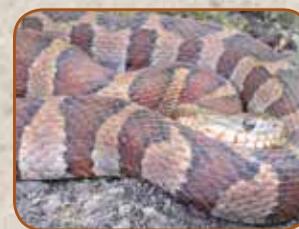
TAIL VIBRATION

In addition to mouth-gaping, water moccasins will often rapidly vibrate their tail when agitated or threatened. Although several other non-venomous snakes also exhibit this behavior (black racers, for example), water snakes do not.

PATTERN



The two most common water snakes in Georgia, banded and northern, have bands that are widest on top. Juvenile and patterned adult water moccasins have "hollow" bands that are widest on the sides and appear to be hourglass-shaped when viewed from above. Also, most water moccasins have a very well-defined dark stripe on the side of the head that runs from the back of the eye toward the corner of the jaw. The only water snake species with any semblance of a dark stripe on the side of the head is the banded water snake, and the stripe is a poorly-defined one, at best.



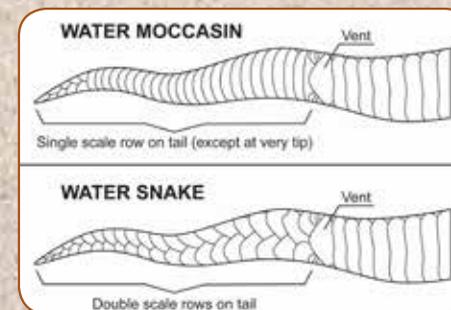
Water snakes, like this northern water snake, have bands that are widest on the top



Well-defined dark stripe between eye and corner of jaw on water moccasin

UNDERSIDE OF TAIL

Water moccasins have a single row of scales (similar to the belly scales) on the underside of their tail. Water snakes have a double row of scales. (Caution: If uncertain as to the species, scale characteristics should only be examined on dead snakes and shed skins.)



HEAD SHAPE AND FEATURES

The shape of the head is not a reliable way to differentiate these species since water snakes can flare out their head when they feel threatened, making it look triangular. However, the elliptical shape of the pupil (the pupil of water snakes is round) and



A banded water snake in a defensive posture, with head flared

the presence of a pit between the eye and nostril (absent in water snakes) are reliable characteristics of water moccasins.



A heat-sensing pit present in water moccasins (left) is absent in water snakes like the banded water snake (right). Water moccasins also have elliptical pupils, while non-venomous water snakes have round pupils.



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