

SNAKES

Introduction:

Snakes elicit different emotions in different people. Unfortunately, the emotions they evoke in many people range from an uneasiness to a deep fear. Even for people who do not fear snakes, a surprise encounter may be a problem. Too often this fear results in the needless killing of a snake. The presence of snakes in the landscape is an indication of a healthy environment. Snakes are a unique part of our wildlife and should not be harmed. In Maryland, as in most states, the indiscriminate killing of snakes is illegal. There are more myths, wives' tales and superstitions about snakes than any other animal. These are all false and grew out of misunderstandings and ignorance about snakes. Also, one must consider that many fables developed in ancient times in regions where many very deadly snakes lived. However, even people who are not 'fond' of snakes should try to tolerate their presence. The first step is to have a better basic understanding of snakes.

QUESTIONS AND ANSWERS ABOUT SNAKES:

- **What is a snake?**

Snakes are the most "modern" of reptiles and are considered to be closely related to lizards. It is believed that snakes once had small legs and lost them through evolution. Boas and Pythons are considered very 'primitive' snakes because they have remnants of hind legs called "spurs". Boa and Python skeletons also have remnants of hips. Snakes have adapted to living in almost all parts of the world except Greenland and the Polar regions. The tropics hosts the greatest number and diversity of species.

- **What is the difference between a reptile and an amphibian?**

Both are similar in that they are among the oldest type of animals on earth. Most lay eggs but some snakes bear live young. The young are self-sufficient when hatched. Unlike warm-blooded animals that maintain a constant body temperature, reptiles and amphibians are cold-blooded. This means that their body temperature is regulated by their surroundings. The amphibians include frogs, toads and salamanders. They have soft, moist skin that needs protection from drying out. However, some amphibians, such as toads, have tougher skin and survive quite

well away from water. Amphibians differ greatly from reptiles in reproduction. Amphibians, in general, lay soft, gelatinous eggs directly in water or other very wet places. The eggs hatch into larvae such as tadpoles with gills and later change into adults with lungs and legs.



Black Rat Snake

Reptiles are more terrestrial than amphibians. Reptiles do not need water for the protection of their skin. There are, however, some reptiles that live in water, such as alligators and crocodiles, water turtles, snapping turtles, sea turtles and water snakes. Reptiles also hatch from eggs, but their eggs have leathery shells and are laid on land. The young are exact miniature replicas of the adults. Some reptiles also bear live young.

- **How do snakes move?**

Snakes get around remarkably well without legs. They are able to climb, swim, and catch prey. Movement is accomplished by muscular contractions of the ribs. These muscles are attached to the belly scutes (large plate scales) that grip the surface much like the treads on a caterpillar tractor. The slow, relaxed movement of a snake is called a "caterpillar crawl". When a snake is frightened or pursuing prey it will pick up the pace by moving its entire body in an "S" shape, pushing itself against the ground to enable it to move more rapidly, much like an ice skater's blades pushing across ice.

- **Why do snakes shed their skin?**

A snake is covered with scales, which are made of a material similar to our fingernails. The scales are protected by a thin

layer of skin. As a snake grows the skin stretches, becomes worn and needs to be renewed by shedding. The frequency of shedding depends on the rate of growth. Some snakes may shed every couple of weeks while others may shed only once a month. The actual shedding process takes several days. The first step is the formation of a new layer of skin just beneath the old one. During this time the snake's color will become grayish or bluish. Its eyes become very blue and the snake has difficulty seeing. The snake will often remain in hiding and refuse food until it has shed its skin. A day or two prior to shedding, the skin will clear and the snake sheds its old skin in one piece starting from the head, turning the skin inside out as it crawls out of the skin. Often a snake will soak itself in water just prior to the time to shed to help aide the shedding process. The shed skin is greatly stretched making it longer than the actual snake. After shedding a snake's coloration is brilliant and shines. It also is very hungry and hunts for food immediately.

- **Why does a snake flicker its tongue?**

A snake's tongue is a forked sensory structure used to explore its surroundings and help it find food. As the tongue flicks in and out it picks up air-borne particles and 'tastes' them. The minute particles are brought in on the tongue and come in contact with a sensory structure called the Jacobson organ. This organ sends a message to the snake's brain about the odor or taste of what it is exploring. A snake's tongue is harmless and, contrary to some superstitions, does not sting.

- **What are a snake's teeth like?**

Snakes have numerous small teeth. They are curved towards the back of the mouth. This helps them to grasp and hold onto prey. Except for venomous species which have a pair of special teeth called fangs, snakes' teeth and their bites are harmless. Occasionally, someone may become ill from a non-venomous bite because of an allergic or infection-like reaction. The same can happen from a claw scratch or bite from any other type of animal.

- **What do snakes eat?**

All snakes are predators and generally are prey specific. Snake diets include insects, spiders, snails, earthworms, amphibians, other snakes, lizards, birds and their eggs and rodents. Snakes swallow their prey whole. Some snakes constrict their prey, killing it quickly before swallowing it. Snakes hunt by sight and by their sense of smell. They do not eat dead animals. Rodent-eating snakes such as corn snakes, black rat snakes and king snakes consume a tremendous number of rodents. They play an important part in keeping rodents in balance. A farm with snakes seldom has a rodent problem. Their important role in rodent control has been valued by farmers for years. For homeowners, these snakes are also beneficial in controlling rats, mice, moles and voles. Occasionally, they will take nesting birds and their eggs. Snake-proofing bird nest boxes with a sheet metal collar will help prevent snakes from getting into them.

- **Are snakes mean?**

Generally, snakes are quiet animals that prefer to quickly slip away from danger. When you encounter a snake, it may be as surprised and frightened as you may be. If it thinks it is going to

be harmed by you and has no chance to escape it will try to frighten you away. It may puff itself full of air to appear larger than it really is, hiss, and vibrate its tail like a rattle snake, stand up in a striking pose and, if provoked, strike at whatever is threatening it. This behavior usually works and the offender backs off. It is fright and nervousness that make some snakes act like this. Snakes, like people, have their own disposition. Even some wild specimens are very docile and do not seem to mind being handled. Many species of snakes lose their nervousness and become very tame in captivity. However, some species, such as black racers and water snakes, remain very nervous and may always bite when handled. Common sense also says to never trust a venomous species no matter how docile it may be. People have died because of such foolishness.

- **Is a snake mostly tail?**

No, a snake like all other animals has three main regions to its body. Behind a snake's head is its neck which may be several inches long. Behind the neck is the region that contains the heart, one lung (the second lung is greatly reduced or non-existent), the liver, etc. The next region is the largest portion of its body containing the stomach and intestines. The internal organs are elongated to fit inside the body of a snake. This is followed by the tail. The tail is actually the shortest portion of a snake.

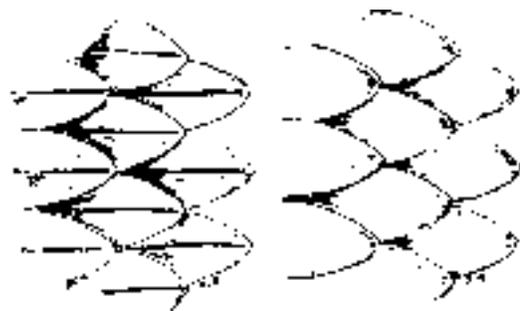
- **Are snakes slimy?**

Snakes are not slimy but dry to the touch. They may appear wet because of their smooth, highly polished scales. The scales may be smooth or keeled. Examples of Maryland snakes that have smooth, polished scales are members of the King Snake family. Others with slightly keeled scales also look quite shiny such as the snakes in the Rat Snake group. A keel is a small ridge running down the center of each scale. Snakes with keeled scales do not have a polished, shiny appearance and feel rougher to touch than those species with smooth scales. Some species with keeled scales are Garter Snakes, Northern Brown Snakes, Water Snakes, Rough Green Snakes and Rattlesnakes.

Keeled Scales

Smooth Scales

- **How do snakes reproduce?**



Depending on the species, snakes reproduce by laying eggs or bearing live young. The mating season for most snakes in Maryland is April through June. Usually, many eggs are laid. The black rat snake, for example, may lay up to 60 eggs, but 20

-30 is more typical. Eggs are laid soon after breeding and hatching occurs about 2 - 3 months later. Snakes do not incubate their eggs or protect their young. The pregnant female will seek a protected warm place to lay her eggs (or give birth) and then leave the eggs and young to fend for themselves. A few species will remain with the eggs for a period of time to fend off predators. Favored places to lay eggs are under rotting logs, in mulch, compost piles and under old decaying stumps. Snake eggs are leathery and not brittle like bird eggs. Those that bear live young in Maryland include the Water Snakes, Garter Snake, Northern Brown Snake, Copperhead and Timber Rattlesnake. Young are born in late summer.

- **Are there venomous snakes in Maryland?**

Fortunately, there are only two species of dangerous snakes in our state: the Northern Copperhead and the Timber Rattlesnake. There are no Coral Snakes, Water Moccasins (Cottonmouth) or any other types of Rattlesnakes in Maryland.

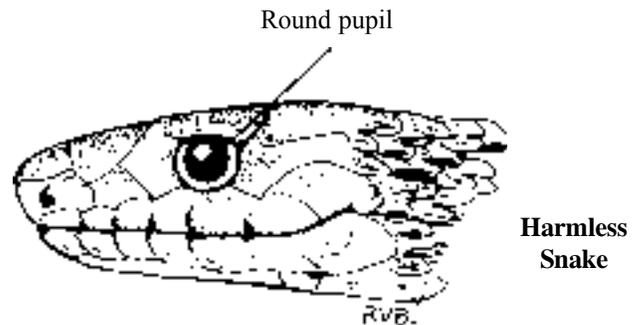
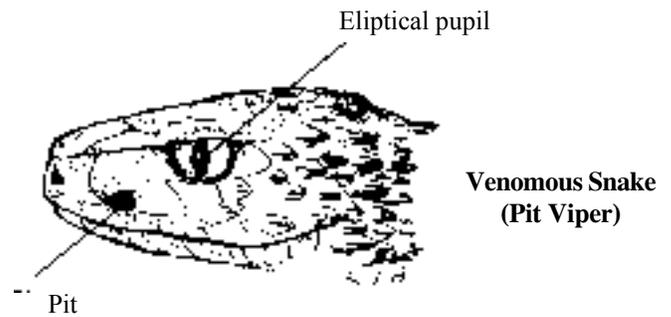
The Northern Copperhead is a pit viper related to the Rattlesnake and the Water Moccasin. Its venom is the least toxic, but does cause severe pain, tissue destruction and illness. It requires immediate medical attention, but fatalities in adults are rare. Copperheads are generally a secretive snake found predominantly in the more rural areas of the State.

The Timber Rattlesnake is the only Rattlesnake found in Maryland. It is found predominantly in Northern and Western areas of Maryland. It is no longer very common because of human encroachment on its habitat. Its bite is much more serious than that of the Copperhead and can be fatal. Accidental bites occur when people come in contact with these snakes when hiking, climbing in rocky areas, timbering, moving firewood, etc. Wear protective hiking boots and look first before putting your hands under logs and rocks when working in areas known to have venomous snakes.

- **How can you tell a venomous snake from a harmless one?**

The two venomous snakes in Maryland are both pit vipers. A “**pit**” is a heat sensing hole on each side of the head between the eye and the nostril. Pit vipers have **vertical pupils** much like a cat’s eye in the daylight. **These are the two features that distinguish them from harmless snakes in Maryland.** A pit viper’s head is large and triangular shaped. Vipers do not lay eggs but bear live young in late August.

Many people believe that a snake with a triangular shaped head, a stout body and a pattern is a dangerous snake. It’s true that these characteristics describe the two venomous snakes in Maryland, the Copperhead and the Timber Rattlesnake. But they also fit the description of Hog-Nosed Snakes, Water Snakes, Corn Snakes and several other harmless snakes. Most harmless snakes when frightened will broaden their jaws making their head into an almost perfect triangle. They will also flatten their bodies to make them appear larger than they really are. The Hog-Nosed Snake can put on a very convincing show by flaring its neck and hissing loudly just like a cobra! Most wild snakes



will strike and bite, so striking and biting is not a sign of a dangerous snake. The bite of a non-venomous snake is not serious. The bite site will have several very tiny skin pricks made by very slender and short teeth. Wash the bite and apply an antiseptic as you would do with any other scratch you may get while gardening.

- **What is the largest snake in Maryland?**

The largest snake is the Black Rat Snake. Very old specimens may grow to 7 feet in length and have a thick body. The record size for this species is 8 ft. The normal length of the Black Rat Snake ranges from 4-6 feet. Another black-colored snake is the Black Racer. It is shorter, much more slender and faster than the Black Rat Snake. The young of Black Rat Snakes and Black Racers are not black but light gray with dark brown or black rectangular-shaped blotches on the back. They usually become darker when they are about 16 inches long.

SNAKES FOUND IN MARYLAND:

Small Snakes up to 16 inches long:

Worm Snake- Harmless. A small smooth and glossy snake with a very small head. A very secretive species found underground and under logs. Colored much like an earthworm. May be found in suburban and rural areas. Feeds on earthworms and salamanders. Lays eggs.

Northern Brown Snake- Harmless. A dull grayish brown snake with black line down the back, black specks along the sides. White diamond shaped pattern evident on sides when snake flattens its body. Common in cities and suburbs. Feeds on earthworms. Bears live young.

Ringneck Snake- Harmless. A slender slate gray or black snake with a yellow or orange ring around the neck. Yellow underside. Secretive, hiding under mulch and leaves. Lays eggs.



Ringneck Snake



Worm Snake

Smooth Earth Snake- Harmless. A slender glossy brown snake, no pattern. Seldom seen. Lives under mulch and underground. Lays eggs.

Medium Snakes 24 - 36 inches long:

Eastern Garter Snake-Harmless. Very common in rural areas, suburbs, and cities. It is usually a dark brown snake with yellow stripes down back. The center stripe is the boldest. A white diamond-like pattern is visible when the snake flattens its body. Feeds on earthworms, salamanders, frogs, mice and fish. Bears live young.



Garter Snake



Water Snake

Ribbon Snake-Harmless. Very similar to the garter snake but more slender. Color is black with three yellow stripes down

back; found near water mostly in rural areas. Feeds on small fish and frogs. Bears live young.

Rough Green Snake-Harmless. A delicate slender bright green snake. It lives mostly in small trees and shrubs where it hunts for caterpillars, spiders and crickets. Has strongly keeled scales which give it a dull appearance, helping it to blend with its surroundings. Found mostly in rural areas but may be encountered in suburbs. Lays eggs.

Northern Water snake- Harmless. A very stout-bodied, dull color of dark brown bands over light brown. Found in or along still or moving water. Pattern is more pronounced when in water. Feeds on frogs, tadpoles, mice and fish weakened by sickness or age. Bears live young.

Queen Snake -Harmless. A slender dark dull brown snake with three black stripes down the back. A type of Water Snake found in or near water. Feeds exclusively on crayfish. Bears live young.

Brown or Mole King Snake-Harmless. A rarely seen member of the King Snake group because it spends most of its time under ground or under logs. It is a shiny light brown with series of small darker bands across the back. Found mostly in rural areas. Lays eggs.



Hog-nosed Snake

Eastern Hog-nosed Snake- Harmless. A stout-bodied and brightly patterned, orange and black snake with a triangular head. Has a turned-up hog nose used to dig for food in soil. Fairly common in rural areas, occasionally in suburbs. When threatened it puffs and hisses like a Cobra to scare off its attacker. If these antics fail it rolls over and plays dead. There is a black colored phase of this snake. Feeds exclusively on toads. Lays eggs.

Scarlet King Snake- Harmless. A rarely found and smallest member of the King Snake group. It is a brilliant red/black/ yellow banded snake. A harmless mimic of the Coral snake found in the South. Feeds on mice, salamanders and other smaller snakes. Lays eggs.

Milk or Red King Snake-Harmless. A fairly common member of the King Snake group found in rural areas. It has red markings on a light gray or white background. A beautiful snake often killed by people mistaking it as a copperhead. Feeds on rodents and other snakes. Lays eggs.

Timber Rattlesnake- Venomous- A stout bodied snake found predominately in western Maryland but may be encountered in other regions. Has a large chunky and triangular shaped head, dark pattern over a greenish brown background. Rattle on the tail. Bears live young. Rare in most areas.



Timber Rattlesnake (dark)



Timber Rattlesnake (light)

Northern Copperhead- Venomous- A stout bodied snake found in rural and rocky areas in most of Maryland. It is rather secretive and usually not encountered. Very triangular shaped head, broad coppery brown hour-glass bands across a light beige background on the back. Bears live young.



Copperhead

Large Snakes 36 - 72 inches long:

Eastern King Snake-Harmless. A very shiny black snake with a bold white or yellow chain pattern down the back and sides. Fairly common in rural areas. Feeds on rodents and other snakes, (including venomous species). Lays eggs.

Black Rat Snake-Harmless. (See photo on page 1.) A large black colored snake of medium to heavy build, scales may show faint white tips which are remnants of their juvenile pattern. The shape of the body is not round but resembles a loaf of bread. Very common in rural areas, but occasionally found in the suburbs. Lays eggs. Note: Juvenile black rat snakes are not black. They are very light grey with dark brown almost black rectangular blotches on the back.



Corn Snake



Juvenile Black Rat Snake

Corn or Red Rat Snake-Harmless. A relative of the Black Rat snake, it is usually brilliantly colored with large orange blotches bordered with black down the back. Its background color is tan to gray. Not as common as the black rat snake; found in rural areas. Lays eggs.

Eastern Black Racer- Harmless. A slender, entirely black colored snake which, unlike the black rat snake has no white markings on the scales. Cross-section of the body is round. Common in rural areas, a very fast moving snake and aggressive. Lays eggs. Note: Juvenile Black Racers are not black. They have a pattern similar to the juvenile Black Rat Snake.

Snake Myths:

There are more superstitions and myths about snakes than any other animal. It is amazing how many of them are so popular and that many people today still believe them to be true. Here are a few common myths about snakes.

MYTH: When a snake's head is severed it will not die until sunset.

FACT: A snake, like any other animal, dies when its head is cut off. However, a snake's body will move from muscular contractions for a short period of time even though its head has been removed.

MYTH: Snake's hypnotize their prey before catching and eating it.

FACT: Snakes do not hypnotize their prey. Sometimes they may move very quietly and appear to "stare" at their prey as they stalk it. The prey animal may not realize the danger and may "watch" the snake out of curiosity Hence, it appears that the prey is hypnotized and cannot move to escape the snake.

MYTH: Milk snakes drink milk from cows and steal milk from dairies.

FACT: A milk snake (red king snake) may have gotten its name because the background color is almost white. It is a rodent feeding species that is frequently found around dairy barns where

rodents live. It is not certain how this myth started. It is possible that a very thirsty milk snake was observed drinking from a bucket of milk.

MYTH: A snake can sting with its tail or tongue.

FACT: Snakes cannot sting with their tongues or tails. The touch of their tongue is completely harmless. However, the mud snake (not present in MD) has a pointed tail and sometimes pushes it against the skin when handled. It is still very harmless.

MYTH: A Pilot Black Snake leads other snakes to safe hibernating places in winter.

FACT: The Pilot Black Snake is another name for the common Black Rat Snake. In mountainous areas these snakes frequently hibernate in rock dens along with copperheads and rattlesnakes. Superstition says that they lead other snakes to a hibernating den, when, in reality, it is instinct and a suitable place to hibernate that brings the snakes together for the winter.

MYTH: Black Snakes and Copperheads can cross breed producing a poisonous black snake.

FACT: These two unrelated species cannot cross breed and produce young. The Black Snake is an egg-layer and the copperhead is a live-bearer. This misconception may have started from the fact that young black snakes have a pattern that reminded someone of a copperhead.

Managing Snakes:

A healthy outdoor environment teems with a variety of animals. Each animal plays a role in the total picture, including snakes. We should not attempt to control every aspect of it, but learn to accept the variety present in the environment. **There is no need to kill snakes.** However, there are some locations, such as in a building, where a snake's presence may not be welcome. **Exclusion from entry is the only effective recommendation.**

To accomplish that, seal all holes, cracks or crevices around the structure. Inspect the weather stripping on doors and basement windows for tightness of fit. A common entrance for small snakes is along small gaps between the top of the basement walls and the siding of frame houses. Snakes are very good at slipping through these small openings, so check carefully for such spaces. Essentially, any space large enough for mice to get into a building is also adequate for a snake to gain entry.

Snakes do not usually travel very far. Most have specific habitat and range preferences. In general, snakes like cool, damp, dark areas where they can hide out during the hottest time of day. During the early part of the day they may move into a sunny spot to warm up. Snakes are most active at dusk and early in the morning. During new construction, natural habitats are disturbed and snakes are forced to move into new areas. Snakes are especially attracted to fire wood stacked directly on the ground, old lumber piles, junk piles, flower beds with excessive mulch, weedy gardens and boards or other items lying on the ground. To discourage snakes from coming close to a building or house, remove these hiding places from the property. While this will not eliminate snakes, they will not be able to find comfortable habitats close to buildings.

Several types of snake repellents have been used in the past, but none has been consistently effective. The active ingredients in these products are sulfur and naphthalene. They are applied in a band around the area to be protected. Repellents should be applied according to label directions. Cloths soaked with household ammonia may be effective in enclosed spaces.

During the heat of summer and during fall, small snakes will sometimes get inside buildings and houses. The most common species found inside are Garter Snakes, Ring Neck Snakes, Northern Brown Snakes and baby Black Rat Snakes. If a snake is inside a building and has been located it can be scooped into a trash can with a broom and released out of doors.

If you don't mind handling a snake, simply pick it up bare-handed or with garden gloves and release it outside. Grasp larger snakes directly behind the head to prevent them from biting. More often than not, a snake is hiding in a building and cannot be readily found. An effective technique is to lay damp towels in a room overnight. Snakes come out of hiding at night and often will crawl under the damp towels. The snake can then be captured and released. Glue traps for mice have been used to catch small snakes. These traps are rather cruel because the snake often tears its scales off and may suffocate in the glue. Use mineral oil to release a snake trapped in a mouse glue board. Some exterminators will remove snakes trapped inside buildings. You might also check with your local animal control department. Sometimes, there is staff willing to come to a residence or business to capture snakes for release back into the wild.

In Summary:

Snakes are an interesting and important part of our Maryland wildlife. They are a part of the 'balance of nature' and are very useful in controlling many insect and rodent pests. Since the beginning of history snakes have been the objects of an undeserving hatred and fear. Hopefully, you may feel a little more positive and reduce any fear or hatred of them once you learn more about them. **So, give snakes a break and allow them to exist unharmed in your garden.** Many Marylanders have accepted the presence of snakes in their landscape as another interesting part of Maryland's bountiful wildlife to enjoy.

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References: *Prevention and Control of Wildlife Damage*, Vol. II, Section F-15, 1995. Cooperative Extension Service, University of Nebraska. Roger Conant and Joseph Collins, 1991. *Reptiles and Amphibians*, Peterson Field Guide,.

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