

Special points of interest:

- Of the 21 species of snakes native to Pennsylvania, only three are venomous.
- Most snakes are docile and will try to avoid contact with humans.
- Approximately five of the 7,000 - 8,000 people bitten by a venomous snake in the U.S. annually will die.

## Introduction

Snakes play an important and specialized role in our world.

There are twenty-one species of snakes considered to be “native Pennsylvanians”, and each of them have a specific role in our ecosystem.

Though often thought of as evil or mean, their only mission is to eat, grow, and reproduce. Fortunately, they provide many benefits to mankind during the course of their lives.

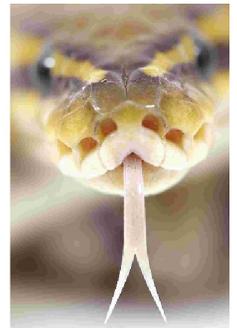
## Biology

Scientifically, snakes are classified as vertebrates, because they have well-developed skeletons, and reptiles because their bodies are covered with scales. Reptiles are poikilothermic, which means their body temperature depends a great deal upon their environment.

Snakes move into and out of varying temperature zones in order to regulate their bodily functions, which is why we often see them basking in

the sun. They need the warm temperatures in order to digest their food, as well as regulate their temperature and allow their eggs to develop.

Since snakes do not have fingers to touch things with, they have to have another way to monitor their surroundings. They do this by flicking their characteristic forked tongues in and out of their mouths to sample scent molecules. The Jacobson’s Organ on the roof of the mouth transfers chemical information from the scent molecules to the brain. Snakes then use this information to trail their prey, find mates, and even return to their hibernation areas.



## Food Sources

Pennsylvania snakes are all carnivorous; beyond that, their diets can be quite varied. Common food choices include: worms, insects, amphibians, birds, other reptiles, and small mammals. Some snakes have very specific preferences. For example, rat snakes are very good climbers, and often eat small birds or bird eggs.

Non-venomous snakes grasp their prey with their mouths and swallow it whole. Milk and black rat snakes are constrictors and suffocate their prey prior to eating it. Black racers also tend to suffocate their prey, but do so by pinning it under their own bodies until it suffocates.

Venomous snakes kill their prey by striking it with two hollow teeth (fangs) and injecting venom into the wounds. Venom contains digestive enzymes and toxins that break down cells, causing hemorrhaging, and eventually death. Prey struck by venomous snakes often travels a distance before dying, so snakes must follow the scent to the dead prey.

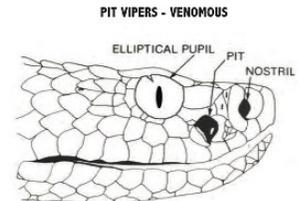


## Identifying Venomous Snakes

Of the 21 snakes native to Pennsylvania, only three are venomous: the timber rattlesnake, northern copperhead, and eastern massasauga rattlesnake, so the chance of encountering - let alone being bitten by - a venomous snake is extremely low. Still, it's important to be able to tell if the snake staring you down is venomous or not. There are some key differences between venomous and non-venomous Pennsylvania snakes that make it easier to identify them.

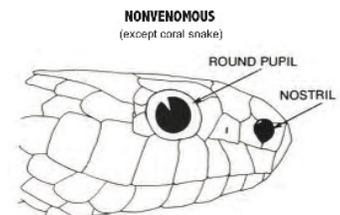
All venomous snakes native to Pennsylvania possess:

- ◆ an indentation or pit on each side of the head between the eye and nostril
- ◆ a vertically elliptical eye pupil resembling that of a cat
- ◆ a single row of scales on the underside of the tail. Rattlesnakes, additionally, usually have one or more rattles, but these can be missing for various reasons, so the lack of a rattle does not necessarily mean you are not dealing with a rattle snake.



Non-venomous Pennsylvania native snakes:

- ◇ Do not have facial pits
- ◇ Have round pupils, like humans
- ◇ Have a double row of scales on the underside of the tail



People often refer to the shape of a snake's head for identification; however, some non-venomous snakes can display a flattened head at times, making them look more like venomous snakes.

Let's take a closer look at the two venomous snakes we are most likely to encounter in our area, the timber rattlesnake and the northern copperhead. Source: <http://fishandboat.com/anglerboater/2004/jf04web/trattlesnake.pdf>

## Timber Rattlesnake

The timber rattlesnake is one most people in this area have heard about. Many people are fearful of encountering this beast in the wild, but it is actually one of the more docile and timid snakes in Pennsylvania, typically striking only when it feels cornered or threatened. Rattlers generally, but not always, "rattle" their tails prior to striking.

Adult timber rattlers are large (up to 74"), heavy bodied snakes; males average 43", females 36". Their upper body may be "chevron" patterned on a grey, yellow, brown or black background. The heads of timber rattlers have two distinct color phases: black (black head and eyes) and yellow (yellow head and eyes). Their underside tends to be lighter colored with dark stippled markings.



Timber rattlesnakes are most active from mid-April through October, and they tend to inhabit more mountainous terrain; upland forests where chipmunks and

mice are prevalent. Southern facing slopes with rocky outcroppings or ledges, boulders, and talus slopes make perfect basking areas for timber rattlesnakes. This is also where you will find their dens.

Timber rattlers detect the scent of rodent trails using their forked tongues. Once they find an active rodent trail, they will lie in wait along the trail until they detect

the heat of an approaching rodent. As the rodent comes within striking distance, the rattlesnake will strike them with a venomous bite. Their venom destroys red blood cells and shuts down the prey's central nervous system, quickly leading to death. The snake will eat its prey whole and then seek a warm area in which to digest it.

Humans are one of the timber rattlesnakes few natural enemies. Humans kill snakes intentionally and unintentionally (automobiles, lawn/farm equipment), as well as destroy the snake's habitat, forcing them into areas inhabited by humans.

## Northern Copperhead

The northern copperhead is the most widely distributed and locally abundant of Pennsylvania's three venomous snake species. Copperheads are found throughout Pennsylvania, with the exception of the most northern parts of the northern tier counties and the extreme northwest counties. They can be found in remote wilderness areas, as well as suburban and even urban areas.

Adult copperheads typically range from 26" to 42" in length, with the majority being less than 36" long. They are named for their unique copper or bronze coloring along the top and sides of their heads. Their coloration allows them to easily blend into the forest floor. Other snakes having similar colors have been mistaken for copperheads, including



the eastern milk snake, eastern hognose snake, and northern water snake. If in doubt, check the eyes: they are elliptical, it's a copperhead; if round, it's a non-venomous snake.

In summer, when daytime temperatures climb higher, copperheads tend to become nocturnal, and often become more active on warm, humid nights during or after rain. This is because small animals tend to be more active on rainy nights, scent trailing is easier in wet conditions, warm temperatures allow the copperhead to maintain a high metabolic rate, and darkness helps copperheads hide from their predators.

Source: <http://fishandboat.com/copprhe.htm>, 8/4/2015

## If You Encounter a Venomous Snake...

Reports of venomous snakebites in Pennsylvania are rare, but they do happen. It's important to keep in mind that Pennsylvania native snakes don't go looking for humans to bite - they are generally nonaggressive and prefer to remain still or quietly retreat from an oncoming human rather than attack. Most often, people are bitten while carelessly handling or trying to catch a venomous snake. Fortunately, snakebites in this area are rarely deadly, although they usually make the victim extremely ill for a while. The very young, elderly, those with other health issues, and pets are most susceptible to the effects of venomous snake bites.

The chances of being bitten by a venomous snake can be reduced by using common sense when in areas known to be inhabited by venomous snakes, including most of Pennsylvania. Snakes are often found near cover, such as brush piles, rock walls or ledges, fallen logs, abandoned house foundations, or occasionally even in piles of logs we've stacked to use for our wood stoves. When in or near any of these areas, be cautious of where you are stepping or placing your hands. Snakes often blend into their environments, making them difficult to see. If you notice that you have, or are about to place your hand or foot near any snake, it is important to remain calm. As mentioned, snakes normally will try to avoid striking out at a target as large as a human. They expend a lot of energy when they bite, so they are less likely to do it when the "prey" is too large for them to eat. However, if a snake is cornered, surprised, or touched, it is more likely to strike in defense. Also, when snakes are getting ready to shed, their eyes become cloudy and they can't see as well, and may be more likely to strike.



If you do encounter a snake, maintaining a mere 3-foot buffer should be sufficient to avoid any effective strike. Take care when avoiding one snake that you don't walk into another in your haste to get away. If you find yourself within striking distance of a snake, stop and remain still until you can assess the situation. If the snake does not retreat, and you are able, slowly back away from the snake, without turning your back to it. If the snake seems to be becoming agitated, stop and remain as still as possible. It may be helpful to concentrate on your breathing to steady your nerves. Once the snake determines that you are not a threat, it will likely retreat.

Snakes in northern Pennsylvania tend to be most active between April and October, although you may encounter  
(Continued on page 4)

## If You Encounter a Venomous Snake... *(continued from page 3)*

ter them in other months if it's relatively warm outside. If you are in an area that is known to attract snakes, the following precautions will help minimize your chances of a serious snake encounter:

- ◆ Wear loose-fitting, full-length pants and high-topped (8") leather boots; walk at a normal pace to avoid surprising a snake.
- ◆ Look for snakes before you reach or step into, over, or under logs, rocks, or bushes.
- ◆ Be aware that some snakes, including rattle snakes, are attracted to certain structures (such as a pile of rocks, logs, or boards) to hunt for mice and to bask. You may also encounter them around sheds or equipment.
- ◆ When hiking, step onto rather than over downed logs to help avoid stepping on a snake that is hiding on the other side of the log.
- ◆ Never attempt to pick up a rattlesnake, even if it appears to be dead.

Source: <http://www.dcnr.state.pa.us/forestry/wildlife/rattlesnakes/index.htm>, 8/3/2015

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## Symptoms

Typical symptoms of a venomous snake bite include:

- ◆ A pair of puncture marks at the wound
- ◆ Redness and swelling around the bite and intense pain at the bite site
- ◆ Nausea and vomiting
- ◆ Labored breathing, and in some cases, the victim stops breathing altogether
- ◆ Increased sweating and salivating
- ◆ Vision problems
- ◆ Numbness or tingling sensation around your face and/or limbs

Source: <http://www.cdc.gov/niosh/topics/snakes/>, 8/5/2014

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## In Case of a Snake Bite

Although being bitten by a venomous snake in Pennsylvania is rare, it can happen. Most snakes, including rattlesnakes, will sense your approach and vacate the area prior to your arrival, or at least try to warn you that you are in its territory. However, when the air is cool, snakes tend to be sluggish and maybe slow to react.

If you or someone with you does get bitten by a venomous snake (if uncertain, look for two puncture wounds):

- ◇ Call 911 or transport the person to the hospital immediately, do *not* wait for symptoms to appear
- ◇ Remain calm, avoid excessive movement (could make venom spread faster); reassure the patient
- ◇ Wash bite area with soap and water and cover with clean, dry dressing
- ◇ Immobilize the affected area, if possible
- ◇ Sit or lie down and elevate the wound above the heart, if possible
- ◇ Try to remember the color and shape of the snake; if someone can *safely* snap a photo, it could be helpful
- ◇ **Do not** attempt first aid measures such as suction, incision, tourniquets, or immersing the area in ice
- ◇ Avoid alcohol or caffeinated drinks, which may allow the venom to spread faster

Sources: <http://www.dcnr.state.pa.us/forestry/wildlife/rattlesnakes/index.htm>, 8/4/2015

<http://www.cdc.gov/niosh/topics/snakes/>, 8/6/2015

## Snakes and Snake Bites Test

Name: \_\_\_\_\_

Role/Title: \_\_\_\_\_

Agency: \_\_\_\_\_

Date: \_\_\_\_\_

Please provide contact information (email address, fax number, or mailing address) where you would like your certificate to be sent:

\_\_\_\_\_

You must submit your completed test, with at least a score of 80%, to receive ½ **hour** of training credit for this course.

- \* To submit via fax, please fax the test and evaluation to 814-728-8887. Please fax only the test and evaluation, not the entire training packet.
- \* To submit via email, please send an email to [HCQUNW@MilestonePA.org](mailto:HCQUNW@MilestonePA.org). Please put “Snake Bite Test” in the subject line, and the numbers 1—10 along with your answers, in the body of the email, OR scan the test and evaluations pages and email as attachments.
- \* To submit via mail, send the test and evaluation pages to Milestone HCQU NW, 247 Hospital Drive, Warren PA 16365.

### Knowledge Assessment:

1. Approximately 7,000 people die each year in the U.S. from snake bites.    True      False
2. Intense itching is a common symptom of a venomous snake bite.    True      False
3. Rattlesnakes always warn before striking.    True      False
4. Some Pennsylvania snakes are herbivores.    True      False
5. Looking at the shape of a snake’s head is the best way to tell if it’s venomous or not.    True      False
6. Timber rattlesnakes are large, heavy-bodied snakes.    True      False
7. If you encounter a snake in the woods, quickly run away from it.    True      False
8. Most snakes are aggressive and will strike without warning.    True      False
9. You should not use a tourniquet on a limb that has been bitten by a venomous snake.    True      False
10. It is important to remain calm and limit movement after being bitten by a venomous snake, in order to slow down the spread of toxins through your body.    True      False

### Home Study Evaluation

Training Title: Snakes and Snake Bites Date: \_\_\_\_\_

- |  |   |
|--|---|
| <input type="checkbox"/> Direct Support Professional | <input type="checkbox"/> Provider Administrator/ Supervisor |
| <input type="checkbox"/> Program Specialist          | <input type="checkbox"/> Provider Clinical Staff            |
| <input type="checkbox"/> Consumer/Self-Advocate      | <input type="checkbox"/> Family Member                      |
| <input type="checkbox"/> Support Coordinator         | <input type="checkbox"/> Support Coordinator Supervisor     |
| <input type="checkbox"/> PCH Staff/Administrator     | <input type="checkbox"/> County MH/MR/IDD                   |
| <input type="checkbox"/> FLP/LSP                     | <input type="checkbox"/> Other (please list): _____         |

Please circle your PRIMARY reason for completing this home-study training:

It's mandatory     interested in subject matter     need training hours     convenience

Please circle the best response to each question.

**5 = Strongly Agree**    4 = Agree    3 = Undecided    2 = Disagree    **1 = Strongly Disagree**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. As a result of this training, I have increased my knowledge. | 5 | 4 | 3 | 2 | 1 |
| 2. I learned something I can use in my own situation.           | 5 | 4 | 3 | 2 | 1 |
| 3. This training provided needed information.                   | 5 | 4 | 3 | 2 | 1 |
| 4. The training material was helpful and effective.             | 5 | 4 | 3 | 2 | 1 |
| 5. Overall, I am satisfied with this training.                  | 5 | 4 | 3 | 2 | 1 |
| 6. I am glad I completed this training.                         | 5 | 4 | 3 | 2 | 1 |

Suggestions for improvement: \_\_\_\_\_

Additional information I feel should have been included in this training: \_\_\_\_\_

I would like to see these topics/conditions developed into home-study trainings: \_\_\_\_\_