

EASTERN TIMBER

by Andrew L. Shiels

Snakes are members of the Class Reptilia and the Order Squamata, which also contains typical lizards and the legless, or worm, lizards. Snakes are further divided into the suborder Serpentes containing 11 families and some 2,700 species worldwide. Two families are represented in Pennsylvania. Our 22 snake species belong either to the Colubridae (19 species) or the Viperidae families (three species). Pennsylvania snakes range in size from the eastern worm snake (*Carpho-*

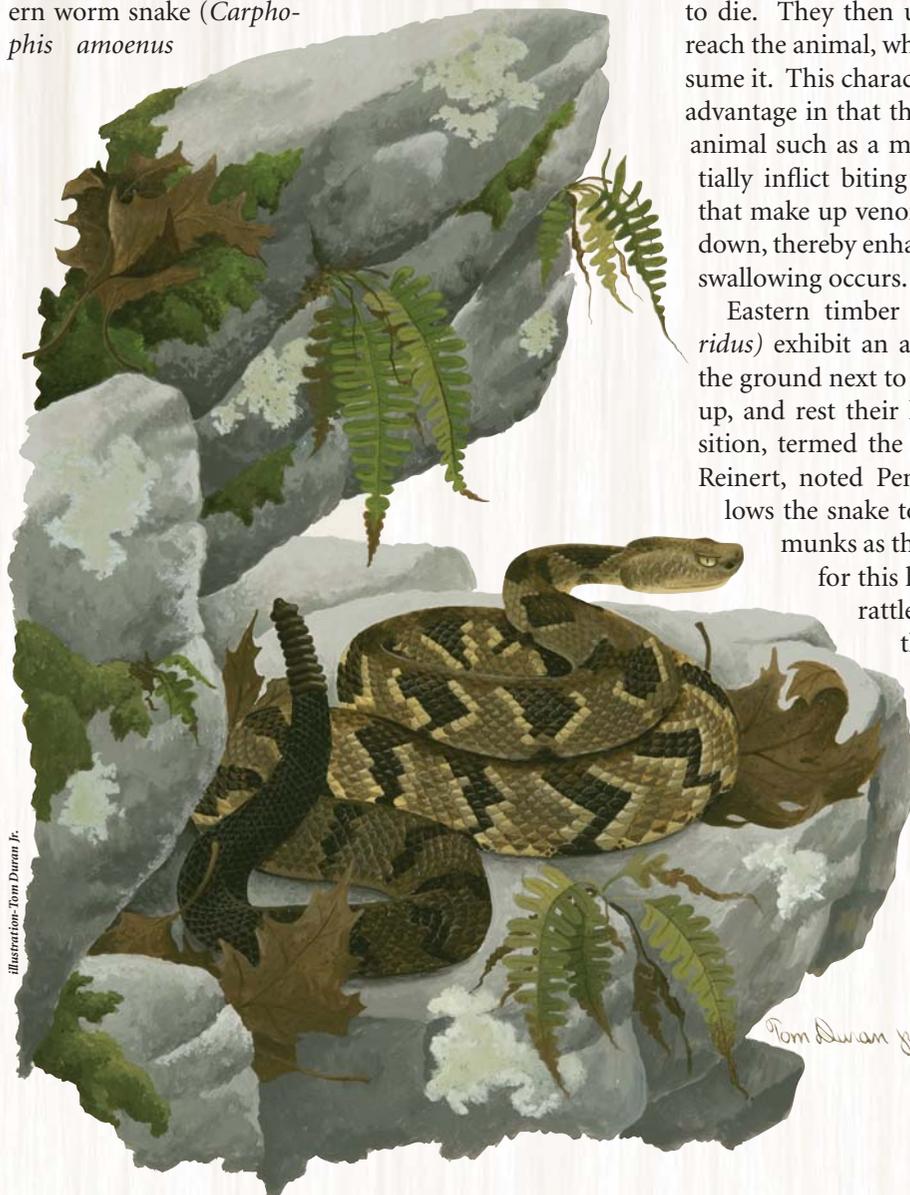


Illustration: Tom Duran Jr.

phis amoenus) and smooth earth snake (*Virginia valeriae ssp.*), which reach lengths of only 7 to 11 inches, to the black rat snake (*Elaphe obsoleta obsoleta*), known to reach lengths of nearly 8 feet.

Eastern timber rattlesnakes, Eastern massasauga rattlesnakes (*Sistrurus catenatus catenatus*), and the northern copperhead (*Agkistrodon contortrix mokasen*) use venom to strike their prey, which then travels off a short distance to die. They then use their scent-trailing capabilities to reach the animal, which is almost certainly dead, and consume it. This characteristic provides these species with an advantage in that they do not risk struggling with a prey animal such as a mouse or chipmunk that could potentially inflict biting damage. Additionally, the enzymes that make up venom have already initiated tissue breakdown, thereby enhancing digestion processes even before swallowing occurs.

Eastern timber rattlesnakes (*Crotalus horridus horridus*) exhibit an ambush method whereby they lay on the ground next to a fallen log or limb, stretch their neck up, and rest their head and chin on the log. This position, termed the “Reinert Posture” by Dr. Howard K. Reinert, noted Pennsylvania rattlesnake researcher, allows the snake to feel the vibrations of mice or chipmunks as they run along the logs. Their fondness for this hunting approach may be why timber rattlesnake encounters by people walking through the woods often occur when stepping over a log.

The Viperidae, or pit vipers, possess another unique system, which is important in such a feeding strategy. Pit vipers contain a heat-sensing organ, or “pit,” located on the side of the head at the bottom of a triangle formed between the eye and the nostril. Zeroing in on moving prey, delivering an accurate strike, and then following up on dying or freshly dead prey are all improved by the use of these heat-sensing pits.

Perhaps the most important fact that people want to know about a snake when they see one is whether

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it may be venomous. Encountered on a trail or in a basement, people should be able to determine whether or not the snake they see is potentially harmful. All Pennsylvania native venomous snakes 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 usually display one or more rattles. However, rattles can be missing because of injury or natural causes.

Non-venomous Pennsylvania native snakes do not possess facial pits, their eye pupils are round like those of a human, and there is a double row of scales on the underside of the tail.

The eastern timber rattlesnake is a large, venomous, heavy bodied snake known to reach lengths of over 55 inches in Pennsylvania. More typically, females average 36 inches in length and males average 43 inches in length. Timber rattlesnakes have dark-brown or black chevron markings or V-shaped crossbands on a yellow, tan, brown, or black body. Two color forms are most often seen. The black phase, or dark morph, features a black head and dark eyes. The light phase, or yellow morph, has a light head and light eyes. The pupils are vertically elliptical, and there is a heat-sensing pit on each side of the head between the eye and the nostril.

This snake prefers higher-elevation woodlands with a diversity of habitat types including rocky outcrops, reverting clear cuts, open meadows, stream corridors, blueberry thickets, and utility rights of way. Basking habitat is extremely important and may consist of talus slopes, boulder fields, or isolated rocks in open areas. Over-wintering and basking sites are often located on south-facing or south-eastern-facing slopes at higher elevations on the mountains. Logs and stumps are used as ambush sites.

Timber rattlesnakes have been recorded from 53 of Pennsylvania's 67 counties. Their distribution in the Commonwealth is correlated to the Appalachian range from the southcentral counties through the northcentral and northeastern counties, the Allegheny Plateau of the northwest, the Laurel Highlands in the southwest, and the Pocono Plateau of the northeast. They are absent from the counties along our western border and the southeastern corner.

Timber rattlesnakes emerge from their over-wintering dens in late April or early May and remain active until October or November, depending on air temperatures. They move from winter sites to basking areas, which may be nearby, or several hundred yards away.

As ambush predators, timber rattlesnakes select high-percentage locations along logs and ledges where they wait for mice, voles, or chipmunks to pass.

Today's increasingly restrictive regulations are the result of improved scientific knowledge, which has uncovered the intricate ecology of this most famous and infamous of Pennsylvania snakes. A better understanding of their basking, foraging, and denning habitat needs has improved conservation and protection efforts during development and land-use planning. Research into this species' distribution, populations, and ecology is essential to ensure its continued existence in the Commonwealth. ☐

State Wildlife Grants

The Pennsylvania Fish & Boat Commission administers the State Wildlife Grants (SWG) Program funds from the U.S. Fish & Wildlife Service for the protection of our trust species including fish, amphibians, reptiles and mussels. This program is designed for the protection of rare or declining animals and their habitats. Guided by the Pennsylvania Wildlife Action Plan, this program benefits all Pennsylvanians because these animals are frequently valuable indicators of environmental conditions and important components of our quality of life. For more information on SWG, see www.teaming.com, and to view Pennsylvania's Wildlife Action Plan, see http://sites.state.pa.us/PA_Exec/Fish_Boat/promo/grants/swg/00swg.htm.

Pennsylvania currently lists 15 amphibians and 22 reptiles in the State Wildlife Action Plan as "species of greatest conservation need." Amphibian and reptile species of greatest conservation need include the hellbender, eastern spadefoot toad, bog turtle, eastern massasauga rattlesnake, and timber rattlesnake. See Section 10.6 of the Pennsylvania Wildlife Action Plan: http://sites.state.pa.us/PA_Exec/Fish_Boat/promo/grants/swg/nongame_plan/pa_wap_sections/10priority_species.pdf.