

Timber Rattlesnake, *Crotalus horridus*

Status:

State: Endangered

Federal: Not listed

Identification

The timber rattlesnake is one of only two venomous reptiles found in the Garden State. The only other venomous reptile is the northern copperhead, *Agkistrodon contortrix mokasen*. The rattlesnake is unique in that it is the only animal that nature has equipped with a rattle, which is found at the end of its black-colored tail. The timber rattlesnake is a member of the family Viperidae and sub-family Crotalinae or pit vipers. Pit vipers are



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aply named for the two facial pits found midway between the nostrils and the eyes on each side of the head. In addition, its head is noticeably wider than the body portion directly behind the head. Other distinguishing characteristics include a single row of scales on the ventral, or underneath, side of the snake from the vent to the end of the tail, and vertical, elliptical shaped pupils. These features are found only on our two venomous snakes and are not found on any non-venomous species of snake found in New Jersey.

Timber rattlesnakes have dark brown to black blotches on the body section just behind the head. Moving backwards from the head and neck, the blotches generally become connected and form primarily unbroken lateral crossbands, or chevrons by the mid-section of the body. The dark bands are typically outlined with a lighter color. There are actually three different color phases. On light-phased snakes, the background colors vary from brilliant to pale to brownish yellow. Intermediate phase snakes have shades of grays, blacks, and white. Dark phase timber rattlesnakes are almost completely black, revealing their skin patterns only from a close distance. Although difficult to see on most of specimens in the Northeast, light phase rattlesnakes have a reddish-brown to olive-green colored stripe running down the center of the dorsal (or upper) side; the intermediate phase rattlers have an olive-green stripe, while the dark phase's darkened stripe is less discernible.

In addition to the shovel-shaped head and rattle, a dark-phased rattlesnake can be differentiated from a black rat snake or black racer by its keeled scales. Black rat snakes and black racers have smooth scales. A black racer also has a small patch of white on its chin, while the black rat has traces of white showing throughout its body.

Habitat

Timber rattlesnake habitat varies greatly between northern and southern New Jersey. In the north rattlesnakes are primarily associated with deciduous upland forest habitats (Reinert 1984). Here rattlesnakes use hardwood and hemlock forests, seeps, open

fields, floodplains, talus slopes and rock outcrops to varying degrees based on the season and their physiological state (e.g. ecdysis (shedding their skins), their current reproductive state, etc.) (Schantz, pers.comm. 2000). In northern New Jersey the typical timber rattlesnake den is located on a rocky, sparsely to moderately wooded steep slope that faces southeast to southwest. Extensive survey work by Martin (1992) described dens in the mountainous habitat of the northeastern U.S. as being either a fissure in a ledge or crevice between the ground and a rock outcrop, talus slopes, or fallen rock partially covered by soil. Here snakes are able to gain access to underground cavities and voids below the frost line.

Populations in southern New Jersey are typically found in pinelands habitats that consist primarily of pitch pine (*Pinus rigida*), short-leaf pine (*P. echinata*), scrub oak (*Quercus ilicifolia*), blackjack oak (*Q. marilandica*), and blueberry (*Vaccinium* spp.) Dens in the Pinelands are usually found in cedar swamps and along streambanks.

The summer ranges of male and non-gravid female timber rattlesnakes typically include forested habitats with greater than 50% canopy cover and approximately 75% vegetative ground cover (Reinert and Zappalorti 1988). Gravid (pregnant) females prefer areas with approximately 25% canopy cover, nearly equal amounts of vegetation and leaf litter covering the ground and numerous fallen logs (Reinert and Zappalorti 1988).

Both populations hibernate in communal dens sharing the hibernacula with other rattlesnakes as well as northern copperheads (northern population only), black rat snakes, and others (Martin 1992).

Status and Conservation

The statuses of timber rattlesnake populations vary among the states within its range. The timber rattlesnake is listed as a threatened or endangered species in Connecticut, Massachusetts, New Hampshire, New York, Vermont, Indiana, and Ohio (Rubio 1998). Although not listed in Pennsylvania, they are considered a candidate species for listing.

Once thriving throughout New Jersey, loss of habitat and wanton killings has limited the populations. The timber rattlesnake was listed as an endangered species in New Jersey in 1979. Under state endangered species laws, it is illegal to harm, harass, or collect the timber rattlesnake.

Timber rattlesnake research has been limited to the efforts of only a few biologists over the past few decades. This research has attempted to determine their habitat use, breeding biologies, activity ranges, and population genetics. Over the past two decades, research involving the timber rattlesnake in New Jersey has increased with studies being conducted along the Kittatinny Ridge and in the Pinelands. This research has helped wildlife managers and ENSP biologists to better understand the needs and requirements of this cryptic and elusive species. Efforts by the ENSP are being made to limit the impact of development on rattlesnake habitat, minimize human – rattlesnake interaction, and to educate the public about rattlesnakes.

The ENSP is conducting research to identify timber rattlesnake den locations and map critical habitat surrounding dens. The information is used to protect habitat through the Land Use Regulation Program within the Department of Environmental Protection.

The ENSP has instituted a nuisance venomous snake response program in areas of the state where timber rattlesnakes live in close proximity to people. Volunteers, under the authority and supervision by the state, capture and remove nuisance timber rattlesnakes that find their way into areas inhabited by people. This results in saving snakes that might normally be destroyed and provides an opportunity for the public to learn more about the species. These interactions often result in people becoming more tolerant of the species.