Timber Rattlesnake (*Crotalus horridus*)*Venomous*

Family Viperidae (Crotilinae)
Subspecies: None currently recognized
Updated 2025


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Gray/Black Phase, © Allen


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Description/Identification: The Timber Rattlesnake is a large, very heavy, thick-bodied species of rattlesnake measuring in total adult length averaging from about 35.4 to 55.1 inches, but with a maximum recorded length of approximately 74.0 inches. The scales and scalation are very heavily keeled, and are arranged in approximately 19 to 26 scale rows in total at mid-body. The anal, or ventral scale plate is single, or undivided, and the subcaudal scales underneath the tail are arranged in a single row for most of the tail length. The belly, or ventral scales are also very wide, and are arranged in a single scale row. The head is large, distinct, broad, and triangular (although this alone is not necessarily a reliable means for distinguishing a venomous species of snake from non-venomous snakes), and the neck is also quite distinct from the head and rest of the body. Timber Rattlesnakes also have only 1 row of subcaudals on the underside of the tail past the ventral opening, consisting of 13 to 31 rows.

The pupils are typically elliptical (which is also not a reliable diagnostic on its own for identifying venomous from non-venomous species of snakes), and there is a distinct loreal pit present on each side of the head between the eye and nostril. The irises of the eyes can be a silvery, grayish, goldish-yellow, or brownish in color. The rattle at the end of the tail, which is partially hollow, and loosely connected by segments, is also large and distinctive as well. The tongue is forked and usually black, dark grayish, or dark reddish in color. On the inside of the mouth, Timber Rattlesnakes, being pit vipers, normally have a pair of large solenoglyphous fangs on the upper fore-maxillary which normally rest folded along the roof of the mouth, and are normally covered in thin, fleshy sheaths or membranes. Timber Rattlesnakes also

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have one to two rows of tiny, recurved teeth on the maxillae and lower quadrate bones of their upper and lower jaws which are also normally covered by a fleshy membrane.

Timber Rattlesnakes can be quite variable in their dorsum ground color, ranging from yellow, rusty-orange, brown, tan, or light to darker grayish, or pinkish with about 20 to 29 large, black, to dark brown or darker gray, jagged crossbands or "chevron" shaped banding or cross-bars. These bands and cross-bars may often be more broken-up on the anterior, or forward third of the body, forming large, dark dorsal spots or blotches instead of cross bands, and one to two rows of smaller blotches along the sides. Towards the mid-body, these crossbands or markings may oftentimes be edged in, or bordered in white or light colors. The southern "Canebrake" form formerly considered its own subspecies, is usually lighter than the northern "form" or phenotype.

A thin, narrow orangish, reddish, or brownish vertebral stripe is also often present mid-dorsally. As the patterning moves towards the tail and posterior portions of the snake, the color and pattern fades or obscures into a much darker velvety-black towards the tail in most Timber Rattlesnakes. The rattle is always a lighter yellow, tan, or straw colored than the rest of the tail. Some specimens can be much darker colored, or melanistic, having much darker black or gray coloration with much more contrasting red, orange, or yellow dorsal blotches or wider vertebral stripes are also occasional in Wisconsin; however, these melanistic specimens are more common in populations in the Northeastern U.S.

The head is usually an un-patterned and unmarked yellow, light brown, or grayish ground color along with the rest of the body, except for an faint, indistinct reddish or brown ocular cross-band running through each eye on the head, and sometimes a pair of small black dots on the orbital scales atop their heads. The ventral or undersurface typically ranges in color from white, cream, or pale yellow, speckled with fine black speckling or irregular blotches and larger flecking. Male and female Timber Rattlesnakes are similar in appearance to one another, except for being somewhat dimorphic in size. Males are somewhat larger than females, and on the subcaudal scales beneath the tails, males have about 20 to 30 subcaudal scales, while females typically have 15 to 26 subcaudals. Males also possess hemipenes as well.

Neonate or newborn Timber Rattlesnakes are similar in pattern to the adults, but are a much lighter or darker ashy gray in color, and begin life with a single, keratinized rattle segment known as a "button", which develops as segments are added each time the snake sheds their skin and grows. This can take place anywhere from 3 to 5 times or more each year, and thus, gauging the age of a rattlesnake by the number of rattles one has is not an accurate means of determining the age of the snake. The rattles are also brittle and fragile, and can easily break off in adult snakes as well.

Eastern Massasaugas (*Sistrurus catenatus*), are the only other native species of rattlesnake, and venomous snake in Wisconsin, but have about 9 large, plate like scales atop their heads, while the Timber Rattlesnake has much smaller, non-platelike scales atop their heads. A number of other harmless, non-venomous snake species in Wisconsin are also often commonly confused with Timber Rattlesnakes,

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including Northern/Common Watersnakes (*Nerodia sipedon*), Eastern Hog-nosed snakes (*Heterodon platirhinos*), Eastern Milksnakes (*Lampropeltis triangulum*), Bullsnakes/Gophersnakes (*Pituophis catenifer sayi*), and Eastern Foxsnakes (*Pantherophis vulpinus*). All of these harmless snakes, however, do not have rattles at the ends of their tails, instead having pointed tail tips, and are not rattlesnakes.

There are no subspecies of Timber Rattlesnakes currently recognized.

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Range and Distribution: Timber Rattlesnakes range in the United States from southern New Hampshire and Vermont (their historic range also included Maine), through portions of the New England/Northeastern U.S. southwest to the panhandle of Florida, but are then absent from peninsular Florida. Their range continues northward through the southeastern United States though southern and western Illinois and Indiana, to eastern Iowa, western and southwestern Wisconsin, and southeastern Minnesota, then southwest through to eastern Texas and Oklahoma.

In Wisconsin, Timber Rattlesnakes are an iconic species characteristically associated with the steep, rugged, remote Unglaciated Driftless Region of western and southwestern Wisconsin, where they occur along the Mississippi and lower Wisconsin Rivers, north to Pierce County along the Mississippi River, and north to Sauk and Columbia Counties along the Wisconsin River. They do not inhabit areas outside of the Driftless Area of Wisconsin. Timber Rattlesnakes historically had a much broader range in Wisconsin, and based on earlier historical accounts, ranged across much of the southwestern half of the state, from Madison westward, and north to Adams County and Saint Croix County. Early historical references and accounts to the “rock” rattlesnakes, or of the large, “yellow” rattlesnakes in Wisconsin were almost certainly those of Timber Rattlesnakes, if they were one of the two rattlesnake species in Wisconsin.

Habitat: In Wisconsin, Timber Rattlesnakes are almost exclusively associated with the steep, rocky, rugged, and relatively remote, uninhabited bluffs, and associated river valleys of the Unglaciated Driftless Region of southwestern and western Wisconsin. Steep, rugged, and remote dry, rocky bluff prairies, cedar glades, old quarries, talus slopes, or hillsides with ample sandstone or limestone dolomite boulders, cliff faces, and outcroppings are characteristic habitats for Timber Rattlesnakes in the spring and fall. During the summer, Timber Rattlesnakes, except for gravid females, which remain in or near these drier, more open grassy habitats, disperse throughout the lowland to upland surrounding

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deciduous forests or woodlands, agricultural lands, fields, or other nearby, associated habitats.

Ventral/Belly View. © Snakesandfrogs.com.

Feeding and Diet: Timber Rattlesnakes are carnivorous, and feed primarily on small mammals. They are sedentary ambush hunters, using chemical scent cues to locate and track trails of small mammals, and may lay in wait near or along small mammal trails along stumps and logs, where they will use their venom to envenomate prey. In order to reduce the risk of prey-related bites or injuries, Timber Rattlesnakes have mastered evolutionarily the art of delivering a single bite while envenomating their prey item, and then using their chemical scent cues to track the prey item a short distance away once they succumbed to the envenomation.

Small mammals such as mice, rats, voles, chipmunks, squirrels, and small rabbits are especially favorite food species for Timber Rattlesnakes. Other prey which may be eaten can include bats, small birds and bird's eggs, frogs or other amphibians, or small lizards or other smaller reptiles, or large insects and other invertebrates, particularly among neonate Timber Rattlesnakes.

Natural History: Timber Rattlesnakes begin to emerge from overwintering on warm, sunny spring days in mid to late April and May, where they will bask on rock outcroppings, or at or near the entrances of their dens. Timber Rattlesnakes have traditionally been a communally denning species, overwintering with other Timber Rattlesnakes, as well as other associated snake species in the area such as Central Ratsnakes, Bullsnakes/Gophersnakes, Racers, Eastern Milksnakes, and Common Gartersnakes. Timber Rattlesnake dens may be cracks, crevices, and fissures under, or within large limestone boulders, cliff faces or rock walls along steep hillsides, or overhanging rock outcroppings at or near the tops of bluffs, or dens may in some cases be a simply be a less conspicuous hole in the ground, or mammal burrows along the sides of steep hills.

Timber Rattlesnakes mate and breed at, or near their den sites shortly after emerging from overwintering in May and early June, where they will then disperse throughout the surrounding region or lowlands. Males and non-gravid females tend to be the individuals which disperse the farthest from their den sites by as much as 1.5 to 2.5 miles for the summer, while gravid females remain higher up on

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the more open, sunny, grassy bluff prairie or glade habitats. Gravid females maintain much smaller home ranges during the summer than do males or non-gravid females, and spend much of the summer gestating their young underneath rock crevices or overhangs, underneath large exposed flat rocks, or near the entrances to their dens. Gravid females, as with many other rattlesnake species, do not eat, or may only eat rarely while they are gestating, during July and August. During the summer, these males and non-gravid females may be encountered seeking shelter in woodpiles, sheds, or other old outbuildings or piles of debris.

Female Timber Rattlesnakes are able to store and retain their embryos while overwintering, and may only reproduce biennially or every other year, depending on the population and local conditions. By late August or early September of the proceeding year, the gravid female Timber Rattlesnakes will give birth to live young, as with all rattlesnakes, making them ovo-viviparous. Approximately 6 to 15 live young are given birth to at or near their birthing sites, and may measure about 7.8 to 12.0 inches in length. Unlike most other snakes, the neonates may stay near the mother for their first several days to week or two of life, and use and follow chemical scent cues and trails left by the mother to find food and shelter. Newborn Timber Rattlesnakes are born with venom, and are just as fully capable of biting and injecting (and regulating) their venom as the adults, and thus the mis-notion that baby or neonates are more dangerous than the adults because they cannot control their venom, is mostly false.

By later September or early to mid-October, Timber Rattlesnakes travel and converge at the same denning locations year after year to overwinter. Timber Rattlesnakes are primarily terrestrial snakes, but can swim well, and may do so to or from their places of hibernacula, and may climb as much as 2 or 3 meters up into low trees or shrubs in order to bask or find food. When they are on the move, Timber Rattlesnakes typically raise their rattles and carry them perpendicular to the ground. As with other pit vipers, their loreal pits between their eyes and nostrils are used to track thermal gradients and heat signatures of their warm-blooded or endothermic prey.

Timber Rattlesnakes have historically been a very widely and heavily persecuted species in Wisconsin, due at least in large part to the bounty which existed for both of Wisconsin's species of rattlesnakes up until the mid to late 1970's. Communal dens (which are used year after year) and gravid female Timber Rattlesnakes have been, and continue to be the most vulnerable and readily targeted areas, thus having much more negative impacts on their populations. This species' low fecundity rates, relatively small population and denning sizes compared to historically, and very slow maturation rates, sometimes taking females at least 7 to 10 years to reach sexual maturity, have also always been population characteristics of most Timber Rattlesnake populations in Wisconsin. Unfortunately, Timber Rattlesnakes have always been a "hot button" species when it comes to their conservation, due to them being a venomous and potentially dangerous animal, and in the 1970's, were proposed for Wisconsin's Threatened and Endangered Species list. This, however, did not occur due to widespread political opposition, and instead, Timber Rattlesnakes were simply listed as a "Special Concern" or "Protected Wild Animal" which may be killed under exigent circumstances.

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Timber Rattlesnakes, however, are not aggressive animals, and their first lines of defense are to quickly retreat back into or down their dens or burrows when disturbed, or to remain still and cryptic, with the aim of not being seen or detected. Rattling is the Timber Rattlesnake's second line of defense to warn other animals of its presence, and the rattle is made by rapidly shaking their tails, which cause the loosely connected, partially hollow segments to beat or shake against one another. These snakes will only strike when they are cornered, stepped on, or continue to be severally harassed.

Up until 1975, when Wisconsin's rattlesnake bounty was discounted due to many different biological and administrative reasons, and even to this day, the purported reasoning and belief for the bounty, as well as for negative attitudes and perceptions towards these snakes in general, are that they are "overpopulated". This, however, is simply not true, and overpopulation of Timber Rattlesnakes in areas where bounties were not allowed never occurred. Furthermore, natural predation and other environmental factors are sufficient to regulate Timber Rattlesnake populations, and as mentioned before, this species' slow maturity rates and low fecundity certainly are not characteristics lending to them being an "overpopulated" species. Furthermore, during Wisconsin's bounty, rattlesnakes began to become collected and killed from other counties, and even other states.

Even today, there is much misinformation which persists surrounding rattlesnake in general in Wisconsin, including the belief the Wisconsin DNR (Department of Natural Resources) has stocked Timber Rattlesnakes in many areas throughout the state in order to control turkey populations, or that they are even dropped from planes or helicopters. None of these conspiracies are true, and were most likely based on a repatriation study which took place with eastern massasaugas in west-central Wisconsin, which was actually conducted by the USFWS (U.S. Fish and Wildlife Service), and all of the remaining snakes which were not otherwise predated upon were removed by the end of the study.

Are Timber Rattlesnakes "Dangerous"? Should People Be Worried About Them in Wisconsin?
Timber Rattlesnakes are the larger of the two venomous snake species in Wisconsin, and due to their large size, certainly can be potentially dangerous, and are medically significant enough and possess enough venom to require antivenom and hospitalization. Their venom consists primarily of cytotoxins and haemotoxins, although this can vary depending on the population in each state or area, and even among each individual snake. Fortunately, however, bites, and deaths for that matter by Timber Rattlesnakes are much rarer and unlikely in today's modern era when compared to earlier historical decades when consuming alcohol or whiskey were the primary methods for treating venomous snakebite in Wisconsin, and whereas access to modern medicine and healthcare were much more limited. Timber Rattlesnakes are usually unlikely to be considered deadly snakes, at least when compared to other areas of the world which have much more venomous and potent snake species, and where access to antivenom and modern healthcare are much more limited. Now, most healthy individuals are able to safely and reasonably reach a hospital or other source of medicine within one or two hours at most in Wisconsin.

In Wisconsin, the greatest number of deaths and/or snakebites took place in earlier decades during the

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1950's or 1960's, and earlier, and are now much less commonplace than they were before. Nonetheless, Timber Rattlesnakes should be respected and admired from a safe distance in the event one is seen or encountered. As previously stated, they are not aggressive snakes, and will not go out of their way to chase or to attack people or livestock. Being aware of one's actions and surroundings, particularly when living or engaging in recreational activities in habitats where Timber Rattlesnakes, or other venomous snake species, may be present, and taking the time to properly learn and become educated as to the potential snake species which may be present in any given area, will go a much longer way than needlessly attempting to kill them, while placing oneself at much greater risk of a bite or envenomation.

While these snakes certainly are a venomous species which can be potentially dangerous under the right circumstances, they are also not an imminent threat to people as long as they are respected and left alone. Unless one is living or recreating in certain, or very specific areas within the Driftless region of Wisconsin, or is knowledgeable as to where to specifically look for them in very rugged and remote areas, the chances or likelihood of an average person otherwise encountering a Timber Rattlesnake are very low and unlikely. The absolute best preventative measure is simply avoidance of areas where these snakes may be present.

Despite being venomous, Timber Rattlesnakes can have a number of other natural predators aside from humans. These can include a number of large birds such as turkeys and birds of prey (hawks, owls, or eagles), some other snake species, and a number of carnivorous or predatory mammals such as weasels, skunks, opossums, raccoons, foxes, coyotes, and bobcats.

Conservation Status: In Wisconsin, Timber Rattlesnakes are listed as a "Special Concern", or "Protected Wild Animal" species under N.R. 16. These snakes are regulated and protected along with all other of Wisconsin's herptiles under N.R. 16. Timber Rattlesnakes are currently not protected or regulated federally. Timber Rattlesnakes are currently IUCN Red-List Least Concern (LC).