

# Snakes of Wisconsin

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Wisconsin is home to 22 different snake species. Some snakes are abundant, some rare. Most help to control potentially destructive insects and rodents. Only two—both rattlesnakes—are poisonous.

Many people fear snakes, probably because they know that several are poisonous. Some people go out of their way to kill snakes, even when there is no threat to safety or property. As a result, many harmless and beneficial snakes are indiscriminately destroyed. In addition, thousands of snakes fall victim annually to cars on our highways. Traffic probably reduces snake populations significantly in some areas of Wisconsin.

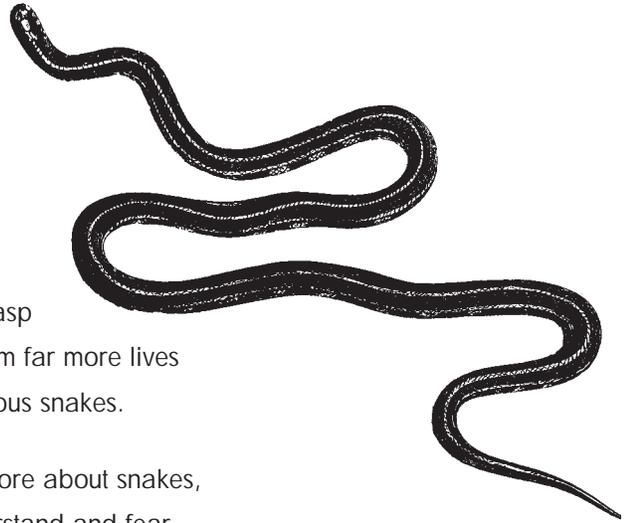
None of Wisconsin's snakes are large enough to hurt a human by squeezing, or "constricting." But snakes *can* bite. Most large snakes bite when cornered or handled, and tiny ones often try. Large snakes may draw blood while small ones usually do not. Of course, rattlesnakes can inflict serious bites. Keep in mind,

though, that bee and wasp stings and lightning claim far more lives nationwide than poisonous snakes.

If people knew a little more about snakes, they would not misunderstand and fear them. A fear of snakes is often acquired from friends or relatives who fear snakes. In most cases, this fear is one that can be overcome!

Outdoor enthusiasts in particular should learn to identify snakes and know something about their behavior and ecology, not only to be safe, but also because snakes are interesting members of the natural world. Snakes are secretive and often protectively colored, so it's a challenge to spot even those that are abundant.

Rural and suburban homeowners may occasionally encounter snakes and should know enough about them to make such encounters less traumatic—for both species.



## Some snake biology

Snakes are reptiles, related to lizards and turtles. Because they have backbones, they are also vertebrates, as are birds and mammals. But unlike birds and mammals, snakes are “cold-blooded”; they cannot regulate body temperature physiologically. They warm or cool themselves by seeking sun or shade, and obtain heat from the ground, the air and directly from sunlight.

In winter, snakes hibernate below the frostline for as long as six or seven months. Some species gather in huge masses to hibernate in favored locations called hibernacula. Garter snakes are famous for this, but even the larger species often share the same hibernacula, such as deep crevices in rocky outcroppings, old quarries or building foundations. During extremely cold winters with little snow cover, deep penetrating frosts may kill hibernating snakes.

Snakes feed on a wide variety of animal life: frogs, toads, lizards, salamanders, earth worms, insects, small mammals and birds. Some have specialized diets. For example, the hognose snake feeds heavily on toads, the queen snake on crayfish. Watersnakes eat fish, and milk snakes sometimes eat other snakes.

Yet other snakes are opportunistic and feed on whatever they can capture. Some, such as the blue racer, actively pursue their prey, while others lie in wait to ambush passing prey.

Snake teeth vary in size, but they are all sharp and hooked backward to hold prey. The rattlesnake’s upper jaws have large hollow fangs which are connected to venom glands. The fangs fold back against the roof of the mouth when not in use. A snake’s lower jaws and the tooth-bearing bones of the upper jaw are loosely connected to the skull by ligaments that allow the jaws to open wide and swallow large prey.

A snake’s forked tongue is a sensory organ for sound, taste and smell. It is *not* a “stinger.”

Snakes mate in spring. Some lay eggs, while others give birth to living young which develop from eggs carried and incubated inside the female. As a snake grows, it sheds its skin to allow for an increase in size. Depending on food supplies and weather conditions, a snake may shed several times during a summer.

## Poisonous snakes

Wisconsin has only two species of poisonous snakes. The larger and potentially more dangerous is the timber rattler. This is a large snake, sometimes reaching 5½ feet and rarely a little longer. The timber rattler is yellowish with narrow, bold dark bands, black tail, unmarked yellow to yellowish-tan head and tan rattles. It is found mainly near cliffs, rock outcroppings and steep hillsides along the Wisconsin and Mississippi Rivers and their tributaries in southwestern Wisconsin, although individuals occasionally turn up outside this primary range.

Timber rattlers are typically non-aggressive. They prefer to flee rather than bite or rely on their cryptic coloration to go unnoticed. Not many people venture into their rocky, brushy habitat, so fortunately human-snake encounters are kept to a minimum.

People hiking or hunting in timber rattlesnake range and habitat should be cautious about where they place their hands and feet while climbing around rocks and walking near thick brush piles, fallen hollow trees and wood piles. They should also know, from consulting a first-aid guide, what to do in case of a poisonous snake bite.



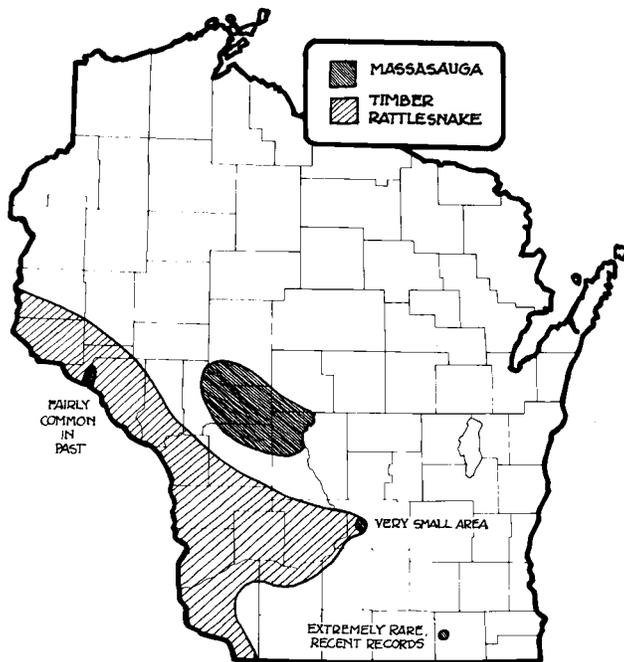
Timber rattler



Timber rattler habitat



Massasauga



**Figure 1. Timber rattler and massasauga habitat in Wisconsin.** Neither species is uniformly distributed throughout its range; populations are local and spotty. Ranges are drawn to include some areas where there is only a remote possibility of encountering these species.

Wisconsin's other poisonous snake is the massasauga or "swamp rattler." This small- to medium-sized, heavy-bodied snake is restricted to low marshy or swampy areas in central and west central Wisconsin (figure 1). It is an endangered species and rarely encountered. It has disappeared from 52 of the 62 townships in which it was found before 1980, and now only a few isolated populations are known. They are found at the mouth of the Chippewa River, near Portage, near the Necedah National Wildlife Refuge in central Wisconsin, and in the Turtle Creek area in Walworth County. The massasauga has lethal venom, and there are records of humans having died from its bite, but not in Wisconsin. However, because of its small size, its bite is rarely fatal, although it can be serious if not treated.

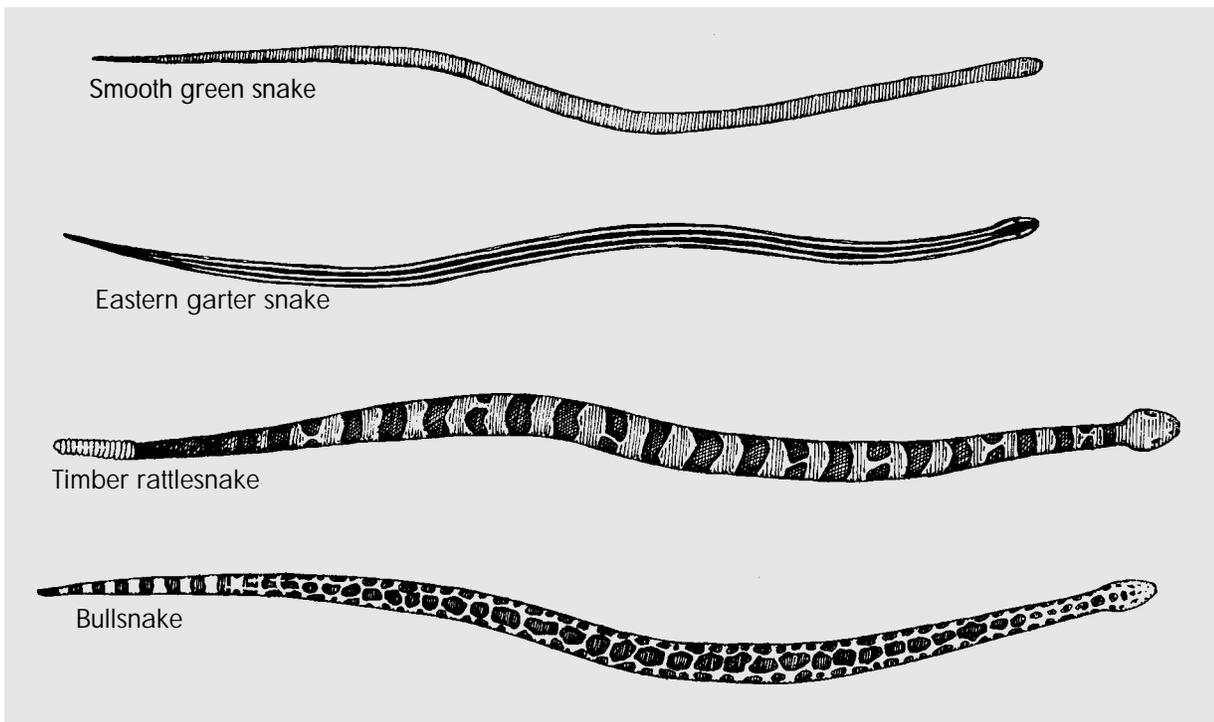
### How to identify poisonous snakes

There are several ways to distinguish poisonous from nonpoisonous snakes. In the field, the two rattlesnakes can be identified by their obvious rattles and color patterns. In Wisconsin, any solid-colored or lengthwise-striped snake is nonpoisonous. Also, all nonpoisonous snakes have a tail that comes to a point like a sharpened pencil (figure 2). You can examine the characteristics of a dead snake in more detail (but *don't kill* a snake for this purpose). Be careful when approaching and examining an apparently dead snake. It may only appear dead. A freshly "killed" snake can turn its head and bite by reflex action.

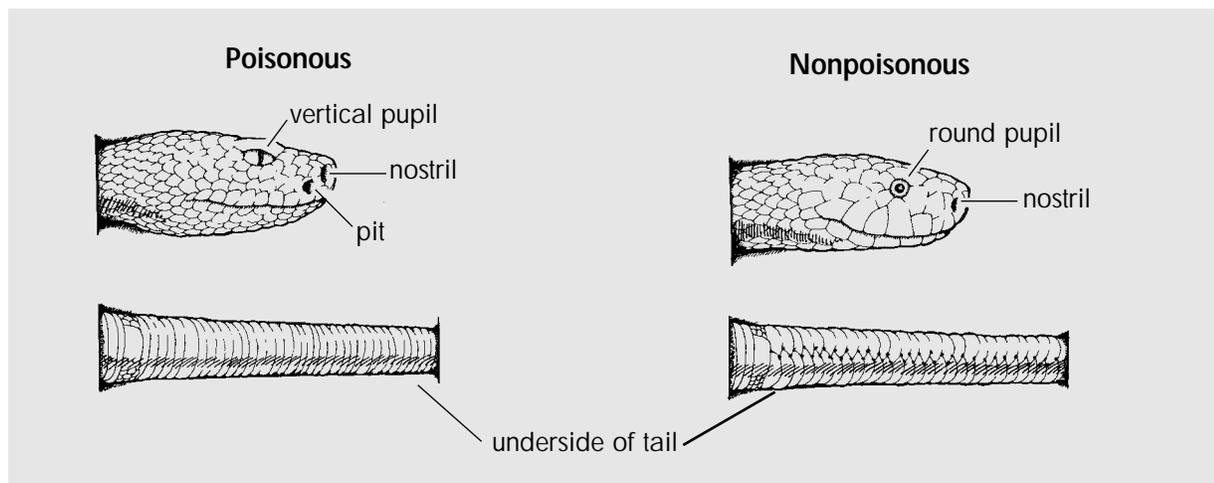
Both of Wisconsin's rattlesnakes belong to the pit viper family, so named because of a pit or depression in front of each eye (figure 3). The pits are heat-sensing organs that aid in locating, striking and capturing warm-blooded prey. Nonpoisonous snakes have no pits.

Poisonous snakes have elliptical, vertical eye pupils, while nonpoisonous ones have round pupils. Also, the scales on the underside of the tails of poisonous and nonpoisonous snakes differ.

**Figure 2. Snake markings.** Solid colored or lengthwise-striped snakes are nonpoisonous. If a snake is marked in any other way, use other characteristics for identification. Note the slender, pointed tail on all non-poisonous snakes.



**Figure 3. Characteristics of poisonous and nonpoisonous snakes.**



# Wisconsin

To help you interpret the information below, keep in mind that a small snake is less than 1½ feet long; a medium snake is 1½–3 feet long; and a large snake is more than 3 feet long.



Eastern garter snake



Bullsnake



## Blue racer

(*Coluber constrictor foxi*). A large, very smooth, bluish-slate snake with a yellow belly; very fast and aggressive; found in the southwestern quarter of Wisconsin; farther north in extreme western Wisconsin.

## Brown snake or DeKay's snake

(*Storeria dekayi*). A very small tan snake with two parallel rows of tiny dark spots down the back; found most commonly in southern three-quarters of Wisconsin, in dense ground vegetation and debris.

**Chicago garter snake** (*Thamnophis sirtalis semifasciata*). Found in extreme southeastern Wisconsin where its status is unknown. Small- to medium-sized.

## Eastern garter snake

(*Thamnophis sirtalis sirtalis*). Found statewide and very common in a wide variety of habitats. Small- to medium-sized.

## Eastern hognose snake

(*Heterodon platyrhinos*). A medium-sized heavysset snake with an upturned nose; generally brown with large round brown spots; found in southern, central, northeastern and northwestern Wisconsin. When disturbed it flattens its head and neck like a cobra, hisses loudly or plays dead.

## Eastern milk snake

(*Lampropeltis triangulum triangulum*). A medium to large snake, generally tan or grayish with maroon or reddish blotches with jet black borders; small, yellow triangle or "y" just behind head; found in the southern half of Wisconsin.

## Eastern Plains garter snake

(*Thamnophis radix radix*). Found in the southern half of Wisconsin; similar to other garter snakes, but with side stripes on third and fourth rows of scales. Black bars on the upper lip plates. Small- to medium-sized.

## Northern red-bellied snake

(*Storeria occipitomaculata occipitomaculata*). A small brown snake with a bright red or orange belly; found statewide.

## Northern water snake

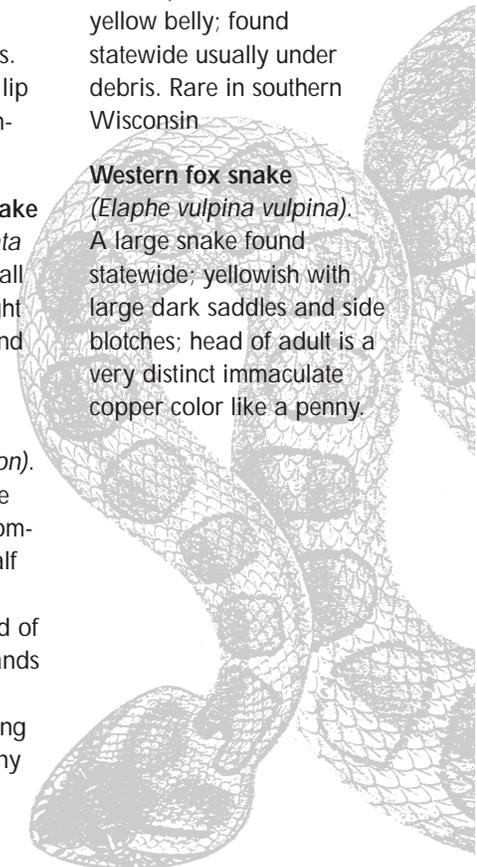
(*Nerodia sipedon sipedon*). A medium to large snake found statewide, most commonly in the southern half of Wisconsin, near or in water. The front one-third of the snake has distinct bands of dark brown; the rear two-thirds have alternating blotches; the head is shiny chocolate brown.

## Smooth green snake

(*Opheodrys vernalis*). A small, bright green snake (sometimes tan or buff-colored) with a white or yellow belly; found statewide usually under debris. Rare in southern Wisconsin.

## Western fox snake

(*Elaphe vulpina vulpina*). A large snake found statewide; yellowish with large dark saddles and side blotches; head of adult is a very distinct immaculate copper color like a penny.



# n snakes



Blue racer



Smooth green snake



Western fox snake

## Endangered

### Eastern Massasauga rattlesnake

(*Sistrurus catenatus catenatus*). Medium-sized and thick bodied (see description on page 4.)

### Northern ribbon snake

(*Thamnophis sauritus septentrionalis*). An endangered species very rare in eastern Wisconsin. Small- to medium-sized and very slender.

### Queen snake

(*Regina septemvittata*). A small- to medium-sized light brown snake with pale, lengthwise stripes found rarely in extreme southeastern Wisconsin near water.

### Western ribbon snake

(*Thamnophis proximus proximus*). An endangered species very rare in western Wisconsin. Small- to medium-sized and very slender.

## Species of special concern

### Black rat snake

(*Elaphe obsoleta obsoleta*). A very large snake found on forested rocky slopes in the southwestern quarter of Wisconsin; a very glossy black snake with a white throat and chin; aggressive if seized.

### Bullsnake

(*Pituophis melanoleucus sayi*). A very large snake found mainly in the southwestern quarter of Wisconsin. Front and back thirds have black blotches and spots while the middle is marked with brown; base color is cream to tan. Often hisses loudly when disturbed.

### Butler's garter snake

(*Thamnophis butleri*). Found commonly in a few places in southeastern Wisconsin. Smaller than other garter snakes on average with a broader head. Proposed as "threatened" in 1995.

### Northern ringneck snake

(*Diadophis punctatus edwardsi*) and **Prairie ringneck snake** (*Diadophis punctatus arnyi*). Both are small, extremely smooth and slate-gray with a distinct yellow collar on the neck. The Northern has a bright yellow belly and is found only in northern and eastern Wisconsin. The Prairie has a yellow belly speckled with black and is found only in extreme southwestern Wisconsin.

### Timber rattlesnake

(*Crotalus horridus*). Medium-sized to large (see description on page 3).

### Western worm snake

(*Carphophis amoenus vermis*). A small solid brown snake recently discovered in extreme southwestern Grant County; found in debris and soil.

## *Legal status of snakes*

**J**n Wisconsin, four snakes are currently classified as “endangered,” meaning that they are on the verge of extinction. These are the queen, the massasauga, and the western and northern ribbon snakes. A Wisconsin endangered species permit is required to collect or kill these snakes. The Wisconsin Department of Natural Resources (DNR) issues such permits only for educational or scientific purposes. All other Wisconsin snakes are unprotected.

No Wisconsin snakes are classified as “threatened” (on the verge of becoming endangered), but the timber rattlesnake was proposed for “protected animal” status in 1997. Seven snakes are classified as “species of special concern.” This means that their status is not really known

and needs to be carefully examined.

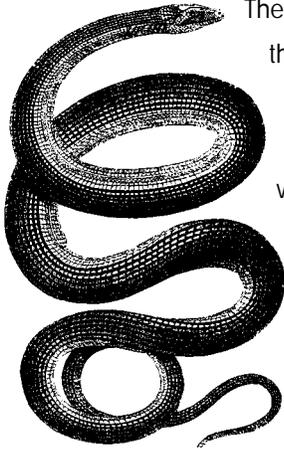
Because regulation changes are likely, be sure to check with a DNR office for the current laws relating to the capture, killing or sale of snakes.

In the past, some counties paid bounties for rattlesnakes. While the bounty program was still in effect in Wisconsin, eight counties within rattlesnake range paid bounties for at least some years between 1965 and 1974. Payments ranged from 50¢ to \$5 for adult snakes and from 10¢ to \$1 for young ones. Records show a high of 12,160 timber rattlesnakes bountied in Crawford County in 1966 and a low of no snakes bountied in Iowa county in 1969 and 1971. Bounties, fear, persecution and habitat loss have contributed to the decline of both rattlesnake species.

## *Myths about snakes*

**L**egends and folk tales perpetuate many myths about snakes. We can dispense with most of these quickly—snakes are not slimy, they don’t hypnotize their prey, and they don’t sting with their tongues. Milk snakes do not milk cows. Hognose snakes are not related to cobras; in fact they are completely harmless, even though they puff up their

heads when disturbed. The mythical hoop snake that grabs its tail in its mouth and rolls along in pursuit of prey is just that: a myth. The mate of a snake that has been killed does not return to avenge the death—snakes do not even form permanent pair bonds. Snakes do not swallow their young to protect them when danger threatens.



The "glass snake," that supposedly fragments into pieces which wriggle off and later return and rejoin has at least some basis in fact. The slen-

der glass lizard, an endangered limbless lizard found in Wisconsin, does have a fragile tail that breaks away to confuse predators. It grows a new, stubby tail, although it is not the "glass snake" of folklore.

Snakes are amazing enough in their own right without the fictitious capabilities ascribed to them.

## *Controlling problem snakes*

**P**roblems with snakes range from occasional encounters with a single snake to large infestations in basements, outbuilding foundations and old cisterns. Unless it is poisonous, an individual snake should be viewed more as a nuisance than a threat.

Snakes should be valued for their rodent- and insect-eating habits, but if an intruding snake cannot be tolerated it can be killed or removed. It is certainly preferable to capture the snake and release it away from human dwellings.

If a snake isn't "just passing through," it is present because it finds the habitat suitable. You can minimize the attractiveness of an area to snakes by controlling insect and rodent populations, removing shelter (piles of junk, boards, rotten logs, rocks and brush), and keeping the grass mowed and landscaping clean. The presence of home firewood piles may

increase the incidence of snake encounters. Place woodpiles away from the sides of your home or other buildings if snakes are a problem. People in rattlesnake areas should be particularly careful.

Large numbers of a single species such as garter snakes or DeKay's snakes along a building foundation usually indicate the presence of a winter hibernaculum. These snakes will disperse to the surrounding countryside in spring—and perhaps return in fall. After they have dispersed, seal any foundation cracks, broken windows and other access points to make the building snake-proof. Small openings at or near ground level are most often used by snakes. Seal basement and crawl space cracks from the inside first, then the outside. Beside snake-proofing, such efforts at house sealing will help reduce winter heat losses as well as diminish problems with rodents, yellow jackets and other insects.

To remove snakes already inside a building, you must first find them. If they are difficult to find in the open, try placing a cloth or burlap bag covered with a dry bag, board or shingle on the basement floor. Use a 1/2- to 1-inch "spacer" so the snakes can easily get under cover. The combination of dryness and shelter is attractive to snakes and they can be dealt with in the "trap" at your convenience. Use a moist cloth only during winter months.

We recommend that harmless snakes be picked up and taken to a suitable area for release. With a piece of strong string, make a noose with a loose slipknot and attach it to a short, strong stick. Slip the noose over the snake's head and tighten it by lifting. Lower the snake into a bucket, trash container, or a strong shopping bag with no holes. Clip off the noose with scissors so the snake falls into the bag or container and cover it quickly. Release snakes as soon as possible. You can also pick up snakes with a hook or hoe, but they are adept at crawling off these implements.

Much has been said about the threat of poisonous snakes in Wisconsin. While these snakes are dangerously poisonous, the threat they pose is quite limited today. Habitat loss and past bounties have reduced numbers of both rattlesnakes to the point of concern. The massasauga was listed in 1975 as an endangered species. This was the same year that the bounty was repealed.

Today, massasauga rattlesnake sightings are quite rare and isolated, and scientists have extreme difficulty locating individuals for scientific studies. The timber rattlesnake, while not shrinking in range in Wisconsin, has seen a marked reduction in numbers based on information from both snake hunters and scientists. Thus, as noted, it was proposed for threatened status in 1997.

In terms of snakebite potential and public safety, the following information should help put the problem in perspective. Please keep in mind that the potential for a bite is always present within rattlesnake habitat, even though the likelihood of being bitten is extremely slight. We again urge that you be particularly cautious when climbing, hiking, camping or working within rattlesnake habitat.

Prior to 1880, 12 deaths from 70 snakebites were reported in Wisconsin. Since 1980, only one death has been reported and that occurred in 1983. One report indicated that 15 snakebites occurred annually between 1950 and 1959.

Dr. Daniel Keyler, a Hennepin County, Minnesota toxicologist, has been recording and tracking snakebites in Wisconsin and Minnesota since 1982. Over this period, Wisconsin has averaged one snakebite per year. In Minnesota, where the same two rattlesnakes are found, no deaths have been reported since 1869 and an average of two bites occur per year. In both states collectively, the care-

less handling of captive venomous snakes or alcohol were involved in 8 of 14 reported bites between 1983 and 1989.

A rattlesnake can strike a distance about one-third of its body length. If a rattlesnake is encountered in the field, your safest alternative is to step back and walk around it. If it is in your yard, you may want to dispose of it or call a local DNR or USDA Animal Damage Control office for advice on having it removed.

There are no poisons registered for snake control in Wisconsin. A few outdated publications still in circulation recommend

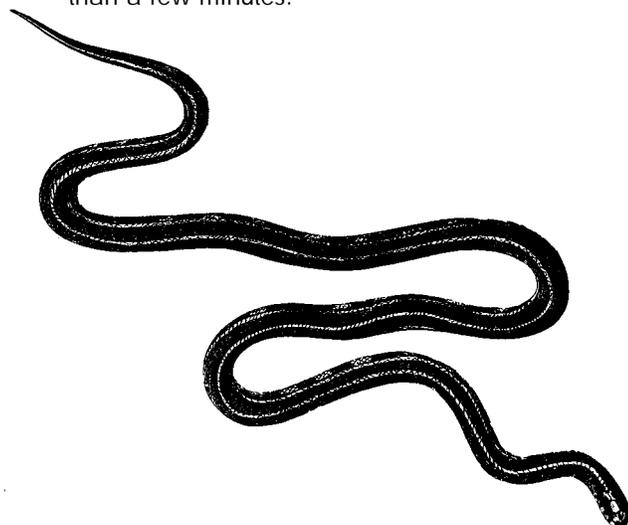
the use of DDT, cyanide and a few other substances. These substances are *dangerous, illegal* and are *no longer available* for the purpose. We know of one repellent on the market called "Dr. T's Snake-Away." It is a granular product applied around foundations, steps and other places. Success has been mixed and may depend in part on the species of snake involved.

For more information and sources of supply contact Dr. T's Nature Products, Pelham, Georgia 31779.

## *Snakes as pets*

**S**nakes make interesting and unusual pets, but they must be handled with care and they require proper escape-proof housing. Many snakes tame very quickly with repeated handling. Others, such as the watersnake and black rat snake, are more aggressive and can never be completely trusted not to bite. If a snake fails to eat in captivity or seems to be losing weight, it should be

released immediately. Never release a snake into the wild that has come from outside Wisconsin or is not one of the 22 native species. To do so is illegal in Wisconsin. Native snakes are difficult to keep during winter months, so they should be released in early fall. Never leave a pet snake in direct sun for more than a few minutes.



# For more information

## Publications

*Amphibians and Reptiles Native to Minnesota* by Barney Oldfield and John J. Moriarty. University of Minnesota Press. Minneapolis, 1994. (Most species found in both states.)

*The Audobon Society Field Guide to North American Reptiles and Amphibians* by J. L. Behler and F. W. King. Alfred A. Knopf, Inc., New York.

*A Field Guide to Reptile and Amphibians* by Roger Conant, Peterson Field Guide Series, Houghton Mifflin Company, Boston.

*Natural History of Wisconsin Amphibians and Reptiles* by Richard Carl Vogt, Milwaukee Public Museum, 1981. (Out-of-print and hard to find.)

## Agencies

**USDA-APHIS Animal Damage Control offices**  
*Southern and central Wisconsin office* —  
Waupun (1-800-433-0688)

*Northern Wisconsin office* —  
Rhinelander (1-800-288-1368)

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*Photos by George Knudsen, except for that of the timber rattlesnake on p.3 by Wolfgang Hoffmann.*

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