Animal Damage Control

Integrated Pest Management,
Cooperative Extension Service,
North Dakota State University, Fargo, North Dakota
in cooperation with
U.S. Department of Agriculture-APHIS Animal Damage Control

ADC-2

NORTH DAKOTA STATE UNIVERSITY
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SNAKES

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Few animals are more disliked or more misunderstood than snakes. Of the almost 200 species of snakes found in the U.S., only 29 species are poisonous. These include 19 species of rattlesnakes, four species of copperheads, two species of cottonmouth (water moccasins) and four species of coral snakes. The only species of poisonous snakes found in North Dakota is the prairie rattlesnake (*Crotalus viridis*), a subspecies of the western rattlesnake. The prairie rattler is mainly found in the southwestern quarter of the state, including the Missouri River Valley. Copperheads, cottonmouths and coral snakes do not occur in North Dakota.

The prairie rattlesnake, like all rattlesnakes, copperhead and cottonmouth, belongs to the pit viper family. Pit vipers are characterized by: hollow, retractable fangs; vertically elliptical pupils (cat's eyes); and facial loreal pits (Figure 1). The pits are large enough to be seen from a safe distance. If a snake does not have facial pits and vertical pupils, it is not a rattler, copperhead or cottonmouth. In addition, the prairie rattlesnake is the only snake in North Dakota with rattles on its tail (Figure 2).

The most common nonpoisonous snake found throughout North Dakota is the plains garter snake (*Thamnophis radix*). Many people also refer to this snake as a water snake. Other common nonpoisonous snakes found in the state include the red-sided garter snake (*T. sirtalis*), smooth green snake (*Opheodrys vernalis*), western hog nosed snake (*Heterodon nasicus*), eastern yellow-bellied racer (*Coluber constrictor*), and the bullsnake (*Pituophis melanoleucus*).

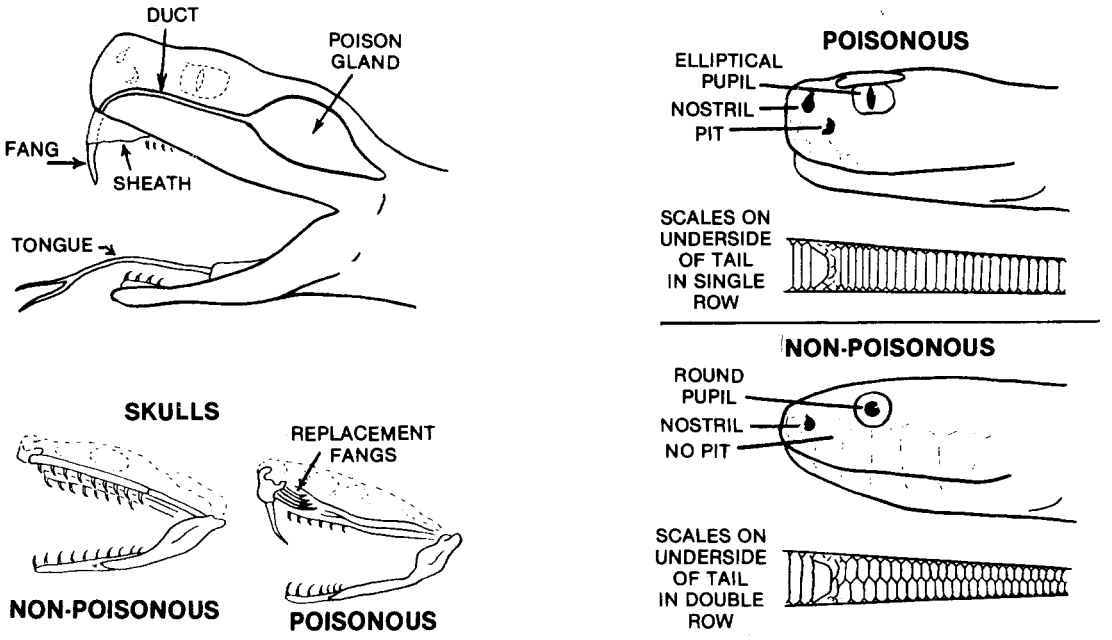

Figure 1. Poisonous snakes have vertically elliptical pupils (cat's eyes), facial pits between the nostril and eye. Non-poisonous snakes have round eye pupils and no facial pits between the nostril and eye.

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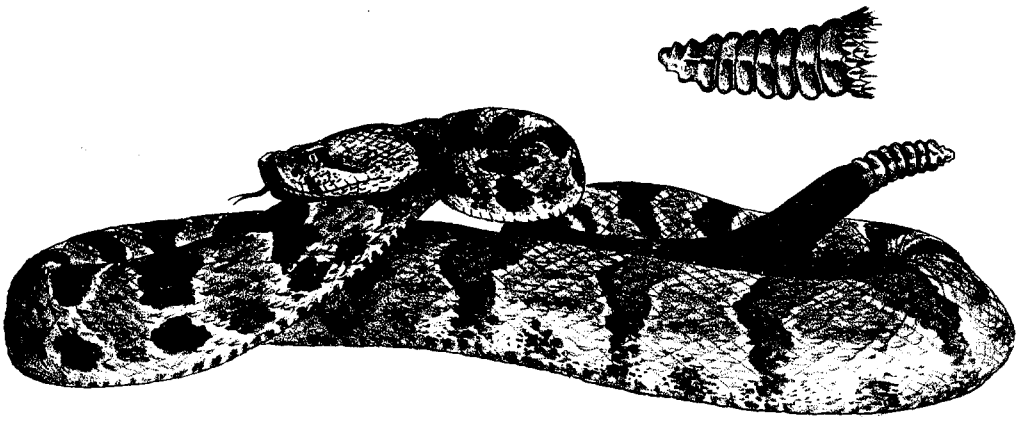

Figure 2. The prairie rattlesnake is the only snake in North Dakota with rattles on its tail.

BIOLOGY AND BEHAVIOR

Snakes are "cold-blooded" animals. To adjust their body temperature, snakes move to and from warm or cool places. At temperatures above 50°F, snakes become active, becoming more active as the temperature increases. Temperatures below 50°F cause inactivity and under proper conditions will initiate hibernation.

During cold periods, snakes must evade frost. They will crawl into stumps, holes in the ground and rock crevices where frost does not penetrate. Snakes often return year after year to the same den to hibernate and may do so in large numbers. Dens containing several hundred snakes have been reported.

The eyes of snakes are protected by a transparent membrane rather than by eyelids, and this gives the impression that snakes stare. This membrane is shed with the skin. When shedding, their skin splits in the head region and the snake literally crawls out of the old skin. When this is happening the eyes may appear hazy or milky. This is caused by a separation of the epidermis from the cornea and results in temporarily impaired vision.

The tongue of a snake contains "taste buds" which are used to sample odors in the air. The tongue also serves as an organ of touch, but does not contain poison glands, fangs, or other venomous parts.

Snakes will feed on any live animals or bird egg small enough to pass through their throat. Their jaws are hinged in such a way that they can swallow objects larger than their body. Snakes store food as fat in the body cavity. Because they are cold blooded and rather sluggish, they use the fat reserve slowly. Well fed snakes can live for extended periods without eating. When food is available, snakes have enormous appetites. Large snakes have lived for three or four years in captivity without eating. Even though they can do for long periods without eating, they do require water.

The facial pits that give the pit vipers their name are heat sensing organs. These organs are so sensitive that pit vipers can locate and accurately strike warm blooded prey in total darkness.

The venom released by the strike of a prairie rattlesnake is a muscle toxin and digestive enzyme which actually starts the digestive process before the victim is eaten.

Non-poisonous snakes capture their prey and either swallow it alive or kill it first by constriction and then swallow it. Snakes do not have any salivary glands, and as a result, the bite of nonpoisonous snakes can cause severe bacterial infection if left untreated.

Some snakes lay eggs, while others give birth to live young which hatch from eggs retained in the female's body. Prairie rattlesnakes bear their young alive. Young rattlesnakes enter the world fully equipped with functional fangs and poison glands. Gartersnakes are also live bearers, while the racers, hognosed, smooth green and bullsnake lay eggs.

LEGAL STATUS

North Dakota state law does not afford any protection to snakes.

ECONOMIC STATUS

Snakes are beneficial to the interests of man since most feed on harmful rodents and insects. Admittedly, poisonous snakes have no place in a settled area, no matter how beneficial their food habits, but nonvenomous snakes should be viewed and protected as a beneficial animal.

CONTROL

Around Buildings

Snakes can be discouraged from staying around grounds and buildings by eliminating the food and cover that is attractive to them. Most snakes like to feed on rats and mice, so it is advisable to eliminate these rodents and make all buildings rodent proof.

Closely mowed lawns are less attractive to snakes than areas of tall grass, weeds or brush. Snakes like to hide under boards, flat rocks, trash piles and similar areas. Eliminating such areas will greatly reduce the area's attractiveness to snakes. This approach is of real value around suburban homes, summer cabins and resort areas.

A quarter-inch mesh fence, 3 feet high, sloped 15 to 20 degrees out from the vertical and staked tightly to the ground will stop snakes from entering a yard or other area. Overhanging bushes and tree limbs should be trimmed back from the fence.

In Buildings

Snakes will occasionally enter houses, either by accident or when searching for hibernation quarters or food. They are almost always nonpoisonous species. Snakes do not breed in houses, but they have been known to lay eggs in or under foundations. If a snake is seen, but hides before it can be captured, place a damp cloth on the floor near where the snake was last seen and cover it with dry cloths or burlap bags. Snakes like moisture and shelter. They will crawl under or between the cloths and can then be captured.

To keep other snakes from getting in a house, all points where they might enter should be sealed. Remember that snakes can pass through extremely small openings, and usually enter near or below ground level. Cellar doors, windows, and screens must fit tightly. Walls and floors should be searched for crevices where they may hide.

The masonry of foundations, fireplaces, and chimneys should be inspected and, if necessary, pointed up or coated with cement. Spaces around pipes that go through outside walls should be plugged. Galvanized screen can be fastened over drains or ventilators, or even over large areas of loose construction which would be difficult to snakeproof in any other way.

There have been numerous reports of rural homeowners having snakes come into toilets or bathtubs. These snakes probably gained entrance through the final disposal field of the sewage system. Snakes enter the final disposal system through holes at ground level and make their way back through the septic tank into the house sewer pipes. Prevent this by not having any holes or openings into the disposal field. Where a system is presently discharging to the surface, this will mean constructing a new subsurface final disposal field. The use of an elbow with a pipe extending at least 6 inches into the liquid at the inlet to the septic tank will also usually prevent snakes from making their way back into the house sewer system. Extension bulletin AE-892, "Individual Home Sewage Treatment Systems," describes the proper sizing and construction of rural sewage systems.

Toxicants/Fumigants

There are no toxicants or fumigants registered for snake control by the Environmental Protection Agency. Elimination of snake food and cover and snakeproofing buildings is the best way of keeping snakes out of areas where they are not wanted.

If further assistance with a snake problem is needed, contact the Extension Wildlife Specialist, Stevens Hall, NDSU, Fargo, ND 58105 or the USDA, APHIS, Animal Damage Control Office, 1500 Capitol Avenue, Bismarck, ND 58501.

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