

Snakes

EEEEK! It's a common reaction to snakes, even those being held comfortably by one of the Nature Center's teacher/naturalists. Many of us have been conditioned to fear these fascinating creatures.

Though caution is a healthy reaction to an encounter with any wild animal, the danger of bodily harm due to snakes is overblown. More people die from lightning than snakebite each year. Lacking limbs, venom is one tool some snakes have developed to overwhelm their prey. It is a tactic usually used as defense only when other methods, such as swift retreat,



camouflaged coloration, rattling a specialized tail, or hissing ominously, have failed. Only 375 of the approximately 3000 species of snakes worldwide are venomous. Of the 29 species of snakes found in Nebraska, 25 are harmless to humans. Three of the dangerous species are found rarely in restricted areas of the southeastern part of the state. Even the prairie rattlesnake, which is fairly common in the western part of Nebraska, seems to be in decline. On the other hand, our most common snakes are valuable allies in controlling rodent and insect populations.

We sometimes ask children to lie on the floor and try to move without using their arms or legs. It is a good way to gain an appreciation of adaptations needed for a life without limbs. Humans have 32 vertebrae. Snakes have from 180 to over 400, allowing a tremendous flexibility of movement. Attached to each of these vertebrae are delicate ribs connected by elastic muscles, not to a breast bone, but to each other and to the skin. These muscles make movement possible and also allow prey that has been eaten whole to make its lumpy way through the digestive system.

Many people think snakes are slimy and are surprised to find them pleasant to the touch, cool, and beautifully textured. Snakes, like all reptiles, are covered with scales. Unlike the scales of many fish these are not separate but held together with a flexible skin. Under this outer layer is a thin layer of dividing cells and a thick inner layer that contains the pigments that give each species their distinctive colors and patterns. The outer layer, like the bark of a tree, is actually dead tissue. This needs to be periodically replaced both because life without limbs is hard on the skin, but also because it cannot expand. Reptiles continue to grow throughout life. So from time to time, depending on its age, and the quality of its diet, the snake sheds its skin. The eyes become milky and the body pigments dull as the old outer layer separates from the layers underneath. Rubbing against a stick or rock the snake breaks the skin and crawls out, leaving the clear papery skin behind, often in one piece.

All snakes are carnivorous. They find their prey by lying in ambush, active hunting, or using a waving tail or tongue as a lure. Some eat 'easy' food like worms, some subdue their victim with venom, and others, like bull, king, and rat snakes, coil around their prey and constrict the flow of blood. Most snakes have many slender sharp teeth that point backward preventing escape. A snake's mouth is a marvel of flexibility.

The two halves of the lower jaw are not fused and can act independently. The lower and upper jaws are connected with ligaments. These adaptations allow a snake to open its mouth wide enough to eat something three times the diameter of its head.

Snakes, like all animals except mammals and birds, cannot regulate their body temperature internally, but must move between sunlight and shelter to stay about 86 degrees. It takes a great deal of energy to control body temperature internally. A mammal must eat at least ten times as much food as a snake of similar body size to survive. A snake can also go long periods without eating. A large snake that has eaten a large meal may live six to twelve months without eating again. Snakes that live in cold regions must hibernate during winter, finding underground dens where the soil temperature remains fairly constant. A suitable den may be used by large numbers and several species of snakes.



In temperate climates young are often 'born' in late summer or early fall. Some snakes lay eggs with thick, leathery shells, and some bear their young live. We may use two of Nebraska's most common snakes as examples. The bullsnake is one of our largest snakes, a creature of grasslands and open woods. It eats small mammals, birds and eggs. When alarmed it may vibrate its tail and hiss, and thus can be mistaken for a rattlesnake. The bullsnake is an egg layer. Much smaller, and quicker moving, the Plains Garter Snake is the most common snake in Nebraska. It can be easily identified by the orange stripe down the middle of its back. It eats frogs, fish, salamanders, insects, and worms and bears its young live.

The hognose snake is a fascinating animal. It has an upturned nose it uses for digging in the sand following the scent of its favorite foods: toads and reptile eggs. When threatened, toads can inflate themselves with air. Hognose snakes have enlarged fanglike teeth at the back of their upper jaw that can take the air out of that defense. They also secrete a mild toxin. A hognose is a relatively small snake but it can make itself seem scary by taking in air and puffing up to look much larger than it really is. It may also raise its head, flatten its neck, and hiss to look more menacing. If all that doesn't make danger go away, a hognose may roll over onto its back and act as if it is dead.

There are two kinds of hognose snakes in Nebraska, the eastern and western. The eastern can grow to be a bit larger and are fussier about having toads to eat. They prefer sandy soils along rivers and streams. The western hognose will eat lizards and small mammals, live in dry grasslands and is found in the western 3/4 of the state.



The Nature Center has several common Nebraska snakes on exhibit including several bullsnakes and Great Plains rat snakes, a fox snake, a black rat snake, and a western hognose. We invite you to visit the Nature Center and ask our staff to bring out a snake for you. Touch it, admire its color and patterns, and learn to respect rather than fear these amazing animals.