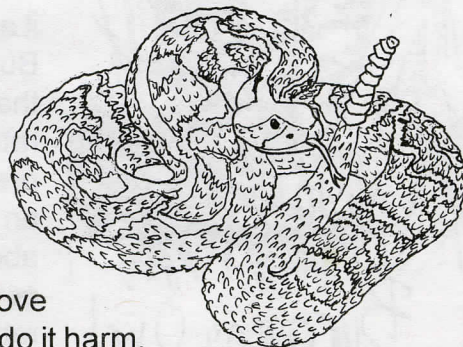


NATURE DETECTIVES

Fall 2007

Rattle-tattle Rattlesnake

The quick buzz sounds angry or scared and much louder than the drone of insects on a warm fall day. It is a sound to make you stop in your tracks, an alarm that starts your heart racing. There is no mistaking the signal. This rattle warns, "Don't come closer!" You hold your breath; only your eyes move as you search the space around you. And, there it is, its head swaying slightly back and forth above the coiled body, ready to strike if it thinks you are going to do it harm.



You step slowly, carefully, away from the anxious snake. You take another slow step away. Finally, the snake uncoils and slithers a quick retreat. It wants to escape and won't chase you. In an instant, it is hidden in the brush. Your heart starts to return to a normal beat. You continue your walk but you are more alert now, your head full of snake thoughts.

Western rattlesnake (*Crotalus viridis*) had been half-dozing in the sun, digesting a mouse meal. The snake didn't sense you were coming until you were perhaps too close for its safe escape. If the warning rattle hadn't made you back off, it would have launched out from the coil, sinking its fangs into your leg. It might pump venom through its fangs, but it would quickly pull back, hoping for enough time to reach a safe hiding spot.

Rattlers actually bite very few people because the rattlesnake's first line of defense is hiding. To the snake, people are a waste of venom; it can't swallow our big bodies. Rattlesnakes do an important job in our environment as major predators of the rodents that eat our grains and other food crops. Unfortunately, people kill lots and lots of snakes out of fear or dislike. Rattlesnakes are beautiful predators that make our natural world a more balanced and exciting place.

Say Venomous Snake, Not Poisonous

Rattlesnakes are venomous, not poisonous. Venom is injected by the bite or sting of an animal. Poison is something you don't want to eat or drink or rub against like poison ivy.



Snake Mimics

Rattlesnake rattling is such an excellent warning; it isn't surprising that some non-rattlesnakes try to copy the sound to ward off predators. Non-venomous bullsnakes (*Pituophis catenifer*) have a hiss that sounds remarkably like a rattler's rattle. To increase the deceit, they whip their tails back and forth to look like they are rattling. If the tail is hitting dry grass, it adds even better effect to the hissing sound.

Burrowing owl babies also make a hiss that sounds much like a rattlesnake rattle. Any predator about to grab an owl might think twice about lingering if there could be a coiled rattlesnake nearby.



Rattles, the Rattlesnake's Second Line of Defense

The rattlesnake's unique rattles are made of the same material as your fingernails. Each time rattlers shed their outer skin, usually one to four times per year, they get a new rattle. The rattles at the tip often break off with travel so most rattlesnakes, no matter how many times they've shed, only carry four to ten rattles. The rattles are hollow and when the snake shakes its tail, they rattle against each other creating the fast buzzing sound. If danger comes too quickly, rattlesnakes don't take time to rattle; instead, they immediately strike. This quick bite with their fangs is their seldom-used third line of defense. Sometimes they are too cold to rattle, and they never rattle when hunting prey.

Rattlesnakes – Pit Vipers Built for Hunting

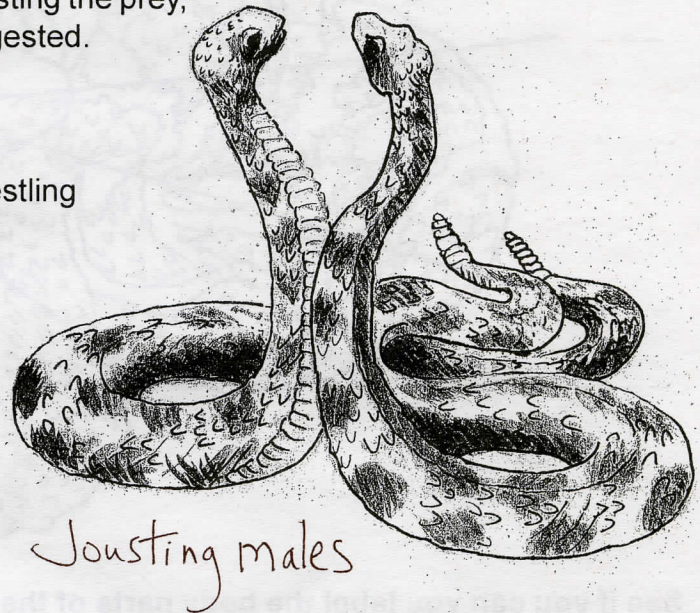
As members of the pit viper family, rattlers are high-tech snakes that lie in ambush for their prey, mostly mice and other rodents. They sense their prey several ways. They see with eyes, smell with their noses, and "smell" with their tongues. As they flick their tongues, they pick up chemical scent molecules in the air. They put their tongues in a special place on the roof of their mouths to decode the smells. By smell they know a mouse trail when they come across it so they just hide and wait. Snake bodies also detect slight ground vibrations that animals make as they approach, which is the main reason snakes usually slither away before we see them. Best of all, pit vipers have heat-sensing pits or pores on their heads between their eyes and their nostrils. With these pits they can sense an animal's body heat a hundred yards away. Hunting mice in the dark is no problem for snakes that can "see" body heat.

Fangs in Action

As soon as a mouse is within striking distance, the rattlesnake's fangs swing down into place from fang resting spots along the top of the mouth. The snake lashes out and drives its fangs deep into the mouse's body. Quickly, the snake pumps venom from special glands through its hollow fangs. Probably a third of the stored venom goes into the mouse, much more than needed to kill the mouse, but the venom also starts the digestion work that will finish inside the snake. Wary of the mouse's sharp claws and teeth, the snake pulls out its fangs and retreats. In a little while, the snake will follow its nose and tongue to retrieve the dead mouse and swallow it headfirst. Digestion inside the snake might take two weeks for a big rattler with a woodrat. By the time the snake finishes digesting the prey, all that is left is fur. Even the bones will be digested.

Male Jousting

Male rattlers do a type of fighting like arm wrestling without arms. No biting is involved. Each snake tries to wind its neck around the other snake's neck and push the other guy's head toward the ground. The stronger snake gets to stay on the good hunting ground or gets the opportunity to court a local female. The other guy slithers off to wrestle another day.



Snakes Alive: Here Come the Babies

Western rattlers first have young when they are four or five years old. In the late summer or early fall, rattlesnake females often group together, basking in warm places, not eating, just waiting for their babies to be born. Usually about 12 babies are born in a litter, but there can be 4 to 21 live-born babies. Even though the mom doesn't stay with her babies for more than about a week, she won't have more babies for two to three years.

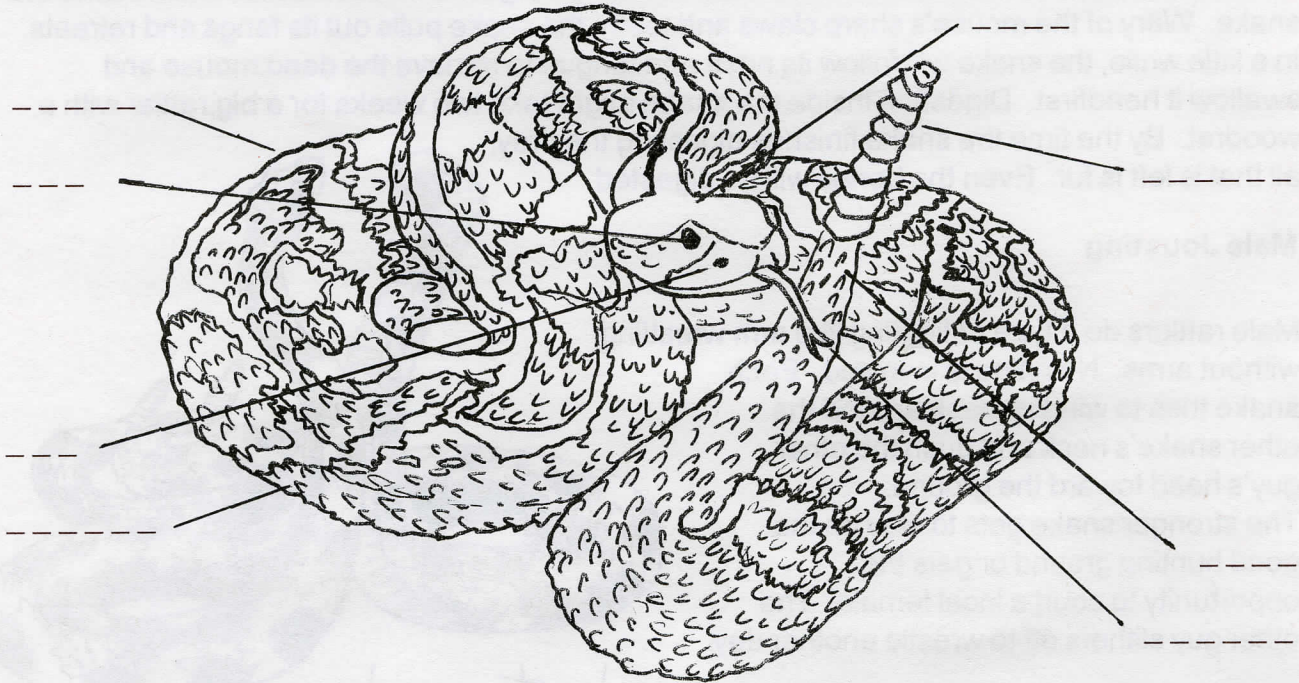
Baby rattlesnakes are born with a pre-button on the end of their tails. About a week after birth, they shed their baby skin and add their first rattle. Usually without eating anything, even though they have powerful venom from birth, they start their search for a sheltered place to spend the winter. Hawks, eagles, other snakes, and automobiles cut short the lives of some. Others may live 20 years or more.

Togetherness in Hibernation

Baby rattlesnakes can follow scent trails left by adult snakes traveling to winter dens. Maybe because good shelter is hard to find where snakes are protected and safe from freezing temperatures, many rattlesnakes travel miles to hibernate together in the same den, returning year after year. Other kinds of snakes can winter with the rattlesnakes, too. By October or November, they hole up in prairie dog burrows or in deep crevices in rocky hillsides.

Color Me Beautiful

Western rattlesnake colors vary a bit depending on the soil color and even the normal temperatures in their habitat. In areas with darker soils or cooler temperatures, the snakes tend to be darker in color. The camouflage colors help the snake ambush prey and hide from enemies. You can color this one greenish gray or greenish brown.



See if you can label the body parts of the rattlesnake.

Belly: Mice, small rabbits, snakes, lizards, etc. get digested here

Scales: These form the cool, dry outer skin of snakes

Eye: Pit vipers see through a slit-shaped pupil in this

Pit: Pit vipers use this for "seeing" body heat

Tongue: Used to detect smells

Tail: Thin part of body with dark rings and rattles on the end

Rattle: Makes a buzzing sound when shaken to warn off predators

Head: Large, triangle-shaped, and bigger than its neck

