



NATURE DETECTIVES

Fall 2017



Bull Snakes Are Awe-sssss-some

The slender bull snake lay coiled out of the sun, sheltered beneath a big rock. It had feasted on mice, voles and pocket gophers during spring and summer, and had grown to six feet in length. Soon it would move into the hibernation den it shared with other kinds of snakes every winter. Successful summer hunting gave the snake a better chance to survive deep underground for months without food.

The cautious snake flicked its tongue in the air, scanning for smells that meant prey or danger. The snake saw nothing moving and felt no vibrations from human footsteps so it slithered into the open and headed toward its favorite hunting hideout.

Lucky to Spot a Snake

A young girl with a camera was standing quietly on the path, and she watched the snake disappear into the grass. She knew snakes try to avoid people so catching a glimpse of one was a treat. This snake was beautiful with dark blotches on a cream-colored background.

The girl did not see any rattles on its tail. Rattles would mean a rattlesnake. Rattlesnakes can inject venom with their bite to kill prey. She liked snakes, even rattlesnakes, at a safe distance. She guessed the big snake was a bull snake. She'd read bull snakes are constrictors that squeeze their prey to death. She was excited to tell her brother, and wished it hadn't escaped before she could snap a photo.

If you spend time in open areas anywhere in Boulder County, **you** might get to see a bull snake. Bull snakes inhabit territory from the plains up to the montane, below 9000 feet in elevation. They need enough prey to eat and space for dens. They are especially common on the plains and in the foothills.

People don't always realize the necessity of slithery reptiles in our ecosystem. Bull snakes play an important role in keeping rodent populations in check. They are also cool and exciting to see.



Keeping Cool Snake Style

Like all snakes, bull snakes regulate their body temperature by changing their location. They are ectotherms, which means their body temperature goes up or down with the temperatures in their surroundings.

Snake muscles don't work well if the snake is cold. Digestion and even hearing are impaired in a cold snake. Basking in the sun warms them on cold mornings, but too much sun on a hot day can kill them. Bull snakes spend much of their time under rocks or in underground chambers. They use the burrows of other animals or dig into the ground themselves.



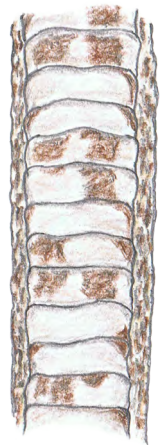
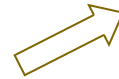
Bull Snakes Can Do Amazing Things

Bull snakes have a slightly pointed snout shaped for digging. They dig and scoop the dirt out with their head and neck.

Scales made of keratin cover their body. (Our fingernails are keratin.) Between the scales, their skin is slightly stretchy. They use their muscles to press the wide scales on their belly against any surface to push themselves along.

Snakes can't back up well, but do a u-turn instead. Bull snakes can even climb trees by pressing the edges of their belly scales into the bark. The urge to hunt can prompt a hungry snake to climb up where there are baby birds or eggs to eat.

belly scales



Bull Snakes Go for Gophers

Their varied diet can include toads, lizards and duck eggs. They eat a lot of different things, but pocket gophers and other rodents are tops on the menu. For that reason, bull snakes are also called gopher snakes.

Bull snakes are powerful constrictors and can squeeze prey as large as young rabbits. Smaller bull snakes eat smaller prey. It takes only three seconds or less to grab hold with their teeth then coil around their prey. For small rodents in burrows, bull snakes can simply press their prey against the sides of the burrow. Either way, pressure stops blood flow to the brain of their prey and kills very quickly. Sometimes the prey animal bites back and the bull snake will retreat.

Expandable Jaws

Bull snakes have jaws held together with stretchy tendons. Without bony hinges, such as our jaws have, they are able to open their mouths sideways, wide enough to swallow their prey whole. Bull snakes never chew their food before swallowing, but in snakes, that isn't impolite.



Baby Bull Snakes Have a Rough Go

Female bull snakes find an empty burrow or dig a nest hole to hold their eggs from late June into the middle of July. They look for warm, moist soil in an open, sunny area to lay their 3-24 eggs. The female doesn't stay to guard eggs or hatchlings.

Hatchling bull snakes appear in late August or September in Colorado, and they usually won't eat a meal until spring. Most young snakes will not live until spring, but successful bull snakes can survive for 15 years or more.



hatching from eggs

Room to Grow

Bull snakes never stop growing, but growth gets slower as they get older. Although the snake's skin is somewhat stretchy, it doesn't grow with the snake so snakes must shed their tight, old skin to reveal new, bigger skin underneath.

Shedding usually begins at the head, and the first sign is the eyes get cloudy-looking. Then the old skin gets loose around the lips and head. Bull snakes crawl slowly, rubbing against rocks and bushes, and the old skin rolls off. Much like a kid taking off a sock, the snake leaves the shed skin behind in one piece, but turned inside out.

Senses and Defenses

Bull snakes see movement well with their lovely, round eyes. Because they lack eyelids, snakes never blink. Transparent scales protect their eyes.

They feel vibrations in the ground and hear sounds in the air. They smell by flicking their tongues then touching the twin tongue tips to a pair of pouches on the roof of their mouth to pick up scent molecules. Their forked tongue allows the snake to pinpoint the direction of the smell source.

Camouflage colors help bull snakes hide against their background so their first defense is to freeze in place or flee quickly. To look threatening, they will rear up, vibrate their tail to "rattle" against dry plants or gravel and hiss like a rattlesnake. They will spread their jaws to make their head more triangle-shaped and rattler looking. They will coil and lunge with a grunt. Hawks, foxes and bigger snakes sometimes still eat bull snakes despite their best defense.

The worst problem for the constrictor snakes is people. Imitating a rattlesnake may scare off some animals, but it backfires with the humans who often kill rattlesnakes in fear and dislike. Vehicles and roadside mowers also run over bull snakes in huge numbers.



Sensing with Chemicals

Snakes use chemosensation to sense things around them and “taste” their surroundings. They use their tongues to do this. Did you know that you also use chemosensation?

Have you ever eaten a chili pepper that made your mouth burn? Jalapeno peppers have chemical compounds that are odorless and flavorless. These chemicals are hidden in the white flesh of peppers and when they touch your tongue...WOW! You just sensed a hot pepper.

Scoot Like a Snake

Did you ever watch a snake slither across the ground? It has no feet or legs but it can move pretty fast. Snakes have scales on their body that work individually to help move the snake along.

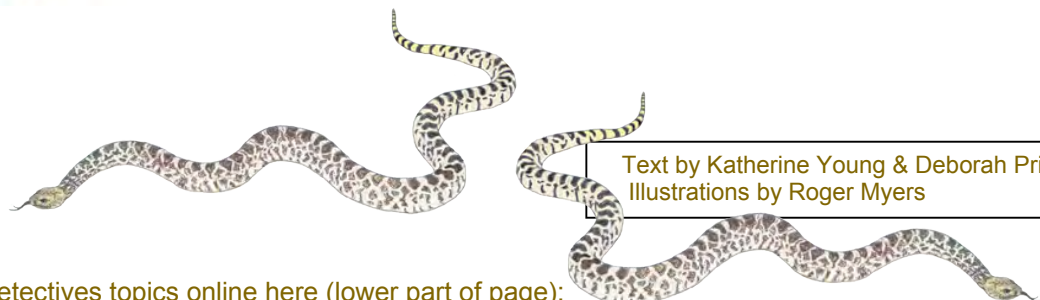
Try this: Lie on your stomach on the ground or floor and hold your arms to your sides. Keep your legs straight behind you and don't bend them. Now try to move forward. You'll probably have to wiggle like crazy in order to get going.



Just imagine if you had scales on your body to push against the floor to help you move! Scales on a bull snake's body help it to climb plants and even trees without arms or legs.



Sherlock Fox says: Bull snakes are better than mousetraps for controlling the rodent population. All snakes are helpful to the environment, but remember even non-venomous snakes may bite if you get too close. **Be cautious!**



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