THE TRUTH ABOUT
Snakes

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Plains garter snake
WE ALL HAVE FEARS AND PHOBIAS — SOME ARE THE RESULT OF A PERSONAL EXPERIENCE, OTHERS ARE TAUGHT. I'VE HAD THE OPPORTUNITY TO TRAVEL TO FOREIGN PLACES WHERE I CAPTURED AND PHOTOGRAPHED SERPENTS SUCH AS COBRAS AND MAMBAS. FLICK A SPIDER ON ME THOUGH, AND YOU WILL PROBABLY GET PUNCHED IN THE FACE. I CAN TRACE THIS PHOBIA BACK TO A FIVE-YEAR-OLD ME SITTING ON THE FRONT STOOP OF OUR HOUSE. A LARGE, CUTE AND FUZZY JUMPING SPIDER HOPPED ONTO MY ARM. I REACHED OUT AND STARTED TO SQUISH IT, WHICH PROMPTED THE SPIDER TO BITE ME. WHILE THE SPIDER ITSELF WAS OF COURSE HARMLESS, THE PUNCTURE WAS STILL PAINFUL, AT LEAST IN MY MEMORY.

Flash forward a couple weeks and I was sitting in the bathroom at school taking care of some business. I happened to look up above my head where a very large spider was crawling out of the air vent. I mean this thing was huge! In hindsight, evidently a large Mexican red knee tarantula had escaped from another classroom and was running amok throughout the school's air vents. Again a completely harmless species, but as an irrational 5-year-old, I decided all eight-legged critters were out to get me. During this same time period, my dad found a hatchling black rat snake in our house, which he allowed me to keep in a jar for one week before we released it. I was enthralled by this creature and loved nothing more than to sit and watch it crawl around its enclosure. Two negative events turned me against spiders, while this one positive event with a snake cemented a love affair that continues to this day.

AS I GOT OLDER, I OVERCAME MY FEAR THROUGH EDUCATION.

As I got older, I overcame my fear of spiders through education. The more I learned, the less spiders frightened me. I have even gone as far as keeping tarantulas as pets. Unfortunately, the popular news media tends to capitalize upon our fears as a way to increase views. If there are any other group of organisms that are vilified and feared as much as spiders, it would probably be snakes. About this time last year, I wrote a short column dispelling some of the myths about snakes that were being reported in other media outlets. With the early summer descending upon us, I am beginning to see snake stories pop up once again — many with fearful headlines about snakes being out and active. As a representative of an agency that promotes our natural resources and outdoor activities, it pains me to see stories that discourage people from venturing outside. So hopefully in the next 1,000 words or so, I can provide a more positive spin on a very important, but often-maligned component of our Kansas fauna.
Bull snake

What good are snakes? Why should I care about snakes? I get asked these questions a lot. There is an ongoing paradigm shift across the United States regarding conservation of fish and wildlife. The focus on single species management is giving way to managing habitats and ecosystems. The Kansas State Wildlife Action Plan places emphasis on Ecological Focus Areas (EFAs), or habitats of critical importance to the state. Now, we are concerned with what ecosystem services a species provides, or what role a species plays in maintaining particular habitat. To me, snakes are important bioassessment tools when trying to answer those questions. Snakes in general tend to have life history traits that make them vulnerable to population declines. These traits include long life spans, high annual survivorship in adults, high site fidelity and high mortality among juveniles. Snakes, with their low metabolism, can also go for longer periods of time without food, making them more capable of surviving short-term resource shortages than mammals with higher energy needs. So when significant changes in snake populations occur, it is probably indicative of a long-term change in the environment.

An example of this is the diminutive red-bellied snake of eastern Kansas. The red-bellied snake is listed as a “Species in Need of Conservation” and occurs within two of our EFAs, the Eastern Deciduous Forest and the Ozark Plateau. What can the red-bellied snake tell us about the health of our eastern forests? Forest soil typically has a rich organic layer that is composed of deep leaf litter that holds in moisture and whose decomposition releases important nutrients into the soil. One of these nutrients, calcium, is important for maintaining the slugs and snails that live in and help breakdown the leaf litter. Slugs and snails also happen to be the primary prey for red-bellied snakes. The absence of red-bellied snakes then would suggest that something is significantly amiss with the moisture and nutrient composition of the soil. Of course, soil quality is directly related to the overall health of the woodland.

Snakes, particularly larger species, typically occupy the mid-point in a food web. Rat snakes, bullsnakes, copperheads and all rattlesnakes are major players when it comes to rodent control. These snakes in turn become food for other species, such as hawks and owls. Within my lifetime, we have seen a huge uptick in white-tailed deer populations, and with it their associated parasites. Lyme disease is a bacterial pathogen that is carried by the black-legged or deer tick. While the deer tick is closely associated with deer, the tick does not actually contract the disease from deer; The deer itself is just a food source for the female ticks. The female tick gorges on its host, typically a deer or other large mammal, and lays eggs. The eggs hatch and the larval ticks feed on small mammals, such as rodents. The rodents are a carrier of the bacteria that causes Lyme disease, which is where the ticks become infected. Maintaining natural forms of rodent control, such as snakes, keep diseases such as Lyme from becoming more prevalent than they already are.

In addition to benefits to human health by controlling vectors for disease, snakes also improve human health in a much more direct manner. Snake venoms are cocktails of molecular compounds that are responsible for specific tasks. One compound may lower blood pressure; another thins the blood,
while a third may block receptors in nerve cells. In combination, these cocktails can be devastating. But when isolated, they are life saving. Recent drugs derived from snake venoms include Captopril, a commonly prescribed drug to treat abnormally high blood pressure. Eptifibatide and Tirofiban were also derived from snake venoms to treat heart conditions, such as angina. While not a snake, Gila Monster venom was used to develop the type 2 diabetes medication Byetta. Scientists view animal venoms as a pharmacopeia of new drugs and they continue to work to unravel mysteries contained within those chemical cocktails. Most exciting to me, having recently lost my mother and grandmother to cancer, is the research being done using snake venom as a cancer treatment. Some components of snake venom attack cells, and research is in progress to try and isolated those cell-killing mechanisms to cancer cells. The thought is those actions would isolate and stop the spread of cancerous tumors in the body.

### Prairiel Rattlesnake

When it comes to rodent control, rattlesnakes, bullsnakes, copperheads and all rattlesnakes are major players. They are an integral part of our ecosystem and beneficial to human health in many ways. I can understand why not everybody would want them in their yard or around their house, especially if you have young children. The easiest way to prevent snakes from entering your yard is to reduce and remove available resources. Clean up any debris such as woodpiles, and old metal or wood lying around. Keep your shrubs and low-lying bushes trimmed up. Not only do shrubs and debris provide shelter for snakes, they also provide shelter for their primary prey – rodents. Make sure food and water sources for rodents are also cleaned up and stored away. And as most of you already know, always watch where you put your hands and feet! Oh, and don’t buy into the snake repellent hype, it is just a way to lighten your wallet. There is no scientific evidence that commercial snake repellents work.

What should you do if you encounter a snake, particularly a venomous one? In most cases, nothing. Just walk around it at a safe distance. Snakes typically only react out of fear and given enough space, they will go out of their way to avoid you. If you happen to meet a snake up close, back away as slowly and calmly as possible. As hard as it may be to not jump around and make a commotion, all the extra movement may scare the snake more. Remember, the snake is probably as surprised as you are. And don’t take off running; you are more likely to hurt yourself by tripping and falling than getting bit by a snake. While you may want to escape quickly, the chances of a snake attacking or chasing you are very little. I have been around thousands of snakes on three continents and have yet to be chased, though a snake might crawl towards you in certain circumstances. If a snake is cornered and the only way to escape is to go by you, then the may try to quickly crawl by. Or if you are standing between the snake and its shelter, the snake may try to zip by you as well. If you have a fear of snakes, this can be very disconcerting. Remember, by giving a snake some space, you give it room to escape.

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There are many ways to improve your knowledge about snakes. There are some great resources about Kansas snakes available. Go to a program offered at a state park, nature center, or zoo. You might want to pick up a copy of Amphibians, Reptiles, and Turtles in Kansas by Collins, Collins, and Taggart. Or check out the Kansas Herpetofaunal Atlas, which can be found at: [http://webapps.fhsu.edu/ksherpa/default.aspx](http://webapps.fhsu.edu/ksherpa/default.aspx). With a little education, seeing a snake in the wild can go from a traumatic experience to a very positive wildlife viewing experience.