

Coexisting peacefully with snakes, venomous and non venomous

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Part 1

Spring awakens some of our most feared neighbors, snakes. In preparation, many people buy Snake Away or similar "snake repellents". These products are not only ineffective, but dangerous.



Given a false sense of security, people let their guard down believing the product will truly repel snakes. In reality, snakes don't even notice it. Snakes don't have a sense of smell like humans or mammals. When they flick their tongues, the tongue picks up microscopic particles. As the tongue is brought back into the mouth, the Jacobson's organ "reads" the particles and gives the snake a kind of "picture". Many keepers of venomous and non-venomous snakes have experimented with our own captive animals and have yet to find

a species that is repelled by these products. So, save your money.

Part II

Keeping Snakes Away

The best method of evicting snakes is to remove the things they call home. Snakes hide in thick mulch, long grasses, and debris piles. Mow your grass often and use a trimmer to cut any grass or weeds growing close to buildings, fence posts and other structures. Rake fallen leaves every fall and thin your mulch to a depth of no more than 3". Store firewood piles as far from your home as possible and place them on a rack at least 12" off the ground. Eliminate stone walls and rock piles, as these provide lots of nooks and crannies for both snakes and their prey to live in. If your yard is full of snake food, you're going to have snakes. Snakes eat small rodents, slugs, and insects, so making your lawn less appealing to these critters also makes it less appealing to snakes. Many of the animals snakes feed on hide in the same landscaping features as the snakes themselves, so cleaning up your lawn actually serves two purposes. To further discourage rodents, slugs, and insects, animal feed, bird feeders and other food sources that may draw unwanted critters and ultimately snakes.

Sometimes, snakes in your yard become snakes who find their way into your house. Seal any openings around your foundation with caulk or ¼" mesh hardware cloth. Look for cracks and fissures as well as places where plumbing pipes and electrical wires enter your home. Cover dryer and plumbing vents as well. Snakes generally don't climb, but they can, so check for openings around door and window frames and make sure your windows are properly screened. Door sweeps close the gap below doors. Expensive but effective, installing a snake fence around your yard is helpful if you happen to live in an area with venomous snakes. Snake-proof fencing consists of ¼" mesh wire. It extends 6" into the ground and stands 30" above it. The top of the fencing tilts out at a 30° angle to prevent snakes from crawling over it. Remember to remove any adjacent tall shrubs or trees that could allow the snake to circumvent the fencing. You can save money by installing your own snake fence. If you do, remember to put the supporting poles on the inside of the fence.

If you do come across a snake in your yard, and don't wish to share your space with it, give it a strong squirt with the garden hose. It will beat a hasty retreat and will likely not return. Relocating it is also an option. Lay an open box or trash can on its side near the snake and sweep it into the box using a broom or rake. Close the box or put the lid on the trash can and call a professional to relocate it.

Part III

Snake Encounters

What should you do if you encounter a snake? The more you understand about these animals the better you will know how to react.

It's important to note that within an any given species there are different personalities. Their behavior is predictable but does vary. Having said that, there is one hard-and-fast rule for all wildlife. They are terrified of humans.

A snake's first defense is invisibility. They spend the majority of their time in a tight dark space where they feel that they can't be seen. In the morning and evening hours, they venture out to hunt and drink, this is when you are most likely to have a chance encounter.

Their second defense is retreat. A good rule with all wildlife is to make a lot of noise when you are out and about. If they can hear you coming, they will retreat, and you won't have to see them at all. If one is coming towards you, you are most likely standing between it and its avenue of escape. Freeze and let it pass. Sudden movement will be perceived as an attack and could result in a defensive bite. During retreat, some may rattle, others leave quietly.

It's third and final defense is to bite. Venom is metabolically expensive for the snake to produce, and it doesn't want to waste it on defense. If it can't retreat, it will defend itself. It will warn you with vigorous rattling and the classic bite pose. Heed the warning. Back away very slowly, making as little movement as possible. Slide your feet on the ground rather than taking large steps. If you are within striking range, you can't outrun it. Rattlesnakes can strike as far as one-third to one-half the length of their body in less than a blink of an eye, literally. So, staying calm and moving very slowly is imperative.

Lastly and most importantly, if you do get bitten, stay calm and call 911 immediately.

A note about trying to kill snakes... a large number of rattlesnake bites are caused when an inexperienced person moves in close enough to try to kill it. Keep your distance and call a professional to remove it. Or squirt it with a water hose. It will leave and likely never return.

Part IV

Many people feel that killing snakes is the best course of action to keep themselves safe. The opposite is true.

This behavior is a holdout from our very beginnings as humans. Survival dictated that we remove threats to our well-being. Our very distant ancestors weren't capable of the critical thinking that Homo sapiens are, we didn't associate the increased disease, vermin and flea and tick populations with killing a creature that could possibly harm us. We also did not consider the extreme speed and accuracy of a rattlesnake strike.

Today, we know that snakes play a huge role in keeping a balance in nature. We also know that they will avoid us at all costs. Sightings are purely accidental. Remember, their first defense is invisibility. We live in the perfect habitat for snakes,



they are all around us, all of the time. But, for some reason, we feel the need to DO something when we see one. In actuality, the best course of action is... no action at all. Simply walk away.

When we move in close enough to a venomous snake to kill it, we get close enough to get bitten. Rattlesnakes strike faster than a blink of an eye, and you can't avoid a strike if you are that close. Many bites are a result of people killing or trying to kill rattlesnakes. In addition, for several hours after death, rattlesnakes are capable of biting and delivering a full load of venom.

The most fool-proof method of keeping yourself safe from venomous snakes is to simply *leave them alone*.

Part V

Snake bites are rarely deadly; however, they are a medical emergency. Time is of the essence after a bite, so being prepared is a must. I keep a copy of North American Pit Viper bite protocols in my snake room. From the Florida Snake Bite Institute, they advise the victim, the first responders and the medical staff how to treat the bite. The following advice is recommended:

- Call 911.
- Remove all jewelry or tight clothing where swelling will occur.
- Immobilize the bitten at a 45° angle from the heart.
- Keep calm to minimize venom absorption.
- Gently wash the bite wound to remove any dirt, bacteria, and topical deposits of venom on the skin.
- Mark the bite and make note of the time of bite on the skin with pen. If swelling occurs before EMS arrives, mark the extent of swelling, and note the time.
- DO NOT give anything to eat or drink.
- DO NOT apply a tourniquet
- DO NOT make any incisions and attempt to suck out venom. Think of your tissue as a sponge, the venom is not in a little contained space where it can be removed, it has already been absorbed into the tissues.
- DO NOT apply ice.
- DO NOT attempt to capture the snake to take to the hospital for identification! Hospital staff are not trained to handle snakes. You will only cause more chaos in an already chaotic environment, and you will also risk another bite.

All North American pit viper bites are treated with the same antivenom, Crofab. Their venom is hemotoxic, it destroys red blood cells, disrupts blood clotting, causes organ degeneration and generalized tissue damage. In 2018, a new antivenom was released. Anavip is cheaper and has shown to be more effective.

The only snake in the US whose bite requires different treatment is a very close cousin to cobras. Coral snakes are neurotoxic and require different antivenom. Their venom causes paralysis and eventually death if not treated.

Part VI

So, what the heck are snakes good for anyway? IMHO, the only good snake is a live snake.

In North America, deer mice spread hantavirus. The Bubonic plague is alive and well in nature, carried and spread by rodents, such as prairie dogs, chipmunks, wood rats, ground squirrels, deer mice and voles. In recent decades, an average of seven human plague cases have been reported each year by the CDC. Snakes of all species play a crucial role in keeping populations of disease carrying rodents in check.

- One adult rattlesnake can eat 4,000 ticks each year via its prey. While 4,000 doesn't sound like much, consider that 1 tick can lay up to 18 thousand eggs. So potentially, 72 MILLION ticks won't be born because of 1 adult snake's dinner habits! Studies have shown that when fewer predators of small mammals are present, the abundance of ticks goes up, resulting in an increase of Lyme infections in people. Ticks spread a multitude of diseases, including:
- Lyme disease
- Anaplasmosis/ehrlichiosis
- Rocky Mountain spotted fever
- Babesiosis
- Tularemia
- Powassan virus

In a recent study, researchers found that the muscles that control the movements of a rattler's tail (to make the rattle string sound) do not fatigue. Ever. They are examining this phenomenon in hopes of finding cures for muscle wasting diseases such as ALS. (Which took my brother and is a nightmarish disease.)

And that's just one of the medical contributions these animals can and are making. Current blood thinning medications are modeled after components of snake venom. The venom of rattlesnakes contains over 100 different proteins, each potentially capable of unlocking cures to many diseases. Scientists are currently researching 725 species of venomous snakes, creating a virtually unlimited potential for cures for human disease. But research takes many years, we can only hope that snakes can endure the current kill rate.

Can you tell the age of a rattlesnake by the number of rattles it has?



No. Rattlers are born with one segment, called a button. Each time they shed; a new "rattle", or segment, is added. They shed more than once a year. In addition, many snakes intentionally break off segments when the rattle string grows too long by wedging them in a tight space and

pulling. Once the snake reaches adulthood, there is no way to determine age.

Are rattlesnakes losing their rattles/not rattling due to attacks by humans/feral hogs?

Recent studies have shown that rattlesnakes are NOT rattling less or losing their rattles. This old wife's tale probably comes from anecdotal stories from ranchers who are finding fewer snakes on their property due

to roundups, wanton killing of breeding populations and habitat destruction. They are very rarely prey to feral hogs in particular, but they've been prey to humans and other wildlife for millennia and

nothing has changed in all that time. Remember, their first defense is invisibility, so they will not rattle unless confronted.

Are baby rattlesnakes more dangerous than adults?



Baby rattlesnakes are just as capable as adults at venom metering. In any snakebite, the severity is determined by a combination of different factors: those related to the snake that just bit you, and those related to your unique biology, your medical history, and the circumstances surrounding the bite. While baby rattlers venom is slightly more toxic, they have tiny venom glands. An adult rattlesnake, with much larger venom glands, produces, stores, and injects anywhere from 20–50x more venom than a baby.



Are coral snakes rear-fanged?

No, coral snakes have front fangs. Elapids have proteroglyphous fangs. The coral snake is our only venomous elapid. These fangs have the same mechanical workings, but they are not retractable and stay fixed in the down position. Out of necessity, this type of fang is much, much smaller to enable the snake to close its mouth without envenomating itself. Elapidae strike and then hold on tight to their prey. They do not have the heat sensing pits to locate the prey if it escapes.

Colubrids have Opisthoglyphous fangs, which are located at the back of the snake's mouth. Colubridae, such as hognose snakes, have to chew to envenomate their prey. They strike, hold on and chew.

And this is where the confusion began. Coral snakes are elapids. They bite and hold so their prey does not escape. This behavior mimicked colubrids, who bite, hold, and chew. Hence, it was believed that coral snakes were rear fanged and needed to chew to envenomate their prey. Upon further research, this was found to be erroneous.



Part VIII

Rattlesnake Roundups

Every Spring, annual rattlesnake roundups occur across the country. These festivals consist of a carnival type atmosphere highlighting the killing, decapitating, skinning, and eating of rattlesnakes. Anyone who appreciates these animals, and many who don't, cringe at the cruelty that is involved. A retired member of the group *Rise Against Rattlesnake Roundups*, I have learned things that I didn't think could go on here. Sadly, revenue generated, especially in Sweetwater where they raise \$8.4 million a year, supersedes any concern for the animals.

Here's what happens to a rattlesnake when it is chosen to be a Round-Up participant:

The snakes are collected after they have begun hibernation for the winter and are easy pickings. Gasoline is introduced into the burrow. The snakes try to leave the den site and are picked off one by one. Snake hunters claim that only a drop or two of gasoline is used, however this wouldn't be effective. The gasoline poisons the burrows, often killing the animals inside. More than 350 species depend on tortoise burrows for food and shelter. {In 2015, TPWD was asked to do an assessment of the practice. After lengthy study and despite findings that gasoline is detrimental,

TPWD made the decision to let the practice continue. The majority of the members on the study panel were Sweetwater organizers.)



Once captured, the snakes are held without food and water until the roundup starts, usually in March. It is clearly evident that they are sluggish, malnourished, and stressed. They huddle together in fear only to be kicked and tossed around by the handlers. The lucky ones suffocate under the immense weight of the others. At some roundups, snakes have their mouths sewn shut without anesthesia enabling people to hold them and have their photo taken with a rattlesnake. These animals usually die within a short time

and are tossed aside and another rattlesnake with its mouth shown shut takes its place.

In the skinning pit, their heads are chopped off with a cleaver and tossed into a barrel. The bodies are hung and, some still alive, they are skinned by children who then dip their hands in the buckets of rattlesnake blood and put hand prints of blood on the wall. A grisly celebration of gore.

Some of the animals have their venom milked for the enjoyment of the audience. Sweetwater's promoters claim that it goes to make anti-venom. When asked to produce receipts for sales to



pharmaceutical companies, they do not respond. The sole producers of anti-venom in the US, BTG International, claims they cannot use venom from roundups due to gassing and unsanitary conditions. Their venom comes from captive animals and is collected in a sterile environment.

Changes clearly must be made. Festival organizers are resistant due to the revenue generated. However, one roundup in Claxton, Georgia, switched to a no-kill event with educational information and captive snakes on display. They report an increase in revenue each year.

What needs to change?

Gassing of dens. This is a no-brainer. We have enough dangerous chemicals in our water already. don't need gasoline added to that.

Bag limits must be imposed by TPWD. Not only are the numbers of rattlesnakes caught each year decreasing, but the individual snakes are also getting smaller as all of the large adult breeding populations are being taken. A roundup worker in Okeene, OK, admitted that they had to import "big ones" from Texas, as their supply is dwindling.

Treatment of animals. People would not stand for any other animal on the planet being starved for months on end, having their mouth sewn shut without anesthesia, and face the possibility of being skinned alive. This kind of treatment is not acceptable for any living thing.

Hunting and utilizing our wildlife have always been an integral part of life in America, however there is no reason to glorify the killing or to torture the animals involved.

Part IX

My son Bill, showing my granddaughter Leah a gopher snake. Leah's mother has ophidiophobia, or fear of snakes. She doesn't want her daughter to fear or hate them, so she asks Bill to introduce Leah to them in hopes that the next generation will appreciate our scaly friends.

