Snakes of South Central Texas

Written by Sal Scibetta; all photos were taken by Sal Scibetta unless otherwise captioned.

Bexar County,Texas is a very special place ecologically. It is an ecoregions crossroads where parts of three different ecoregions meet: Blackland Prairie, Edwards Plateau, and South Texas Brush Country. As a result, we have a diversity of flora and fauna associated with each of these ecoregions. The variety of snake species in our area gives an excellent demonstration of this crossroads of habitats.

SNAKE BIOLOGY AND PHYSIOLOGY

Snakes are one of the most identifiable groups of animals. All snakes have basically the same body plan and are all carnivores. Snakes are well known for their unique methods of feeding. They have two diverse methods of capturing prey, they are either venomous or non-venomous. There are three main kinds of venomous snakes, Solenoglyphous or movable fangs (Vipers), Proteroglyphous or fixed fangs (coral snakes) and Opisthoglyphous or rear fanged (hognose snakes). The non-venomous snakes are mainly constrictors; how they constrict their prey varies. Some use their body coiled around the prey, while others use their jaw strength to subdue prey. Some snakes even swallow prey alive (watersnakes).

Snakes are highly modified lizards and, like the vast majority of all reptiles, are ectothermic poikilotherms. This means their variable body temperature is determined by the environment. This is why snakes are frequently observed basking on trails during the day or on warm roads at night.

THE ROLE OF SNAKES IN ECOSYSTEMS

Snakes play a very important roles in the ecosystem. They are typically in the middle of the food web, being both predator and prey. They are predated on by birds of prey, coyotes, raccoons, opossums as well as feral cats and hogs. As predators, depending on their size and environment, snakes eat rodents, worms, insects, crayfish, fish, frogs, bird eggs and nestlings.

MOST COMMON SNAKES IN BEXAR COUNTY

The result of Bexar County's ecological diversity is that we have many different species of snakes, more than most other parts of Texas. This Talking Point will highlight the most common but is by no means exhaustive of the topic.

NON-VENOMOUS SNAKES

Rough Earth Snake *(Haldea striatula*): This is a very common snake, often found in suburban lawns and flowerbeds. These snakes are completely harmless, reach a maximum length of only ten inches, and eat worms, grubs and other small insects.

Checkered Garter Snake (*Thamnophis marcianus*): The Checkered Garter Snake is another common snake and can be found in suburban areas as well as more undeveloped areas. Commonly found near

water, they prey on frogs, rodents, and invertebrates. They are harmless but can bite if handled. They also commonly defecate and/or emit musk when handled. They can reach two feet long.

Western (Texas) Ratsnake (*Pantherophis obsoletus*): If you have ever seen a snake somewhere and think "How did it get there?" it's probably a ratsnake. We have a few different species of ratsnakes in the area but the Western Ratsnake is the most frequently encountered. (It was formerly called the Texas Ratsnake but recent genetic studies negated that subspecies designation) The Western Ratsnake is also called the Chicken Snake because it is often found in chicken coops where they eat the eggs and small birds. This snake also gets large. It is one of the largest snakes in Texas. Adults are typically four – six feet but they can get larger. This snake is non-venomous, but will likely bite repeatedly when handled. When cornered it will also put on an impressive defensive display with open mouth hissing and vibrating its tail. This behavior often leads people to believe it is a rattlesnake.

Diamondback Watersnake *(Nerodia rhombifer*) and Blotched Watersnake (*Nerodia erythrogaster transversa*): These two watersnakes are extremely common in the lakes and rivers in South Central Texas. They are very often confused with Cottonmouths. They are typically seen basking on banks, in branches above water and swimming. When threatened these snakes will flatten their head giving them an arrow shaped appearance, further creating the impression they are Cottonmouths. The easiest way to tell it is a watersnake is they have vertical stripes on labial (lip) scales. Typically, but not always, when these snakes swim, only the head will be out of the water (a Cottonmouth will usually float on top of the water). These snakes are very defensive and will bite repeatedly and expel copious amounts of a foul smelling musk. The saliva has strong anticoagulant properties so a bite will bleed profusely, but it is still harmless.

Rough Green Snake (*Opheodrys aestivus*): In Central Texas, this snake is easily identifiable as a small, thin, bright green snake. They are typically less than three feet long. Commonly found in brushy areas, these once common snakes are becoming hard to find. Green Snakes eat mainly insects, especially grasshoppers. The increased use of insecticides is having a negative impact on their prey and in turn affecting the population of Green Snakes. If these snakes are found dead, they are usually a bright blue color.

Texas Patchnose (*Salvadora grahamiae lineata*): The Texas Patchnose is more commonly found in rocky areas north of the Balcones Escarpment but they can be found through South Texas and into northern Mexico. These diurnal snakes are often seen on dirt roads or hiking trails. They are easily identifiable having a brown striped body and enlarged rostral (nose) scale. Adults reach two to three feet and are fairly slender. Babies are about seven inches long. Patchnose snakes are very opportunistic feeders eating, lizards, snakes, eggs and rodents.

Eastern Hognose (*Heterodon platirhinos*): If any snake were to ever win an acting award, it would be the Hognose Snake. These snakes are well known bluffers. When first disturbed they will flatten out their neck and hiss ferociously often striking with a closed mouth. This behavior often gets them mistaken for cobras or given the nickname "Spreading Adder" If this threat display fails, they are renown for their ability to "fake death" often turning upside down with mouth agape. Not many people realize these are technically venomous snakes. They are rear fanged. Their venom is not strong and has little to know effect on humans. Worst case bites are very uncommon and usually just cause localized swelling. Hognose snakes are mainly predators of toads. They use their upturned rostrum (nose) to dig up toads. The enlarged rear fangs also help in "popping" the inflated toad to make them easier to eat.

VENOMOUS SNAKES

Texas Coral Snake (*Micrurus tener*): Coral snakes are a highly venomous elapid, related to Cobras and Mambas. The rhyme "Red and Yellow, Kill a Fellow, Red and Black, You're ok Jack" pertains to this snake. The rhyme refers to the color banding. On the Coral Snake, the red band typically touches the yellow. On the non-venomous milk snakes, the red band will touch the black bands (Milk snakes are not common in the San Antonio are but can be found south of Pleasanton). Do not rely on the rhyme for identification. There is a population of coral snakes in Southwest San Antonio that is melanistic, meaning they only have black and yellow bands. There are frequently observed individuals that are missing other color bands or sometimes have no bands at all. These snakes are quite common in the San Antonio area and are observed regularly along many of the greenbelt trails around town. The majority of their diet is other snakes. While they are typically not defensive, they do have a powerful neurotoxic venom that can cause severe breathing difficulties. While not typically seen as deadly, keep in mind there is an extremely limited supply of antivenom available for these snakes. They have fixed, but small fangs at the front of their mouths and do not need to chew or bite in between your fingers to envenomate. That is a dangerous myth.

Western Diamondback Rattlesnake (*Crotalus atrox*): This is the most dangerous snake found in area and probably the country. More fatalities occur from bites from this snake, then any other snake in the country. This is due in part, to their large size, range and unpleasant attitude. They are very defensive snakes and will normally provide ample warning via the rattle before they strike. However, they do not need to rattle before they strike. These snakes will rely on camouflage before giving away their location by rattling. This is also the second largest rattlesnake in the country. The size is often overstated. Typically three to four specimens are seen in the San Antonio area, however further south near the Rio Grande Valley, they have been known to reach over six feet. These snake feed mainly on mammals from mice to rabbits. They have an extremely potent tissue destroying venom and any bite should be considered a medical emergency. There is one antivenom for all the venomous snakes in the US so there is no need to identify the species. The rattle is made up of loosely connected rings of keratin that make the rattling sound when the tail vibrates.

Broadbanded Copperhead (*Agkistrodon laticinctus*): These snakes are not as common in the immediate San Antonio are as most people think. In fact, there are no iNaturalist observations of copperheads inside 1604. Now, just outside the loop, they are somewhat common. They are more common north and east of South Central Texas. The Copperhead is responsible for most of the venomous snake bites in the country. While bites are usually not life-threatening (there have been recorded fatalities) they are extremely painful and cause significant tissue damage. A bite from a Copperhead requires hospitalization. Antivenom is not always administered, but recent studies have shown it to reduce tissue damage and long-term effects significantly. One interesting fact about copperheads is they are known to eat invertebrates. There are several documented cases of copperheads swarming an area to eat newly molted cicadas. They have also been known to eat large caterpillars. These snakes are also effective rodent predators.

Northern Cottonmouth *(Agkistrodon piscivorus*) aka Cottonmouth: This is probably the most misidentified and misunderstood snake in the US. There are many reports of them in the waterways around San Antonio, but they are rarely positively IDed. More often than not, what people are seeing are Watersnakes. South Central Texas is on the western edge of the cottonmouth's range. While they are common east of the area and along the coast, they are not very common in the San Antonio area. They are here, but not as common as most people believe. They prefer slow moving or still, murky waters and do not frequent our clear fast-moving creeks and streams. These snakes get the name Cottonmouth from the white lining inside their mouths that they hold agape as a warning. These snakes are commonly said to be aggressive. They are in fact not aggressive but are very defensive and will stand their ground but will not

give chase like many would have you believe. Given the opportunity to flee, they will usually take that option. The diet of these snakes is rather interesting. Cottonmouths will eat pretty much any animal matter (the species name means “fish eater”). They are notoriously cannibalistic and in a rarity among snakes, are known to eat carrion. The venom of these snakes is a potent hemotoxic and while bites are rare, they are considered a medical emergency that required administration of antivenom.

WHAT TO DO IF YOU ARE BITTEN BY A SNAKE

What happens if you get bit by a venomous snake? Get to a hospital as quickly and calmly as possible. There are many myths about treating snakebite. The suction kits are ineffective and can create more damage. Tourniquets are not needed and will likely lead to more damage and loss of the limb. Absolutely avoid alcohol. The best first aid kit for snakebite are car keys and a cellphone. Try to stay as calm as possible as an accelerated heartrate will cause the venom to circulate through the body faster. There is no need to identify or capture the snake to bring to the hospital. There is one antivenom for all US snakes (except Coral snakes).

How would you know if you have been envenomated? A venomous bite is extremely painful. The pain has been described as being injected with molten metal. The pain can be instantaneous or slowly increasing within minutes. You can also tell a venomous snake bite because of the two larger holes. A nonvenomous snake bite will have 2 rows of small punctures. A nonvenomous snake bite can be painful but is not dangerous. The snake will usually just strike and let go as a warning. Simply clean the wound. Venomous snakes can also bite without venom, called a dry bite. A dry bite feels like a thorn prick with no residual pain after. It is still a good idea to get to a hospital even though it may be a dry bite. Coral snake bites are known to have delayed effects. You may not feel the envenomation for several hours after. It is also a myth that baby snakes are more dangerous because they cannot control their venom. Adult snakes have a far larger quantity of venom which will make them far more dangerous than a small, baby snake.