

# Colubrid Snakes of Collin County, Texas

Jerrold G. Tynes<sup>1</sup>

Assistant Professor, Master of Physician Assistant Program, West Coast University – Texas, Texas, U.S.A.,<sup>1</sup>

Adjunct Professor, Department of Biology, Texas A&M University - Texarkana, Texas, U.S.A.<sup>1</sup>

Adjunct Professor, Department of Physical Sciences, Dallas College, Texas, U.S.A.<sup>1</sup>

REALTOR®, Monument Realty, Rockwall Office, Texas, U.S.A.<sup>1</sup>

**Abstract-** zones and has recently become one of the fastest growing residential areas in northeast Texas. This area wide variety of snake species including those of the Colubridae family. This group is known for its ecological variety, and many of these species play vital roles in controlling pest populations. Through a comprehensive look a field guides, a review of historical records, and local photographs we catalog the various species of Colubrids that inhabit Collin County, examining their natural history, appearance, habitat preferences, and behavioral patterns. This review identifies several key species, including the Eastern Yellow-Bellied Racer (*Coluber constrictor flaviventris*), Texas Rat Snake (*Pantherophis obsoletus*), the Blotched Watersnake (*Nerodia erthrogaster transversa*) and the Rough Green Snake (*Ophedrys aestivus*), among others. Particular attention is given to their physical characteristics for clarity in identification. The paper also highlights conservation concerns, such as habitat destruction and the impact of urbanization on these snakes, as Collin County undergoes rapid development. It is our goal that this research will contribute to the understanding of Colubrid biodiversity in North Texas and provide insights into an understanding of the ecological roles of each species and various conservation challenges they face. By showcasing a detailed inventory of the local Texas Colubrid species, this paper serves as a tool for wildlife enthusiasts, conservationists, researchers, and the general public as it emphasizes the importance of preserving the unique herpetofauna of the area amidst residential expansion.

**Keywords-** Colubrid, snake, Texas reptiles, Collin County Texas, snake ecology

## I. INTRODUCTION

Collin County, Texas has a robust human population (estimated over 1,195,000 residents) (7), but being seated in the northeast region of Texas it is also a county with a huge diversity of herpetofauna, especially snakes.

Collin County is home to 20 different species of Colubrid snakes and 3 species of viper (3).

### Racers, Ring-necks and Coachwhips

Eastern Yellow Bellied Racers (*Coluber constrictor flaviventris*) are long and slender snakes averaging between 23 – 50 inches and ranging in color from bright green to olive. Most Northeast Texas specimens are a vibrant green color with a striking yellow hued stomach, the characteristic that gives this snake its name. It is not uncommon for this species to rear up and display to predators this bright yellow belly, a distraction that can allow this snake to escape. These snakes are often found in

open prairie regions of Texas diurnally foraging for lizards and small rodents (4).

Another snake species found in Collin County with a bright colored underbelly is the Prairie Ring-necked Snake (*Diadophis punctatus arnyi*). This small snake ranges from 10 to 14 inches in length and is reclusive in nature, making it less likely to be discovered or seen by the general public (9).

Similar in build to the racer is the Western Coachwhip (*Masticophis flagellum testaceus*), which is named for its slender and "whip-like" appearance. This coachwhip subspecies can reach lengths of 5 and a half feet and is typically brown to tan in color. These fast serpents prey on lizards and small mammals and are found in varied habitats throughout Texas (3).

## II. THE LAMPROPELTINI TRIBE MEMBERS

The Great Plains Rat Snake (*Pantherophis emoryi emoryi*), also known as the Emory Ratsnake looks very similar to your run of the mill pet store corn snake, which is understandable as they are very closely related. This medium sized snake is primarily only found in the southwestern region of the county and prefers rocky terrain to prairie or forests (5). These are occasionally mistaken for the venomous Southern Copperhead (*Agkistrodon contortrix contortrix* – Figure 1) that is also found in the area but are identified and distinguished by their rounded head and grey coloration.

A more familiar rat snake, and the most likely the species a resident of Collin County, Texas has seen in and around their home, work or yard is the Texas Rat Snake (*Pantherophis obsoletus*) also referred to as the Western Rat Snake. This dark and powerful constrictor can reach lengths of up to 72 inches and are blotched with an overall dark brown to black coloration. The skin below the scales is a bright red coloration and the red hue and undertone may be seen in some specimens. These snakes are also not afraid to showcase the "Don't Mess with Texas" attitude and will readily strike, hiss and bite when bothered. As their name implies, these are wonderful predators to have around as they feed

on rodents other small mammals and birds (6). Local farmers in the area also refer to this species as the Chicken Snake, as they will break into chicken coops and rob eggs from nests when the opportunity presents itself (Figure 2).

Collin county, Texas is home to two species of kingsnake, the Prairie Kingsnake (*Lampropeltis calligaster*) and the Speckled Kingsnake (*Lampropeltis getula holbrooki*). Prairie kings are similar in color to Emory Rat snakes, grey overall with brown saddles up and down the back and are found in open prairie areas throughout northeast Texas. The Speckled Kingsnake is more robust in size and named for its black complexion which is dotted by yellow to white splashes of color all over. This species is closely related to its western cousin the Dessert Kingsnake (*Lampropeltis getula splendida*) and there have been recordings of integration of these two species occurring in Collin County (4). Kingsnakes get their name from the fact that they will readily consume other snakes, including venomous snakes such as rattlesnakes to which they have an innate resistance to the venom.

The Louisiana Milksnake (*Lampropeltis triangulum amaura*) is actually a very close relative of the kingsnakes (1), in fact in captivity sometimes these two species are cross bred to produce some beautiful milk and king hybrids. The harmless Louisiana milksnake, like other milksnakes, possesses a coloration that mirrors the venomous coral snake found in overlapping areas, a biological phenomenon referred to as Batesian mimicry. There are several sayings, such as "Red touch yellow, kill a fellow, red touch black venom lack", which can be helpful in our area distinguishing a potentially venomous snake from a harmless one, however this phrase is obsolete in other countries.

A large and impressive snake that can be found in Collin County and throughout eastern and central Texas is the Bullsnake (*Pituophis catenifer sayi*). These large bodied and powerful snakes are often misidentified in northeast Texas as Western Diamond-backed Rattlesnakes (*Crotalus atrox*) due to their similar brown saddle markings against a khaki-colored body. Additionally, these snakes will

also tail-rattle, a behavior seen in various non-venomous snakes that is used as a defense tactic. While these snakes have no rattle, profuse shaking of the tip of the tail produces a rattle like buzzing noise, especially if done in vegetation or against leaf litter. Bullsnares can be considered slightly aggressive and will readily hiss, strike and lunge if disturbed or stressed. Bullsnares are a subspecies of the gopher snake group, named for the rodent prey that they are adept at hunting.

### III. AQUATIC AND SEMI-AQUATIC SNAKES

Collin County is home to three species of water snake the Blotched Watersnake (*Nerodia erthrogaster transversa*), Broad Banded Watersnake (*Nerodia fasciata confluens*), and the Diamond-backed Watersnake (*Nerodia rhombifer*). These are all non-venomous snakes that are often seen on the banks of local lakes and ponds and are occasionally confused with the venomous Cottonmouth (*Agkistrodon piscivorus*) which have overlapping ranges. There are some key differences between the species, the Blotched Watersnake is olive to brown (Figure 3) in color and is characterized by a solid color belly (usually yellow) while the Broad Banded Watersnares are vibrant in color ranging from yellow and red colored bands (9). Diamond-backed Watersnares have similar bandings to Cottonmouths but lack the stark white mouth that gives Cottonmouth's their name. Differences in the species can also be seen while swimming, as Cottonmouths will typically hold their heads out of the water at a 45-degree angle and most of the body will float at the surface, while water snakes rarely hold their heads above the surface of the water. One cannot use the old additive of a snake with a triangle shaped head is venomous, as water snakes will actually suck in air to puff their necks and heads up to appear larger, making them look strikingly similar to Cottonmouths.

Another species that frequents wet areas such as wetlands and aquatic drainages of slow-moving water is the Graham's Crayfish snake (*Regina grahamii*). This is a small and secretive snake rarely

seen or captured outside of specific field studies. This small snake maxes out in size at around 18 inches in length and feeds on both small aquatic vertebrates and invertebrates alike (8).

Collin County is home to 3 of the 12 gartersnares that call Texas home. The Checkered Gartersnake (*Thamnophis marcianus*) is typically brown to tawny grey in color with alternating black checkered patterns running dorsally down its back. The Orange Striped Ribbonsnake (*Thamnophis proximus proximus*), also called the Western Ribbonsnake has a single orange or yellow (more common in this area) lateral stripe that is flanked on both sides with dark black stripes. These quick snakes feed on semi-aquatic and aquatic prey ranging from crayfish to fish to tadpoles and frogs. The Texas Gartersnake's (*Thamnophis sirtalis annectens*) northeastern most range overlaps with the southwestern region of Collin County (3). Very little is known about the current population trend of this endemic Texas subspecies, but it is thought that its numbers have been dropping over the last several decades.

### IV. THE SECRETIVE SNAKES

One of the most beautiful species found in Texas is the Rough Greensnake (*Opheodrys aestivus* – Figure 4). This long and slender snake is bringing green in color and almost disappears in the leaves of trees as it nimbly moves across the branches (4). Dekay's brownsnake (*Storeria dekayi texana*), also called the Texas Brown Snake can be found in varying habits from wetlands to prairies and is distinguishable by its brown coloration and lateral greyish to yellow dorsal stripe (Figure 5). This species does well in modified habitats, so it occasionally comes into contact with people in gardens and yards. Another snake that may be seen in a Texas garden, especially during soil work or tilling is the Rough Earthsnake (*Virginia striatula*). This small (usually 8-10 inches) brown to olive green snake is subterrestrial and feels most comfortable moving through loose soil where it hunts worms and insects (2). Because of its subterrestrial nature, several fully adult wild albino specimens have been found in northeast Texas.

The Variable Groundsnake (*Sonora semiannulata semiannulata*) is similar in color and size to the Rough Earthsnake but prefers rockier soil types and is less subterranean in nature (9).



Figure 1: A Southern Copperhead (*Agkistrodon contortrix contortrix*) discovered under a brush pile in Prosper, Texas. – Photo courtesy of Scott Kerr.



Figure 2: A Texas Rat Snake (*Pantherophis obsoletus*) robbing a backyard chicken coop in McKinney, Texas. – Photo courtesy of Justina Conley.



Figure 3: A Blotched Watersnake (*Nerodia erthrogaster transversa*) found on a porch in Murphey, Texas. – Photo courtesy of Adrienne Caughfield.



Figure 4: A Rough Greensnake (*Opheodrys aestivus*) that was seen near the Collin College Central Park Campus in McKinney, Texas. – Photo courtesy of Anthony Sanchez.



Figure 5: Dekay's Brownsnake (*Storeria dekayi texana*) from a home garden in Wylie, Texas. – Photo courtesy of Krystal Humphreys.

## V. CONCLUSION

Collin County, Texas boasts a wide range of snake species many found in the Colubrid group. As this area in Texas becomes more residential in nature it is likely that run ins with various snake species will increase. It is important that the residents of Collin County, Texas can recognize the multitude of species in the area and have a respect for them to decrease negative snake – human interactions.

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