

# FIELD & LABORATORY

Volume XVII

January, 1949

Number 1

## The Snakes of Dallas County, Texas

*Lawrence Curtis*<sup>1</sup>

This study covers researches in Dallas County from 1945 to the present year. In this time, I have examined personally twenty-eight of the twenty-nine species and subspecies of snakes definitely recorded from the county. Many different localities over the entire county, including the various types of habitats, were visited.

Under each form I have shown what I believe to be its relative abundance as I have found it, under favorable conditions in the field. I have designated abundance in increasing order, as rare, occasional, common, and very common.

Usually I have followed Schmidt & Davis (1941) in the common names employed. When a name is much used locally, I have indicated this by placing the name in quotation marks.

Specimens representing all of the forms (with the exception of the pygmy rattlesnake) are in the Dallas Aquarium preserved collection.

The following is taken from "The Geology of Dallas County, Texas": "Physiographically, Dallas County lies within the Western Gulf Coastal Plain near its inner boundary and is largely in the Black Prairie belt on the outcrop of the Eagle Ford, Austin and Taylor formations. Structurally, the county lies between the Fort Worth Basin on the west and the East Texas Basin on the east. The Mexia fault zone lies to the east in neighboring Kaufman County. The Balcones fault zone is believed by some to extend as far north as Dallas County, but all faults observed at the surface here are of such small magnitude as to render this contention very doubtful." Dallas County lies at the intersection of 32°47' N. Latitude, and 96°48' W. Longitude.

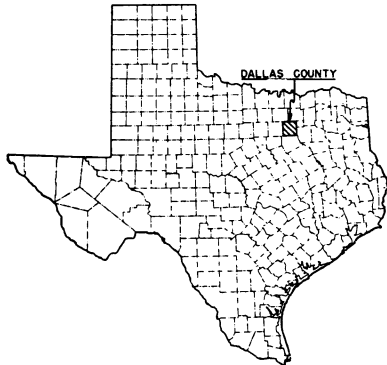
The county has three major habitats: (1) The southwestern area where there is a very hilly region with numerous limestone outcroppings. The altitude here (800 feet) is the highest in the county. Juniper, cedar (mountain and red), oaks (Spanish and post) are the dominant trees of the hilly region. (2) The northern part is mainly blackland prairie with mesquite the principal tree. (3) The lowlands follow

<sup>1</sup>Student, Southern Methodist University.

the Trinity River. This flows into the county by its West Fork and Elm Fork, entering in the middle-western and northwestern parts, respectively. These two forks join near Dallas and, united, leave the county at its southeastern corner. Oaks (red and white), sycamore, elm (American and slippery), and willows are found throughout the lowlands.

Three large lakes are in the county: Bachman's Lake and White Rock Lake located, respectively, in the north-central and eastern parts of Dallas within the city limits, and Mountain Creek Lake in the southwestern part of the county. A number of smaller lakes are found in the lowlands along the river in the southeastern part of the county.

Dallas County has a relatively mild and humid climate with a mean annual temperature of 65.5° and an annual



precipitation of 36.16 inches. The altitude is from 450 to 800 feet.

Intergradation<sup>1</sup> occurs among three forms of snakes in Dallas County. I have discussed the relationships of these intergraded forms under their respective headings in the text.

Strecker (1915) lists *Regina clarkii* (*Natrix sipedon clarkii*) from Dallas, *vide* Cope. This snake is partial to a brackish or semi-brackish habitat along the Gulf Coast. I fear this old record is in error, owing to incorrect identification or, more probably, incorrect locality label.

My best thanks are due to Mr. Pierre A. Fontaine, director of the Dallas Aquarium, for help in many ways, and to Mr. Donald Tinkle for valuable field assistance.

<sup>1</sup>Intergradation occurs where the ranges of two subspecies intersect and produce individuals (intergrades) which possess characteristics of both subspecies.

*Bionomics of the Species*

1. *Leptotyphlops dulcis* (Baird & Girard). Texas Blind Snake. Occasional. This secretive, burrowing snake occurs almost entirely in southwestern Dallas County, under rocks, boards, paper, and other cover, in fields and on hillsides. An exceptional specimen was taken near a small stream in the lowlands, three miles southeast of Dallas. My specimens were taken during the day, while in hiding.

2. *Diadophis punctatus arnyi* Kennicott. Prairie Ring-Necked Snake. Rare. My only specimen of this small species was collected during the day from under a piece of roofing material at the edge of a woods in the lowlands, 22 miles southeast of Dallas.

3. *Heterodon contortrix contortrix* (Linnaeus). Common Hog-Nosed Snake. Occasional. The "spreading adder" ranges throughout the southern half of the county in both hilly and lowland regions. I have usually found it in sandy fields.

4. *Opheodrys aestivus* (Linnaeus). Keeled Green Snake. Occasional. This species apparently ranges throughout the entire county. I have specimens from the hilly, prairie, and lowland regions. One was taken in late November from among some rattlesnake dens on a rocky hillside in southwestern Dallas County.

5. *Coluber constrictor flaviventris* Say. Eastern Blue Racer. Very common. The "blue racer" ranges over the entire county. It is not uncommon to find specimens that have fallen into old, abandoned wells. This snake is seen in great numbers during the threshing season in southwestern Dallas County, under shocks of grain, and often gorged with grasshoppers. One individual was collected during the early morning while eating a small snake, *Tantilla gracilis*. Captive specimens from the lowlands fed readily upon frogs, but refused mice. Conversely, those from the more hilly region fed upon mice and consistently refused frogs. This suggests an ecological influence on feeding habits.

6. *Masticophis flagellum flagellum* (Shaw) x *testaceus* (Say). Intergrade Coachwhip (Eastern with Western). Common. This long, slender snake is distributed over the southern half of the county, both in the hilly section and the lowlands. They are abundant around farms and old buildings in the hilly part. A specimen collected in a grassy field near the Trinity River was feeding upon a fence lizard, *Scelo-*

*porus undulatus hyacinthinus*. In the hilly region of the southwestern part of the county this snake hibernates in company with the Texas diamond-back rattlesnake, *Crotalus atrox*; and during sunny days may be seen among rocky ledges and crevices of the limestone cliffs.

*Masticophis flagellum flagellum* and *Masticophis flagellum testaceus* are intergraded in Dallas County. The specimens show a very strong relationship toward *flagellum*, especially in the southeastern part of the county.

7. *Elaphe laeta laeta* (Baird & Girard). Emory's Rat Snake. Occasional. Most of my records for this beautifully marked snake are from the hilly region of the southwestern part of the county. Two, however, were taken from near the river in the lowlands, and one in the north-central prairie land. Most specimens were found near farm buildings. One was taken in early March from a rocky crevice in the hilly region of the southwestern part of the county.

8. *Elaphe obsoleta confinis* (Baird & Girard). Gray Rat Snake. Common. The well known "chicken snake" is apparently distributed over the entire county. This snake, like the preceding form, is seen often in agricultural areas. In the winter they occasionally may be found hanging in trees near their dens on rocky hillsides in the southwestern part of the county.

9. *Pituophis catenifer sayi* (Schlegel). Common Bull Snake. Occasional. This species is confined to the hilly region and its immediate periphery. Two specimens were taken during the winter from dens in the limestone cliffs. Occasionally it is found under grain shocks during the threshing season.

10. *Lampropeltis calligaster calligaster* (Harlan). Yellow-Bellied King Snake. Common. This snake is almost confined to the hilly region of the southwestern part of the county. One specimen, however, was taken in the lowlands along the Trinity River in the southeastern part of the county. It is seen in great numbers in company with the blue racer during the threshing season in the southwestern part of the county. At that time, six were collected in one day from under shocks of grain. One of the individuals thus found was feeding upon an adult field mouse.

11. *Lampropeltis getulus splendida* (Baird & Girard) x *holbrookii* Stejneger. Intergrade King Snake (Sonoran with

Speckled). Common. This snake seems to be partial to the wooded areas in the lowlands along the river, but is also found occasionally in the hilly region.

*Lampropeltis getulus splendida* and *Lampropeltis getulus holbrooki* are intergraded in Dallas County. The specimens show a strong relationship toward *holbrooki*, especially in the number of groups of spots crossing the back, head markings, and scale rows; the amount of speckling on the body is more similar to *splendida*, while the ventral markings are intermediate.

12. *Lampropeltis triangulum amaura* (Cope). Cope's Milk Snake. Rare. I have but two records for this small rare snake from Dallas County; one from the hilly region in the southwestern part of the county, and the other from the lowlands in the extreme southeastern part. Both of these beautiful mimics of the coral snake (*Micrurus fulvius tenere*) were hiding under flat rocks when collected. The specimen from the lowlands has been kept in captivity and fed upon numerous small lizards and snakes: fence lizards (*Sceloporus*), skinks (*Leiopisma* and *Eumeces*), and the Texas blind snake (*Leptotyphlops dulcis*.) This same snake also ate an adult western worm snake (*Carphophis amoena vermis*) collected in Arkansas.

Although Dallas County is near the range of the western Milk Snake (*Lampropeltis triangulum gentilis*), the two specimens I have from the county show no evidence of intergradation with that form.

13. *Sonora episcopa* (Kennicott). Great Plains Ground Snake. Occasional. This small burrowing snake is restricted to the hilly area of the southwestern part of the county. All of my specimens were taken during the day from under rocks and boards.

14. *Natrix grahamii* (Baird & Girard). Graham's Water Snake. Common. This species is found in ponds and streams, usually in the lowlands along the Trinity River. One exceptionally large specimen from Turtle Creek in University Park measured 47 inches in length. I have found them at night feeding upon crayfish.

On the night of May 9, in a small pond in the southeastern part of the county, I observed three mating pairs of Graham's water snake. The individual pairs were entwined about each other with their tails hanging downward while

floating in water of about two-foot depth. The temperature was 59° F.

15. *Natrix rhombifera rhombifera* (Hallowell). Diamond-Backed Water Snake. Very common. This is one of the most abundant snakes in the county, and is usually common wherever water is found. Two very large females were taken, one from along the river and the other from Turtle Creek. Each measured 63 inches. A 51-inch female gave birth to fourteen young on October 2.

16. *Natrix sipedon confluens* Blanchard. Blanchard's Water Snake. Common. This highly-colored water snake is restricted to the lowlands of the Trinity River in the southeastern part of the county, where it is found in ponds, swamps, and streams. Two specimens taken from a swamp on May 16 had been feeding on crayfish. One of these gave birth to thirteen young on August 13.

17. *Natrix erythrogaster transversa* (Hallowell). Yellow-Bellied Water Snake. Very common. This water snake, although not so abundant as the diamond-backed water snake (*Natrix rhombifera rhombifera*) is found in much the same habitat and over the entire county. One large female, measuring 58 inches, gave birth to twenty young on September 12.

18. *Storeria dekayi texana* Trapido. DeKay's Snake. Common. This small snake is distributed over hilly and lowland situations in the county. It is found usually in wooded areas under old logs, paper, boards, and other forms of cover.

19. *Haldea striatula* (Linnaeus). Southern Ground Snake. Very common. This diminutive snake extends its range over the hilly and lowland regions of the county. It is found in greater numbers, however, in suburban areas, especially Oak Cliff, where it abounds under rocks, boards, paper, and other debris in vacant lots, alleys, and gardens. One large specimen measured 12 $\frac{3}{4}$  inches.

20. *Thamnophis sirtalis sirtalis* (Linnaeus). Common Garter Snake. Occasional. Nearly all of my records for this snake are from along small creeks in the hilly region of the southwestern part of the county, with one individual from beside a pond at the Dallas Fish Hatcheries at the southern end of White Rock Lake. They feed in captivity upon English sparrows, house mice, frogs, and fish. One brood of eleven young were born on July 29.

On *Thamnophis sirtalis sirtalis* the lateral stripes are on the second and third scale rows; on *Thamnophis radix* they are on the third and fourth. Dallas County specimens differ in having the lateral stripe on the second, third, and fourth scale rows, usually the second and third. Thus they resemble *sirtalis* more closely, and I have referred them to that name. Mr. Bryce C. Brown of Baylor University has examined these and other specimens from different parts of the state and is in the process of describing them as a new subspecies.

21. *Thamnophis sauritus proximus* (Say). Western Ribbon Snake. Very common. This semi-aquatic snake is found at the edges of small ponds and streams in the lowlands. The species is particularly common around ponds of the Dallas Fish Hatcheries. Some individuals taken there had been feeding upon larvae of the Texas salamander, *Ambystoma texanum*. They fed well upon fish in captivity, which is contrary to Schmidt & Davis (1941). One large specimen measured 41 inches.

22. *Tropidoclonion lineatum* (Hallowell). Lined Snake. Very common. The "grass snake" is the most abundant snake in the county and although confined mainly to suburban areas, a few records come from the hilly section in the southwestern part of the county. In suburban areas it may be found almost anywhere under logs, boards, paper, rocks, debris, and such cover. The species is seen in greater numbers during late March. A pair was observed mating in a vacant lot in University Park late in the evening of October 12, at which time the temperature was 77° F. One specimen was collected while eating a "sowbug". A partially albinistic specimen, white with a pinkish pattern and blue eyes, was collected from under a rock in Highland Park.

23. *Tantilla gracilis* Baird & Girard. Slender Tantilla. Common. This small, rear-fanged snake is found in the suburban, lowland, and hilly areas of the county. In these localities it may be found under rocks, boards, logs, paper, and debris.

24. *Micrurus fulvius tenere* (Baird & Girard). Texas Coral Snake. Occasional. The coral snake, as has been previously shown (Fontaine & Curtis, 1948), is restricted to the hilly section of the southwestern part of the county. One specimen, found during the winter, was attempting to enter

a crevice on a rocky hillside in the vicinity of some rattlesnake dens.

25. *Agkistrodon mokeson mokeson* (Daudin) x *laticinctus* Gloyd and Conant. Intergrade Copperhead (Northern with Broad-Banded). Very common. The copperhead is distributed over the wooded areas in the hilly and lowland regions of the county. During the spring it is found most frequently along the river under logs, pieces of tin, and boards.

During the middle of July, shortly after dark, several copperheads were found in low shrubs and trees. The shrubs and trees had numerous cicadas clinging to them, and apparently the snakes were in the trees to feed upon the cicadas, as stomach analyses showed that they had gorged themselves upon them.

A 30-inch female gave birth to seven young on August 3.

*Agkistrodon mokeson mokeson* and *Agkistrodon mokeson laticinctus* are intergraded in Dallas County. The specimens show strong tendencies toward *mokeson* in both shape and dorsal constriction of the cross bands. This is especially true of the river specimens from the southeastern part of the county, while specimens from the southwestern part show a slight widening of the crossbands. A specimen collected 5 miles north of Grapevine in Denton County (adjacent to and northwest of Dallas County) by Dr. E. P. Cheatum was typical *laticinctus*.

26. *Agkistrodon piscivorus leucostoma* (Troost). Western Cotton-Mouth Water Moccasin. Common. With the exception of one White Rock Lake specimen, the "stump-tailed moccasin" is restricted to the immediate vicinity of the Trinity River. There it is partial to ponds, swamps, and small lakes.

27. *Sistrurus miliarius streckeri* Gloyd. Western Pygmy Rattlesnake. Rare. The only Dallas County specimen of this dwarf rattlesnake was collected many years ago by Jacob Boll and is now at the Philadelphia Academy of Natural Sciences. The only record accompanying this specimen is "Dallas, Texas."

28. *Crotalus atrox* Baird & Girard. Texas Diamond-Back Rattlesnake. Common. The "diamond-back rattler" is confined to the hilly region of the southwestern part of the county, and there it may be found under boards, pieces of tin, rocks, and other suitable cover. It is frequently found



under grain shocks during the threshing season.

Dr. Ira E. Nash of Dallas, a veteran rattlesnake collector, took from near Cedar Hill two enormous specimens measuring 85 and 92 inches, respectively.

During the winter months the rattlesnakes congregate among crevices on rocky hillsides. As a rule, however, large numbers do not assemble in single locations as they do in the north; they disperse over a larger area.

29. *Crotalus horridus atricaudatus* Latreille. Cane-Brake Rattlesnake. Rare. The "velvet-tail rattler" is found along creeks in the hills of the southwestern part of the county and in the lowlands along the Trinity River in the southeastern part.

#### LITERATURE CITED

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## Nomenclature of Species of Dandelion and Goats- Beard (*Taraxacum* and *Tragopogon*) Introduced into Texas

Lloyd H. Shinnors<sup>1</sup>

TARAXACUM OFFICINALE Wiggers, Primitiae Florae Hol-saticae, p. 56. 1780. The generic name is a *nomen conservandum* (International Rules of Botanical Nomenclature, ed. John Briquet, p. 111, 1935; also Brittonia 6: 93, 1947). Following are the principal direct synonyms applied to the common dandelion. The three references listed as not seen are taken from the synonymy given by Fernald (1933, p. 380).

*Leontodon Taraxacum* L., Sp. Pl. (ed. 1), p. 798. 1753. "*Habitat in Europae pascuis.*"

*Hedypnotis Taraxacum* (L.) Scopoli, Flora Carniolica (ed. 2) 2:99. 1772.

<sup>1</sup>Assistant Professor of Biology, and Acting Director of the University Herbarium, Southern Methodist University.