

AMPHIBIANS AND REPTILES OF THE FREEMAN RANCH, HAYS COUNTY, TEXAS

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INTRODUCTION

In 1946, a meeting of the Texas Herpetological Society was held in the San Marcos (Hays County) area. During the field trip portion of that meeting, a list of the amphibians and reptiles found on the trip was created. This list was subsequently copied and sent to society members in a summary of 20 years of field trips (Sanders, undated). Based on that list, and the current report, the amphibians and reptiles found at Freeman Ranch and surrounding area are noted to be unremarkable for the southern edge of the Texas Hill Country. The list, with taxonomic upgrading, forms a window to the past of what species were found by a series of dedicated and enthusiastic collectors 53 years ago.

Dixon (1987) provides a listing of amphibians and reptiles by county in Texas. The presence of a given species in a given county is based on knowledge of a specimen collected in that county. As habitat diversity influences what species can occur in a given county, the reader should bear in mind that species at Freeman Ranch are limited by the lack of surface water and exits for subterranean water; habitats that occur in abundance throughout the region. Freeman Ranch is typical of much of the surrounding land in that it is environmentally impacted because of overgrazing, topsoil erosion, and fire ant (*Solenopsis invictus*) infestation. The food base for some reptiles is limiting because of the aforementioned impacts; however, fire ants are swarming predators that have probably negatively impacted the densities of many vertebrates in the area.

Regarding faunal surveys, "the absence of evidence is not evidence of absence" as some species are more readily observed at times or seasons in which the opportunity for observation is limiting. Smaller species are also more easily overlooked. Species reported here were either observed alive on the ranch, found dead, or found along the western boundary road (County Road 213). While the latter is technically not on the ranch, its proximity to the property makes it probable that species found on the road also occur on the ranch.

The current species reports are drawn from field notes of the author from 1991 to 1999, and from records maintained by Thomas Simpson during that time. I have included confirmed observations of species that were observed on numerous class field trips to the property. There have been no sustained surveys of the Freeman Ranch relative to amphibian and reptile species diversity.

The *Freeman Ranch Publication Series* consists of peer-reviewed research and interpretive monographs related to Southwest Texas State University's Freeman Ranch and the Texas Hill Country. James Kimmel and Richard Earl, editors.

SPECIES ACCOUNT

Amphibians

No salamanders are known from the ranch and only one (*Plethodon albagula* = western slimy salamander) would be expected to be there.

Eighteen frogs and five toads occur in Hays County; of these, only one species (*Hyla cinerea* = green tree frog) would not be expected at the ranch. The green tree frog is an inhabitant of ponds with abundant emergent vegetation; it does not tolerate desiccation. Several cattle tanks do occur on the ranch but they are poor habitats for green tree frogs. Extended periods of drought and absence of water in these tanks would negatively affect this species.

Acris crepitans (northern cricket frog) has been collected and heard calling on the property, as have *Rana berlandieri* (Rio Grande leopard frog) and *Bufo valliceps* (Gulf Coast toad). Newly metamorphic Rio Grande leopard frogs, *Rana catesbeiana* (bull frog), and Gulf Coast toads have been observed around the cattle tanks. *Hyla versicolor* (gray tree frog) and *H. chrysoselis* (Cope's gray tree frog) form a hybridizing complex making species identification tenuous. Based on their color (enhanced yellow) and higher call pitch, I am assigning individuals in this area to the species *H. chrysoselis*. This frog has been heard calling from the large live oak trees but I have not observed males calling from ground-level pools.

Reptiles

Of the 11 turtles found in Hays County, only two (*Trachemys scripta* = red-eared slider and *Terrapene ornata* = western box turtle) have been collected at Freeman Ranch. Red-eared sliders are a common inhabitant of cattle tanks in the area. One individual was removed from a horse barn approximately one kilometer from the nearest tank: it was desiccated and covered with fire ants.

Only two (*Holbrookia propinqua* = keeled earless lizard: *Ophiosaurus attenuatus* = slender glass lizard) of the 16 native lizards found in the county are expected not to occur at the ranch. *Scincella lateralis* (ground lizard) is common under the leaf litter in many oak motts, and Texas spiny lizards (*Sceloporus olivaceus*) can be seen usually in the oaks if one searches carefully. *Urosaurus ornatus* (tree lizard) is found occasionally around rock walls and one limestone water tank in particular; however, efforts to locate this lizard in the past two years have been unsuccessful. *Anolis carolinensis* (green anole) is occasionally observed along floodways running through the property. I know of only one Texas spotted whiptail lizard (*Cnemidophorus gularis*) observed at the ranch. The Texas alligator lizard (*Gerrhonotus liocephalus*) should occur on the property in rocky areas, but to my knowledge none has been observed.

Snakes are poorly represented at Freeman Ranch. *Elaphe obsoleta* (Texas rat snake) is the most common snake observed. Shed skins (sloughs) are occasionally seen hanging from limbs in oak motts. One bullsnake (*Pituophis catenifer*) was found dead on the road along the property line. Mountain patchnose snakes (*Salvadora grahamiae*) are occasionally seen, and I know of only one each of the following: *Tantilla gracilis* (flathead snake), *Virginia striatula* (rough earth snake), *Opheodrys aestivus* (rough green snake), *Agkistrodon contortrix* (copperhead) and *Micrurus fulvius* (coral snake). I know of only one report of the western diamondback rattlesnake (*Crotalus atrox*) that was killed on the ranch.

The Texas blind snake (*Leptotyphlops dulcis*) is probably common on the ranch, but it is rarely on the surface during daylight, except after rains. One was found under a rock at the edge of a fire ant mound and another was found dead of no apparent cause.

Of the 34 species of snakes found in the county, only five, belonging to the genera *Nerodia*, *Thamnophis*, and *Agkistrodon*, would be expected to be absent from the ranch. *Thamnophis cyrtopsis* (blackneck garter snake) is frequently found in dry, rocky habitats but to my knowledge, none has been reported at Freeman Ranch.

DISCUSSION

The Texas horned lizard (*Phrynosoma cornutum*), once common in the area, is no longer found here. Surprisingly, only one was observed in 1946. Mediterranean geckos (*Hemidactylus turcicus*) are now common around dwellings throughout South Texas, and hatchlings have been observed at the Freeman Ranch conference house. This lizard was not known in Texas in 1946.

Of the 41 individual lizards observed in 1946, five species were represented by one individual each. The most observed lizard was the tree lizard, *Urosaurus ornatus* (15) and the second most common was the collard lizard, *Crotophytus collaris* (seven): both are rare today, and I have never observed a collared lizard in the area.

The most common snake (five) in 1946 was the blind snake, *Leptotyphlops dulcis*. This is probably explained by the time of year (April) and the search pattern of the group members who undoubtedly would have "rolled" rocks, exposing this generally subterranean species.

The most common amphibian (exclusive of the aquatic neotenic forms not found at Freeman Ranch) in 1946 was the slimy salamander, *Plethodon albagula* (= *glutinosus* in the list). This species is locally common today, as is the cricket frog (*Acris crepitans*) but the high number (four) of grey tree frogs (*Hyla chrysocelis*) is surprising. This frog is observed infrequently, calls from high in the trees, and apparently lays its eggs in water-filled tree cavities, infrequently using temporary pools.

Thirty species (excluding those not expected at Freeman) were observed in the San Marcos area in 1946; 23 species were observed (excluding the Mediterranean gecko) on the Freeman Ranch in the nine-year period. These data may reflect the long-term population declines thought to be occurring in many species in the area.

The relatively recent invasion of fire ants into the Hill Country has had a devastating affect on amphibians and lizards. Eggs, hatchlings, and even adults are readily attacked. While there is general concern about loss of horned lizard populations in much of Texas, there has been a general decline in many lizard species. Unfortunately, there have been few sustained faunal surveys of amphibian and reptiles in the past to which we can compare current diversity indices and make density estimates.

Fire ants alone are not responsible for the anecdotal reports of declines in amphibians and reptiles, for many species appear to have declined in areas not, or only recently, infested with this predator. Fire ants are known to attack and destroy eggs of *Pseudemys texana* (Texas river slider) and *Trachemys scripta* (red-eared slider) (Rose, Simpson, and Manning, Pers. Obs.). Eggs escaping predation in the early stages are vulnerable during the hatching stage. Subadult gulf coast toads have been observed literally covered with fire ants and the adult red-eared turtle found in the horse barn at Freeman Ranch would have succumbed to the combined affects of desiccation and fire ant predation. Yet, in East Texas, eggs, young, and adult lizards (*Eumeces* sp.) are frequently found in rotting logs housing large fire ant colonies. Periodic droughts, agricultural /ranching activities, the pet trade, increased canine predators such as raccoons, opossums, foxes, and skunks and feral hogs have all combined to negatively impact amphibian and reptile densities in the Texas Hill Country.

FURTHER READINGS

Dixon, J. R. 2000. *Amphibians and Reptiles of Texas*. Texas A&M Press, College Station. Pp. 421.

Garrett, J. M. and D. G. Barker 1987. *A Field Guide to Reptiles and Amphibians of Texas*. Texas Monthly Press, Austin. Pp. 225.

Sanders, O. (undated). The Texas Herpetological Society: its first twenty field meets. Unpublished. Pp. 12.

Tennant, A. 1998. *A Field Guide to Texas Snakes*. 2nd edition. Gulf Publishing Corp., Houston. Pp. 291.

APPENDIX 1

Number of species observed by group in the San Marcos area (1946) and at Freeman Ranch (1991-99) and the number shared between the two collecting periods. Numbers in parenthesis indicate species observed in 1946 that are not expected to occur at Freeman Ranch.

* The Mediterranean gecko was not present in the area in 1946.

GROUP	1946	1991-99	SHARED
Salamanders	3 (2)	0	0
Frogs/toads	7	6	6
Turtles	1	2	1
Lizards	12	6*	5
Snakes	12 (3)	10	6

APPENDIX 2

List of amphibians and reptiles known to occur at Freeman Ranch, Hays County, Texas.

Frogs and Toads

- Family *Leptodactylidae*
Syrrophus marnocki Cliff Chirping Frog
- Family *Hylidae*
Acris crepitans Northern Cricket Frog
Hyla chrysoscelis Cope's Gray Tree Frog
- Family *Bufo*
Bufo valliceps Gulf Coast Toad
- Family *Ranidae*
Rana berlandieri Rio Grande Leopard Frog
Rana catesbeiana Bull Frog

Turtles

- Family *Emyidae*
Terrapene ornata Western Box Turtle
Trachemys scripta Red-eared Slider

Lizards

- Family *Gekkonidae*

- Hemidactylus turcicus* Mediterranean Gecko

- Family *Iguanidae*
Anolis carolinensis Green Anole
Sceloporus olivaceous Texas Spiny Lizard
Urosaurus ornatus Tree Lizard

- Family *Scincidae*
Scincella lateralis Ground Lizard

- Family *Teiidae*
Cnemidophorus gularis Texas Spotted Whiptail

Snakes

- Family *Leptotyphlopidae*
Leptotyphlops dulcis Texas Blind Snake
- Family *Colubridae*
Elaphe obsoleta Black Rat Snake
Opheodrys aestivus Rough Green Snake
Pituophis catenifer Bullsnake

Salvadora grahamiae Mountain Patchnose
Snake
Tantilla gracilis Flathead Snake
Virginia striatula Rough Earth Snake

Family *Elapidae*
Micrurus fulvius Coral Snake
Family *Viperidae*
Agkistrodon contortrix Copperhead
Crotalus horridus Western Diamondback
Rattlesnake

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