

FINAL REPORT
SECTION 6
ENDANGERED SPECIES ACT



FEDERAL AID PROJECT E-37

TEXAS HORNED LIZARD EDUCATIONAL BROCHURE

SEPTEMBER 26, 1994 - SEPTEMBER 25, 1995

FINAL REPORT

STATE: OKLAHOMA

GRANT NUMBER: E-37

GRANT TYPE: Research

GRANT TITLE: Texas Horned Lizard Educational Brochure

SEGMENT DATES: September 26, 1994 - September 25, 1995

PROJECT TITLE: Production of Texas Horned Lizard Educational Brochure for Oklahoma

I. OBJECTIVE:

Develop an educational brochure for the general public concerning the Texas horned lizard, its decline and its conservation in Oklahoma.

II. ABSTRACT:

An informational brochure was prepared for the Texas horned lizard (Phrynosoma cornutum). Topics addressed in this brochure include, adaptations to avoid predation, diet, reproduction and other natural history traits of the Texas horned lizard, as well as possible reasons for the species recent population decline and a summary of Oklahoma's regulations protecting horned lizards. One panel of the brochure was designed to be a survey form to solicit information from the public regarding horned lizard sightings. It is hoped that the public will participate by recording their observations of horned lizards on the form and returning it to the Oklahoma Department of Wildlife Conservation. These data will be used to create a baseline record of potential locations of Texas horned lizard populations which can be examined by biologists to verify whether or not Texas horned lizards exist at these sites. This should contribute to a more comprehensive understanding of current horned lizard distribution and habitat affinities that will form a baseline for future investigations and population monitor efforts.

III. INTRODUCTION:

The Texas horned lizard (Phrynosoma cornutum) is a small terrestrial lizard formerly found in grasslands and shrublands across most of Oklahoma (Webb 1975). Beginning in the 1970's, anecdotal accounts suggested that local population declines were occurring in many parts of Oklahoma and Texas (Black 1977, Bigony

1981). By 1988, sufficient concern existed for the future of Oklahoma's Texas horned lizard population that the species was included in the first official listing of Oklahoma Species of Special Concern as a Category 2 species. In addition, the Texas horned lizard is currently classified as a federal Candidate 2 species for potential listing under the Endangered Species Act.

In 1990, the Oklahoma Department of Wildlife Conservation and the U.S Fish and Wildlife Service funded a project to conduct a literature review and field survey for the Texas horned lizard in Oklahoma through Section 6 Endangered Species Act funds. The information gathered through this report suggested a substantial decline in this species' geographic range had occurred beginning in the late 1960's (Carpenter and Vaughn 1993). During field surveys in 1992, no Texas horned lizards were found at the 15 historically occupied sites visited, and horned lizards were present at only 7 of 16 other sites examined. A similar study in Texas was funded through a Section 6 Endangered Species Act grant to the Texas Parks and Wildlife Department. This four-year project indicated that the Texas horned lizard has undergone a similar decline concurrently in Texas (Donaldson 1993).

On an annual basis, the Nongame Wildlife Program of the Oklahoma Department of Wildlife Conservation receives between 15 and 30 requests from the general public regarding information on the natural history of horned lizards or methods they can use to attract or provide habitat for this species. There appears to be more interest in this species than any other reptile in Oklahoma and we believed an informational/educational brochure would be useful to the public in helping to answer some of their questions. We thought that a Texas horned lizard brochure could be used also to solicit anecdotal information from the public on horned lizard habitat use and distribution by incorporating a survey form into the text. An additional use of the brochure could be to publicize Oklahoma's existing regulations protecting horned lizards.

The Nongame Wildlife Program has requested horned lizard sightings from the general public annually since 1992 and to date we have received over 70 sightings which have been entered into a database of potential population locations. Often mail-in or phone-in surveys from the public do not produce reliable information because of misidentification problems; however we believe that the Texas horned lizard is sufficiently distinct in its appearance that the general public would rarely confuse it with other species. Most of the sightings we have received are therefore probably valid, but to be conservative, we list them only as potential sightings. We recognize that our existing database has at least two short-comings: it is biased toward the counties with the largest human populations and most of the sightings have not been verified. Regardless of these constraints, we believe that these data do add to our baseline information on horned lizard distribution and may be useful to future investigations of the

species' status. We have either a legal description or road directions to most of the sites so that these could be located and examined in the near future to investigate the validity of each report and document those sites which contain confirmed populations. Based on field surveys and anecdotal reports, the Texas horned lizard appears to be widely distributed in western Oklahoma but exists only in scattered, presumably isolated populations in the central half of the state. By further collecting public sightings, we may be able to better delineate the lizard's range in western Oklahoma and identify remnant populations elsewhere. These data then could be used as a baseline reference point for future studies of its distribution and status.

Regulations offering some protection to Texas horned lizards were adopted by the Oklahoma Wildlife Conservation Commission, the administrative and policy making authority of the Oklahoma Department of Wildlife Conservation, in 1992. These regulations include a closed season designation for the Texas horned lizard which prohibits anyone from killing, capturing or holding in possession this species. The primary purpose of this regulation is to eliminate the commercial and noncommercial collecting of horned lizards as pets, which have been proposed as factors contributing to the species' decline (Carpenter and Vaughn 1993).

IV. PROCEDURES:

Topics for discussion within the brochure were determined through an examination of information requests from the public, consultation with herpetologists and discussions among staff nongame biologists. The components of the brochure are a general discussion of horned lizard ecology (e.g. reproduction, diet, predator-avoidance adaptations and habitat associations), derivation of the common name, potential causes of its population decline, and a summary of Oklahoma's regulations regarding its take. The literature review prepared by Carpenter et. al. (1993) was used to locate popular articles and scientific papers pertaining to the Texas horned lizard, and we attempted to summarize the consensus opinion of most authors when preparing the brochure's text. Not all authors agreed, however, on some common attributes of Texas horned lizard biology, particularly habitat preference. Where differences of opinion occurred, the brochure text was written broadly to accommodate a range of perspectives or the text reflected a bias toward the most widely held opinion of the more recent authors.

One panel of the brochure was dedicated to a survey form which can be detached and returned to the Nongame Program. The survey form was designed to gather information on the locations of horned lizard sightings and the habitats they are using.

V. RESULTS AND DISCUSSION:

The proposed text and layout of the Texas horned lizard brochure is shown in Appendix 1. The brochure has not been printed at the time of this report to allow the U.S. Fish and Wildlife Service the opportunity to thoroughly examine the text and suggest any changes they believe are appropriate. We anticipate the printing of the brochure to occur in April 1996. Any changes that are made to the proposed text will be made only with the consent of the Tulsa Field Office of the U.S. Fish and Wildlife Service. We plan to print 10,000 copies of the brochure during its initial printing and issue a press release to announce its availability. Copies will be available free-of-charge at all Oklahoma Department of Wildlife Conservation facilities and at some Oklahoma Department of Tourism state parks. The references which were used in the production of this brochure are listed in Appendix 2.

In our initial draft for this brochure, we planned to include a list of other references related to the Texas horned lizard. This list was eliminated due to space constraints and because we believed that most of these were not readily available to the general public, particularly in rural areas (e.g. articles in scientific journals or specialized magazines). We also considered including a map of the known distribution of the Texas horned lizard in the brochure, but decided against this because it might discourage some people from returning their forms. We were concerned that if people saw that their part of the state was shaded on the range map, they might assume that we were already aware of horned lizards in their area and would not notify us of their sightings.

All data collected through the survey form on the brochure will be added to an existing database of Texas horned lizard sightings which has been maintained by the Nongame Wildlife Program since 1992. Because the brochure was not printed prior to the preparation of the report, we have not received any data from the survey form, but the existing records in the database of Texas horned lizard sightings are provided in Appendix 3. We have not had the opportunity to determine the validity of most of the records listed in Appendix 3 and those which have not been verified are treated as possible sightings only. We are concerned that accepting unverified reports as valid would give current and future researchers a false impression of horned lizard abundance. The primary purposes of these data and the survey form are to collect and store information on possible horned lizard populations which could be verified or monitored in future projects.

A copy of the information in Appendix 3 was provided to the Tulsa Field Office in April of 1995 during the annual scorecard meeting between the Oklahoma Natural Heritage Program, The Oklahoma Chapter of The Nature Conservancy, the Oklahoma Department of Wildlife Conservation's Nongame Program and the Oklahoma Field

Office of the U.S. Fish and Wildlife Service. The scorecard meeting will be used to annually update these other resource groups of the survey data which we receive. Copies of the data also will be provided annually to the Oklahoma Cooperative Fish and Wildlife Unit of the National Biological Service.

VI. SIGNIFICANT DEPARTURES:

The brochure was not printed before the end of the project's date. We have developed the brochure's text and acquired all of the materials needed for printing, therefore we are committed to printing and distributing the brochure upon approval of the text by the U.S. Fish and Wildlife Service.

VII. RECOMMENDATIONS:

We recommend that each of the sites for which we have a legal description be surveyed to determine whether or not these are occupied by Texas horned lizards. During these field surveys, additional information should be collected on the occupied habitat and whether or not harvester ants (Pogonomyrmex sp.) are present as a food supply. Once a list of confirmed Texas horned lizard locations is prepared, a sample of these sites should be revisited on a regular basis to monitor the persistence of lizard and harvester ant populations, and to record changes in habitat.

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IX. DATE: 3-1-96

X. APPROVED BY:

Harold Namminga

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Federal Aid Coordinator
Oklahoma Department of Wildlife Conservation

LITERATURE CITED

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of Oklahoma. O.H.S. Committee Report. Bull. Okla. Herp. Soc.
2 (2-3): 42-50.
- Carpenter, C.C. and C.C. Vaughn. 1993. Determination of the
Distribution and Abundance of the Texas Horned Lizard
(Phrynosoma cornutum) in Oklahoma. Final Performance Report
to the Oklahoma Department of Wildlife Conservation for
Federal Aid Project E-18.
- Donaldson, W, A.H. Price and J. Morse. 1993. Phrynosoma cornutum
(Texas Horned Lizard) Status Survey. Final Report to the Texas
Department of Parks and Wildlife for Federal Aid Proj. E-1-4.

in terms of (including) small horned lizard
found at the same time. It is possible that

APPENDIX 1. Proposed Text for the Texas Horned Lizard Brochure

The final version of the brochure's text will be contingent upon the approval of the U.S. Fish and Wildlife Service's Tulsa Field Office. The brochure will consist of eight panels (four front and back). The brochure will be folded in such a way that the eighth panel will be the front cover and the seventh panel will be the back cover. The first "page" consists of the first and eighth panels, the second page contains the second and seventh panels, the third page is the third and sixth panels and the fourth page is the fourth and fifth panels. The survey form will be printed on the fourth page, so that the fourth and fifth panels must be detached from the brochure to mail it.

Illustrations of Texas horned lizards will be printed on the front cover (eighth panel) and the second panel of the brochure. The logos for the U.S. Fish and Wildlife Service and the Oklahoma Department of Wildlife Conservation will be printed in the lower half of the back cover (seventh panel).

There are two species of Texas horned lizards. One is the Texas horned lizard (Uta stansburiana) and the other is the spiny-tailed lizard (Uta stansburiana). The Texas horned lizard is found in the southern part of the state and the spiny-tailed lizard is found in the northern part of the state. Both species are found in the same areas and are very similar in appearance. The Texas horned lizard is larger than the spiny-tailed lizard and has a more robust body. The spiny-tailed lizard has a more slender body and a long tail. Both species are found in the same areas and are very similar in appearance.

ILLUSTRATIONS FOR BROCHURE

The illustrations for the brochure will show the Texas horned lizard and the spiny-tailed lizard in their natural habitats. The Texas horned lizard will be shown in a rocky, desert environment and the spiny-tailed lizard will be shown in a more wooded, mountainous area. The illustrations will be done in a realistic style and will show the lizards in various poses and activities. The illustrations will be placed on the front cover and the second panel of the brochure.

The Texas horned lizard (Phrynosoma cornutum) is a member of a small but unique group of lizards found only in North America. The thirteen species of horned lizards are small, earth-toned lizards with rounded, flat bodies and all belong to a single genus Phrynosoma which translated literally means "toad-body." Because of their resemblance to toads in body shape and coloration, many people know these lizards as "horned toads" or "horny toads," but despite their appearance, horned lizards are in no way related to toads; their closest relatives in Oklahoma are the fence lizards commonly seen in wooded habitats.

Horned lizards are named for the unusual horn-like spines on the back of their heads and the smaller spines scattered over their backs and sides. These "horns" do not contain bone but are actually specialized body scales which serve to protect the lizards from predators. They help camouflage the body against vegetation by breaking up its outline. They also make the lizards more difficult to swallow, thus discouraging some predators such as snakes and larger lizards.

From the tip of the snout to the base of the tail, adult Texas horned lizards reach a length of between 4 and 6 inches. Among horned lizards, the females often grow slightly larger than the males, but the difference is not great enough to determine the sex of individual lizards. There are few external differences between the males and females, except that males have distinct pores that are visible along the lower, hind surface of each thigh. Little information is available on their lifespan, but some horned lizards have survived to at least five years of age. A second horned lizard species, the round-tailed horned lizard (Phrynosoma modestum) can be found in Oklahoma in the extreme western panhandle. This species has a more pale coloration and has less distinct "horns."

ADAPTATIONS FOR SURVIVAL

Predator avoidance is a major influence on the behavior and physical adaptations of Texas horned lizards. Though capable of running quickly for short distances, they rely more on camouflage than speed for protection. Their first line of camouflage is their mottled brown body coloration which helps hide them against bare soil and dead leaves. For further camouflage, each population is a slightly different shade of brown to better match the local habitat and soil type. Lizards in areas with sandy soils often have a yellowish tint to their backs and sides, while in other

areas populations may appear reddish or dark brown. The body shape is another adaptation to avoid the attention of would-be predators. When lying against the soil, the flattened body casts only a slight shadow, while the spines on the back and sides help break up the body's outline. A motionless horned lizard is almost impossible to see against bare soil.

LIFE OF THE HORNED LIZARD

Texas horned lizards feed on variety of ground-dwelling arthropods such as beetles and spiders, but harvester ants are their primary prey and these may comprise 90% or more of their diet. These relatively large, reddish ants live in underground colonies on well-drained soils in prairies, woodland margins and shrublands. Harvester ants feed on seeds which they collect from the ground and store in their colony. When hunting, Texas horned lizards lie motionless along ant trails and capture ants as they pass to and from their colony. When an ant approaches, the lizard takes a few quick steps forward, flicks out its tongue to capture its prey and swallows it whole. Behavioral observations have shown that horned lizards may eat as many as 70 harvester ants a day! These lizards rarely approach closer than a few yards from a harvester ant colony, and usually attack only solitary ants to avoid being detected by the colony and mobbed by dozens of biting ants.

Most of the water they need is obtained from the ants they eat or from licking dew off vegetation. During light rains, horned lizards may drink the water that collects on their bodies by arching their backs and causing the rainwater to flow forward toward the mouth. Like most reptiles, horned lizards are adapted to conserve body water. Their kidneys excrete wastes and excess salts in the form of uric acid, a semi-solid substance containing very little water, and the scales covering their bodies protect the underlying skin from drying and losing moisture.

ILLUSTRATION OF TEXAS HORNED LIZARD

Texas horned lizards emerge from hibernation between late March and mid-April. They seem to be most active at temperatures in the range of 80 - 90°F so during the morning hours and on cool days, they spend much of their time lying in exposed, sunny locations to raise their body temperature. Most of their hunting is done between late morning and dusk, but on the hottest days of summer they may be active only during the morning and spend the afternoon buried just beneath the soil or under the shelter of vegetation. In October they burrow underground to begin their winter hibernation.

Courtship and mating take place in late May and June. One to two weeks after mating, the female digs a slanted tunnel approximately 6-8 inches into the ground with a small chamber at its end. Here she deposits a clutch of 8 to 30 eggs, each about the size and shape of a small jelly bean. After laying her eggs, the female places dirt back into the tunnel and scratches the ground around the former entrance to hide its presence. Most females lay only one clutch of eggs each year. The eggs incubate for approximately two months, then hatch in August or September. When the young emerge, they look like miniature versions of the adults, about 1 1/8 - 1 1/4 inches long.

HABITAT

The Texas horned lizard is found in scattered locations across the western 4/5 of Oklahoma and adjacent portions of Texas and Kansas. Many people associate this species with an arid environment, sandy soils and sparse vegetation. While horned lizards can thrive in this environment, they are adaptable to a wide range of conditions, and it appears that the abundance of harvester ants is at least as important as the soil or vegetation in determining their distribution. As a general trend, horned lizards seem to be most common in habitats with healthy ant populations, sandy or loamy soils and moderate grass or shrub cover. They may be found on short and mid-grass prairies, along woodland edges and around low thickets of scrubby oaks and sand plums, as long as harvester ants and some ground vegetation are present for food and cover. Horned lizards appear to avoid areas of tall, dense grass where they have difficulty moving and dense woods which are unsuitable for the harvester ants on which they prey.

JOIN THE HORNED LIZARD RESEARCH TEAM

The Texas horned lizard is well known to most Oklahomans, yet it has rarely been studied in detail in the field. Because of this, there are many unanswered questions about its biology. We hope that you will help us in the study of the Texas horned lizard. If you see a Texas Horned Lizard, please take a few minutes to record your observations on this form and return it to the Oklahoma Nongame Wildlife Program at the address below. Your assistance can help us all to better understand this fascinating animal.

TEXAS HORNED LIZARD SIGHTINGS REPORT FORM

Date of Sighting: _____

Time of Sighting: _____

County: _____

Distance from Nearest Town: (example: 2 miles east, 3 miles south of town X)

Habitat Description Where Found: (example: grazed pasture with scattered mesquite trees)

Number Seen: Adults _____ Juveniles _____

Have You Seen Horned Lizards at This Site in the Past?

Yes _____ No _____

Soil Type (circle those that apply):

Sand Silt Clay Gravel

Other Information: _____

Optional Information

Name: _____

Address: _____

AN UNUSUAL BEHAVIOR

Horned lizards are known to squirt a thin stream of blood from the corners of their eyes when they are handled or disturbed. This does not appear to be a defense mechanism, but an uncontrollable reaction when frightened. During hot weather, horned lizards cool their bodies by increasing the flow of blood just below the skin to help disperse body heat. If a warm lizard is disturbed or excited, its blood pressure may increase and the blood lying in sinuses behind each eye is uncontrollably forced out to relieve pressure.

WHERE ARE THE HORNED LIZARDS?

The Texas horned lizard remains common in parts of western Oklahoma, but has shown a dramatic decline in both range and population size in the eastern and central parts of the state since the 1960's. Several possible reasons have been proposed to explain this; however, little evidence exists to determine which of these are true causes. The horned lizard's decline is most likely the result of a combination of factors and the importance of each factor probably varies from one region of the state to the next.

Pesticides: Increased use of pesticides may have reduced the harvester ant population in some areas thus reducing the horned lizard's main food supply. In agricultural areas, ants are rarely considered pest species but may be killed by insecticides used against other insects. Also, herbicides used to eliminate weeds may affect harvester ant populations by reducing the abundance or quality of seeds on which the ants feed. In residential areas, ants often are poisoned by people fearing ant bites or wanting to keep them away from stored foods. Because harvester ant colonies are easily visible, these harmless ants are often destroyed.

Periodic Drought: Prolonged periods of hot, dry weather associated with drought cycles may cause the harvester ants to go dormant and temporarily eliminate the lizard's most important food source. A severe drought hit Oklahoma in the early 1980's and may have caused some of the decline.

Automobiles: Because horned lizards may lie on roads to bask on the warm pavement or gravel, they are vulnerable to vehicle-kills. As the number of roads and the number of vehicles traveling these roads increases, the probability that horned lizards will be hit and killed increases.

Predation: The number of potential predators on horned lizards may be higher now in some areas than in the past, adding further stress to local populations. Though there is little hard evidence to measure the affect of predation on lizard populations, increases in the populations of potential predators such as feral cats, cattle egrets and great-tailed grackles have been reported or speculated in recent years, especially around towns and pastures.

Collection: The capture of horned lizards to keep them as pets or to sell them commercially in the pet trade may have affected some populations, especially near towns and cities. Anecdotal accounts state that thousands of horned lizards were shipped out of Oklahoma and Texas and sold for pets in the eastern U.S. and Europe from the early 1900's until the 1980's. Because of their special diet, most of these lizards died from improper care within a few weeks, and no self-sustaining captive bred populations were ever developed. Horned lizards now are protected in Oklahoma and Texas and this activity is illegal; however, where collecting was common, some populations may not have recovered.

Habitat Loss and Fragmentation: As native habitats are modified by human development, some of this land may no longer be suitable for horned lizards or their harvester ant prey. With less suitable habitat, fewer lizards can be supported. Also, as the amount of habitat declines, the remaining patches of good habitat become more isolated from each other. Because of their small size and limited ability to travel long distances, horned lizards have difficulty moving between widely spaced habitat patches. Populations in isolated habitats are more susceptible to local extinction from catastrophic events, and once an isolated population is gone, it is difficult for other horned lizards to resettle the area.

OKLAHOMA'S REPTILE REGULATIONS

The Texas horned Lizard is classified as a "Species of Special Concern" by the State of Oklahoma under Title 29, 800:25-19-6. In 1992, regulations were passed which established a year round closed season on the taking of the Texas horned lizard and twenty other rare reptile and amphibian species. These regulations make it unlawful to kill, capture, keep as a pet or sell Texas horned lizards without specific permission. While the Texas horned lizard is not an endangered or threatened species, its widespread decline has caused concern for its future status. Texas horned lizard survival in captivity is poor because of their special diet, and the closed season helps to protect lizards from unnecessary collection. For more information on the state's reptile regulations, please contact the Oklahoma Department of Wildlife Conservation, 1801 N. Lincoln Blvd. Oklahoma City, OK 73105.

This brochure was developed and printed by the Nongame Wildlife Program of the Oklahoma Department of Wildlife Conservation in cooperation with the U.S. Fish and Wildlife Service through a Section 6 Endangered Species Act grant.

LOGO'S OF USFWS AND ODWC

Oklahoma Department of Wildlife Conservation
1801 N. Lincoln Blvd.
Oklahoma City, OK 734105
(405) 521-4616

APPENDIX 4. Literature Used in Brochure Production

Ballinger, E.E. 1974. Reproduction of the Texas Horned Lizard, *Phrynosoma cornutum*. Herpetologica 30: 111-117.

Higley, M.J. 1981. When was the last time you saw a horned lizard? Texas Parks and Wildlife Mag. 59(2): 28-31.

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TITLE

TEXAS HORNED LIZARD ILLUSTRATION

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Conant, R. and J.T. Collins. 1991. A field guide to reptiles and amphibians of North America. Houghton Mifflin Co., Boston.

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This brochure is dedicated to the memory of Jeffrey Black, PhD., whose untimely death in 1995 was a great loss to all who study and appreciate wildlife. Professor Black was a respected herpetologist and great supporter of wildlife conservation.

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- Vitt, L.J. and E.R. Pianka. 1994. Lizard Ecology: Historical and Experimental Perspectives. Princeton Univ. Press, Princeton.
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APPENDIX 3. Existing Records of Texas Horned Lizards Collected from the Public Since 1992.

TEXAS HORNED LIZARD REPORTS
1992 - 1994

Texas Horned Lizard	No.	County/Location	Date	Observer	Reporter
	2	Beaver/ T4N,R23E,Sec.6	6/12/93	S. Thompson	same
	1	Blaine/ T16N,R12W,Sec.24	8/15/93	C. Ice	unknown
	1	Beaver/ T2N,R12E	10/*/94	K. McKinley	same
	6-10	Blaine/ T16N,R11W	Sum. 94	C. Richardson	same
	1	Bryant/ T6S,R9E	6/8/94	P. Townsend	unknown
	1	Canadian/ T13N,R8W,Sec.24	8/11/93	Mr. Beals	unknown
		Canadian/ T13N,R5W,Sec.22	7/6/94	S. Ekholm	J. Garrett
	3	Canadian/ T11N,R5W,Sec.22	9/21/94	L.& S. Walshes	M. Howery
	1	Carter	9/3/94	D. Bowles	same
	many	Cleveland/ T10N,R3W,Sec.12?	8/17/93	B. Tharp	unknown
	1	Cleveland/ T9N,R3W,Sec.27	5/17/94	E. Ferguson	M. Howery
	4	Cleveland	6- 10/*/94	Williams	same
	4	Cleveland/ T8N,R2W,Sec.5	6/4/94	S. Hardy	same
	1	Cleveland	7/6/94	D. Ortega	unknown
	1	Cleveland	7/19/94	J. Cook	same
	1	Cleveland/ T8N,R2W,Sec.8	8/9/94	S. Denson G. Gilliland K. Thomas	same
	1	Cleveland/ T9N,R2W,SEC.28	3/26/95	M. Howery	same
	3	Comanche/ T1N,R12W	Sum. 94	D. Carson	same
	1 A 3 J	Comanche/ T4N,R10W,Sec.31	Sum. 94	Williams	same

Texas Horned Lizard	No.	County/Location	Date	Observer	Reporter
	3	Cotton/ T3S,R10W,Sec.22?	7/*/94	D. Meyer	same
	1	Custer	10/*/94	P. Grant	same
	5	Ellis/ T22N,R25W,Sec.3?	8/25/94 9/10/94	T. & R. Latta	same
	1	Garfield/ T22N,R6W,Sec.6?	6/*/94	L. Moffitt	same
	1	Grady/ T9N,R6W	7/16/92	H. Chesnut	same
	1	Grady/ T9N,R6W,Sec.3	8/31/94	D. Walker	J. Garrett
	6J	Grady/ T7N,R7W,Sec.21	Sum. 94	D. Coshow	same
	1	Harper/ T28N,R26W,SEC.1	5/16/94	Melissa Nacel	same
	1	Hughes/ T7N,R9E,Sec.18	7/24/91	D. Upton R. Upton	D. Bowen
	1	Hughes/ T7N,R9E,Sec.18	7/11/92	D. Bowen	same
	1 2	Hughes/ T7N,R9E,Sec.18	6/14/94 5/1/93	M. McAllister	same
	1	Jackson/ T4N,R21W	7/20/94	W. Kerr	same
	manv	Kincaid	7/4/93	H. Reherman	unknown
	3	Lincoln/ T16N,R4E,Sec.3	9/15/94?	J. Lemons	same
	2	Logan/ T16N,R2W,Sec.13	10/21/94	M. Gilliland	same
	1	McClain/ T8N,R4W	6-7/*/94	D. Steltina	same
	1J	McClain/ T8N,R4W	6/*/94	P. Wilson	same
	1	Muskogee	8/*/94	H. Holcomb	same
	1	Noble/ T21N,R3E,Sec.17	8/23/94	M. Mehnering	same
	1	Oklahoma/ T11N,R2W,Sec.27	4/20/93	Unknown	M. Howerv

Texas Horned Lizard	No.	County/Location	Date	Observer	Reporter
	4-6	Oklahoma/ T13N.R4W.Sec.15	7/*/93	S. Thompson	same
	manv	Oklahoma/ T11N.R1E.Sec.23?	8/22/93	R. Stuck	unknown
	1	Oklahoma/ T11N.R3W.Sec.11	8/25/93	M. Steiner	unknown
	1	Oklahoma/ T13N.R2W.Sec.34	8/23/93	M. Christian	unknown
	manv	Oklahoma/ T13N.R3W.Sec.20	8/29/93	A. Hunt	unknown
	3+	Oklahoma/ T14N.R3W.Sec.34	3-23-94	K. Blalack	M. Howerv
	2-3	Oklahoma	5/*/94	L. Haun	same
	1	Oklahoma/ T13N.R3W.Sec.15	6/1/94	Unknown	unknown
	4	Oklahoma/ T11N.R2W.Sec.22	6/*/94	J. Krudovace	same
	1J	Oklahoma/ 12N.R1E.Sec.26	7/16/94	D. Bowen	same
	25+	Oklahoma/ T11N.R4W.Sec.34	Sum. 94	J. Brown	J. Garrett
	20J	Oklahoma/ T14N.R4W.Sec.17	8/8/94	unknown	unknown
	3J	Oklahoma/ T10N.R3W.Sec.3	8/*/94	C. Wilson	same
	1	Oklahoma/ T12N.R1W.Sec.26?	4/20/95	W. Mckibben	same
	2	Okmulgee/ T15N.R13E	10/7/94	Twin Hills Elementary	same
	1	Osage/ T24N.R11E.Sec.18	Sum. 93	C. Chunina	same
	manv	Pottawatomie/ T9N.R3E	8/15/93	S. Walker	unknown
	manv	Pottawatomie/ T10N.R2E	8/25/93	Fov & Elaine Harbour	unknown
	6	Pottawatomie	Spr. & Sum. 94	F. & E. Harbour	same

Texas Horned Lizard	No.	County/Location	Date	Observer	Reporter
	10-12	Pottawatomie	Spr. & Sum. 94	L. Bowling	same
	1	Pottawatomie	7/*/94	K. Adair	same
	1-2	Pottawatomie/ T10N,R2E,Sec.14?	7/*/94	G. Cope	same
	many	Roger Mills/ T15N,R24W,Sec.6	8/23/93	S. Schmidt	unknown
	many	Roger Mills	8/31/93	S. English	unknown
	many	Stephens	9/13/93	D. Meyer	unknown
	1 1	Stephens	10/1/94 10/4/94	J. Porter	same
	1	Texas/ T3N,R15E	4/30/94	K. Shrock	same
	1	Tillman/ T4S,R17W,SEC.11	5/11/95	K. Schoonover	same
	1	Tulsa/ T19N,R12E,Sec.3	5/23/94	K. Collins D. Martin	same
	1	Tulsa/ T22N,R12E,Sec.26	5/30/94	K. Collins	same

