



Our purpose is to document and publicize the values and conservation needs of horned lizards, to promote horned lizard conservation projects, and to assist with horned lizard management initiatives throughout their ranges.

Dallas Zoo and Horned Lizard Conservation at the Rolling Plains Quail Research Ranch

By Bradley Lawrence

Working for a large zoological institution gives us the opportunity to get involved directly with conservation, which is one of the main reasons people want to become zookeepers. The Dallas Zoo is the largest AZA-accredited zoo in Texas. We are proud to be one of the great Texas zoos and wanted to contribute to the conservation of Texas natives. We are definitely not alone in our

long-standing love of horned lizards, especially among this particular group. In 2010, through word of mouth from fellow enthusiasts, we identified the Rolling Plains Quail Research Ranch. The Ranch was described as large protected property managed for bobwhite quail that appeared to

be home to a large population of Texas horned lizards. We planned a trip and headed west. The Rolling Plains Quail Research Ranch sits on 4,700 acres of fairly pristine west Texas plains habitat. It is managed by several parties including Texas A&M Agrilife Extension and Park Cities Quail. Dr. Dale Rollins is the Executive Director and oversees the operation of the ranch. The

ranch was designed to be used as a research and demonstration facility for Bobwhite Quail management.

We were greeted with open arms and given every courtesy by the staff to see what was going on with Texas horned lizards on the property. We hoped to see a few on our first visit, but saw approximately 20 in the first hour. Thus began

our project in July of 2010. We have spent significant time there each year since.

Our season usually starts in late April when we get a signal from ranch staff that lizards are starting to wake up. Once this begins, we spend 8 days per month there until the lizards go down

for the winter, early October typically. Our goals have been to determine Texas horned lizard population density estimates, determine habitat preferences, and gather basic life history traits including movement patterns, environmental preferences, behavior and spatial relationship with harvester ants. Our current method of col-



Texas horned lizard (*p. cornutum*) on the ranch property. Photo by Bradley Lawrence

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GOT NEWS?

**FOR THE PHRYNOSOMATICS
NEWSLETTER THAT IS...**

*Send your photos (with captions),
cartoons, artwork or articles for
the newsletter to either Ruthann
or Leslie at the email addresses
above today!*


lecting data consists of road surveys or “road cruising.” The well-established system of roads at the RPQRR allows us to efficiently sample many habitats and cover many acres in a reasonable amount of time. Once spotted, the lizard is captured by hand. GPS coordinates are taken along with environmental conditions, UVB exposure, morphometric data, behavior, and potential prey interactions. Lizards are then marked with an electronic tag (PIT Tag), a tool used to determine population density through mark and recapture. In addition, we collaborate with Drs. Dean Williams and Amanda Hale, Biology department of Texas Christian University, in their efforts to determining fine scale sex biased spatial distribution patterns of this population, examining overall Texas horned lizard genetic diversity in the Rolling Plains and across Texas. This is accomplished by opportunistically taking DNA samples from capture animals with a cloacal swab.

To date we have captured and tagged close to 1500 horned lizards. This has been another good year for horned lizards at RPQRR. The rain early in the summer likely had much to do with it, and recruitment seems to have been very good. July and August have shown us more hatchlings than we were able to process and seem to be spread throughout the property.

In 2014 we collected a few animals from the ranch as well as receiving six animals from confiscations. These animals became founders for the start of our next phase of our work: establishing

a captive population. In early August we hatched 52 horned lizards for the first time here at Dallas Zoo. This has been a great step for us and we hope to keep up the success for years to come. Some of these offspring will remain as members of the Dallas Zoo population while others will be transferred, in cooperation with AZA’s Texas Horned Lizard Species Survival Plan, to other

accredited zoos in hopes of maintaining a healthy captive population of known genetics.

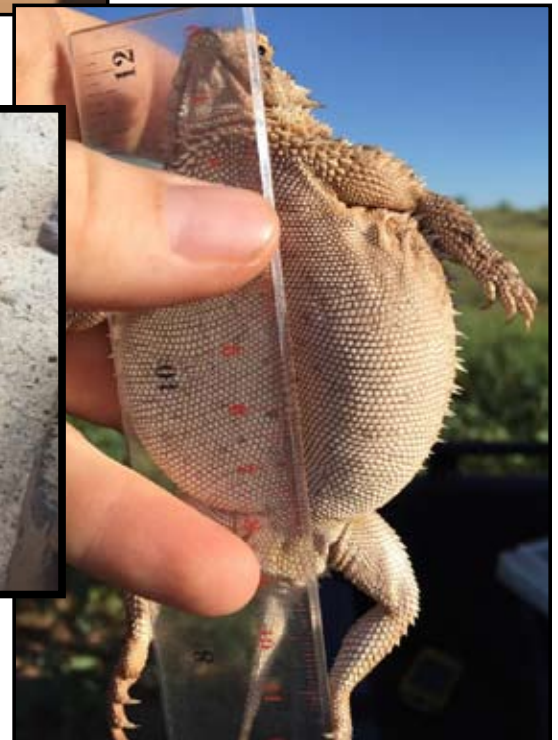
While we are busy trying to make more horned lizards in captivity we will also be studying the information we have gathered in hopes of finding suitable sites for reintroducing lizards to their former range. In August 2015 we formally started discussions with Texas Parks and Wildlife Division biologists regarding future re-introduction efforts for this species. Working together, we hope to secure the future of this iconic Texas inhabitant for generations to come. 



The largest Texas horned lizard found on the ranch property.



Four of the sub-adults gathered around the ant feeder at the Dallas Zoo.



Chubby female being measured at the ranch.



President's Message

By Tim Tristan DVM DABVP (Reptile and Amphibian Specialty)

Welcome to another installment of *Phrynosomatics*! It has been a busy and productive summer and cooler weather is fast approaching. This newsletter is packed with articles that may help ease the transition to cold weather. In this issue Bradley Lawrence for the Dallas Zoo shares his work at the Rolling Plains Quail Research Ranch. We also have a highlight article from Shana Fredlake and her work with horned lizards and will also cover conservation work at Muse Wildlife Management Area, upcoming grants and holiday gifts available for purchase. Get ahead of the game and get your horned lizard holiday gifts early. As always, welcome to the new members. The membership continues to grow and as a result, so does our conservation message. Enjoy! 🦎

Welcome to Bradley Lawrence as the new Membership Services Officer

By Leslie Nossaman

Bradley has recently been voted in by the HLCS Board of Directors to be part of the Board as the Membership Services Officer

From Bradley: *"I have been the supervisor of the Dallas Zoo herpetology department for 11 years now. I have been studying a wild population of Texas horned lizards in Fisher County for almost six years as part of the Dallas Zoo's conservation programs. Prior to working for the Dallas Zoo I was a reptile keeper at the Central Florida Zoo from 1999 to 2004. I graduated from Southern Illinois University in 1998 where I had been an intern in the herpetology department of the St. Louis Zoo. Horned lizards and other reptiles occupy most of my waking hours, but working at the zoo will give me some time and resources that I could utilize to benefit the position of Membership Chair."*

Welcome, Bradley! HLCS is excited to have you on the Board! 🦎



A few members of the Kunze family reunion in Amarillo, a family of horned lizard supporters.

Dad, D.J. Kunze II bought HLCS t-shirts and caps for the family members. 🦎

Member Highlight: A Passion for Animals from Iowa to Texas

By Shana Fredlake



Shana taking measurements of a Texas horned lizard in the field.

I grew up in a small picturesque town in Iowa, right on the banks of the mighty Mississippi River. Occasionally, during nesting season turtles would wander through our yard which always fascinated me with their hissy, “Nothing’s gonna stop me!” attitudes. I spent a lot of time adventuring on my grandparents’ farm; helping feed animals, catching toads and invertebrates, and just enjoying the outdoors. I’ve always had a passion for animals and recognized someday I would undertake a career working with them.

I pursued a different career path out of high school attending Northeast Iowa Community College undertaking website design. My passion for animals was stronger than my artistic side and after graduating with an Associates of Science degree for Computer Analyst - Internet Administration, I transferred to Iowa State University to get my Bachelor’s degree in Animal Ecology – Wildlife Care. While attending college at Iowa State, I singled out a zoo field to work in. The big cats were clearly my chosen path.

I volunteered at Blank Park Zoo in Des Moines, Iowa, while attending college and it altered my animal career path. I fell head over heels for their Aldabra tortoises.

This experience paved the way for my career in herpetology and my first zoo position at Fort Worth Zoo.

My first day at Fort Worth Zoo I met these strange spiky, flat bodied lizards that everyone called “horny toads”. They were interesting to watch display different behaviors like head bobbing, tail wagging, and licking of objects. It was thrilling to successfully breed my first clutch of lizards. Witnessing the first baby dig its way out of the sand sealed my passion for these lizards. The time spent caring for these lizards and finding the niche they needed was worth all the blood and sweat. I see the nostalgia associated with these lizards and why they are a favorite of many Texans.

I had an opportunity to do field work with Dr. Gary Ferguson, studying UV needs of wild *Phrynosoma cornutum*. This was my first wild horned lizard observation and I spent some sweltering



Baby Texas horned lizards newly born in the breeding program at Dallas Zoo.

days pursuing lizards, taking UV readings and morphometric data. I was able to observe other wildlife including birds, snakes, amphibians, mammals and plenty of invertebrates.



Texas horned lizard eating harvester ants.

After acquiring abundant success with horned lizard care and breeding at Fort Worth Zoo, I accepted a position at the Dallas Zoo to assist in starting a *Phrynosoma cornutum* breeding program. Being able to aid in the capture, mark and release project of wild horned lizards for Dallas Zoo has been very rewarding. It has been a tremendous first year of successful breeding, incubating, hatching and rearing horned lizard babies. In the future, I hope to breed and hatch more horned lizards as well as work with more species of *Phrynosoma*.

I've had the pleasure to work with hundreds of wild and captive horned lizards but observed only a dozen actually squirt blood from their eyes. These lizards have an amazing range of ability to hit a target or face. My first experience with blood squirting was a captive female who missed my face by only inches. My luck ran out while handling a wild male and I received a full spray of blood to the face. I see how this would be a shock to a predator and offer an amazing opportunity to get away.

I've had the privilege of learning an abundant amount of information about Texas horned lizards and plan to keep learning everything I can about *Phrynosoma*. I want to make sure horned lizards will be around to bring joy and excitement for many generations to come.

Other interests of mine include art, tortoises, iguanas, invertebrates, bats, reading, baking, shopping, spending time with my family and friends, baseball and being outdoors. 🦋



Texas horned lizard after shooting blood from its eye.

Horned Lizard Research Grant 2016 Applications

By Leslie Nossaman

The Horned Lizard Conservation Society is dedicated to protecting horned lizards by documenting and publicizing the values and conservation needs of horned lizards, promoting horned lizard conservation projects, and assisting with horned lizard management initiatives. Towards those ends, the HLCS annually sponsors research that has direct conservation applications. To learn more about the society and past grants, go to <http://www.hornedlizards.org/>.

We will be offering grants again in 2016. In the past, priority has been given to projects that have direct conservation implications, including public education.

To apply, send a proposal detailing the goal of the study, the rationale for it (including relevance to conservation of horned lizards), and how your work would benefit from this opportunity. The proposal may not exceed 1000 words, excluding up to ten references. Also include a preliminary budget with any other funding sources available or received for your project. In addition, send a short resume or CV (up to 3 pages) for the lead applicant and have a single letter of reference sent to Megan Lahti: megan.lahti@gmail.com. The deadline is January 1, 2016. The decision will be announced by January 31, 2016. 🦋

Horned Lizard Items Make Great Holiday Gifts!

By Leslie Nossaman

The holiday season is coming! Have you completed your shopping yet? Did you know that the Horned Lizard Conservation Society has over 20 specialty gift items for sale? We have a fantastic inventory of clever and cute horned lizard items that are appropriate for kids of all ages. Here is a general listing of what you can find:

- T-shirts
- Caps
- Pins
- Tie tacks
- Earrings
- Necklaces
- Key Rings (*photo shown*)
- Guardian Angels
- Hood ornaments
- Prints
- Cards
- Christmas cards
- Magnets
- Bumper sticker (*photo shown*)
- Books
- Bookmarks
- Tote bags
- Masks
- Figurines
- Cookie cutters (*photo shown*)



These items would make a wonderful holiday gift for family members or friends. And the proceeds from the sale go to benefit horned lizard conservation. For more information go to the Horned Lizard Conservation Society website and select the STORE tab.

<http://www.hornedlizards.org/store.html>

Purchase one or two of our HLCS bumper stickers!

They make great stocking stuffers for all horned lizard lovers!

JOIN US and Help Protect the Texas State Reptile



HORNED LIZARD CONSERVATION SOCIETY

www.hornedlizards.org

Horned Lizards on the Move

By Devin Erxleben

Texas horned lizards (*Phrynosoma cornutum*) are on the move once again at the McGillivray and Leona McKie Muse Wildlife Management Area in northeastern Brown County. Last summer, wildlife division staff began testing the feasibility and success of reintroducing Texas horned lizards into areas where they once existed. The Texas horned lizard, which happens to be the state reptile of Texas, has been in decline throughout much of its range, and those declines have primarily been attributed to habitat loss, introduction of red imported fire ants (*Solenopsis invicta*), environmental contaminants, and other factors that merit further study.

Neighboring landowners say the Muse WMA held abundant numbers of horned lizards 20-30 years ago; however, none have been detected

since TPWD gained ownership of the property in 2006. TPWD biologists spent approximately 5 years studying scientific research literature, visiting with other scientists who had worked with horned lizards, and touring many different habitat types across the state to learn as much as possible about the iconic reptile. Staff then focused their efforts on surveying the Muse WMA and conducting habitat improvement projects to restore the land back to suitable habitat for horned lizards.

During June of 2014, 15 adult horned lizards were collected from private properties west of San


Angelo and were taken directly to the Fort Worth Zoo for evaluation and health screenings. After the lizards were determined healthy and free of diseases or parasites, they were taken to the Muse WMA and placed into a 10'x10' predator-proof enclosure to allow for acclimation to their new environment. After a 10-day acclimation period, the enclosure was opened to allow for the lizards to disperse. Beginning June 12, 2014, the lizards were tracked daily using radio-telemetry methods to evaluate dispersal distance, home range size, habitat use, mortality, and reproduction. Approximately 700 individual locations were

collected, and the lizards dispersed over approximately 165 acres of the WMA. The survival rate for the translocated lizards was 40% and the majority of the mortalities occurred during the initial dispersal in the days immediately following the release. Most of the individual lizard locations were near low growing brush in fields with



MUSE Texas Horned Lizard Reintroduction Project. Photos by: Devin Erxleben

sandy-loam soils and in areas with high densities of red-harvester ant colonies. Weekly body weights were collected for each lizard to monitor body condition, and individual weights increased all season long, indicating the lizards found plenty to eat. Two of the translocated females also initiated nests in July, and one of those nests successfully hatched 20 eggs on September 7, 2014. Daily tracking ceased on October 28, 2014, at which time all of the surviving lizards had burrowed 2-4 cm into the ground to hibernate for the winter months. WMA staff checked the hibernation sites weekly during the winter to monitor for predation and signs of activity.

As of May 2015, staff at the Muse WMA have begun daily tracking efforts of the lizards once again, and they are preparing to collect an additional 20 lizards for release on the area during June. Release enclosures have also been constructed at Mason Mountain Wildlife Management Area in Mason County, and 15 lizards will be released and tracked at that site beginning in June. The information learned from this study will help determine whether or not horned lizard populations could be restored into areas that possess good habitat. Due to the project's growth and success during 2014, TPWD has also welcomed a graduate student from Tarleton State University to the project. To learn more about the project, contact staff at the Muse or Mason Mountain WMAs or view the video found at: www.youtube.com/watch?v=-zeVBsJ1HRU 



Rowdy White tracking Texas horned lizards at the McGillivray and Leona McKie MUSE Wildlife Management Area. Photos by: Devin Erxleben

Reprint permission from Texas Parks and Wildlife Department, The Cedar Post, Volume 5, Issue 1 and Devin Erxleben

Communication Media

**Don't forget to check out our website at:
www.hornedlizards.org**

**Our Facebook page at:
www.facebook.com/groups/hornytoads/**

**And our Twitter feed at:
https://twitter.com/HLCS_News**

Please renew your annual HLCS membership!!!

HLCS depends on its membership for its conservation and educational presence in the community.

Categories for *annual* memberships include:

	Regular	\$25		
	Student or Senior	\$10		
Family	\$25		Each additional family member	\$10
	Contributing	\$50		
	Corporate	\$250		
	<i>Lifetime</i> membership	\$300		

The HLCS welcomes contributions in any amount you wish to submit and is a 501(c)3 nonprofit organization.

Current Horned Lizard Species Listing

By Bruce Edley and Leslie Nossaman

Recent updates to the number of species have increased the number to 19. Here is the current list by country and the references used.

Both U.S. and Mexico

- Texas Horned Lizard: *P. cornutum*
- Flat-tail Horned Lizard: *P. mcallii*
- Roundtail Horned Lizard: *P. modestum*
- Goode's Horned Lizard: *P. goodei*
- Regal Horned Lizard: *P. solare*
- Cape Horned Lizard: *P. blainvillii*
- Desert Horned Lizard: *P. platyrhinos*

U.S. Only

- Desert Short-horned Lizard: *P. ornatissimum*
- Greater Short-horned Lizard: *P. hernandesi*

Mexico Only


- Vizcaino Horned Lizard: *P. cerroense*
- Sherbrooke's Horned Lizard: *P. sherbrookei*
- Giant Horned Lizard: *P. asio*
- Mexican-plateau Horned Lizard: *P. orbiculare*
- Short-tail Horned Lizard: *P. braconnieri*
- Bull Horned Lizard: *P. taurus*
- Coast Horned Lizard: *P. coronatum*
- Rock Horned Lizard: *P. ditmarsii*

Both U.S. and Canada

- Great Plains Short-horned Lizard:
P. brevirostris
- Pygmy Horned Lizard: *P. douglasii*
(most likely extirpated in Canada)

Oca, Arenas-Moreno, Beltran-Sanchez, and Leache. *Herpetologica*, 70(2), 2014, 241–257

Santillan and Sherbrooke. February 2014 *Phrynosomatics*.

Montanucci, Richard R. *ZOOTAXA*, A taxonomic revision of the *Phrynosoma douglasii* species complex (Squamata: *Phrynosomatidae*.) 11 Sept. 2015. 

“Photos of *Phrynosoma ditmarsii* in the Sierra Nacozari”

Photos by Scott Trageser, August 14, 2015.




Support Horned Lizard Conservation by Purchasing Texas Horned Lizard License Plates

By Leslie Nossaman



The “Horned Lizard” vehicle license plate, the first of the Texas Parks and Wildlife Department’s three conservation license plates, was introduced in 1999. The “Horned Lizard” plate quickly became one of the most popular specialty license plates in the state. In 2006, it was the #3 best selling specialty plate in Texas. There are now three conservation license plates offered through Texas Parks and Wildlife Department.


You can show your support for wildlife by putting a “Horned Lizard” license plate on your Texas vehicle. Each plate costs just \$30, with \$22 of that fee going directly to benefit wildlife diversity and to help protect native non-game species such as horned lizards. The license plates can also be personalized with up to five characters for an additional fee of \$40. All three of Texas Parks and Wildlife’s conservation license plates can now be purchased online or at your county tax assessor-collector’s office. To order your plate today or for answers to frequently asked questions, visit www.conservation-plate.org.

The two other Texas Parks and Wildlife Department’s conservation license plates are the “Hummingbird” and “Rattlesnake” plates. The “Bluebonnet” plate and the “Camping” plate benefit Texas state parks, and the “Largemouth Bass” plate and the “White-tail Deer” plate benefit hunting and fishing. TPWD also sponsors the Ducks Unlimited “Classic” and “Blue Heron” plates, which support waterfowl conservation and the restoration and enhancement of wetlands. 

How Can I Contribute to Horned Lizard Conservation?

From www.hornedlizards.org

There are many ways our members contribute to the society and horned lizard conservation. We are an entirely volunteer organization with no paid staff. All activities are carried out by caring members who give their time, leadership, talents or ideas. Some ideas for contributing include:

- Join the HLCS today!
- Protect or create horned lizard habitat on private and public lands.
- Write for our newsletter, *Phrynosomatics*. • Write local government authorities to promote the protection of horned lizards in their native habitat and protect them from commercial exploitation.
- Share your horned lizard experiences with your children and grandchildren, neighbors and friends. 



Post Office Box 122, Austin, Texas 78767

Return Service Requested

PLEASE JOIN US! Students/Seniors: \$10; Regular: \$25; Contributing: \$50; Corporate: \$250; Lifetime: \$300
Families: \$25 for the first person and \$10 for each additional member
HLCS is a 501(c)(3) non-profit organization. Contributions are deductible to the extent allowable by law.

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