

HLCS Helps with a New Conservation Status for the Greater Short-horned Lizard in Texas

By Leslie Nossaman



TPWD Reassessment Meeting Participants (from left to right): Jared Holmes, Trey Barron, Travis LeDuc, Leslie Nossaman, Nathan Rains, Bob Gottfried, Romey Swanson, Troy Hibbits, Paul Crump, Wade Ryberg

In July 2018 I was asked by Paul Crump who is the Texas State Herpetologist and who works for Texas Parks and Wildlife to develop a study on the Greater Short-horned lizard (*P. hernandesi*) as part of a reranking and reassessment project for 25 Texas herp species. A group of 10 people met in late November for three days at the Mason Mountain Wildlife Management Area north of Mason, Texas to review the list of species and the Greater Short-horned lizard was one. The reranking and

reassessment process that was used was the Nature Serve Methodology. This is a summary of the four-month research project.

The meeting took place in a conference room that reminded me of a lodge with stone and wood walls and ceiling. There were large barn doors that slid open on either side of the room during our meetings so we could have a breeze and enjoy the

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stunning scenery. The windows looked like living picturesque paintings. An occasional bird would land on a nearby shrub tree and sing. We could also view the tall red erosional remnants of the uplifted granite intrusion of central Texas. At times it was hard to concentrate on the talks with all this natural beauty just outside the window.

There are three horned lizard species in Texas: Texas Horned lizard (*P. cornutum*), Round-tail Horned lizard (*P. modestum*), and Greater Short-horned lizard (*P. hernandesi*). The Texas Horned lizard and the Greater Short-horned lizard are considered threatened as a conservation status in Texas. The Round-tail lizard has no conservation status protection.

The Greater Short-horned is identified by one row of abdominal fringe scales, reduced central horns separated by a deep notch, slightly longer side horns, and back scales are arranged in 6-8 rows. They are found in short-grass communities and on mountain hill-sides and valleys with forests.

Before the November reassessment the Texas State Ranking for the Greater Short-horned lizard was S3 using the Nature Serve Methodology. The scoring numbers range from S1 which indicates the species is in the greatest peril to S5 which indicates the species is stable and abundant. After the reassessment review the number is now S2 so it has been determined that the species is one step closer to being in peril in Texas. These rankings are used for administration of species conservation laws and dispersion of funds for protection. The previous assessment for the Greater Short-horned at S3 was done in 1987, 31 years ago. I have asked if the Greater Short-horned lizard assessment can be updated again in seven to eight years.

We were asked to evaluate each species for location of known sightings, how viable are the populations, what are the trends for the populations and what is causing the trends, and what are the threats to the species.

The Greater Short-horned lizard is only located in Trans Pecos Texas in far west Texas. In North America the species is located from Sonora, Chihuahua, and Durango states in Mexico to the southernmost part of Alberta and Saskatchewan provinces in Canada. It is the most widespread in range of all the horned lizard species. However, it is only in three very limited locations in Texas.

I spoke with 10 landowners, three park rangers, two university professors, two Texas Master Naturalists, one person from The Nature Conservancy, numerous herpetologists who had worked the area, and examined a recent book on herp observations and four databases. The databases were iNaturalist, Madera Discovery, TXNDD, and VertNet.

It was a very grass roots type of study by talking to so many people living and working in the area. I enjoyed talking to the landowners the most as they were all very helpful and friendly. Many of them invited me to stay on their ranches next time I was in town. Most of the landowners knew what a Greater Short-horned lizard looked like and for ones that did not, I showed them photos so they could be sure.

I also looked at data throughout North America with a focus on New Mexico and Mexico

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since they border with west Texas and since the Greater Short-horned lizard is more abundant in New Mexico and Mexico. I was able to extrapolate and interpret trend data across the border into Texas such as climate, mountain ranges and elevations, sightings, forests, and cryptic coloring.

The three areas in which they are found in Texas are the Hueco Mountains, Guadalupe Mountains, and Guadalupe Mountains in the Davis Mountains Preserve. The Hueco Mountains are privately owned, the Guadalupe Mountains are a national park, and the Davis Mountains Preserve is owned by the Nature Conservancy. All are difficult for people to get into and are protected lands which may be one reason why this species is still found there. Also the Greater Short-horned lizard is found at the highest elevations where it is cool and wet in these mountain ranges.

The Hueco Mountain population seems to be stable and not too susceptible to threats. The sightings look similar in appearance in color and shape to those found in mountain and forested ranges to the north in New Mexico. They do not look similar in appearance to the Guadalupe Mountain or the Davis Mountain Preserve populations which do look similar.

The Guadalupe Mountains have wild swings in ecological conditions because they are at the intersection of three ecological systems: Southern Rockies, west of the Great Plains, and east of the Chihuahuan Desert. This can cause more dramatic changes in weather and temperatures which can be difficult on the Greater Short-horned lizard. There are also wild fires in the Guadalupe Mountains which can threaten the Greater Short-horned lizard populations. Hiking in many of the trails in the Guadalupe Mountains are rated as strenuous which can keep some people from interacting with the Greater Short-horned lizards and potentially collecting them. In the databases the last reported sightings were in 2015. After talking to the park rangers, they mentioned they had not been asking people, including park rangers, to record them the past three years but would start doing so again.

It appears that the southernmost location where they are found is in the Davis Mountains Preserve. The Greater Short-horned lizards are at the most vulnerable in the Davis Mountain Preserve. The Chihuahuan desert has been encroaching across Texas and creating a drier and warmer climatic environment which is making it more difficult for the forests and resources that the Greater Short-horned lizard requires. Also the Ponderosa Pine forests have declined significantly in the Davis Mountains due to the drier climate. Even in the Davis Mountain area, it appears that the Greater Short-horned lizard has receded into the higher elevations and out of Fort Davis and areas in between where they had been seen in the past. Wildfires in some areas in the past have devastated the numbers. Also, feral hogs are expanding into the area and are causing a destruction of habitat and harvester ant population stability and are a new predator.



I plan to continue investigating the species population trends in the future. There are still a lot of unknowns about the Greater Short-horned lizard population in Texas.



Whiteside Museum Booth Volunteer Invite

By Lynn Seman



The Whiteside Museum of Natural History invites you to help celebrate their 5th anniversary on June 8, 2019. Where is Whiteside Museum? This “gem” is found in Seymour, Texas which is on the Brazos River about 150 miles Northwest of Dallas/Ft Worth area.

What will you see if you come visit? The museum displays authentic fossils and also life-like replicas of these Permian period vertebrates as well as a new “Ice Age” exhibit. There is a collection of live animals including several lizard species, snakes, and amphibians, and

in addition, magnificent preserved animal displays, including wall posters dedicated to local species, such as the Texas horned lizard that is spotted quite frequently in this area. You will get an “up close” experience in the working prep lab where the fossils are cleaned, sorted, and prepared for exhibits. In addition, the museum boasts one of the world’s largest Dimetrodon statues proudly exhibited just outside the entrance.



On June 8, 2019, the small-town celebration will come alive with music, food, exhibitors, special activities, and the unveiling of a “surprise” new exhibit! The Horned Lizard Conservation Society would like to have a booth at the event during the hours of 10:00am to 4:00pm to spread our message of conservation to event visitors. If you are interested in helping with a HLCS booth, please contact Lynn Seman rlynnseman@gmail.com. Hope to see you at this special event!



Horned Lizard Research Grant 2020 Applications

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 2020. 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. 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 George Perry: gbperry10101@gmail.com. The deadline is January 1, 2020. The decision will be announced by January 31, 2020.



2017 Grant Recipient Summary

Horned Lizards (*Phrynosoma*) of Sonora, Mexico

by Cecilia Aguilar Morales

This project started by doing search of background of the horned lizards found in the area, these species are very the state and there are very manuscript was started (in-ground, materials and



Phrynosoma hernandesi, Sierra Ajos. September 10, 2017. Photo by: Cecilia Aguilar

an intensive six species of Bavispe Reserve little studied in few articles. The trodution, back-methods), Uni-and Reptile Col-to examine the species for a phology, at the records in the formed, where able and more with the collec-

tor, some of them were located of erroneous form being of the state of Chihuahua or another site on the map. When we had all reliable records, we proceeded to make the distribution maps of the six species, the maps have the most current *P. ditmarsii* records of September 9 and September 22, 2017, and *P. orbiculare* record of October 25, 2017 in new localities. My academic advisor Dr. Tom Van Devender suggested adding the two species not found in the Bavispe Reserve area (*P. mcallii* and *P. goodei*) to have an article of all horned lizard species in the state. We proceeded to make a species account and continue working on the manuscript with Dr. Van Devender. I went to the field on the Reserve area to Sierra Ajos, Sierra La Púrica and Sierra La Madera, I have only found *P. hernandesi* in Sierra Ajos.

I gave talks in elementary schools, a high school and a university of four towns (Cananea, Moctezuma, Unamichi and Bacoachi) in favor of conservation of these species, also carried out surveys to the students, didactic activities and play games for a better learning. I asked Rafael Lopez, an assistant to the Herpetology Club of the Universidad de Sonora who is studying graphic design to make a *Phrynosoma ditmarsii* illustration and stickers.



P. ditmarsii sticker. Illustration by Rafael Lopez

I gave *P. ditmarsii* stickers (Illustration by Rafael Lopez) to the children and colouring drawings from the Tucson Herpetological Society Coloring Book (Illustrations by Dennis Caldwell) written in both Spanish and English.



The Horned Lizard is commonly found near houses and in alleyways, where it feeds on ants. Its docile nature makes it irresistible to children who want to keep it as a pet. Because of their specialized diets Horned Lizards never live long once they've been removed from the wild. Horned Lizards are often killed by dogs and cats. You can help Horned Lizards by leaving them in the wild and watching out for their safety.

Tucson Herpetological Society Coloring Book (Illustrations by Dennis Caldwell)

Surveys were conducted in Cananea, Bacoachi, Unamichi, Moctezuma, Cumpas, Nacozari de Garcia, Esqueda, Fronteras and Agua Prieta to elementary school children (3 to 13 years), high school (14 to 18 years) and university (20 to 32 years) students, as well as adults (55 to 88 years). The questions were: what they know about horned lizards, if they thought horned lizards are dangerous, if horned lizards have poison and if they have or had a horned lizard as a pet or know other people who had one.

Results:

Surveys to the kids were with direct questions as an easier way to get the answers, they would raise their hands if they thought that horned lizards are dangerous, venomous and if they knew someone who had them as pets. The kids who had the correct answers shared their opinions to change a bad concept of the horned lizards for a good one, they were awarded with candies and chocolates for their participation, after that I summarized the opinions of the kids with more information/answers to the questions.

Adult Surveys				
TOWN	DANGEROUS	VENOMOUS	PET	TOTAL
Cananea	2 (10%)	2 (10%)	8 (40%)	20 people
Moctezuma	3 (15%)	3 (15%)	6 (30%)	20 people
Cumpas	1 (20%)	1 (20%)	2 (40%)	5 people
Nacozari de Garcia	1 (10%)	1 (10%)	3 (30%)	10 people
Esqueda	0 (0%)	0 (0%)	2 (40%)	5 people
Fronteras	0 (0%)	0 (0%)	1 (20%)	5 people
Agua Prieta	0 (0%)	0 (0%)	0 (0%)	5 people
TOTAL	7 (10%)	7 (10%)	22 (31.42%)	70 people

Students Surveys				
TOWN	DANGEROUS	VENOMOUS	PET	TOTAL
CANANEA				
1st Group (3 to 5 years)	N/A	N/A	N/A	25 people
2nd Group (6 to 8 years)	0 (0%)	1 (2.85%)	5 (14.28%)	35 people
3rd Group (9 to 13 years)	9 (26.47%)	11 (32.35%)	13 (38.23%)	34 people
UNAMICHI (6 to 12 years)	12 (54.54%)	1 (4.54%)	3 (13.63%)	22 people
BACOACHI (9 to 12 years)	6 (17.64%)	6 (17.64%)	7 (20.58%)	34 people
MOCTEZUMA				
1st Group (15 to 18 years)	6 (6.12%)	10 (10.2%)	14 (14.28%)	98 people
2nd Group (14 to 17 years)	5 (8.62%)	12 (20.68%)	7 (12.06%)	58 people
3rd Group (20 to 32 years)	0 (0%)	0 (0%)	15 (50%)	30 people
TOTAL	38 (11.3%)	41 (12.2%)	64 (19.04%)	336 people

We played memorama with images of the eight horned lizard skull species, I explained a little bit to children about how the horns are unique for each species, like the crown in the Regal Horned Lizard (*P. solare*) or the very short horns of the Rock Horned Lizard (*P. ditmarsii*). I gave coloring drawings from the Tucson Herpetological Society Coloring Book and I read them the text on it, it talks about a boy who found a horned lizard on his backyard and he put it over the fence so the dog doesn't get it, I asked them why the child did that and some of them responded that all living beings deserve to live, also, the text said that horned lizards are docile and that they can't be pets because of their specialized diet.

Most of the students know that horned lizards can camouflage, eat ants and throw blood through its eyes. Elementary students were very interested in learning about horned lizards and had questions and stories about them. Specially Unamichi children, because is a rural town they are closer to nature, all of them watched a lot of horned lizards and other reptiles like snakes before and were very enthusiastic telling stories about them, some of the children have a lot of knowledge about animals, even trap cameras used for wildlife research thanks to Discovery Channel.

In Cananea, the talks were in Summer Camp classes divided in three groups, so the children were from several schools of the city, the first group (3 to 5 years) didn't get the survey, the second group (6 to 8 years) know more than the third group (9 to 13 years), all of them answered horned lizards aren't dangerous. The high school students didn't pay much attention to horned lizards, 21 students did not know nothing about them.

The biology students from Universidad de la Sierra in Moctezuma have a little more knowledge than elementary and high school students and know more specific things, like their defenses against predators, etcetera. One of them got closer to me at the end of my presentation, Hugo Cabrera, to ask me the species of a horned lizard he photographed two months before in a locality called Mesa Tres Rios, to the east of Sonora, situated in the Sierra Madre Occidental, the species was the Mexican Plateau Horned Lizard (*P. orbiculare*), the record was the first one for that locality and it helps to connect the two populations known for the state, one in Sierra El Tigre and other one in the Yecora area, which are 225 kilometers apart. Hugo Cabrera, Tom Van Dender and I, did a geographical distribution note for the Herpetological Review Journal.

Adults have more knowledge, very few answered horned lizards are dangerous, they also mentioned that when they were young there were much more horned lizards, many of them knew it is good to leave them in their yards to control ant populations.

Surveys were conducted to a total of 406 people from 6 to 88 years, 11% answered horned lizard are dangerous, 11.8% think they have venom and 21.1% know a person who had a horned lizard as a pet, some of the horned lizards were released and some of them died, so education for the conservation of these species is necessary in the state, especially in the localities near the *Phrynosoma ditmarsii* (endemic to Sonora) distribution.

I presented my project in the Herpetology Club of the University of Sonora with 18 students on February 2018 to share the information obtained in the research. Also, I presented the project in the fifth meeting on the Current Research on the Herpetofauna of the Sonoran Desert and Sky Islands as part of the Madrean Conference 2018 program in Tucson, Arizona.

Due to two journals weren't receiving manuscripts, we release our paper in the Sonoran Herpetologist Journal in September 2018.

Photos from working with children and young people



Cananea, July 11, 2017. 25 students aged 3 to 5 years old



Cananea, July 11, 2017. 35 students aged 6 to 8 years old holding their colored horned lizard pages



Cananea, July 11, 2017. Students coloring their horned lizard pages.



Cecilia giving a horned lizard conservation lecture to young students aged 6 to 12 old in Unamichi, September 25, 2018.



Cecilia giving a horned lizard conservation lecture to a group of 34 students aged 9 to 12 years old in Bacoachi. September 25, 2018.



Moctezuma, December 4, 2017. The first lecture group of the day with 96 students aged 15 to 18 years old and two teachers.



Horned Lizard Conservation Society 2019-2020 New Board of Directors!

HLCS is happy to announce the new Board of Directors to hold office for 2019 through 2020!

President: Leslie Nossaman
President-elect: Mason Lee
Secretary: Dalton Neuharth
Treasurer: Ryan Zach
Membership Services: Lynn Seman
Director-at-large: George Perry

Leslie, Mason, and Lynn are returning members for the Board and Dalton, Ryan, and George are new. Each member has a wonderful and interesting background in conservation. This is a great group of people and it is very exciting to have them as our new Board.



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Once you select the Horned Lizard Conservation Society as your charity to support, our society will receive 0.5% of the price of eligible purchases. And from then on, every purchase made through AmazonSmile will benefit the Horned Lizard Conservation Society. Every little bit helps!



Photos from Michoacan, Mexico



P. asio Photo by Ernesto Raya Garcia



P. orbiculare Photo by Ernesto Raya Garcia



President's Message *by Leslie Nossaman*

I am very enthusiastic about leading this wonderful conservation organization and honored to be the President. We have a great new Board of Directors to lead us in the next two years.

I feel lucky to have served under our past President, Jared Fuller. Under his leadership and wonderful decision-making skills, we accomplished many great milestones and have broken many records.

HLCS had a record number of members at the end of 2018 at 262 total members which is up from 186 which was a record low in early 2017 after the HLCS first growth. Our biggest increase percentage was with the student category with only 2 in 2017 and a record 21 at the end of 2018.

HLCS has also made a record in number of grants awarded in early 2018. This was more than the previous four years combined! HLCS also awarded more funds for these projects than ever done before. I am very excited to see what these researchers will accomplish.

Also we had a full Board of Directors under Jared's leadership in 2017 which we had not had for three years which is a huge accomplishment.

We had a very successful biennial meeting in Goliad, Texas in 2017 with a lot of great presentations. It was also fun and with two horned lizard surveys after the meeting. We also had scientific posters and an auction which we had never had before at a biennial meeting.

We also saw a huge increase in Facebook activity and number of Followers and Page Likes. Our number of posts have dramatically increased with interesting stories about horned lizard conservation, announcement of Happy World Lizard Day, radiographs of a gravid horned lizard, and HLCS business. We had a goal to make 1000 Followers by the end of December 2018 and we easily made that milestone with 1045 Followers. Thank you to all those who contributed!

We started an Instagram account which is linked to our Facebook page for those on Instagram. It has lots of wonderful posts just like our Facebook does. Look for the information for the links to the Facebook page and the Instagram page on Page 2 of the newsletter.

Another huge accomplishment was two new products for sales, an engraved stainless-steel straw and a printed carrying pouch for the steel straw and cleaning brush. As you know HLCS gave away a stainless-steel straw to any member who wanted one. It was a big success as many of you requested one.

As you can see, Jared's shoes will be very big to fill, and we will miss his leadership very much. We wish him all the best in his new endeavors and hope he will continue to help with horned lizard conservation.

I also want to thank all our members who participated in our free stainless steel engraved straw giveaway program and all the people who purchased the straw set. The purpose of the reusable straw is to provide an option to keep plastic straws from becoming waste in the environment. HLCS is excited to bring you this new product.

Look for more exciting news, items, offerings, and events from the Horned Lizard Conservation Society in the future!





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 Families: \$25 for the first person and \$10 for each additional member
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***Phrynosomatics* is now sent electronically.**