

# HORNED LIZARD CONSERVATION SOCIETY

Post Office Box 122, Austin, Texas 78767

## Phrynosomatics

The Newsletter of the Horned Lizard Conservation Society

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.

Volume 3, Issue No. 2

September 1998

### *Hello all my friends and loved ones!*

I am in Hermosillo, Sonora, Mexico tonight and happened to run into this internet cafe where I could check my mail. (Some of you are quite aware of my travels, while this is a total surprise to others - I finally got the Mexico trip together!) I wasn't planning on being here too long, but things might change due to some embassy business needing my attention.

I've only been stuck twice, and had one flat. and, well, I have destroyed 2 tires and working on the spare (sorry Linda), so I need to find some tires tomorrow. Hopefully, the rest of my trip will be solely on paved roads, or so it looks like on my maps, but then again} all my maps are different, show different roads under different conditions, etc, but if I use them all together, it works out pretty well.

This computer only has about half of its keys legible because they've been worn off and some are in Spanish and then <I can't figure out how to make some char., so bear with me!

The Sierra Madre Occidental is absolutely breathtaking. I actually like driving in Mexico and have taken to it quite easily. I don't appear too foolish stopping in the middle of roads, swerving on curves to see lizards and snakes as I do in the US, and they actually expect this to happen for no good reason! Most of the <Mexicans drive too fast and take these hairpin turns in the next lane, so it works out. I can only muster about 35 MPH.

All the people I have met have been extremely helpful and friendly. I have had little boys bringing me lots of Cachorros but no camaleones.

The Policia think I'm a little quirky traveling around on my own and they respect the dogs mucho. The dogs have been a great benefit to have because no

one messes with the truck, and policia don't really care to search anything, they are afraid of them! of course, khami's macho bark really works it good. The UT insignia is helpful, too, gives a lot of credence to what I tell people, and they are generally impressed by it (many thanks to Linda).

I have had some success, and some not. I managed to find 2 P. ditmarsii! But, they were both juveniles (snout to vent lengths of 23 and 24 mm!) and <I really need adultos. Thank's for these specimens go to Andy Price who alerted me to the most recent published locality in Herpetologica 2 days? before I left. I searched the other localities to no success, but would love to go back to Tonichi one more time, but I think I should push on. I was able to also collect 2 roadkilled P. solare (regal horned lizards) and they are quite impressive huge males.

I have seen some other wonderful herps. I have seen a Gila Monster, baby Desert Tortoise, just got a Diodaphus punctatus (ringneck) this morning which was absolutely gorgeous and possibly a SW range extension, kingsnakes, huge pink pretty coachwhips and the striped? (M. bilineatus) coachwhip, a bunch of the endemic Sinoran Sceloporus (spiny lizards) and a whole bunch of Cnemidophorus which I can't identify worth a darn without a decent key, Callisaurus and Holbrookia are everywhere, desert iguanas, oh, what else, I can't remember right now since I don't

have my field book with me..... The most impressive bird I have seen is the montane elegant trogon. (It's hard to bird and herp at the same time!)

The monsoon rains have been here in force. It has rained nearly every day I have been in Mexico. It's good and bad. It really limits the time I have for looking for horned lizards. The rains cool things off 20 degrees in 5 minutes-from 100 to 80! Great for hiking, but not horned toads. The mornings are cool, and I actually have to use my sleeping bag at times. The sun doesn't come up over the mountains until 8am (CST) and warm things up, then it gets hot really fast. The rains make it really humid, too, it actually feels cooler at 11am when it's 96 than 8am when it's 79.

Next stop is Isla Cedros for P. cerroense. I hope I have more luck there. It's a small island, and they supposedly only occur on the SW side, so maybe I can't find some quickly and hit Tonichi once again as I head toward <Leon (kind of out of the way, but not impossible, it would take me through more P. orbiculare and P. solare habitat). I sure hope my pics come out, they'll be fantastic!

Well, that's the news from Mexico....hope this finds everyone happy and healthy and well, I hope this finds everyone! I would try to write more personal notes to you all, but it's taking me long enough to do this one, so forgive my bulk mailing....just wanted everyone to know things are going pretty good, I'm healthy, the dogs are fine (except sore feet).....

Love,  
Wendy

*"This computer only has about half of its keys legible because they've been worn off and some are in Spanish and then <I can't figure out how to make some char., so bear with me!"*

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**HLCS  
PO Box 122  
Austin, TX 78767**

# President's Corner ...by Scott Henke

I hope everyone is enjoying their summer. It's been a hot (and dry) one in Texas. Come to think of it, a perfect summer for horned lizards.

There has been no change in the status concerning the flat-tailed horned lizard lawsuit. Lawyers are assimilating documents and getting prepared for battle. Our attorney, Diane Connolly, accepted a position with the U.S. government and can no longer represent us due to potential conflict of interest. Neil LaVine of EarthLaw has been working with Ms. Connolly and will take over as our lead attorney.

The HLCS is beginning a new research initiative. Bill Brooks and I are conducting a research project to relocate Texas horned lizards to an area that historically had horned lizards. Four lizards, captive between one month and four years, have been fitted with radio-transmitters and their progress will be monitored daily. To our knowledge, this is the first time that captive horned lizards will be released "in the wild."

Reintroduction is often considered an option for repopulating horned lizards, but data are lacking concerning the success of such a venture. Our efforts will document the feasibility of relocation. Translocation of lizards typically is discouraged due to the potential of spreading diseases to existing populations of the species. But don't fret, no horned lizards inhabit the chosen release site (in spite of potential habitat), but lizards did occur there about two years ago. If the lizards do not do well living "on their own" (albeit regularly visited by Bill!), then those individual lizards will be recaptured and placed back in captivity. If successful, these lizards will live out the remainder of their life as free-ranging individuals. Barring additional delays, the release will take place August 9. So let's wish the lizards (and Bill) the best of luck.

Major kudos go to Matt Wagner and John Herron for authoring and the Texas Parks and Wildlife Commission for approving the Texas permit system for non-game wildlife, which will benefit reptiles in general.

The new permit, scheduled for implementation 1 January 1999, is designed to monitor commercial trade and collection activities in native non-game wildlife, and to provide much-needed information about the commercial use of some 200 species of reptiles, mammals, and amphibians. Under the new permit, any person, regardless of age, who sells listed non-game wildlife and anyone 17 years of age and older in possession of more than 25 specimens of non-game wildlife in the aggregate (no more than 10 of the same species) would be required to purchase a \$15 resident commercial collector's permit (\$50 for non-residents). An appropriate hunting license also is required for any activity involving the taking of non-game wildlife. Teachers at accredited primary or secondary educational institutions will be exempt from the non-game collector's permit provided that the non-game wildlife is possessed solely for educational purposes and is not sold or transferred to another person for the purpose of sale. Anyone who buys non-game wildlife for the purpose of resale would be required to purchase a \$50 resident, non-game dealer permit (\$200 for non-residents). The permit requirements do not apply to non-game fish, invertebrates, or persons purchasing, possessing, or selling processed products.

As a reminder to our members, please participate in the Texas Horned Lizard Watch Program sponsored by Texas Parks and Wildlife Department. Participation is important even if you survey an area that lacks horned lizards or harvester ants. It is important to know where horned lizards do NOT occur as well as where they do. For more information, write to:

**Texas Horned Lizard Watch  
Texas Parks & Wildlife Dept.  
4200 Smith School Road  
Austin, Texas 78744**

Recently I received a copy of a letter sent to the Governor of Nevada

by HLCS member and Chair of our Research and Recovery Committee, Dr. Richard Montanucci. In his letter, Dr. Montanucci expressed concerns about the deplorable commercial trade practices of live reptiles allowed by the State of Nevada. Write:

**The Honorable Bob Miller  
Governor of Nevada  
State Capitol Building  
Carson City, Nevada 89701**

Ask Governor Miller to rethink Nevada's lack of concern about the biodiversity of its reptiles. In your letter you could use the following information (restated from Dr. Montanucci's letter):

Number of reptiles collected in Nevada is increasing each year at a staggering rate:

1993	1994	1995 (6 mos.)
21,549	34,297	22,268

Number of Desert horned lizards collected:

1993	1994	1995 (6 mos.)
4,348	4,129	5,010

Although no scientific studies have been conducted, it is unlikely that horned lizards could sustain their populations at such high rates of collection, especially because horned lizards have low recruitment rates (number of young that survive to breeding adult age).

Commercialization of reptiles in Nevada has created law enforcement problems for adjoining states of Arizona, California, and Utah. The mentioned states prohibit commercial collecting of horned lizards, but unscrupulous collectors "launder" illegally-obtained horned lizards through Nevada dealers.

Many horned lizards die from starvation, disease, and poor conditions (air-conditioned stores), etc.

Arizona, California, and Texas regulations could be used as potential templates to create a permit system for Nevada. Please write today!

As always, your advice and comments are solicited and encouraged.

# TEXAS HORNED LIZARD WATCH

by Bill Brooks

Texas Parks and Wildlife Department (TPWD) is on our bandwagon. In 1997, with TPWD coordinator Lee Ann Linam at the helm, TPWD started the Texas Horned Lizard Watch. Some of you who attended our convention in San Angelo (May, 1997) might have had a chance to meet Ms. Linam where she spoke about this exciting new parks department program.

Our society has an ongoing "horned lizard watch" program began in 1990: Our stack of Horned Lizard Sighting Reports continues to grow. The reports are compiled by our own Wendy Hodges who also completed a HLCS-funded survey of previously known horned lizard collection sites (from museum records) and determined whether horned lizards were still found at those sites.

Donaldson, W. L., A. H. Price, and J. Morse. 1994. The Current Status and Future Prospects of the Texas Horned Lizard [*Phrynosoma cornutum*] in Texas. Texas Journal of Science 46[2]: 97-113.

We welcome and are extremely pleased that the TPWD recognizes that the status of the Texas horned

lizard is a worthy subject of study. In the spring of 1997 the TPWD issued the results of their first year's study. This was picked up by several newspapers and perhaps you saw the report. A short article appeared in a May issue of the San Antonio Express and News. A larger article appeared in the Bryan-College Station Eagle (May 24, 1998, pg. A7.) The results were also mailed to all who participated in their survey.

Conclusions from the study were based on the reports filed by 61 different people or teams on 98 different sites in 39 different Texas counties. Of these 98 sites, horned lizards were found on exactly half (49) of the sites. Their conclusions agreed with the data that the society has collected:

***horned lizards are extremely rare in the eastern part of Texas.***

Reports are scattered in the middle of the state. Most of the sightings were in the western portion of the state where populations seem generally healthy. These data also

agree with another TP&W public survey conducted in 1992.

The study also showed the first statistical evidence of what we all suspected, that populations of Texas horned lizards are negatively affected by the presence of the imported fire ant (*Solenopsis invicta*).

The 1997 Horned Lizard Watch demonstrated to the TPWD something that we already knew, that Texans "are keenly interested in the status of their beloved state reptile." We of the Horned Lizard Conservation Society are pleased the TPWD has taken an interest in studying a species we hold dear. We invite all our Texas members to help the TPWD with their studies and participate in the Texas Horned Lizard Watch.

For those members who aren't Texas residents, how about contacting your state's wildlife departments to suggest a similar horned lizard watch? Our TPWD would probably help them get started. For more information, please contact:

Lee Ann Linam, Coordinator  
Texas Horned Lizard Watch  
Texas Parks and Wildlife Dept.  
4200 Smith School Road  
Austin, Texas 78744  
512-847-9480

## ***Ramblings on the Regal HL, p. 8-11 References Cited***

Sherbrooke, Wade C. Horned Lizards, Unique Reptiles of Western North America. 1981. Southwest Parks and Monuments Association. pp. 1-49.

Stebbins, Robert C. 1966. A Field Guide to Western Reptiles and Amphibians. Riverside Press, Cambridge. Plate 18, pp. 113-118.

Van Devender, Thomas R. and Howard, C. W. 1973. Notes on Natural Nests and Hatching Success in the Regal horned Lizard (*Phrynosoma solare*) in Southern Arizona. Herpetologica 29: 238-239.

## ***HORNED TOAD QUILT... by quilter Mary Surginer Silent Auction--proceeds to benefit HLCS***

A story about the designer and maker: She says, "I am just crazy about horny toads." Mary and her husband moved to a little farm in Odem, Texas, in 1962, where they still had lots of horny toads. Then the fire ants started to move in, in the middle 1960s. By the early 1970s, they didn't see any more horny toads, and not very many red ants. She says, "I never connected the two. I could always find toads in West Texas".

Since quilting is her hobby, she racked her brain for over a year as to how she could capture the horny toad in a quilt. "I'm not too fond of applique, but love to piece quilts." She used a donkey quilt pattern to design and quilt her horny toad. "It worked!" although Mary says her quilted toad resembles more the short-horned lizard of far west Texas than the Texas horned lizard.

What a beautiful work of art in honor of our horned lizards, a threatened species of today's times! Mary has generously donated this "Horned Toad" quilt to the HLCS to help raise funds for continuing research to bring back our threatened species.

See b/w photo next page.

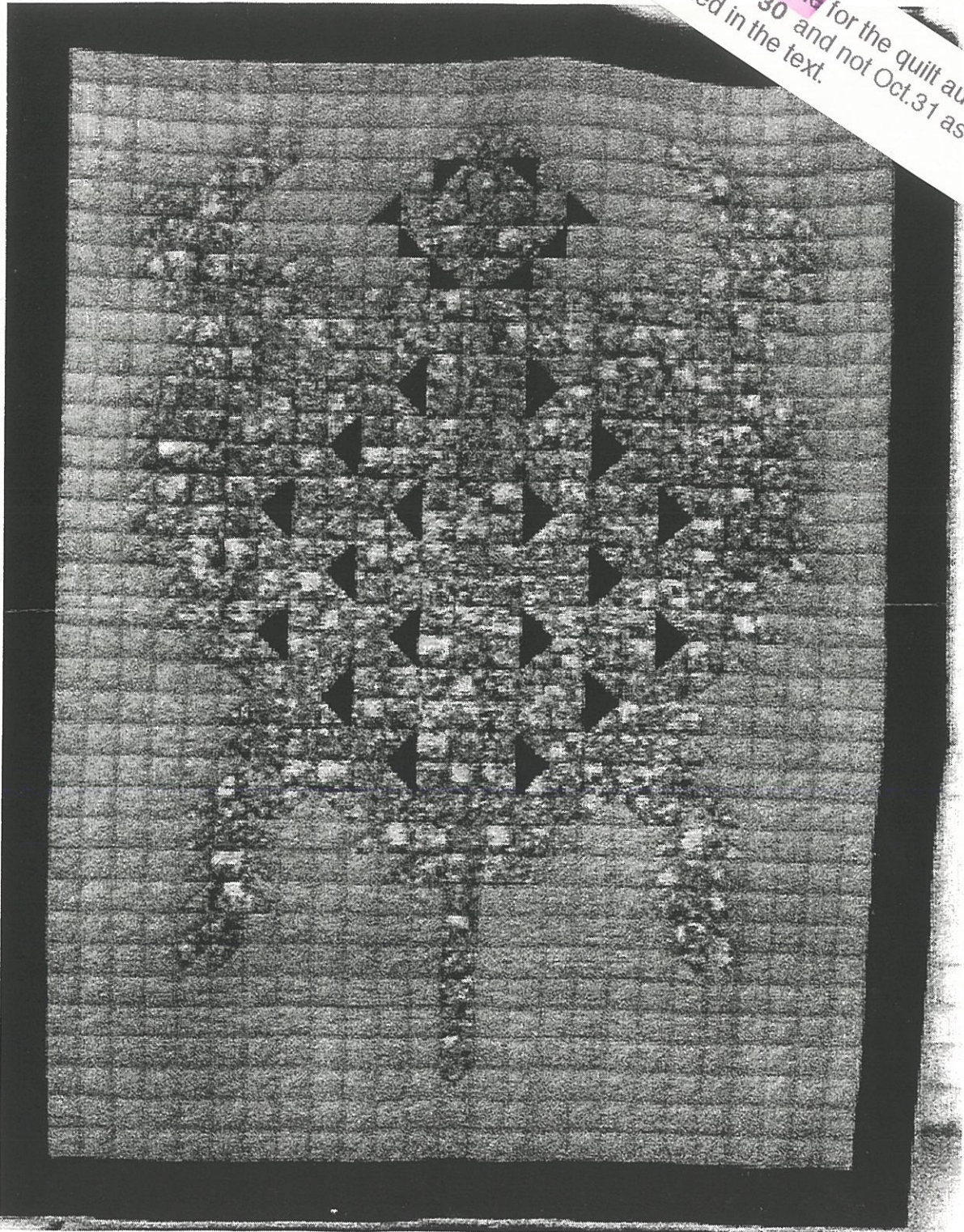
The silent auction for this quilt will begin now and continue through October 31, 1998. A \$300 bid has opened the bidding. To bid, contact Bette Armstrong, 801 Fox Hollow, Eastland, Texas, or call (254) 629-3976. All proceeds will go to the HLCS.



# HORNED LIZARD QUILT

by Mary Surginer of O **Texas**

The deadline for the quilt auction is Nov. 30 and not Oct. 31 as stated in the text.



Quilt colors are burnt orange background, a floral print for the horned lizard, with dark brown accents. A border outside of the burnt orange is also a dark brown, with a green finishing the edge [if only we could publish in color!].

**SILENT AUCTION** -- bids will be accepted through **OCTOBER 31, 1998!** All proceeds will go to the HLCS! Submit your bid to *Bette Armstrong, 801 Fox Hollow, Eastland, TX, or call (254) 629-3976!*

*Special thanks to Mary from the HLCS!*



# MAKING HORNED LIZARD MODELS

by *Larry Wisdom*

I have received numerous requests for information on making Horned Lizard (HL) models from preserved specimens since the May 1997 presentation at the Third National HLCS Conference in San Angelo, Texas. One request came as far as Germany.

The goal of the project initially was to produce models of the three indigenous Texas HL species. This was primarily to satisfy my curiosity and cure my ignorance. As a kid, I played with hundreds of Texas HLs (*Phrynosoma cornutum*). As an adult, I had seen several short-horned HLs (*P. douglassi*), but had never seen a roundtail HLs (*P. modestum*).

Priority of this goal was ratcheted up several notches when my four oldest grandchildren saw their first HL at a dude ranch in Bandera, Texas, during a horseback trail ride. They were amazed, delighted, and enthralled with this encounter.

Their reaction mirrored my own some half-century earlier. The pathetic part was that this was their first encounter and by the time I was their age I had played with hundreds of HLs in central Texas.

Several years earlier I had learned how to make HL molds after receiving a bucket of preserved Texas HLs after a storeroom clean-up from a very good-looking high school science teacher (my wife). She knew my fondness for HLs and couldn't bear the thought of throwing the critters in the trash. These were pre-1968 specimens that had been left dormant in the lab after the Texas Legislature enacted the HL protection laws. The good news was that some of the specimens were in fairly good shape; the bad news was they were preserved in formaldehyde.

My eyes paid dearly while learning to make the molds. After considerably experimentation and lost or mangled specimens, I learned to make useable mods without damaging the specimen, except on occasion some scales were lost dependent upon the shed cycle the HL was in at the time of preservation. I still use some of these early molds in casting models.

Shortly after learning the mold technique, I met Lester Milroy III (the immediate past national president of HLCS) at a site survey at the San Angelo State Park. I told him of my need for preserved specimens of the other two Texas species. He encouraged a broader outlook like, why not make molds of all the U.S. species? In my ignorance, I said, "Why not!" It was only later, after all the Mexican species were added to the list that I realized Lester, besides being a HL researcher extraordinary, was a real slick con-man.

Now Lester is an independent contract researcher for the San Diego Zoo working exclusively with the coast HL (*P. coronatum*). He had plenty of these specimens to loan but little else. But Lester told me "not to worry"; he would arrange for specimens.

It was soon apparent that while universities, zoos, and museums had thousands of preserved specimens, they were loath to loan them for mold-making. Lester got comments like, "we tried that and it didn't work" and "my specimens will be ruined" and, the best ever, "you could die and we wouldn't get our specimens back."

But silver-tongue Lester (STL for short) prevailed and the specimens started coming in. Dr. Wade C. Sherbrooke, Director of the Southwest Research Station of the American Museum of Natural History loaned 16 specimens. Dr. Jonathan A. Campbell of the University of Texas at Arlington loaned 19 specimens. Dr. Harry Greene, Curator of Herpetology, Museum of Vertebrate Zoology, University of California, Berkeley, loaned 7 specimens. Dr. Richard R. Montanucci of Clemson University loaned two rare Mexican specimens. And, of course, STL loaned the necessary coast HL specimens. All of these specimens have been returned in good condition to their lenders along with models of each specimen loaned.

However, instead of the expected single specimen of each species, adult male and female and juvenile arrived. My original goal of two additional molds has now grown to over 40 due to STL. Some of the early specimens are being replaced with better ones so the mold count continues to grow.

One of the interesting things we are learning is that no single organization has all HL species. Some of the species are quite rare. Only 3 preserved specimens of the Mexican species (*P. ditmarsii*) were in existence in the U.S. as late as 1970. But I now have molds of adult male and female and juvenile of this species.

We are still short a few specimens which hopefully will arrive shortly, namely, better examples of the flat-tail HL (*P. m'calli*) and a new species which was described in 1997 by the brilliant DNA work by Kelly R. Zamudio. The pygmy short-horned HL has now been classified as a separate species instead of a subspecies. The names are also changing, the pygmy short-horned HL is *P. douglassi* and the full-sized short-horned HL is now *P. hernandesii*.

Upon completion of this project, the HLCS will have the world's only complete display of

HLs. The models can have other uses besides species displays. Bruce Babbitt, our Department of the Interior Secretary, has a flat-tail HL with the word "HELP" cast on its chest to remind him of the precarious plight of this HL. Garland Weeks, the Texas State Sculptor for 1995, is using a model to add interest to his sculpture of Ole Yeller for Mason County, Texas.

David L. Phelps, the Oklahoma Sculptor, used a desert HL (*P. platyrhinos*) model as an aid in producing a ten-foot long sculpture for the Las Vegas airport expansion. Mary Hawley, a gifted wildlife artist, is using a model of the flat-tail HL to aid in designing art work, the sale of which will benefit HLCS and the flat-tail HL suit. The Texas School for the Blind is using models to diversify their education programs.

But one of the best uses I have found is that the models tend to start spontaneous conversations with folks who recognize them on shirts or hats. Everyone has his or her favorite "Horny Toad" story. It is the best way I have found to get the HLCS story across to receptive people.

To that end, I will make an offer to each HLCS member (except STL): **Bring in a new member and I'll send you AND them a Texas HL model in either pin form or as a refrigerator magnet.** The pin is a bar style that readily attaches to hats or clothing. The refrigerator style has an 8-mm diameter rare earth magnet that weighs 1.7 grams but can lift 1,148 grams of steel (675 times its own weight). It is the mother of all refrigerator magnets. The specimen used for this purpose is #4118. It has a 34-mm SVL and an overall length of 1.75 inches. It is the same model that is used in the display case.

Just make sure that your name and address is on the enclosed new membership form along with the new member. Please specify if you want a pin or magnet and have the new member do likewise. If you get two new members, I'll send you two models, get three and I'll send you three, etc.

In a future article, I'll cover the mold-making procedure in such excruciating detail, it's guaranteed to put all but the most dedicated to sleep. Other subjects will be a HL life cycle display that I am currently collecting information for and a HL defenses display. I really want to do the defenses display first, as one of the scenes will depict blood squirting. But, according to my wife, the Life Cycle Display has higher educational value.

Sometimes it's tough being married to a retired science teacher!

--See the membership form enclosed, if you want to take Larry up on his offer! -- ed.

## *from the editor...*

Y'all please note my new snail-mail address -- I recently moved back to Texas from Missouri (after all, there are no HL in Missouri, that I encountered anyway)... and it's just hard to beat the Southwestern Skies. My e-mail address is the same.

Thanks to all that contribute to the *Phrynosomatics*... keep the creative and interesting work coming! I am attempting to get our newsletter on a quarterly schedule (don't give up on me yet!).

As many of you know, Clare Freeman has just returned from a herp-adventure to Kyrgyzstan. Can we look forward to a first-hand account in a future newsletter, Clare?

Our ability to get news of upcoming events to you is sometimes compromised by schedules and pony express time. If you want to send your e-mail address, we may be able to get a listing to send information about events between newsletters and real-time. Let us know.

I hope that many of you had the opportunity to go the Eastland and share in the Ol' Rip Fest!

Please note the generous offer by Larry Wisdom on p. 6 of this issue. Let's keep Larry too busy to change his mind!

Submissions and suggestions for improving the newsletter are always welcome--I am still learning! -- *pam*

## *... roaming Lizards*

Bill Brooks, under the direction of our fearless national HLCS' leader, Dr. Scott Henke, has a permitted range experiment going on in Austin's Wild Basin Wilderness Preserve.

We have three Texas horned lizards roaming the preserve with tiny radio transmitters on their backs. Bill goes out daily to find and weigh them. A full report will be presented to the HLCS newsletter at a later time.

If anyone living in or around Austin, Texas, would like to become involved in this project, please contact Bill Brooks at (512) 306-0892 or e-mail to:

Brooks@psyvax.psy.utexas.edu.

## *and from Eastland...*

Granite Television Productions from London, England came to Eastland, Texas (in the "States") on August 12, 1998, to interview the people of 1928 and Judge Scott Bailey about the Eastland Courthouse and Eastland's own OLD RIP.

The people representing Granite Television Productions had never seen a real, live HL!

Bette Armstrong obtained permission to have on hand a real, live HL for educational purposes for Eastland's distinguished visitors -- but, alas, not a single HL was found.

Larry Wisdom's life-like replicas saved the day (thanks again, Larry!)

The community in Eastland rose to the occasion and made up a "goodie" box to send back to England--which included the history of OLD RIP and a little propaganda on the HLCS to go along with Larry's next-best-thing-to-a-real-live-HL replicas (at least these little guys could travel to the U.K. and not suffer air-sickness or culture-shock).

--information provided by  
*Bette Armstrong*

## *... and one more snapshot of the regal*

### *Phrynosoma solare...*



"Night Life". This regal was found in Avra Valley, Arizona, on May 19, 1995, at 8:07 p.m. (one hour after sunset--an example of nocturnal activity in the species).

-- Photo *in situ* by Roger Repp

### **HLCS MEMBERS!**

Please remember to update your mailing address when you move! Also, include your e-mail address if available for between-newsletter information.

# Horned Lizards, Regally

## Ramblings on the Regal Horned Lizard ... by Roger A. Repp

National Optical Astronomical Observatories, 950 North Cherry, Tucson, Arizona 85719

### Horned Lizard Convention?

One warm and humid morning, on a long forgotten date and time in history, this author witnessed a horned lizard extravaganza the likes of which he has never seen before or after. The great event happened in what was, at the time, my driveway. Said driveway was, in reality, little more than a one lane dirt alleyway, which wound in a "Z" shape from a paved road to my house and beyond.

The morning in question will always be a morning in question. Why is it a morning in question? Because I didn't take notes, because I didn't take pictures, and mainly, because I didn't care. I have nothing to indicate it ever happened save for memory. I don't remember the day, or even the month. I might have the season right, as there is only one time of

year when the weather in the Tucson Valley is both warm and humid. That would be during the summer rainy season of mid-July through mid-September. The year can be ascertained as either 1987 or 1988, for this was the dark period in my life when I took no notes on any events, herpetological or otherwise. And I didn't take up residency in my current home until April of 1987.

What I do remember is being in a hurry to do something much less important. The first sharp turn of my driveway was negotiated by my piece-of-junk Datsun, when a small pile of something in the middle of the road ahead caught my attention. As

my driveway was often a playground for the kids in my neighborhood, it was always prudent to pay close attention to the alley's substratum. Many was the time that piles of nails or broken glass were left as offerings from the benevolent youth. No small measure of time was spent employing sub-standard mechanical skills in changing tires as a result of these "offerings" from the pernicious little

my vehicle and rushed the circle. I was on them before they knew what was happening. A well-aimed kick sent a shower of sand descending upon them, and I bellowed "Get out of the way, you idiots! Can't you see I'm in a hurry?" The result of this effort was much like kicking up a covey of quail – horned lizards scattered everywhere! Not only was the circle at my feet broken, but the

ground for a hundred feet ahead of me came alive with horned lizards running for their little lives. Altogether, there must have been at least twenty of them, ranging from the tiniest, thumb-nail-sized neonates to hand-sized adults.

That was then and this is now. There is nothing but regret over the lost opportunity



"Ain't I adorable?" Hatchling regal horned lizard, fresh out of the egg. Note the dirt on the forehead of this cutie. Photo taken in Phoenix, AZ, on September 11, 1988.

Photo by Cecil Schwalbe

monsters. Whenever my car was up on a jack, I would look upon bull alligators eating their young as an advanced evolutionary step in reproduction.

But on this morning, as the "pile" before me came into focus, I could see it was not the ordinary harbinger of potential misery. What I was looking at were six large horned lizards sitting in a circle. Their heads faced each other, and were so close to one another that they nearly touched. If one were to scribe a line around the circle these many-spiked creatures formed, it would have been less than 14 inches in diameter. What they were doing, or why they were doing it, will never be known.

In abrupt fashion, I stepped out of

nity to witness what would have followed had I chosen to just observe the circle of horned lizards in my driveway. If the event were ever to present itself again, a far different tack would be taken. I might just sit in the car and watch, or I might grind my way into reverse and backtrack to the house for my camera. I would certainly not get out of my vehicle to clear a pathway to drive through!

### The Regal Horned Lizard

There is but one species of horned lizard found in the lower elevations that surround the Tucson Valley: the regal horned lizard, also known in circles higher than mine as *Phrynosoma solare*. This is the type



of horned lizard that lives in close proximity to my house.

The "regal" is so named because of the impressive "crown" of horns which adorn the head. Four prominent spikes shoot out from the back of its head, and these are in turn flanked with smaller horns to either side of the big four. They are the largest of the eight known species of horned lizard to occur in the United States. I once measured one that was 6 ½ inches from snout to the tip of its armored tail.

Like its Texas counterpart, the regal has the ability to squirt blood from the corner of its eyes. I have not witnessed this myself, but once saw a boy carrying one whose shirt was splattered with blood. When asked where the blood came from, he replied that the lizard had squirted him. I also have two photos that document this behavior.

The regal shares this ability to squirt blood with two other types of horned lizards in the United States: the Texas horned lizard (*P. cornutum*), and the coast horned lizard (*P. coronatum*).

#### **"Bad Luck Horn Toads"**

My interest in anything herpetological has been a life-long passion. However, it wasn't until 1989 that I began taking notes on what was being observed. In the beginning of this process, only the things that interested me the most appeared in my notes. These "noteworthy" creatures included snakes, tortoises, Gila monsters, and a few of the other impressive lizard species found around southern Arizona. But snakes were without question the driving force in my note taking.

As such, many an evening has been spent piling into cars and cruising off into the night to find snakes. As reams of paperwork began accumulating to attest the results of these road cruises, a startling discovery was made. On the evenings when horned lizards were found, the snake numbers dropped off significantly. Being somewhat superstitious in my approach to the fine art of herping, I soon began to regard the horned lizard as a bad omen. It got so bad that if another

person spotted one while on a road cruise, they like as not would receive a severe tongue lashing for their carelessness. "Curse your eyes boy! Now we ain't gonna see *squat*!"

In time, it was learned that yes, there was something to my theory of the regal being a portent of doom on a road cruise. But the problem was not the lizards themselves, but rather, their activity periods. While most horned lizards like it hot, they don't like it *too* hot. Hence, on the cooler road cruising nights, we would encounter the horned lizards early in the evening. The temperatures would then drop rapidly, resulting in minimal snake activity. This was especially true during the most active time period of all for the regal horned lizard, namely the late spring months of May and early June. The temperature can vary as much as 40 degrees (F) from day to night.

#### **Through the Eyes of a Child**

Besides note taking, other things began happening in 1989 as well. The Tucson Herpetological Society started up an educational outreach program called the "Speaker's Bureau." Armed with slide shows on the local reptiles and amphibians, and a live snake or two, we would go to schools and show the children the types of reptiles they might encounter around Southern Arizona. In the beginning of this endeavor, I had but one slide of a regal horned lizard, which was always incorporated into our presentations.

Whenever this slide hit the screen, the children would get excited, and they would be one step ahead of me. Some would not be able to restrain themselves, and blurt out "That's a horny toad! They eat ants and squirt blood!"

The truth is that kids love horned lizards. So do most adults. As this love for the little reptile became apparent, I began to accumulate more and more slides of horned lizards to include in my talks. At the same time, I began gathering papers on horned lizards, so that more information on the lizards could be included in my talks. When I found very little info available on the regal, I began paying more attention to the

ones I was finding.

When going public now, my presentations center on the four reptiles that interest the local population the most. Said reptiles are rattlesnakes, tortoises, Gila monsters, and horned lizards. The little lizard has earned its place of honor amongst some pretty stiff competition!

#### **Zeroing in on the Regal**

Sadly, it wasn't until 1992 that I began to pay close attention to the regal. The first thing that was noticed was that I was seeing less of them than when I was trying *not* to see them! Previous to 1992, I could say with some degree of confidence that I would see five in the city for every one encountered in the wilds. Sadly, that trend has reversed itself. The ratio is now more than ten "wild" regals for every one encountered in an urban setting. We will revisit this point later.

In the U.S., the range of the regal appears to be restricted to southern Arizona. Even within this limited area, the regal's range mingles with the ranges of four other species of horned lizards in Arizona. Working from west to east, the other species are the desert horned lizard (*P. platyrhinos*); short-horned lizard (*P. douglassi*); Texas horned lizard (*P. cornutum*); and roundtail horned lizard (*P. modestum*). The overlap is such that in southeastern Arizona, there may be as many as three different species sharing the same patch of ground.

My notes reveal that regals have been found at elevations ranging from 1,200 to 4,300 feet. They are typically inhabitants of a region described as the Sonoran Desert. The chief plant indicators for the species are palo-verde/saguaro cactus, although they do occasionally appear in higher grassland associations.

Their peak activity period appears to be mid to late spring, although the onset of the summer rainy season also brings them out in numbers. They have been found active every month of the year except December and January. The earliest in the year I have ever seen one was February

## *Regal Horned Lizard, continued...*

18, the latest was November 9<sup>th</sup>. As this author spends much time in the field in the winter months of December and January, it is assumed that the lack of horned lizards might reflect that they hibernate.

The time of day they become active varies with the time of year. March is the month that they seem to start getting cranked up in any numbers. With the onset of the first warm weeks of spring, they become active from mid-day to late afternoon. As the warmer months of May through September approach, they become bimodal, coming out during the early morning, and again in the late afternoon. On several occasions, I have observed them active after dark. By October, they once again become afternoon lizards, and by mid-November, they disappear from the landscape.

I am told that they have two reproductive seasons, which makes sense. The chief mating season of most of the lizards in Southern Arizona appears to be late April through mid-June. But I have seen nothing that would indicate the regal is a spring breeder. By early July, the neonates of several other species of lizards are observed, but never a hatchling regal.

Everything in my observations indicates that the onset of the summer rainy season is the time they are most likely to mate and lay their eggs. The scanty literature in my possession all points to a mid-July to August egg laying scenario, with the youngsters emerging in early September. The clutches are rather large for such a small lizard, anywhere from seven to thirty-three eggs per nest being documented. (See Van Devender and Howard under "References" section.)

### **Home Sweet Home**

I live on the grounds of a private school in Northwest Tucson. In all, the school encompasses sixteen acres of land, half of which are baseball and soccer fields. The setting of the school is such that there is a busy paved road on the western side. Fences line the north, east, and south perimeter of the grounds. On the other side of these fences lie the result of the American Dream – a form of middle-class suburbia. One house or mobile home per ¼ acre plot. Travel ¼ mile south, and we find the mighty Rillito River, very close to where it joins the Santa Cruz River. The Santa Cruz is *the* major drainage of the Tucson Valley. On the west side of the school is a massive, county-owned gravel pit. The gravel pit and confluence of two rivers assures there will be no further development in the area.

My driveway has changed. Roughly three years ago, after a series of vandalism rocked the school, the gate leading to my home was gated shut, and a different route made available. Hence, my old driveway has become overgrown, and is only occasionally used by a local cable television company. No longer being able to use this alleyway on a daily basis has probably cost me many observations on the regal horned lizard. But it is all for

the best, as my former driveway appears to be their last stronghold. If the road had remained open, the heavy traffic it was beginning to receive would have no doubt flattened the lot of them.

### **Where Did They Go?**

In the late 1980s, large numbers of the regal were observed living at the school. A good example of the healthy regal population occurred in September of 1991, just after I made a presentation to the fourth graders at the school. While I was busy putting away the slide projector, the class of about 15 kids ran out onto the grounds, and collected eight regals to show me. This happened in less than ten minutes! (It should be highlighted that while the kids were praised for their efforts, some adult intervention ensued. The lizards were returned where they were found.)

It has now been two years since any have been observed on the school grounds, and four years since one has been in my yard. To make a long story short, they just aren't here any more.

With the pressures of traffic on my driveway relieved, one would think that the regals would flourish. The exact opposite has happened. While I can't explain with scientific certainty why this has happened, some common sense observations are included here.

In 1994, my driveway suddenly becoming a popular "back entrance" to the school had its effect. A good many flattened horned lizards were found during the year or so this was happening. Over the past few years, feral cats have moved onto the school grounds. Perhaps a few regals were collected by the children or teachers. In all, these were but minor perturbations.

In the late 80s and early 90s, the grounds crew were a pretty laid-back lot. Being laid-back whilst collecting paychecks can be a dangerous thing for groundskeepers, and a forced changing of the guard took place. The current crew's effort to tidy things up has been commendable; but is not without its cost to the horned lizards. There are few patches of neglected habitat left on the school. No more "unsightly" weed patches are left unattended.

On top of this, an all out war on ants has ensued, both on the grounds and off them. The few neighbors I have talked to indicated they poison ants. On the campus here, harvester ants have become a thing of the past. A war on all fronts is taking them out.

Take away their food, take away their home, and we kiss them goodbye.

### **The Regal Stronghold**

The first hundred feet of my old driveway is covered with relative silence. Just when I think my visit here will be a peaceful one, all canine hell breaks loose. It starts with a vicious Chow that rushes the chain link fence that thankfully separates us. In his enthusiasm to tear me a new bodily orifice, he collides with the fence at

full speed. Then begins the barking. This is all it takes to wake up every dog in the neighborhood, and the serenity of a Saturday morning is upset by a cacophony of canine oration.

The variety and power of voiced doggy-displeasure is amazing. I hear it all, from the deep "woofs" of sinister-looking "Cujo" type dogs, to the little yappings of these four legged things that would best serve as python food. One dog is particularly pathetic; it is some kind of little bulldog-like thing. He seems to be suffering from a case of acute hair-lip. He can't even bark proper! As he stands his ground inside his fenced domain, it is all the ugly little thing can do to get out a "Marf-marf!" It is truly a pitiful sight. The whole experience is causing an already-rotten disposition to spiral downward. Who would own a dog like this?

With such fan-fare, my first visit to the alley since October of 1996 ensues. My previous visit here nearly two years ago; was done to help find a visiting friend a regal. After five sporadic searches, we had finally found two young ones. This was on her last day here. The dogs were bad then, they are worse now. I have grown to hate this place!

Nevertheless, this article was in the back of my

mind. It was felt that I owed the HLCS a Saturday morning, to see if there was any evidence of the regal horned lizard still being around.

The first positive signs are observed twenty feet into the walk. An anthill is found. Here is where the discriminating "Phryno-philes" will begin to gnash their collective teeth. My ignorance on ants will always remain just that.

My observations indicate we have three types of ants out today. There are the little brownish-red ants, of the variety that my father used to call "urine-ants." (That's not what he *really* called them. But alas, this is a family show). From there, moving up the evolutionary ant scale, we got bigger red ants. In my systematic approach to the little six legged creatures, these are called "bigger red ants." But I know I have hit pay dirt when I find several anthills that are residence of larger black ants. We will call these harvester ants, although at the time of observation, they were not driving any John Deere tractors.

The sun is boring holes in my retinas as I make eastward tracks up the narrow pathway. The finding of ant colonies continues. Things are looking good. For this first pass, "lizard eyes" are brought into play. The fine art of lizard eyeing constitutes looking ahead a distance of a hundred feet or so. The purpose is to catch any form of movement ahead, and zero in on the same. A few whiptail lizards twitch in their own spasmodic way across the road, but nothing else is seen. A half-hour later, I am at the end of the road, and it is time for the "money pass." By now, it is 9:15 am, and the "regal hour" is at hand.

For this pass, "scat eyes" are brought into play as well. With the sun at my back, all in front of me becomes crystal clear. The seeing conditions are excellent. Three steps into the return trip, an elliptical-shaped pellet is

spotted laying on the dirt. Closer inspection of the little jewel reveals that which I seek. It is about ¼ inch (6mm) in diameter, by one inch (25mm) long. Like many of its scatological cousins, it is colored a deep brown, with a white-colored glob of uric acid at one end. The offering is then fondled, carefully inspected from every angle, and finally, smashed into little bits. It comes as no surprise to see that the scat is entirely composed



"Motherly love." This female regal has laid her eggs, and is packing the dirt back into her nest. Note that she is using her front legs to fill her nest. Photo taken August 1994.

*Photo by John Cancelosi*

of ant parts. Bingo! They're still here!

In all, I find 18 pieces of regal scat on my little walk. Some are old, and crumble readily at the first touch. Others are so fresh that they stain my fingertips, and do not easily break apart.

The readers (both of them) may ask "But did you find any regals?" For the answer to that riddle, we must seek answers to others. Do snapping turtles have lips? Do cornsnakes eat corn?

No, I didn't find any of the lizards themselves. But enough was seen to ascertain that they are still there. It is nice to know that this patch of turf will remain unchanged through the years ahead. There is no purpose in developing the alley any further than it already is. By leaving this narrow patch of ground undisturbed, I hope that at least a remnant population of regal horned lizards will remain here indefinitely.

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