



# Phry'no'so'ma'tics

noun, 1. people enthusiastically dedicated to reversing the decline and supporting the conservation of horned lizards. From the genus Phrynosoma - the horned lizards.

May 1991

A Monthly Newsletter of the Horned Lizard Conservation Society

## Safari So Good . . .

There Steve and I sat, nestled among the trees making jeering comments at the Bat society people, "Hey, it's just a rat with wings". It was amazing, all those difference conservation societies peddling T-Shirts. I think our "Wanted Alive" shirts did best. Lots of folks stopped to chat. Got some more info as to where Horny Toads have been spotted recently. Had a sighting that very morning in Round Rock and some others in Pflugerville. Passed out lots of flyers. The bulk of people who stopped were in the thirty to forty range. The common comment was "I used to see them all the time in the sixties".

On Sunday the heat was awful. One member commented on how our booth was located on malaria row. And then the rain came. After only a couple of hours we were told to pack it up. Sure enough, it stormed mightily.

A lot of people spent a lot of time building, manning and supplying the booth for this event. This kind of devotion will go far for our Horny Toad buddies. I should end this report with the grand total of how much money we made for the conservation society. I can't. Somehow in the scramble from the storm, I locked the money box. Could be millions. ▲ — Bill Davis

## Upcoming Meetings

**GENERAL MEETING—**  
Tuesday, May 14th, 7 p.m.  
Austin Nature Center

At this meeting, Melanie Typaldos will present a half hour presentation which will include a slide show with several horned lizard species shown in their native habitat. She will also discuss other lizards that inhabit the same areas.

**RESEARCH AND RECOVERY COMMITTEE —**  
meets next on Wednesday,  
May 22th, 6 to 8 p.m. at  
UT-Austin, RLM 7.120  
(corner of 26th and Speedway).

## Phrynosoma Phacts by Melanie Typaldos

### Sex Determination in Reptiles

#### Introducing the Phacts

*This column will be a regular feature in the Horned Lizard Conservation Society Newsletter. It is intended to be a method of keeping the general membership informed of the most interesting — or most critical — facts that are uncovered by the Research & Recovery Committee.*

*Each month I'll try to bring up some new and interesting information about horned lizards. Most of this will probably be obtained from the extensive literature search that the committee is conducting. In addition, I'll be bringing up topics in general herpetology which should be of interest and giving everyone in the group a chance to become familiar with the buzz words of the field. (By the way, your first buzz word is herpetology, which means "the study of reptiles and amphibians".)*

*If you have any questions or comments, or if you'd like to suggest a topic for a future column, drop me a line at:*

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#### How Sex is Determined in Reptiles

It was a beautiful mid-August day in Knoxville, Tennessee in 1979. I felt something like an imposter sitting in on the joint annual meeting of the Herpetologist's League and the Society for the Study of Amphibians and Reptiles. Although there were plenty of other amateur herpetologists there, this was the first professional conference I had attended and it felt more than a little strange to be mixing with the pros.

The thing that I will always remember about this conference was a presentation by Michael A. Ewert titled "Effects of Embryonic Temperature on Hatching Morphology of Some Turtles". I remember the feeling of disbelief that I had when Dr. Ewert stated that sex, in at least some turtle species, is determined by the temperature at which the eggs are incubated!

This phenomena, now known as TSD or Temperature Dependent Sex Determination, has been well documented since I first heard about it in 1979. In most higher animals, such as mammals, fish and birds, sex is determined genetically. Most people are familiar with the fact that an XY chromosome pair produces a male in humans, while an XX pair produces a female. Sex determination by genetic material is known as Genetic Sex Determination or GSD. Both forms of sex determination occur in the reptiles.

What TSD means is that the temperature at which some reptilian eggs are incubated, determines whether the offspring will be male or female. For most turtle species, it has been found that warm temperatures favor the development of females, while cooler temperatures favor males. In alligators and crocodiles, the opposite trend has been found with warm temperature favoring males and cooler temperatures favoring females.

In the wild, it has been found that individual clutches of eggs will be predominantly of one sex. For example a clutch of map turtle eggs laid on a sunny river bank may all develop into female turtles, while a similar clutch laid under the canopy of a nearby tree may be predominantly male. There may also be a trend favoring one sex for the clutches laid in midsummer verses clutches laid in the fall. Cool summers may favor one sex while warm summers favor the other sex.

TSD has serious implications for conservationists and herpetoculturists (people who breed and raise reptiles). If even numbers of offspring of both sexes are to develop, the temperature at which the eggs are incubated needs to be closely regulated. The correct

*continued on page 3*

## Bart's Notes –

I am so proud of this organization! Over the years it has been my privilege to work with some amazing people, but I have never seen such talent and dedication as I've found here in the HLCS. Marcia Jenkins and Steve Austin deserve a special word of thanks. Marcia for her outstanding performance in getting out the past newsletter and this one, and Steve for his splendid job putting us in the T-shirt business. Then there's Melvin Stanley who told me not to mention his name, but I just have to. Melvin is doing most of the work on our 501 C (3) certification.

As for me, I am rather preoccupied with my upcoming marriage and have not yet formed any new chapters. I feel my plan for a three city blitz by airplane was premature, but I'm hopeful that by the next newsletter I'll be able to report the formation of at least one new chapter. The business of forming a multi-chapter organization has been a real education for me.

It's party time! Circle May 25 on your calendar. We will gather at a location that has some living horny toads and picnic and socialize. I don't know how everybody else feels, but I've been feeling a need to **lighten up** a bit and I've been seriously anticipating the opportunity to get to know a lot more about many of you. As I finish up this article it is hours before my wedding and the details of the May 25 party are not together. If you are reading this newsletter and have horny toads on your property near Austin and wouldn't mind some worshipful fans picnicking there, please call wk: 463-2170 or hm: 448-3906.

I'll be honeymooning in New Mexico the last week of April and I plan to investigate the horned lizard situation. The last horned lizard I saw was on the Mescalero Indian Reservation some four years ago. As spring and summer arrive I have made a promise to myself to have at least some contact with the animal we all love, if for no other reason than to uplift my spirit. If you haven't bought a T-shirt or book you better be at our next meeting, and if you have, be there for details on the upcoming party. Things are finally starting to get to be fun.

— Bart Cox

## To Be, or Not to Be (National) That is the Question

by Wendy Donaldson

This last month, I was fortunate enough to attend the Endangered Resources Forum on April 12 & 13 sponsored by Texas Parks and Wildlife. The following Tuesday, I had the opportunity to talk on KUT (FM90.5) about HLCS. I would like to share some of the information from these two events, but I feel compelled to discuss an issue concerning the direction of HLCS. The issue is whether or not we are to be a national organization.

First, I commend the desire of Bart and others of the national persuasion to have an impact reaching beyond the Texas border. At a time when we are seeing large scale degradation and destruction of the environment across the nation (and throughout the world) I also want to produce large-scale changes. However, I realize that first I must produce changes on a smaller scale so that I have a strong base to work on.

When the national idea of HLCS was first proposed, I did not speak against it because the idea somewhat appealed to me, even though I did not intend to be a part of the national structure. I felt that if most of the members wanted a national group, they were welcome to give it a shot. Within the course of the last two months, my opinion has changed upon the realization that everyone I have spoken to about this topic is currently uninterested in a national structure. It seems that the national idea is taking away vital energy and interest from a more immediate task—the formation of the original Austin group to prevent further decline of horned lizard populations and promote recovery of these wonderful reptiles.

I have gone back through the goals that were adopted at the January general meeting and some of "Bart's notes" printed in past newsletters. To reach these goals in Texas alone is going to take an enormous amount of work and effort, and I would like to see the enthusiasm we had in December return. What I am seeing, however, is the dedicated individuals are getting burned out-fast. With 181 original membership prospects, the 35 or so dues-paid members is discouraging (I hope this number increases by the next meeting).

While I attended the Endangered Resources Forum, I met a lot of people

very interested in our organization. For instance, at the education panel discussion, I talked with Diana Foss, the education director of The Texas Zoo in Victoria, Tx. She is interested in forming a kids club designed to educate children about the Texas Horned Lizard, and she specifically asked for all the information and help we could give her. One of the most unbelievable tasks facing us is in educating the public, making them aware of the status of horned lizards, and the penalties for illegal possession, taking, transporting, and selling (up to \$575 for first offense). The Texas Horned Lizard serves as an indicator of the degradation of ecosystems throughout the state, since historically they were abundant everywhere and now the populations are shrinking and becoming isolated.

I talked to Kim Swartz from the East Texas Herpetological Society who will be publishing our survey in their newsletter. Andy Price also mentioned HLCS during his slide presentation. He feels confident that our organizations can work together in obtaining the needed funding for research (a status survey like the proposal Andy has written will be required before any federal action is taken to protect the Texas Horned Lizard, federally classified as a category 2 species – a candidate for threatened or endangered listing, but substantial data on biological vulnerability and threats are not currently known to support listing).

While I was talking on KUT, Jean King, an Austin artist, called in. She has a 6' x 6' painting of a horned lizard leaping into the air that she is willing to let us use at our own discretion, and she suggested to hang it in our meeting room. I have more examples, but I think I've made my point – a lot of work needs to be done on the horned lizard species in Texas alone to merit our undivided attention. I feel the current planning for a national organization prevents us from focusing on immediate, effective action. Once we have accomplished some of these tasks in our own state, then some attention can turn toward a national perspective. If we don't show any accomplished work here at home, how are we going to convince others that such organizations are needed and effective? ▲

# Media Miracles — or, KUT-FM, your Horny Toad Info Source

by Joyce Snodgrass

In mid-April a miraculous occurrence happened. I showed the survey, newsletter, and a photo to an interested co-worker, Mike Hall. Mike showed it to everyone he could find — including John Aielli, who does the morning radio show — and he hasn't stopped talking about horny toads yet! Wendy Donaldson (our Research and Recovery Committee chairman) was on the air on the morning of Tuesday, April 16 for at least an hour fielding questions and comments from the public. I had planned to wait until the PLEDGE DRIVE week was over before begging John for a brief mention of the HLCS,

but he jumped on it like a *P. cornatum* on red ants.

I hope we get some of the responses we deserve. I am glad to play a small part in this though I certainly did not expect it so soon.

Remember, our greatest asset is our enthusiasm. Most people we tell about the group are interested and even want to know what they can do. Let's get those "How to Help the Horned Lizard" packets out soon, while the excitement is still there. I can promise that John will read some of it on the air — and even play your favorite Toad & Lizard related Songs! ▲

## BOOK REVIEW

Fantastic! Sensational! The Bestest!! Those were my feelings and bad grammar when I read the Horned Lizards book we now have for sale for \$4.95. It has great research, beautiful pictures, and idiot proof diagrams showing where the seven different species of horned lizards hang out. As a child, I thought I was the only one in the world who had seen horny toads "talking" with head movements. This

book illustrates it. At that time, I also thought the little almost hornless white to beige horny toads were "sand toads". Now I see they aren't albinos or mutants but roundtail horned lizards. The book's even got pictures of teeny tiny baby toadettes. If I had owned this book sooner it would have answered almost all my questions. Your home cannot be complete without a copy of *Horned Lizards* by Wade C. Sherbrooke.

— Bill Davis

## *Phrynosoma Phacts* . . . from page 1

temperature required to produce mixed male and female clutches, depends on the species and, in fact, is not likely to be known for a particular species. Before the possibility of TSD was known, several years worth of clutches of the highly endangered Galapagos Tortoise were hatched. Because of the long time required for these animals to reach sexual maturity, it was many years before it was discovered that *they were all males!* Some researchers have even speculated that a change in global temperature of just a few degrees would have caused the extinction of the dinosaurs, due to the effects of TSD.

To determine if a given reptile species has TSD or GSD, it is necessary to run a series of incubation experiments. Several clutches of eggs from the species need to be incubated at varying temperatures and the sex of the resulting hatchlings determined. If the hatchlings are of mixed sex over a wide temperature range, then the species has GSD. If the ratio of male to female

hatchlings varies over the temperature range, then the species exhibits TSD.

What has all of this got to do with horned lizards? Some lizard species, including member of the iguanid family which includes the horned lizards, have been shown to have TSD. In all of the literature which the Research & Recovery Committee has been reviewing, I didn't see a single reference to indicate whether horned lizards have TSD or GSD. I guess we just don't know . . . ▲

### References

Halliday, Tim and Kraig Adler, *The Encyclopedia of Reptiles and Amphibians*.

Etchberger, Cory R., "Temperature-Dependent Sex Determination . . . Some Like It Hot", *Reptile & Amphibian Magazine*, July/August 1990.

Ewert, Michael A., "Effects of Embryonic Temperature on Hatchling Morphology of Some Turtles", Joint Annual Meeting of the Herpetologist's League and the Society of the Study of Amphibians & Reptiles, 1979.

## A Letter to the Members

Dear Members:

An organization, like any other system, is a dynamic ecosystem. The HLCS is a wide ranging group with a lot of different functions, all meant to culminate in the goal of reintroducing *Phrynosoma cornutum* to its former prevalence in the Central Texas area. It appears to me that the HLCS might have a considerable excess of discussion and "argument" during its meetings.

Perhaps some of the General Discussion can be done either before or after the meeting at a lounge in a comfortable situation. The group appears to be too large for the amount of discussion that seems to occur on every point. On the other hand, I do recognize that having all this discussion here at the meetings is so that everybody has a chance to hear everything.

It appears that many elements of the club want "Us" all to agree on Everything, to do everything as a group, or at least to vote on everything anyone does: for example, must all correspondence be approved by the group (if it should involve horned lizards at all)? Does the structure of this group need to be that Stiff? Can't we be, among other things, a clearinghouse where we discuss things and ideas for people to know about (like the Manor area Highway project) which these people (members) can act upon as individuals.

Do the Lizards fight the snakes who fight the trees who fight the mice? I would think not. We must be careful of alienating people — they will remain interested in Horny Toads but perhaps, NOT in this group. I don't have all the answers. I don't have ANY of the answers. I think we had better watch this tendency toward discussion gangs — perhaps arranging a pre-meeting, or a different DAY discussion meeting.

I also notice a tremendous amount of momentum and energy generated at this monthly meeting, which tends to die down by the next week, and then finally dribble down till the next meeting where it rises up again (maybe it just me—?). Maybe a semi-social Horned Lizard Bull session would give us a place to share ideas & work out the arguments.

*Phrynosomatically,*  
Joyce T. Snodgrass

*P.S. I will be surprised if this letter does not generate quite a bit of discussion at the meeting!*

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## Bill Davis Reports — Notes on the Last Meeting

T-Shirts and Books, Books and T-Shirts! We finally got both to our meeting. The T-Shirts are nifty, the books are great. I bought two of each.

Dick Anderson opened the meeting with a report concerning computers. If you have one, as he does, with modem capabilities, you can tune in on certain "party line" computer nets. Dick found an Amphibian and Reptile society out of Pennsylvania so we may be posting our own message concerning our society in the same manner. It costs like a long distance phone call. I considered buying a computer to get in on the "singles" party line. My wife overruled.

George Perry suggested contacting other groups with similar environment or animal species concerns to see if they'd be interested in our cause.

Wendy Donaldson's group has mailed out survey forms to thirty newspapers. There is another five hundred and fifteen we can mail out but it costs Big Bucks. Wendy will keep us updated. The propagation and research committee will be involved in a workshop towards the end of May. Workshop mission: To find out what biologists do. That's scary!

There is mounting evidence that man's over collection of our horned friends may be the biggest reason for

their demise. We would like to obtain any articles or ads, old or new, that promotes collecting of horned lizards.

Three cheers for Melvin Stanley. He's been instrumental in filing out the dreaded 501 C (3) forms. I may ask him to do my taxes next year.

A club member expressed the desire to have more entertaining meetings. Speakers, presentations and that sort of thing. While I felt they had a valid point, something my father used to say came to mind . . . "there are two things in life to remember. One, never take your car to the dealer to get it fixed, and two, don't criticize something you're not willing to fix yourself.

Safari dates were April 27th and 28th. See my Safari article in this newsletter for an update of that big event.

At our April meeting we did stop the fun-and-games to discuss By-Laws. The bright side is, Bart and George are very willing to change any wording in them you feel strongly about.

Party On! We are tentatively planning a picnic/party for May 25th. Bartman is contacting someone who has a place with Horny Toads on it (reasonably close) so we can go out and see some of our Horny buddies. Those of you we haven't seen in a while should be there. We wouldn't want to miss those cute scaly faces. ▲

### Newsletter Input

Please help build this newsletter! We need articles, graphics, maps etc. Send to Newsletter Editor, P.O. Box 122, Austin, Tx 78767. Articles of more than 100 words must be: (1) typed originals, or (2) provided on a Mac or PC disk. Deadline for articles is first day of the month. Questions? Call Marcia Jenkins at 454-7778 weekdays or 512-321-7579 eves.

### Please Join Us NOW!

- Students - \$10 • Subscribing - \$10 (newsletter only)
- Regular - \$25 • Contributing - \$50

Mail fees along with Name, Address, Phone Number and comments to: Horned Lizard Conservation Society, P.O. Box 122, Austin, Texas 78767

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Dedicated to Conserving Horned Lizards Throughout North America