Phry'no so ma'tics

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.

The Newsletter of the Horned Lizard Conservation Society

Helping or Hurting Horned Lizards — What You Can Do To Help

by Lee Stone, Nature Preserves Manager for the City of Austin, TX and Past President of HLCS

This article addresses what can each of us do to DIRECTLY benefit horned lizards. These comments are extrapolations based on observation and deduction.

Scientists will rightly say there is no hard evidence: no experiments have been conducted for years to absolutely corroborate the assumptions given here. But HLCS has been criticized for holding back, for waiting for the scientists’ conclusions.

The National Board of Directors has also found it difficult to summarize our findings for another reason: for fear of sounding critical of the very people who may care the most and whose help is needed the most — the private landowner. That is not our intention. We would be criticizing ourselves.

Certain actions taken by many of us — over the years and even today — have and continue to have devastating effects on horned lizards. These activities are usually based on an economic need. And the people involved are usually caring people for whom the actions seem necessary.

Often other forces are at work. For example, farmers and ranchers may be following the best advice of professional consultants — such as the Texas Agricultural Department, or the Texas Agricultural Extension Service, or the Soil Conservation Service — regarding best management practices for maximum crop yield or cattle production. They may be taking part in government programs to convert to improved pastures. Reliance on pesticides still is reality for many producers. Many of these same organizations also offer programs to help wildlife and conserve soil and water resources. Whether they are heeded depends on the individual landowner.

These things having been said, read on.

Harmful Activity #1: Conversion of native pasture land to improved pasture or to cropland.

Horny toads hibernate under the ground during the winter. They lay their eggs underground. They can bury themselves and return again, but they cannot return to the surface when they are upside down and belly up under several inches of overturned sod. Horny toad young are especially weak, small and vulnerable. Horny toad eggs seldom survive the plow: they are broken, overheated by sun or exposed to predators.

Even if some survive the plowing, the most desirable “improved” (aka exotic) grasses form mats, rather than bunches. See the next activity for the problem with this.

Harmful Activity #2: Replacing native vegetation and bare spots in residential yards with thick grass lawns.

Horned lizards are limited by the very shape which we love so much to making their living on the flat ground, not in trees or shrubs. On the ground, they move best when not impeded by vegetation. The native bunch grasses allow little animals to form runways around the bunches and still provide cover. Bermuda grass and

Continued on page 9
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Apple Valley, CA 92307
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1-800-733-2077

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Univ. of Washington
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Seattle WA 98195
801-581-4467
206-525-5836, 543-4959

Research & Recovery
Kelly Zamudio
Univ. of Washington
Zoology — 15
Seattle WA 98195
801-581-4467
206-525-5836, 543-4959

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University of Texas
Zoology Department
Austin, TX 78713

INFO on HLCS

The HLCS documents and publicizes the value of and the needs of horned lizards. We promote horned lizard conservation projects and assist with horned lizard management initiatives throughout their ranges.

We strive to educate our members and the public about the plight of horned lizards and the need to conserve them.

We gather and organize information, develop support research, develop strategies for habitat management, support strategies to preserve existing habitats, and pursue strategies for the propagation of horned lizards.

HLCS is non-profit & tax exempt, staffed by volunteers. All donations are fully tax deductible.

We hold benefit concerts, sell t-shirts, jewelry, books, hats, cards and more. We have summer field trips for members and a newsletter.

We urge you to join the HLCS today. Members are encouraged to be active in the organization — come to our meetings and participate!

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Lester Milroy III, Chapter President
16377 Rancherias Rd.
Apple Valley, CA 92307
1-619-242-3370

Texas Chapter
Melisa Montemayor, President
P.O. Box 122
Austin, TX 78767
210-948-5601 [h]

Carolyn A. Todd, Vice President for Education - [h] 512-255-6770
Sandra Holland, Vice President for Public Information - [h] 210-569-4821
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Your State Chapter Here -
Requires a minimum 10 members and approval of National Board of Directors.
How much do you know about the horny toad?

Answer these “True — False” Questions to find out!

(Published in the May 25, 1993 Austin American Statesman, in an article titled “The Horned Lizard’s Tale,” written by Dave Pego, based on school curriculum developed by Carolyn Todd, Past Vice-President of Education, Horned Lizard Conservation Society)

1. Horned lizards can “squirt” blood from their eyes.
2. This creature can predict the weather by pointing its tail in the direction of a weather change.
3. A horned lizard is a small version of a dinosaur.
5. Females can lay 30 or more eggs at one time.
6. These animals are really frogs called “horny toads.”
7. Horned lizards can inflate their bodies with air until they resemble a spiky balloon.
8. These reptiles can be taught to eat fire ants.
9. Horned lizards were a threat to the people of the Southwest.
10. You will find horned lizards in almost all areas of the Southwestern and Western U.S.
11. There are 13 different kinds of horned lizards, 7 of those kinds live in the U.S. and the other kinds live in Mexico.

Answers on Page 5
Predator Avoidance
Horned lizards escape predators by using a combination of factors:
1. Cryptic coloration or camouflage
2. Running and freezing
3. Inflating the body
4. Aggressive behavior
5. Playing dead
6. Ejecting of blood from the eyes

Each lizard will use a combination of these tactics, some of which work better against certain predators than others.

Cryptic Coloration
All seven American species of horned lizards are masters of cryptic coloration. To anyone who has ever gone out looking for horned lizards, the ability of these animals to blend into their surroundings is a source of constant amazement.

Because horned lizards typically live on exposed soil rather than in dense vegetation, the lizards are better protected if their color matches the soil where they live. Predators will see best the lizards whose patterns and colors don’t blend well with the background.

Lizards on light colored soil will tend to be light in color; those on predominantly reddish soils will have a redder coloration, etc. This trait is enhanced by the color of the dust which clings to their scales after they’ve burrowed.

The bright stripe down the backs of some kinds of horned toads might seem to blow their cover. This is not the case. In fact, the stripe serves to disrupt the outline of the lizard, making the two halves seem to be two separate parts.

Looking at the lizard against an artificial background, it is difficult to believe. Place the same lizard in an area of broken rocks, gravel and small shrubs and you’ll see how the light stripe is very easily seen as a stream of light among shadows. It gives the illusion of a change of depth across the two sides of the lizard. The lizard resembles two rocks, one overlying the other.

This camouflage only works when an animal is perfectly still. This explains why horned lizards tend to freeze when approached.

Running and Freezing
If a predator approaches too closely, a horned lizard may decide to run. Because of the flattened body shape, they are poorly equipped to run.

A horned lizard will run only a short distance, then stop abruptly and freeze. Suppose a predator is some distance away from the lizard and is intently following it with its eyes, such as a hawk from overhead. When the lizard stops abruptly, the predator’s eyes continue following the expected path of the lizard. Now it has lost the lizard’s exact location and the lizard can revert to camouflage for its defense.

Inflating the Body
One of the most dramatic behaviors of horned lizards is inflating its body: when fully inflated, the lizard may not be able to touch the ground with its feet! This increases the apparent size of the lizard to predators. This behavior is probably aimed at snakes, as they swallow their prey whole and if the prey is too large to be swallowed, the snake will pass it by in favor of something more suitable.

Aggressive Behavior
Horned lizards are also known to exhibit aggressive behavior when confronted. This acting as if it were going to bite, thrusting with the horns, lunging at an attacker and hissing.

Horn jabbing might be effective against an animal which is holding the lizard’s head in its mouth, with the lizard thrusting the horns into the soft inside of the predator’s mouth.

Playing Dead
If all else fails, a horned lizard may simply “give up” and remain limp and motionless. Although this might not be interpreted as a defense tactic, there are several examples of feigning death in the animal kingdom. The best known of these is the opos-
Squirting Blood

Horned lizards of several species, Texas, Coast, and Regal are known to occasionally eject blood from the eyes when bothered. This happens rarely and probably requires great stress to trigger.

The blood is ejected from the sinus orbitals and may spurt for a distance of up to several feet. This blood may be mixed with other fluids when ejecting. Members of the canine family, dogs, wolves, and coyotes, are repelled by the taste.

Bibliography

How You Scored

1. True. Horned lizards are not related to dogs or cats, they are related to snakes. They are classified as reptiles and live in the southwestern United States.

2. True. Horned lizards have a unique feature called the "horn" on their heads. This is a physical adaptation that helps them escape predators.

3. True. Horned lizards lay eggs, not live young. This is a characteristic of reptiles, which lay eggs outside of the body.

4. True. Horned lizards are known for their ability to eject blood from their eyes when threatened. This is a defensive behavior that helps them escape predators.

5. False. Horned lizards do not have a unique diet. Their diet is typically insects and small invertebrates.

6. False. Horned lizards are not known for their speed. They are active during the day and are not considered to be particularly fast.

7. False. Horned lizards do not have a unique facial feature called Big Red Nose. This is a common misconception about reptiles.

8. False. Horned lizards do not have a unique physical feature called Big Red Nose. This is a common misconception about reptiles.

9. False. Horned lizards do not have a unique feature called the "horn" on their heads. This is a physical adaptation that helps them escape predators.

10. True. Horned lizards are known to live in the southwestern United States, and are often found in desert habitats.

Answers
History of the Roundtail Horned Lizard

by Jane Manaster, member of the HLCS Education Committee and a professional writer living in Austin, TX

In the year 1846, a General Churchill retrieved a previously undiscovered horned lizard, when he crossed the Rio Grande into Mexico. This was a politically volatile area at the time and other military personnel were in the region. Colonel J. D. Graham took eight of the small creatures from San Antonio to El Paso. Both officers made sure that their finds were delivered to the Smithsonian Institution.

Phrynosoma modestum, a.k.a. the roundtail or bleached horned lizard, is native to western Texas. The population seems to vary in different areas. For example thirty years ago the lizards were plentiful in central Texas, but a decade later the largest populations are found in the western part of the state. The lizards’ territory also includes southern New Mexico and southeastern Arizona. Fossil finds have occurred in each of these states including two in the Big Bend at Maravillas Canyon and Tunnel View near Rio Grande Village.

While the lizards sometimes make their homes in the lower elevations of mountains, they are usually found on desert flats and dry plains. They seem to like eroding areas where their camouflage works wonders among the small to medium sized pebbles scattered over the ground. While modestum is talented at changing color, the Latin name, meaning calm, unassuming, and modest, is well-chosen for its normal grayish, yellowish, or whitish appearance. With splashes on each side of its neck and in front of its hind legs. This is the smallest species of horned lizard. Unlike many other horned lizards, the Roundtailed lizard lacks fringe scales along the abdomen, a stripe along the spine, and spines on the back.

FWS Seeks Listing for Flat Tail Horned Lizard

by Lee Stone and Nate Weber

The Fish and Wildlife Service of the U.S. Department of the Interior, concerned about disappearing populations of a very rare type of horned lizard, is proposing to list the flat-tailed horned lizard as a threatened species under the amended 1973 Endangered Species Act.

Phrynosoma m’callii is named for Col. George A. M’Call of the United States Army who collected the first lizard in Imperial County, California, in the western Sonoran desert in the early 1850s. The small creature has a dark stripe down the center of its back and is camouflaged by a pale grey to rusty brown back and a white, unmarked belly. It has long horns, two rows of fringed scales on each side, and a flat tail.

The lizard’s primary habitats are in Riverside, San Diego, Imperial Counties in California, west of the Gila and Tinajas Mountains in Arizona, and in adjacent portions of the Sonora Desert and Baja California Norte in Mexico. The lizard prefers sandy, desert flatland with little vegetation, and where the surface soils contain loose sand. Sometimes Phrynosoma m’callii favors hills rising no higher than three hundred feet, or areas covered with small pebbles or desert pavement.

Because of the rapid growth of cities and agriculture, a third of the lizards’ habitat has disappeared. 40% of the lost habitat is in California and between 23% and 27% in Arizona. Across the border in Mexico human impact has reduced the lizards’ habitat by about 29%.

The food source of the flat-tailed lizard, the harvester ant, is disappearing. This is thought to be because of pesticide spraying.
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A Glimpse at Harvester Ant Ecology
By Wendy Donaldson, Past Chair of Research and Recovery, graduate student at the University of Texas, Austin, TX

Members of HLCS know harvester ants are the preferred food choice of horned lizards. Many people have often asked why horned lizards would eat an insect that is so small and has a painful sting (they can also bite!). However, harvester ants are one of the most abundant insects in the arid and semi-arid regions where horned lizards live.

Harvester ants belong to the order of insects called Hymenoptera, which includes bees and wasps. Like many bees, wasps, and other ants, harvester ants have a sting on the end of their abdomen which they use for defense. They are not aggressive ants, like the imported fire ant (Solenopsis invicta), so they only sting when being directly threatened (being eaten, squashed, etc.). 22 species of harvester ant live in North America, and 37 species occur in Central and South America.

Harvester ants get their name from their mode of feeding; they harvest seeds from various plants. They snap off seeds with their large muscular mandibles and carry them back to the nest where they are husked and stored in mound chambers. The seed stores are used throughout the year whenever active foraging must cease, such as during drought, cold weather, or heavy predation. The seeds are chewed up by the workers and fed to the larvae which digest the seeds and produce a substance they regurgitate (vomit) to feed to other members of the colony. Harvester ants are also scavengers and will pick up dead insects in their path.

Harvester ant mounds are one of the most distinguishable types of ant mounds. They use their mandibles to cut and clear the ground.

Concluded on page 8

DO Try This at Home!
by Wendy Donaldson

One of HLCS' youngest members accomplished what others had tried to do for several months: found a willing Texas politician to write a bill adopting the Texas horned lizard as the state reptile.

Abraham Holland, a ten-year-old Pleasanton, TX resident, wrote a letter to Representative Richard Raymond requesting the Texas horned lizard be named the official State Reptile. Abraham had first met Representative Raymond when he toured the state capitol with his Black Hill Mesquite 4-H Citizenship Team in March, 1993. Representative Raymond agreed and drafted a resolution which successfully passed the Texas Legislature.

With help from his mother, Sandra Holland, Abraham studied Texas horned lizards for his 4-H Wildlife project. Abraham circulated a letter to the children of Pleasanton asking them to help him count the horned lizards in their town. He asked that they call him so he could count, weigh, and determine the sex and measure horned lizards on their property. HLCS met with the Hollands in May and showed them how to determine the sex and measure the total and snout-vent lengths of the lizards and answered many of their questions. The Hollands brought pictures of the horned lizards and information about 20 calls they had received.

Abraham Holland learned quickly what it takes to study horned lizards. He is a model that other children and adults can learn from. Without Abraham, the HLCS would still be searching for a sponsor in the legislature to sponsor the Texas horned lizard as the Texas State Reptile. He is also collecting vital information about a population of horned lizards that manage to live in a small Texas community. The HLCS challenges other folks to initiate horned lizard studies in their areas and to write your state legislators about Official 'Toad' status for the kind of 'toad' found in your state. By the way, Abraham's younger brother Noah is eager to begin his own campaign: he wants the Harvester Ant to be designated the Official State Insect.
surrounding the opening to the nest, which is three to six feet in diameter. Some harvester ants build a small mound around the entrance to the nest while others leave the ground completely flat with only piles of seed husks and soil surrounding the entrance. One main hole is found in the center of the area and other smaller entrances may be at the edge of the mound. Trails can be usually be seen leading away from the mound like a spoked wheel. These trails lead to the plants that the ants are harvesting and are used daily. These trails are used by horned lizards who sit and wait for the ants to walk by.

As you can see, harvester ants are amazing insects, but they are not always appreciated by humans. The large surface they clear is an ugly spot in modern man’s quest for the perfect manicured lawn. Humans also tend to believe all ants are “bad” ants. However, by maintaining healthy populations of native ants, introduced insects, like the fire ant, find it tougher to invade your lawn successfully. Many people admit to poisoning harvester ant mounds. Overcoming the bad reputation given to ants is a problem that is important for the HLCS to confront.


---

**Short-Cut Paths**

Oh! the horned toad in his medieval armor,
Queen Anne’s lace, the scarlet bugle,
Lupines so blue, Brodica with roots of onion taste.
The wild buckwheat. The mulberry bush.

The short-cut paths through open lots
Brought all these wonders and more.
How sad that youth today is
So soon on wheels;
Skates and skateboards,bikes and bus,
Motorcycles, and cars so plush.

They have no need for short-cut paths
Through fields of mystery and delight,
A cherished memory of my youth.
I see them yet. Though it’s long ago,
And dark as night.

by Mrs. Homer Martin
LaCanada, California
Helping Horny Toads, concluded from front page

St. Augustine grass, for example, are totally inappropriate for horned lizard habitat. These grasses form thick mats, prohibiting the lizards from easy passage across or under the grass runners. The “toads,” especially the young ones, become easy targets for cats, dogs, and large birds.

Harmful Activity # 3: Using insecticides unwisely to kill insects — including fire ants — in your pastures and lawns.

Horned lizards prefer to eat — and are specialized for eating — the big harvester ants. These ants form large nests, often 3’ to 6’ across. The nest may be flat or conical, and are usually cleared of most vegetation. There is usually only one entry hole. And the ants forage along little highways which they have cleared of vegetation. The ants may be all red, or red and black, or all black, depending on which species you have in your area.

Horned lizards prefer to hunt by waiting along the side of the ant highways, licking up one ant at a time. Each lizard may need to forage near several ant nests to get enough food.

Kill these ants and you do great harm to your horned toads. They simply aren’t built to chase down insects like ordinary lizards do. Their diets will be poorer and their health may be affected.

Horned lizards do not like being swarmed by fire ants any more than you do. They can’t be trained to eat fire ants, so don’t even think it. Read the last few paragraphs for fire ant killing instructions.

Harmful Activity # 4: Taking Horned Lizards as pets or for sale.

How many of us collected horned lizards as pets, gave or traded them to friends, or actually took part in the pet trade that shipped literally thousands of them out of the state to their deaths? A lot of us. Don’t do it anymore.

When you see one, don’t you or your children take it home.

Good activities are easy to deduce from what you have just read.

If you are a rancher with native pasture, keeping it that way helps. Maybe you haven’t seen horned toads is a long while, but they could very likely still be there.

If you are considering converting native pasture to dry land crops, we’d urge you to stay with ranching, if you want horned toads to share your life. Or if you do convert, leave large wildlife buffers. Even small buffers help. We know of a handful of horned toads which lived in an unplowed swale in a crop field — until the farmer plowed up the swale, too.

If you are willing to convert some cultivated land back into native pasture, do so. Talk to your local Soil Conservation Service people about this. If you don’t have wildlife buffers now, create some.

On the pesticide issue, think of the balance of nature:horny toads need to eat harvester ants. Little creatures need good healthy food more than we do. Their smaller bodies are more quickly affected by chemicals that wouldn’t harm us. Live with the insects or don’t live with horned lizards, and a lot of other smaller critters we don’t see so much anymore or even think about.

Fire ants are a big problem. Use the “bait” formulations, not the contact insecticides. All insecticides which kill fire ants, will kill harvesters. The fire ants will reinvade and then you’ll have fire ants and no harvesters. If you have a fire ant nest directly next to a harvester nest, the fire ants will ultimately kill them. In these cases, carefully put out fire ant bait in one small place and watch to make sure that only fire ants get it. Sweep up any bait not taken by the ants before you leave.

If you have a larger area, broadcast the bait early morning and hope the fire ants get it first. They are very efficient foragers, so chances are they will. Don’t put out more per acre than the instructions call for!!!

Well, that’s it for now. I do wish there were easier answers. Many people ask if we can’t just breed them. The point is where would you put them? Into an existing horned toad population, thus making them stretch the food resources thinner? Or in a place with no “toads” where they may die because there was a reason there were no “toads” there? No, the best early steps we can take are to help them out by leaving habitat alone, creating more habitat, and developing a pesticide program that keeps their needs in mind.
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