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The Horny Toad Man: A Battle Against Time and Looming Public Apathy to Save Texas' Most Iconic Reptile

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The Horny Toad Man: A Battle Against Time and Looming Public Apathy to Save Texas' Most Iconic Reptile

by

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The Horny Toad Man: A Battle Against Time and Looming Public Apathy to Save Texas' Most Iconic Reptile

by

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SUPERVISOR: Rusty Todd

Bill Brooks is worried about the future of his organization, perhaps even more than he is about the future of horned lizards. Brooks is the president and a founding member of the Horned Lizard Conservation Society, a nonprofit with the goal of protecting all species of horned lizard. The HLCS was founded in Austin in 1991, after its members realized that populations of Texas horned lizards, *Phrynosoma cornutum*, had crashed at some point in the preceding decades; they wanted to both figure out what had happened to the lizards and how to bring them back. Cornutum is an iconic species and the state reptile, and almost all Texans over the age of 40 can remember seeing them in the hundreds as children. Flash-forward a quarter of a century, and a lot of these founding members are either old and grey or deceased. HLCS membership is down, and Brooks thinks that if there aren't any of his kind left (Texans that grew up with "horny toads"), there'll be no one left to care. Herpetologists are working on returning healthy horned lizard populations to the wild, and both reintroduction and relocation programs are showing signs of success. But can they work, and will it be too late for Brooks' organization and a Texas identity dependent upon horned lizards?

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Bill Brooks—a conservationist, naturalist and self-taught herpetologist—is more than a little worried. He is standing in small, grassy lot in a suburban town outside of Austin, Texas, in a spot he believes is home to a population of an increasingly rare animal. Brooks can tell something is wrong. His beard and near-platinum mane, tied into a ponytail, frame sharp, blue eyes that can see, almost as if with a sixth sense, the faint lines left by a lawn mower.

"This has been mowed recently, which is of course not good for 'em," he tells me in a cautious voice, half thinking out loud.

Brooks has delivered us to this spot to find some of Central Texas's last horned lizards, a creature so revered that legislators declared it the official state reptile in 1993. Phrynosoma cornutum is a small, sandy-colored, ant-eating reptile with a pair of noticeable horns on its head and jagged, protruding spines from its blunt snout to stubby tail. Brooks has asked me to keep the name of the town a secret because he has heard reports of a boy carrying a bucket—to bring horned lizards home, presumably—walking around the area. The fewer people who know where to find horned lizards, he reasons, the fewer who will end up as pets and, by proxy, dead.

Saving horned toads is the reason he is out here, his mission – what others might call his obsession.

The creature, once prevalent across the Texas, is hard to spot today. Its numbers are dwindling. As the lizards – sometimes called horny toads or horny lizards – continue to vanish, Brooks and others like him fear that something else will be lost: their

memories, their roots, their ties to the poignant things that defined their childhoods growing up in the Lone Star State.

Today Brooks, the 62-year-old head of the Horned Lizard Conservation Society, and his organization scramble on often-quixotic quests to save a quirky-looking, 5-inch-long animal that traces back to humankind's first presence in this part of the world.

Horned lizards have been culturally significant to native populations in the American Southwest for thousands of years. Anasazi, Hohokam, Mogollon and Mimbres cultures painted or carved horned lizards on pottery, rocks, figurines and shells. Navajo, Hopi, Papago, Pima, Tarahumara and Zuni mythologies viewed horned lizards as symbols of strength. Meriwether Lewis, during his two-year exploration with William Clark of land acquired through the Louisiana Purchase, wrote about what he called "horned lizzards (sic)." Pioneers, homesteaders, ranchers and naturalists have been enamored with the creature. Wade Sherbrooke, a retired herpetologist and author of the definitive field guide, "Introduction to Horned Lizards of North America," says the longstanding attachment has to do with horned lizards' juxtaposed presence: The spiked domes and almost angry faces run counter to their gentle and harmless nature.

"They don't bite, they don't scratch, they're very placid animals, they're unusual in shape and design, and so they're attractive in that way … they're part of the natural world that one can easily engage without being fearful," he tells me from his home in Arizona in a telephone conversation.

The animals are deeply embedded in the modern Texas psyche, which celebrates a burly kind of independence and ruggedness. You can buy a state license plate with a

horned lizard on it, you can still drink in “Horny Toad” dive bars and buy a chopper from the Horny Toad Harley Davidson dealership in Waco. It remains the symbol for Texas Christian University – which has 10,000 students and one of the top college football teams in the nation. The small, south Texas city of Kenedy was designated—by law—the official Horny Toad Capital of the World.

The toads are not as visible in nature as they used to be – when older Texans born close to World War II or earlier remember seeing horned lizards by the hundreds. All over Texas, it’s easy to find men and women who recall spending days playing with them, collecting them and occasionally accidentally killing them. "Kids had toys, and I just thought it was an extension of our toys," says Jerry Mayfield, a burly man with a thick, silver coiffure who grew up in Snyder, just south of the Texas Panhandle. "When you'd get bored or whatever, you'd just go outside and pick up a horny toad and play with it." Mayfield and his brother would compete to see who could catch more horny toads. Then they'd rub the toads' bellies, putting them into a trance, and lay them out on the ground as fast as they could, before the first ones came to.

Mayfield remembers the remorse he felt as an 8-year-old when he accidentally stepped on a young horned lizard, killing it. “You step on ant or something, where there’s so many of ‘em, you think, ‘Oh! There’s plenty more,'" he says. "But when you stepped on a horny toad, that was something different.”

Though he felt awful about squishing the lizard, that regret doesn’t come close to the anguish he feels now that the creatures—once such a fixture in the Texas heartland—are virtually gone.

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Horned lizard populations in the eastern half of the state have crashed in the last 50 years—researchers are unsure which factors contributed to the decline and how many died. As the lizards disappeared, no one in Texas gave it much thought until the problem was apparent: People began noticing that they didn't notice the lizards anymore.

"This is a curse of time being linear," says Andy Gluesenkamp, a 43-year-old herpetologist with the Texas Parks and Wildlife Department. He is in his cubicle in the department's South Austin headquarters. It's decorated with maps, images of snakes and amphibians and his children's rudimentary drawings. "We often are unaware of a problem until the end effects are apparent. So we don't know there's a problem with a species until we lose the last few. Until no one has seen one in a while."

The "vanishing" was officially recognized more than two decades ago. Wendy Hodges, another herpetologist and conservation society member, undertook a massive, statewide horned lizard survey as a graduate student at the University of Texas at Austin in 1992 to try to pinpoint how many were left. Hodges and four field assistants visited 100 locations for horned lizards determined by 1,629 historical records that showed that lizards had lived there. The survey found horned lizards on 48 sites and, according to a subsequent article in the Texas Journal of Science, it "appears to confirm public perception and historical data that P. cornutum has declined in East and in Central Texas."

Hodges and her team found no horned lizards at the sites she visited in East Texas. In Central Texas, only six of the 20 counties she explored still had horned lizards.

Texas has never led the way on environmental issues; it wasn't until 1998 that the state passed regulations banning the collection and sale of nongame wildlife. The state's endangered species laws do little to stop habitat loss. When development, particularly for the oil and gas industry, comes into conflict with endangered wildlife, industry almost always wins. The dunes sagebrush lizard recently faced this reality. Studies show a single oil and gas well can reduce its populations by 50 percent in a 253-meter (830-foot) radius around the well. The U.S. Fish and Wildlife Service, bowing to pressure from oil and gas companies in New Mexico and Texas, declined to protect the lizard under the Endangered Species Act in 2012. At a campaign forum that year, Texas Republican U.S. Sen. Ted Cruz joked, "That's our lizard, and they make darned fine boots."

Still, the Texas horned lizard might be a bit of an anomaly. It has received protection under a state law passed in 1967 that banned its collection, export and sale. Today some ranchers, farmers and landowners, who are often opposed to conservationists and regulations, accept the Horned Lizard Conservation Society with open arms.

Carolyn Todd, the society treasurer and one of the few founding members still active, said: "That kind of enthusiasm will help us maintain and hopefully encourage and build the populations we have out there."

Even with a modicum of support, horned lizards remain vulnerable, and the generations that can remember them are on the way out. Texans who live east of a line from Fort Worth to Corpus Christi may never see horned lizards again.

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P. Cornutum is distinguished from the 16 other species of horned lizard by that pair of prominent horns jutting from the back of its head and a white line that extends down the middle of its back. The genus name directly translates to "toad-bodied," ascribed to the lizard's frog-like appearance—its broad body and awkward gait. It is the largest and most abundant member of the 17-species phrynosoma genus, all horned lizards native to the plains and deserts of North America, although horned lizards have a range that extends into a few Canadian provinces. Eight of the species are found in the United States, and Texas horned lizard populations stretch into Oklahoma, Kansas, Missouri, Arkansas, southeastern Colorado, New Mexico, Arizona, as well as much of Mexico. Based on museum records and anecdotal evidence, they used to be seen in most of Texas' 254 counties, save for a handful in the eastern edges of the state.

Because they are elusive, and no one has ever counted all of Texas' horned lizards, it is impossible to quantify the population – or its loss. It is impossible to know exactly how many are out there and how many there once were. Brooks and others are left to rely on anecdotal evidence and studies conducted long after the lizards began to die off.

Because the species is still abundant in west and south Texas, as well in Southeast Arizona, New Mexico and Colorado, it has not been included on the Fish and Wildlife Service's endangered species list. The IUCN, a leading international conservation organization, says that there probably more than 100,000 lizards in the wild and it puts it

in its “Least Concern” category—but most recorded and oral histories suggest that is a tiny fraction of how many of the creatures once roamed Texas, the Southwest and beyond.

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The lot Brooks has driven me to is an unusual place to find rare wildlife—around the tennis courts of the town’s old high school—and as we traveled in his midnight blue van he chuckles about it.

Quaint, Texas ranch-style houses surround us in every direction, and as we look for the lizards, the air resounds with the sounds of tennis balls meeting racquet strings. An unusual place, indeed, for the fearsome looking lizard—but my guide knows horned lizards were once here. Brooks has spent the majority of his life around reptiles, raising them, looking for them, and learning from them, so if there’s anyone that can find a horned lizard in these lawns, I believe it to be him.

As we scour the lot, looking for any signs of movement. Brooks assigns me a subsection to patrol, and gives me loose instructions: the dry, brown grass is a perfect camouflage for horned lizards, which can have regional color variations that match their surroundings, and the only real way to find them is to scare them into running. I shuffle along the edges of the field, passing by harvester ant colonies—a horned lizard favorite—frequently doubling back to make sure I cover every inch of the lot. No luck. The

adjacent field looks better, so we move over. There the grass is taller, wilder, more unkempt.

There's an art to finding horned lizards, Brooks tells me, and he once had a friend that had it down perfectly and taught him how to look: Move too slow and the lizards will hunker down. Move too fast and you won't see them. But still, every step unsettles bees, grasshoppers and crickets from their moorings, but no horned lizards. We hunt, yards apart, as the Texas summer sun blazes down. Walking through this field, he is in his element, pointing out pipevine, windmill grass and wild buckwheat. Stuff I'd never heard of before. The only thing he can't seem to find is a horned lizard. "Here's your Bluebell Ice Cream," Brooks proclaims, coming across a big ant bed, to the lizards we're hoping to uncover. "Now where are ya?" He talks in a feathery drawl and his colloquial use of language betrays the knowledge of a biologist. After about an hour of searching, Brooks concedes defeat. Though there are plenty of harvester ants, the horny toads are nowhere to be found. It is close to noon, and if there are any living in these fields, he says, they are hiding from the heat.

"Disappointing," Brooks says back in his van, bemoaning that it was first time he hadn't seen horned lizards in those fields. We drive around the town a little longer desperate to catch a glimpse of one, waiting for Brooks to get an inclination of the best spot to search next, before heading back to his house outside of Bastrop.

Brooks has spent the last 25 years working to protect horned lizards as a founding member of the HLCS; coming up empty-handed, or rather, empty-sighted, is a disheartening reminder of the uphill battle he and his organization have faced since its

creation, and the challenges the future will bring. Membership is down dramatically from the HLCS's heyday in the early 2000s, from over 600 members to just 220, and Brooks knows that without horned lizards around, getting new members—particularly younger Texans—to join the cause is a Herculean effort. "The hardest thing I have to do is get kids to miss something they've never seen," he often says. Brooks' generation, the ones that grew up with horned lizards, is dying off, and he fears that once they're gone there will be no one left to care.

The Texas horned lizard won't go extinct tomorrow. Brooks knows that. His fight is to protect the lizards that are left. But at its core, he is struggling to keep alive a piece of what it meant to be a Texan for centuries.

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In 1990, Austin attorney and computer programmer Bart Cox was trying to become a better public speaker. He joined the Toastmasters, an educational club, and when prompted to give a rousing speech, landed upon the plight of the horny toad. It was a sobering realization that many Texans of his generation were experiencing: A cherished part of their Texas childhood was disappearing—the once-ubiquitous horned lizards were no longer around. Sightings were becoming a rare event; many areas of the state where you could once find hundreds of horny toads were now devoid of the critter. He hadn't seen them himself since the middle of the 1960s. But back when he was growing up in Stamford, Texas he could remember seeing horned lizards in every yard. When he went

to school at the University of Texas at Austin as a freshman in 1960, “there were horny toads all over the campus. Everywhere. They were as common on the campus as almost any place I can remember.”

Cox, who was later known in the state’s attorney general’s office as the “card-carrying Democrat,” was often teased for his conservationist efforts.

“I’m from Sterling County and we don’t have no endangered species in Sterling County because we killed ‘em all,” one of his coworkers would often say when starting a speech. At the time, the Texas attorney general’s office was fighting the Environmental Protection Agency tooth and nail (as it still is), but Cox was far more concerned with saving the natural world and species, particularly the horned lizard. Even today, in retirement at his home in Honolulu, Cox has a picture of a horned lizard hung above his bed.

“I was just so shocked, and so saddened by the disappearance,” he told me.

The Toastmasters speech was well-received, and Cox was prodded and encouraged to take it further. To actually do something. But he needed help, so he went on the radio, did television appearances and sought out newspapers—attempting to rally troops around a sympathetic cause. He booked a room at the Nature Center in Austin's Zilker Park for a November 1990 meeting, in what would become the first meeting of the Horned Lizard Conservation Society. He wondered if he was alone with his nostalgia. Frankly, he wasn't sure anyone would show up.

He told The Austin American Statesman, in a front-page article that ran two days before the meeting, "It may be that there aren't that many people that care."

His call, however, worked: 181 showed up to hear him address the plight of his lizard. Most of them were Texans, and they shared stories from their childhoods. “We’d been raised around horned lizards, studying them through school, and we were just very concerned what was happening,” Todd said. There was some solidarity and even fundraising that night: The wife of a Texas Monthly illustrator sold posters of his work, and she raised $350. Cox was voted president of the organization, even before the fledgling group had a name or very specific goals.

The third meeting of the HLCS, held in February of 1991, solidified the group's presence. It not only produced a name, but a mission statement as well:

"To collect information about horned lizards, conduct and support research into the causes for the population decline in horned lizards, raise funds, build membership, buy, sell, and lease property, develop habitat and propagate horned lizards with the aim of restoring their populations."

In the years since, Bill Brooks and his conservationists have largely followed up on that statement. The HLCS—a nonprofit—gives out two $800 grants each year for horned lizard research and conservation. The grants are meager but enough to get graduate students working in the field, solving horned lizard mysteries. Wendy Hodges’ statewide survey in 1992 was partially funded by an HLCS grant.

The horned lizard society runs its own surveys, too, a few times each year during the months the lizards are out of hibernation, to both keep tabs on horned lizard populations and raise awareness within the communities where they find the lizards. Raising awareness is perhaps the organization’s top priority. “What they’re very good at

doing is spreading the word about horned lizards, and that they're valuable, and that we're losing them and that maybe something should be done," Sherbrooke, a member as well, told me.

The HLCS was one of the lead plaintiffs in an unsuccessful lawsuit against the U.S. Fish and Wildlife Service to protect the flat-tailed horned lizard Phrynosoma mcallii, and has even developed a science curriculum to keep horned lizards alive in the minds of Texas elementary students.

Bill summed up the HLCS: "Wherever these species are found, we're out to protect them and to serve them and to learn more about them." But the HLCS has fallen short of completing its original goal: Finding and then getting rid of whatever had killed off the lizards.

The largest Texas Horned Lizard population crash in Texas happened between the late 60s and early 70s. Herpetologists and conservationists have spent the time since looking for an elusive "smoking gun." "Unless we address the reason why they disappeared, all we're doing is throwing more horned lizards down the drain," Sherbrooke said.

"There have been a lots of theories," Gluesenkamp added. "To this date, I could not put my finger on a single smoking gun, and I think that we're never going to determine that it was just one factor. It's a bunch of things that are impacting horned lizard populations and a different sweep of factors in different areas."

The list of potential killers includes: over-collection for the pet trade, threats from nonnative plants and animals, an increase in pesticide use, and habitat loss. Red fire ants,

the ravenous South American species Solenopsis invicta, get the most blame for the horned lizard woes. The ants were accidentally introduced to the United States in cargo ships entering Mobile, Alabama in the 1930s, and have now spread to 321 million acres in 13 states. The ants are voracious predators and have potent stings, causing $6 billion in annual damage—including $1.2 billion in Texas, where the ants are the leading cause of traffic light shortages (the ants get into electrical boxes and attack the wiring). They also tear through golf courses and cemeteries, and even can attack and swarm cattle. The ants will terrorize adult horned lizards and kill their vulnerable young. But, worst of all, the fire ants have decimated the horned lizards' primary food source—harvester ants.

Fire ants—accompanied by a heavy-handed use of pesticides by the USDA, airdropping millions of pounds of ant poison to combat the invasion in an 11-year span—have outcompeted and killed harvester ants (the genus Pogonomyrmex) all across Texas. While harvester ants have wings and can easily colonize new areas in response to fire ants, lizards are flightless. Horned lizard diets are close to 80 percent harvester ants, and an adult lizard may eat hundreds of ants each day. The lizards often sit along the carved trails the ants make while foraging seeds, picking off the big ants one by one and swallowing them whole. Harvester ants and horned lizards are a linked species: except in a few unusual cases (Hodges' survey found just three sites, all in West Texas, where horned lizards existed without harvester ants), if you don't have harvester ants, you don't have horned lizards. But fire ants weren't the original killers. They didn't even reach Texas until the 1980s.

"Fire ants are a problem to everything that touches the ground, but it wasn't fire ants that caused this first drop off," Brooks said.

The leading theories blame it on mankind.

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Through the 20th Century, horned lizards were nearly exported out of existence in many parts of the state. They became a mainstay in the curio business—killed, stuffed and adorned on ashtrays or paperweights or ornamental bases. Carolyn Todd heard that horned lizard heads were sold attached to bolo ties, satisfying European tourists' expectations of Texas with one morbid little package. Companies sold live horned lizards through comic book mail-order novelty ads alongside X-Ray Specs and Sea Monkeys. Some gas stations gave away a horned lizard with every fill-up.

"In the early days, it was a nightmare," Brooks said. "Some little boys supported their movie and ice cream habits over the summer by collecting horned lizards and mailing them to New York."

Jerry Mayfield was one of those boys. "My brother and I would go out and pick 'em up and spend the day hunting horny toads because the Horny Toad man would pay us a nickel a piece for 'em," he said. "It's shameful today, but back then, for a kid, a nickel goes a long way."

Children were enlisted as soldiers the war on horned lizards, collecting sacksful to sell or (somewhat) innocently take them home as pets. And they often unintentionally fed

non-Texans' hunger for the iconic reptile. The most sought-after "item" at the 1950 National Scout Jamboree in Valley Forge, Pa., was a horned lizard, which Texas Boy Scouts brought with and readily traded to Yankees. An Abilene troupe petitioned to take 12,000 horny toads to the jamboree three years later.

"We thought nothing of putting them in a shoe box and sending them back to Indiana or Illinois with the cousins," 62-year-old Danielle Delhomme told me. When her cousins would visit the family ranch they could always easily find half a dozen horny toads.

Over the decades, thousands and thousands of lizards left the Southwest in packages and went around the nation, and to Europe and Japan. The few that survived the transit would quickly die in captivity. In 1958, a University of Texas at Austin zoology student interviewed one pet dealer who said he had sold 50,000 fewer horned lizards than the previous year. "There just ain't as many this year as there was last year," the dealer told the student.

Texas officials finally took notice in 1967. But, by then, it was too late.

"They were collected to death," Brooks said.

TPWD placed both the Texas Horned Lizard and the Short-Horned lizard on its threatened species list in 1977. Threatened species, as defined by the legislature four years prior, are ones that the TPWD Commission believes are likely to become endangered or even extinct. First-time violators—anyone that takes a horny toad from the wild, or is caught killing one—face fines up to $500. Protection under Texas law slowed

the sheer number of horned lizards taken from the wild, but the critters were also facing an immense strain from habitat loss triggered by increasing urbanization.

"If you look at a county that once had hundreds of thousands of acres of potentially suitable habitat . . . we now have maybe tens of thousands of acres or thousands of acres of suitable habitat, and it's never in one block," Gluesenkamp said.

Horny toads do best in a mosaic-type habitat, with lots of variation: shrubs to hide under and cool off from the sun, open areas to forage for ants. Human development not only destroyed habitats, it replaced native grasses with St. Augustine and other nonnatives that simply don't support the same density of harvester ants or other insects. Carpet grasses, like St. Augustine or Bermuda, are extremely dense and hard for horned lizards to navigate through.

It wasn't just newly sodded lawns that harmed the horned lizard. Paved roads created yet another death trap for horned lizards. They often fall victim to cars and trucks while sunning on the asphalt or, in the case of male lizards, looking for mates. And Texas has a lot more roads than it did a half century ago. Between 1950 and 1995, the number of highway miles in Texas ballooned from 34,000 to 183,150.

It doesn't stop there: Drought, pathogens and even radiation from nuclear testing have been investigated as potential causes for the lizard decline. Not all the factors are easily reversible or even easily detectible, making the task much harder than the HLCS originally envisioned. A group of graduate students in Mexico are working to understand the impacts of climate change on the creatures. Many species of horned lizard have a network of scales—Sherbrooke calls it a rain-harvesting system—that allows each lizard

to transfer raindrops from its back to its mouth. Lingering droughts can spell disaster for desert wildlife, and current climate projections show the Southwest of the future will be drier.

“You can’t dissociate horned lizards from what’s going on with the planet. They’re a part of it, just like we are,” Sherbrooke said.

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Bill Brooks can pinpoint the exact moment in his life when he noticed the horny toads were gone.

He was born and raised in San Antonio in the 1950s, a time, he says, when the lizards were in every abandoned lot in the city. He talks about it now as if it were a tall tale. "When I was younger, I went out with seven of my buddies and we caught 100 one afternoon," Bill told me one day, expecting a measure of incredulity in return. "Inside Loop 410 in San Antonio. This is inside San Antonio!" he says, excitedly, talking about one of the major highways in what is now the 7th largest city in the United States.

He remembers picking up a lizard, putting it in his pocket, running around, setting the horny toad down by a harvester ant trail, letting it get its fill of ants, picking it up again and putting it back in his pocket. Horned lizards were everywhere, and finding them helped foster a love of reptiles and the natural world in a young boy that had already had been given an exposure from his parents. His mother was a school teacher, and his father worked at the nearby Kelly Air Force Base. Every summer, the Brooks

family went on a vacation using his mother's salary, visiting national parks and monuments and museums around the country; by the time he had graduated high school in 1970, Bill had been to every single state in the contiguous United States, as well as Hawaii. He enrolled at the University of Texas in Austin that fall, and when he went back to San Antonio, the vacant lots were barren. There were hardly any horned lizards.

Though the animals he remembered from his childhood had seemingly all but disappeared, he continued to dive deeper into the natural world.

"I started out with rocks . . . shells . . . and I still have all of those," he said. "I got into snakes at an early age, like a lot of little boys do, and I just never grew out of it. What a crazy thing to get stuck on. But reptiles were my thing, always."

He started giving reptile talks when he was in high school, and has done so for the last 40 years. "There was a time in my life when I was doing about three talks a week and I was working—I had to take off work to do this—and I could just no longer afford to do it," he said. Bill spent a few years after leaving the University of Texas (he studied biology but never finished his degree) working in state parks before being hired to care for the animals that biopsychology graduate students would use for their theses. He jokes that some of his coworkers might have wondered if he was a result of some biopsychology experiment.

He retired in 2004 after 28 years but still gives as many as three talks a month on Central Texas reptiles and horned lizards. He will go to wilderness clubs or local chapters of the Audubon Society. Every month or two he talks to a classroom in Bastrop or the surrounding counties.

He has, in his way, become a celebrity in Texas' naturalist community. When he goes to the grocery store, some people in his part of Texas recognize him. "For some reason, they remember me," he said, followed by a deep laugh.

It is, when he tells you more about his history, a wonder that he laughs at all: In 2011, the most destructive wildfire in Texas history swept through Bastrop County, destroying 1,600 homes and 34,000 acres of loblolly pine forest. His house was ravaged beyond repair in the blaze.

When I sat down with him last winter at his new house in Paige, about 45 minutes east of Austin, he was still moving his belongings over from the ruins. Brooks now lives in a modest home surrounded by a large unkempt lawn on a rural parcel of land. The lot across the street is tightly manicured, which he jokingly calls "the golf course." The owner has called county officials a number of times to complain about Brooks' overgrown property.

His place is a cozy mix of clutter—including some horned lizard artwork. The kitchen table is blanketed with fossils and part of an extensive rock collection. His ancient microwave, bought in 1980, is finally dying. A big plush horned lizard rests near the front door. One of the rooms is a small study, stuffed with bookcases filled with field guides and science books. In the room directly across the hall, he raises snakes and a special breed of hairless rat (most end up as snake food). The door is always kept closed to keep the smell in.

He brought two of his snakes and a snapping turtle to a Capital Area Master Naturalists meeting in August. It is a volunteer group, mostly retirees, that provides

community programs and projects that promote preservation of native plants and animals. The meeting was in the same room the HLCS held its first gathering in, at the Austin Nature Center, and it is the same room where Bill got the snapping turtle a decade earlier.

When Bill shows some slides, working the audience with reptile stories, the turtle rustles inside a pink tub near the front of the room. He reassures the turtle—speaking directly to it—that he heard her and that she will get to come out soon. He runs through the slides quickly, but then he spends an extra few minutes on horned lizards. His message for the Master Naturalists: we still aren't sure what originally killed off the horned lizards, but it wasn't fire ants. He also mentions how vital harvester ants are to a horned lizard: "Killing your harvester ants is just like killing your horned lizards."

Though they, and Brooks always relishes an opportunity to talk about horny toads, this isn't the audience he needs to reach.

Getting Texas' younger generations to feel the same appreciation that their parents or grandparents felt for horned lizards is a tough task. Kids love to hear about the horned lizard's most famous defense—squirting blood from its tear ducts a distance of up to 6 feet forward or backward—but Brooks figures that only 20 percent of the students he talks to have seen or even know what a horned lizard is.

He has permits from TPWD to collect and keep live horned lizards, and thinks that bringing them into classrooms—having the students hold and pet and touch the actual animals—would be the best method of getting them interested in conservation. But he has his reservations. "They're just fascinating animals, and if you introduce kids to these animals, sometimes it'll hook them," Bill said. "It'd be ideal if we could [show kids]

a living horned lizard, but I just shy away from it. I hate to say, 'I can do this but you can't.'"

Todd, who runs the HLCS's educational programs, used to bring live lizards to some outreach events. At one point, she figured one of the best ways to get Texans involved was to tell them where to find remaining populations. Her plan backfired with the opening of San Angelo State Park in 1995, which has horned lizards. "Somehow people didn't get the message that they're a threatened species, and we were getting calls about people going into the park and taking them out in buckets," she said. "So I've always been a little reluctant to tell people exactly where they're found because of that horrific situation."

Bill puts the perils his organization is facing bluntly. "Without outreach, we're gonna die off," he said. Membership in his group has been on the decline for some time, since it peaked 15 years ago. Katie Talbott, a researcher at Fort Hayes State University in Kansas and has been in charge of membership for the last year and a half, says the group is down from 280 when she took over.

"We always need more members," said Talbott, who joined the HLCS in 2012. "People move around and things like that. Sometimes you may inexplicably lose someone because we don’t have their contact information anymore." But, Talbott also said that much of the HLCS’s base is made up by senior members, and that having a good age distribution amongst its members not only keeps the organization healthy but is also important to horned lizard conservation.

“When the old people that played with them all die, we're not going to be able to support the membership anymore,” Brooks said. “That's why outreach to kids is so important for me.”

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Though Bill and I had struck out in the field, I had an ace in my hole. I went to one of the few places in Texas where seeing a horned lizard is a guarantee: the Fort Worth Zoo.

The zoo has had a Texas horned lizard inside its "Texas Wild!" exhibit since 2001—and it was the first institution to successfully keep and raise them in captivity. In 2006 it had seven horny toads, all but one of which were donated from pet owners, and at the time the zoo needed 5,000 harvester ants delivered every week to feed them. Today, the zoo has anywhere from 30 to 50 adult toads at one time and it has hatched over 200 baby horned lizards since the program began. The adults are rotated through the exhibit, to make sure they all spend enough time under natural sunlight, and some, along with hatchlings, are reintroduced to the wild, in a first-of-its-kind program.

The state wildlife department reached out to the zoo in 2010 because of its history with reintroduction programs, including successful work with Caribbean iguanas and the critically endangered Puerto Rican crested toad. Diane Barber, the zoo's Curator of Ectotherms, is in charge of the horned lizard reintroduction efforts, a collaboration between Texas Christian University, TPWD, the zoo and a private landowner.

"I think they're really fascinating and think we can really make a difference with them," she said. Barber is a short woman with bronze hair and orginally from Nebraska. In 2012, the U.S. Fish and Wildlife Service named her a “Recovery Champion” for her work with Chiricahua leopard frogs in New Mexico. She has been with the Fort Worth Zoo for 13 years, and spends more and more time devoted to the lizards.

Most of the funding for horned lizard research in Texas comes from TPWD's sale of specialty horned lizard license plates, a part of its Conservation License Plate Program. Seventy percent of the sale of every horned lizard license plate ($22 of $30) goes towards a wildlife diversity fund, and in the next fiscal year, the fund has a $140,000 account. The Conservation License Plate Program, which also funds game management and state parks, has raised over $6.7 million since 2000. Barber is constantly looking for money to fund her lizard reintroduction program and the costs for keeping, breeding, and monitoring the horned lizards. The bills can top tens of thousands of dollars—Barber estimates $25,000 to $35,000 each year—and successful reintroduction programs can take decades.

Right now, Barber is working with just one landowner. Six captive-bred horned lizards embedded with radio transmitters were released on the property, located a few counties west of Fort Worth, in 2011. The site was selected after months of surveying, and though the project is going well so far, with more lizards released each year, it could take a quick downturn. P. cornutum is an extraordinarily fecund species, laying up to 45 eggs per female each spring, but the lizards—particularly hatchlings—are vulnerable. Seven of the 27 adults released on the property have been found dead, mostly due to

predation, and the transmitters are only trackable for so long. "We may not be able to do anything at that site, in the end, because there are fire ants out there," Barber said, "But we may also be able to mitigate the threats out there and try to make changes in terms of management for the homeowner that will be more conducive to a population of horned lizards."

The zoo's adult horned lizards are kept in large, mesh-covered wooden enclosures in front of the Texas Native Reptile Center, a building tucked away from the zoo's main pathways. There are two crates of females, one crate with males. On the day I visited, the lizards had just been fed, and big harvester ants crawled through the holes in the plastic mesh, running down the edge of the wooden cage. They were escapees from a certain doom inside a horned lizard’s stomach. It is August, and on one of the hottest days of the year, and though the lizards are active now, they will soon take solace from the sun under the rocks, logs and debris in the enclosure. A clutch of eggs in one crate is guarded by a black tub so that when they hatch, the zoo can keep track of the babies.

Barber, accompanied by zoo communications director Alexis Wilson, takes me on a tour of the zoo's Reptile Center—though it's much more of a hut than a center. The building, which was originally meant to be the zoo's commissary, has been relocated around the zoo three different times, and it has been repurposed with each move. As Barber describes it, the herpetology department "commandeered" the little house to study iguanas, and now that she is using it for her Texas reintroduction programs instead, she has outgrown the space.

The door creaks horribly as we enter, and the first thing that hits me is the smell. The room stinks. Robin Doege, a supervisor whose office happens to be the far left corner of the center, chalks it up to one of the Louisiana pine snakes that had defecated.

"He just went," she says, "it's like he knew people were coming."

We pass by aquarium tanks racked on metal shelving on the left and floor-to-ceiling cages, which used to be home to the iguanas now living in runs outside, on the right. The center is laid out in a stretched "U," with two short wings at the ends of a 10-yard long straightaway; there is just enough space for a few people to walk through comfortably, though the smell and the slight disorganization of equipment, materials and animals is disorienting.

After seeing the pine snakes, closest to the entrance, Barber shows me something unusual: two tanks of the extremely rare spot-tailed earless lizard. Found only in Texas and northern Mexico, there is almost no literature on either of the two subspecies, the Plateau and the Southern. Until a population of the southern subspecies, thought to be extinct in Texas, was found on the Laughlin Air Force Base in Del Rio in 2011, they hadn't been seen since 1991. The Fort Worth Zoo is the only institution to have these lizards, an insurance population TPWD collected from the base, and Barber and her team hatched a clutch of eggs the previous spring. The adults are in one tank, the hatchlings—the very start of a new reintroduction program—in the other. Though almost nothing is known about these lizards' natural history, Barber said that unknowns and reintroduction programs go hand-in-hand.

"There's so many things that you really don't know the answers to and there's so many people that live in the area and there's so many agricultural practices and urban development—things that you really can't control," Barber said. "It's going to take a long time to figure those things out, so we realize that sometimes you have to take the risk and go ahead and start and hope that something takes hold. If you wait, the animals will be gone before you figure out what the actual causes were to begin with."

Horned lizards occupy the entire back half of the center.

The lizards, arranged and separated by age from the smallest hatchlings to sub-adults, scurry about in their tanks while bathed in pale yellow UV light. When Texas Horned Lizards first hatch, they are so small they can fit inside the Lincoln Memorial design on a U.S. penny. It then takes them nearly two years to reach sexual maturity, and the next five are their prime reproductive ages. Barber and her team have had lizards as old as 13, but said that with so few institutions working with horny toads, their captive lifespan could be much longer. Individual horned lizards in the tanks are color-coded with nail polish to tell them apart, marked with tiny circles in pink and blue and metallic green. As we watch them, one of the larger horned lizards quickly buries itself in the sand and gravel, leaving only its head exposed; it does this to hide itself, but in the wild, horned lizards do this same exact move when they hibernate.

All Texas Horned Lizards normally hibernate from October to April, digging shallow holes to stay warm in while the temperatures drop. Barber uses a couple of white kitchen refrigerators set to 45 degrees, but there's not enough space for every lizard to hibernate at the same time. "We can't fit everybody in 'em and I can't fit another

refrigerator in here," she said, one of the reasons she's looking for funding to renovate the center. Until the empty iguana cages are removed, giving some space for a walk-in cooler, Barber is faced with this problem each year. The lizards that can't fit into the fridges have three options: either they don't hibernate (which won't kill them but does stunt their growth), are sent out into the reintroduction program or are given to other zoos that have space for them.

Barber picks up two one-year-olds, one at a time, and places them in a plastic terrarium. They are relaxed and docile in her hand, neither attempting to bite her nor struggle free. The lizards are destined for the Phoenix Zoo, which is trying to jumpstart its own Texas horned lizard breeding program. Because of how successful the Fort Worth Zoo has been, lots of smaller zoos in Texas have expressed interest in trying to start their own programs. But there are challenges:

"Because of their specialized diets, because of their high UV light requirements, many zoos have not done well with them, and so they don't try because it's just a tough little species," Barber said. "Until we figure out their husbandry, which is what we're doing, that will enable more institutions to become involved with them."

It's far too early to figure out where horned lizards could begin to make a successful comeback. Researchers like Barber are still trying to figure out what a healthy population of horned lizards in the wild looks like in order to match that size with their reintroduced lizards.

But once the population at the partner landowner's property is stable and healthy, the same work and techniques could be replicated all over the state.

““There’s plenty of land left in Texas where we could see horned lizards, so we can turn this tide around," Gleusenkamp said. "Maybe we’ve lost them forever from urban areas—we’ve lost a lot of things from those areas, but we can make sure that we’ve got plenty of horned lizards elsewhere.”

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Before the Fort Worth Zoo began its program, Todd took in and raised the victims of the state's horned lizard pet trade. Even though Texas protects the species, Texans still collect horned lizards from the wild to take home as pets and some pet dealers rely on lax laws in other states to sell them in Texas. When the lizards wouldn’t eat crickets or mealworms and were starving, they called TPWD. TPWD rescued the horned lizards and then turned them over to Todd because it had no facilities to take care of them. If she knew where the lizards were taken from, she would return them to the wild.

“If I couldn’t, because the people wouldn’t tell us or didn’t know, whatever the reasons were, I would keep them in captivity, use them for education,” she said. She did it for almost 20 years, turning near-dead horny toads into healthy, breeding individuals. “I’m thrilled to have participated in it, but glad to be in retirement.”

Many of these horned lizards went into the HLCS’s attempt at a release in 2002—aimed at rebuilding viable populations in the wild. It failed. Thirty juveniles (born from Carolyn Todd's lizards) and seven adults were released on private property in Central Texas in the experiment, followed by another 10 in the proceeding two years. However,

by 2003, only one adult lizard was left; the rest were either found dead, had been eaten by predators, or couldn’t be located. Horny toads, like many small lizards, are low on the food chain, and as Gluesenkamp puts it, one thing that makes reintroduction efforts so difficult is that "every damn thing eats them."

Snakes, hawks, roadrunners, other lizards and mice can make a fairly easy meal out of a horned lizard. The blood-spurting defense only seems to be effective against canine foes, like coyotes and foxes, which find the ejected fluid irritating and foul-tasting. But some canines are undeterred. Horned lizards also have to fend off feral and neighborhood cats, which often do a number on local populations. Another horned lizard defense is to run and then stop quickly to blend back into the soil, hoping that the predator's eyes can't follow. Cats aren’t phased by the tactic and can track exactly where the horned lizard stopped. Horned lizards do inflate themselves with air to appear bigger—and, with all those spikes, harder to swallow—which doesn't always work. Dead snakes and raptors have been found with horned lizards stuck in their throats, fatally punctured by its horns.

Despite the failures, the HLCS remained optimistic. "Regardless of the outcome of our efforts, we should learn much more about horned lizards than previously known. Maybe we will come to a better understanding of why they disappeared, which in turn will help us conserve natural populations that still remain," said Wendy Hodges in Phrynosomatics, the group’s newsletter.

But the HLCS gave up its own attempts at releases, even though Brooks gets at least three or four calls a month from landowners wanting horned lizards released on their

properties. Ranchers are chomping at the bit, but science doesn't move as fast as they would hope. Most of them might not ever be candidates for a release.

"We're in such early stages of reintroduction that preference is always given to lands that are protected in perpetuity," Brooks said. "Why do we want to get a population going on John Smith's ranch, when he dies, and they put up a Wal-Mart? The people that come after him don't care about the horned toads."

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The most famous horned lizard in Texas is Old Rip, a long-deceased critter that, according to legend, survived 31 years encased in the concrete cornerstone of a courthouse. In 1897, the town of Eastland, Texas was building a new courthouse to replace one that had burned down, and like so many small Texas towns at the time, held a ceremony to celebrate. During the ceremony, Justice of the Peace Ernest Wood's son was playing with a horned lizard near by, and to test an old Texas myth that horny toads can live without food or water for 100 years, Wood put the lizard into the cornerstone, hollowed out to use as a time capsule, before it was sealed in place. Three decades later, when the courthouse was demolished to make way for another, a crowd of 3,000 was astonished to see a dusty lizard pulled from the cornerstone come back to life. The lizard, named Old Rip after Rip Van Winkle, became an instant celebrity, and even visited President Calvin Coolidge in Washington D.C. But, eleven months after "awakening" from his lengthy slumber, Old Rip was left outside at night during a sudden cold snap and

died of pneumonia the following morning. The embalmed body is now on display behind a glass case in the lobby of the current courthouse in Eastland, entombed in a miniature velvet-lined coffin like a tiny reptilian Vladimir Lenin. “He’s our most famous citizen. He’s dead, but he’s still our most famous citizen,” said Cecil Funderburgh, the director of Eastland’s Chamber of Commerce and former police chief.

Every fall for the past year, Eastland has celebrated its world-renowned citizen with Ripfest. The festival is far more a celebration of Eastland County and small-town Texas life than it is a celebration of Old Rip or horned lizards, but it does draw hundreds from the community and surrounding cities like Gorman and Cisco. The parade, which runs through the center of town and features pageant winners in flowing prom dresses and tractors pulling the local football teams, kicks off the festival in the morning and is one of its main attractions. Churches, rifle clubs and the local chapter of the Sons Of Confederate Veterans all run booths in Old Rip Plaza, selling merchandise and baked goods and crafts. Food stands advertise "Tornado Taters" and corn dogs.

Ripfest is also the Horned Lizard Conservation Society's biggest event of the year—ever since Texas Parks and Wildlife's EXPO, which once drew over 40,000 attendees to Austin every year, shut down due to a lack of sponsors in 2008.

Brooks has been manning a booth at the festival off and on for the last 10 years, selling horned lizard iconography, art and HLCS memorabilia to fund the organization's grants. "We're home to all things horny toad," he tells passing festival attendees.

This year, Brooks is joined by Bette and Jim Armstrong, two HLCS members that once lived in Eastland and made many of the crafts the booth has for sale, like copper

horned lizard cookie cutters and horned lizard greeting cards. Bette, wearing a plush horned lizard fashioned into a hat, tells me stories about living in Rip’s hometown: For many years, she wore a homemade horned lizard costume while leading the Rip Fest parade, and claims that no one knew the lizard's true identity. The booth is next to one run by a local church's, which has a wooden cross studded with nails on display. The man at the booth invites children to try to hammer each of the nails in for a free necklace. When they inevitably can't, he says: "That's alright, Jesus did it for you," and gives them the necklace anyway.

Wave after wave of silver-haired Texans stop by Bill's booth with the same questions: Where did the horny toads go? They talk about the last time they saw one. Some younger couples have their children with them – and the kids often have no idea what a horned lizard is or have only seen one in pictures.

"I killed one on accident," a young boy sheepishly admits to Brooks after he realizes what a horned lizard is.

"I'm sorry to hear that," Brooks responds, unsure of what else to tell him.

This happens a lot.

Brooks has heard plenty of horror stories throughout the last quarter century as concerned Texans try to clear their guilty consciences, sometimes almost looking to him for some sort of forgiveness. Some tell him they used them as targets for air rifle practice, or ran them over with their bicycles or blew them up with firecrackers. Todd said the same thing happens to her when she does outreach events.

“Every time I’ve given a talk, I’ve had someone come up to me and tell me that they were one of those children that was paid to grab the lizards and put them in those bags," she said. "It’s kind of a confessional thing.”

The festival usually lasts until four in the afternoon, and by the time the University of Texas at Austin game kicks off at 2:30, it has mostly cleared out. Brooks sold $354 in merchandise this year, $30 more than last year, and got $13.50 in donations. At one point towards the end of the day, a preschool teacher bought a stack of educational HLCS horned lizard masks for her students. She wants to include them in a lesson before they visit the Eastland courthouse and learn about Old Rip. Brooks hopes the masks will get a few of them hooked on horned lizards, and maybe lead to a few future members.

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Now that Brooks is retired from UT, he is working three part-time jobs to pass the time. One of the three jobs—not counting his role as the HLCS president—is teaching children fishing lessons at Bastrop and Buescher State Parks. Much of the work involves children, including giving nature lessons to home-schooled students in the area.

“I want kids to be able to experience these wonderful little animals, just like I did when I was growing up,” he said. “It’s just a neat little entrance way to studying nature.”

Brooks knows his generation is dying off, and if horned lizards do come back, he won't be around to see it. In his 1993 bill designating Texas horned lizards as the state

reptile, House Concurrent Resolution No. 141, Rep. Richard Raymond see AP Style said this: "It is perhaps most appropriate for designation as an official state symbol because, like many other things truly Texan, it is a threatened species."

Landowners around the state are desperate to preserve that icon and pass on their own experiences to their children and grandchildren; most just want to know that when their progeny steps outside, there will always be horny toads.

"They are of current or future benefit to humans, whether for economic reasons or for emotional ones," Gad Perry, a conservation biologist at Texas Tech University, told me. "If the American eagle disappeared, would the U.S. economy suffer? Probably not. But would people in the U.S. feel that something important has been lost? Definitely. The horned lizard is definitely in this category: knowing that it exists is important to people, especially in Texas."

It's a nostalgic longing, and perhaps a bit selfish, but one that is funneled towards real efforts to restore horned lizard populations. Barber's reintroduction program is still in its infancy, but, so far, has been encouraging. TPWD has its own program, a relocation effort transporting horned lizards from one healthy population to the Muse Wildlife Management Area in Brownwood. The horned lizard population there actually laid eggs last spring.

And Scott Holt, a landowner in South Texas, has managed to increase the number of his horned lizards on his property by clearing the land without disturbing the soil and reseeding it with native grasses. Holt's techniques, and the lessons learned through both

the Fort Worth Zoo and TPWD's reintroduction programs, could be used to improve horned lizard populations around the state.

Brooks isn't so optimistic.

He never married and never had any children. The Horned Lizard Conservation Society is, in many ways, his baby, and he is troubled by that baby's future. Through the organization's surveys, Brooks gets to see horned lizards four or five times a year. But for the average Texan, and particularly Texas children, P. cornutum might as well be a unicorn. A myth. And despite Bill Brooks' best efforts, it might stay that way.

At Rip Fest, a woman stops by the HLCS booth and asks Brooks a sobering question.

"Are they coming back at all?" she wonders.

"I'd be out on the thinnest of limbs if I said they were," he tells her. "Maybe in 80 or 90 years."

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