

THEY SAY I'M A MONSTER



A Gila monster extends its forked tongue near Florence. Like many reptiles, Gila monsters use their tongues to pick up scent particles in the air, helping them find their next meal.

📍 EIRINI PAJAK

There are two species of venomous lizards in the world, and one is found almost exclusively in Arizona. Although Gila monsters have been described as “sending forth a greenish, frothy slime” from their mouths, the elusive creatures with the gloriously banded tails are more beloved than feared.

BY MATT JAFFE



THE GILA MONSTER was in no hurry. Untroubled by a car’s approach, and with forked tongue flicking and sampling the spring day, the lizard crossed the road in Tucson’s Catalina foothills with the plodding, side-to-side gait common to its kind. Soon he (or, for that matter, she — it was rather impossible to tell) reached a thicket of prickly pears, then disappeared.

That was it. My one and only sighting of a Gila monster had ended. “Well, that’s one more than most people ever see,” says Dale DeNardo, an associate professor and environmental physiologist at Arizona State University, when I tell him about my brief encounter with this Southwestern reptile — one of only two species of venomous lizards in the world, and the bearer of just about the coolest name in the animal kingdom. Give or take the Komodo dragon, a distant relative with a common lineage from 70 million years ago.

I have come to DeNardo’s office to discuss Gila monsters, which have intrigued me ever since I spotted one in a battered 1950s copy of the Golden Nature Guide to reptiles and amphibians in my family’s Chicago basement. No offense to skinks and geckos, but at 7, you’ll go with a monster every time.

DeNardo’s office is at the end of a short side hallway posted with mock street signs marking “Gila Monster Drive” and “Venomous Alley.” One imposing door bears an official, no-nonsense sign that reads, “Restricted Entry: Dangerous Reptiles.” That’s where I want to go.

DeNardo grew up back East before his family moved to the West Coast, where he traded the amphibians of Vermont’s forests for the reptiles of Southern California’s deserts.

“It all started for me when I began to walk and, like most kids, caught lizards and frogs and stuff,” he says. “Most kids grow out of it. I just got more curious.”

On a professional level, his curiosity turned to how organisms interact with their environments, especially in deserts, where limited water and food, in

combination with extreme temperatures, pose unique challenges.

“Gila monsters, for multiple reasons, had not had a lot of work done on them,” says DeNardo in his rapid-fire delivery. “There were a handful of papers on their ecology, but nothing really on how they’re able to survive the desert. It was to the point that they were actually considered maladapted to live in the desert. That statement always bugged me. Gila monsters have been in the Sonoran Desert as long as the Sonoran Desert has existed.”



GILA MONSTERS certainly present logistical challenges for researchers. For one thing, they’re difficult to find: In the fall and winter, the animals spend as much as 98 percent of their lives underground. But it seems surprising that these lizards have received so little study. Because although the Arizona ridge-nosed rattlesnake was designated the official state reptile, a snub that still bugs DeNardo, the Gila monster is a genuine icon.

While they range, in limited numbers, all the way to Southern Utah, Gila monsters are very much Arizona creatures, with a preference for upland saguaro and paloverde habitats. Their overall territory extends into Mexico before they give way to the Mexican beaded lizard, a far larger relative and fellow venomous lizard in the genus *Heloderma*.

Heloderma roughly translates as “nail-studded skin,” and with their gloriously banded tails and ornately beaded scales in a mottled pattern of reddish-orange and black, Gila monsters resemble living and breathing Southwestern art — as if they were crafted by a Hohokam potter. They are depicted in petroglyphs and Native American baskets, and the animals appear frequently as a motif in Mimbres pottery from Southwestern New Mexico.

Different Native American cultures attribute medicinal qualities to Gila monsters. As recounted by Gerald Hausman in *The Gift of the Gila Monster: Navajo Ceremonial Tales*, the Navajos consider the Gila monster a deity and the original medicine man. During a ceremony known as hand-trembling, Gila monsters are believed to possess healers, whose arms start shaking involuntarily as the source of a victim’s disease is located.

American pioneers had a more troubled relationship with Gila monsters, with misconceptions enduring well into the 20th century. As one 1891 account described a Gila monster: “To the new arrival ... who discovers it upon a rock with its mouth sending forth a greenish, frothy slime and puffing like a small steam engine, it presents a very formidable aspect.”

The very breath of “Healy monsters” was presumed to be fatal, in part because it was thought that the animals had no opening for excretion, resulting in a buildup of toxins. In actuality, DeNardo says, Gila monsters do stockpile some wastes, but for a very different reason. During drier periods, the lizards store urine in their bladders and can reabsorb pure water back into their systems. That allows them to go 80 days or longer without drinking. “Gila-monster bladders are like enormous canteens,” he says.



THOUGH NOT EXACTLY cuddly and certainly best not cuddled (in 2007, a man in Saguaro National Park was bitten by a Gila monster that he had placed on his shoulders, later explaining that the lizard “wanted to be friends”), Gila monsters eventually became more beloved than feared, and a symbol of Arizona.



Created by Pulitzer Prize-winning *Arizona Republic* editorial cartoonist Reg Manning, Gila Hank has served as the rootin’, tootin’, two-gun-toting symbol for the Eastern Arizona College Gila Monsters for nearly 70 years. At football games, a mascot dances and performs backflips, although the purple-and-gold costume makes Hank look more like some mutant spawn of Barney than a Gila monster.

Around the time of Gila Hank’s debut, Gila monsters also made forays into the broader culture. During a famous scene in the Academy Award-winning film *The Treasure of the Sierra Madre*, Tim Holt dares Humphrey Bogart to reach inside a rock crevice where a Gila monster may or may not be waiting. Holt delivers a speech filled with long-held myths about Gila monsters: “They never let go ... once they grab onto you. Cut ’em in two and the head’ll still hang on until sundown, I hear. By that time the victim doesn’t usually care because he’s dead anyway.”

Gila monsters do have relatively strong jaws, and they repeatedly clamp down when they bite to channel venom in their saliva through grooved teeth and into victims. But the venom isn’t fatal to humans, nor is it used to subdue prey. While most lizards need food every day, Gila monsters, like snakes, eat only sporadically, maybe six times a year. They raid nests where their common prey — baby rabbits, quail eggs and dove eggs — is defenseless. Instead, DeNardo says, the venom serves as a protective mechanism. By temporarily distracting attacking predators, the slow-footed Gila monster buys time to escape.

Not that a bite is exactly pleasant. “A baby Gila mon-

ster once bit me, and at first I didn’t see any blood, so I figured I was OK,” DeNardo says. “Then, all of a sudden, it felt like someone was smashing my finger with a hammer as hard as they possibly could. My finger swelled like a pickle, and after 45 minutes, the pain peaked. But it took days to calm down.”

From that cameo with Bogart, Gila monsters had their Godzilla moment in one of the most memorably bad B-movies in cinema history: the 1959 drive-in classic *The Giant Gila Monster*. The movie featured vintage electrotheremin music by Jack Marshall, the arranger for Peggy Lee’s *Fever* and composer of the theme to *The Munsters*, and improbably co-starred Lisa Simone, Miss France of 1957, as one of the teens menaced by the title creature.

Played by a beaded lizard in what is presumed to be his only starring role, the Gila monster has relatively few scenes and looks rather bewildered as he ravages a train before terrorizing a sock hop by banging his head into a building. Spoiler alert: The hero, a singing mechanic named Chase, saves the day by rigging a hot rod carrying nitroglycerin to blow up the beast. Of course.



BECAUSE OF THEIR APPEARANCE, Gila monsters are often described as “living dinosaurs.” But DeNardo says most lizards are physiologically closer to dinosaurs than Gila monsters are. “Gila monsters are more snakes with legs than they are lizards in the way they deal with things,” he says. “And a little bit of tortoise thrown in there, too. They’re very evolved.”

DeNardo returns to the misconception that Gila mon-

sters are somehow ill adapted to the Sonoran Desert. Their ideal body temperature of about 86 degrees may be low for desert animals. But during their comparatively active times — from March through May, and from mid-July through August — Gila monsters manage their temperature by emerging in the morning on cooler spring days to warm up, then at night in summer to avoid the hottest times.

It’s also said that Gila monsters have what biologists call “leaky skin,” meaning that they lose moisture through their body surface more easily than other reptiles. But that ability to draw water from their bladders helps Gila monsters perfectly bridge the dry period between the end of spring rains and the start of monsoon storms.

“That’s why they’re not in the Mohave [Desert],” DeNardo says. “The Mohave doesn’t get any monsoons.”

The past 12 years have been a golden era for Gila-monster research, he says, as scientists have learned more about these animals than they ever knew before. In addition to discoveries such as a protein in Gila-monster saliva — now synthesized as the drug Byetta to stimulate insulin production in patients with Type 2 diabetes — Gila monsters are yielding other secrets, too.

Part of the value in studying Gila monsters, DeNardo says, comes from better understanding their adaptations, especially with the prospect of climate change. He says the anticipated reduction in spring precipitation and a delay in the arrival of the monsoon storms could test Gila monsters’ capacity to withstand dry periods, and ultimately restrict their range.

“We need to figure out these kinds of relationships between an organism and its environment if we’re going to understand how climate change might affect animals,” he says. “Then we can understand whether it will have impacts on certain species and not others.”

After a grad student drops off cookies for DeNardo, the time finally comes to see Gila monsters. DeNardo unlocks that imposing door, which opens into a windowless storage room, a kind of Gila hostel where the lizards live in individual bins lining several rows of shelves. He quickly grasps one Gila monster behind the head and holds it up, pointing out the venom glands on the lower jaw as I run a finger along the pebble-grain-like surface of the lizard’s back. DeNardo suggests I touch the bottom of the lizard’s foot, which feels surprisingly soft, almost like velour.

I’m so caught up in the moment that it takes me a few minutes to notice a loud, rhythmic sound that goes on ceaselessly as we talk. Not only does the room have Gila monsters, it’s filled with rattlesnakes, too.

DeNardo understands my excitement. “I’ve seen Gila monsters probably way over 1,000 times,” he says. “But I still get a grin on my face whenever I see another one. I’m like a kid again.” **AH**

A Gila monster prowls the Sonoran Desert south of Globe. The species is well adapted to the desert’s scorching climate and can go 80 days or longer without water.
JOHN SHERMAN