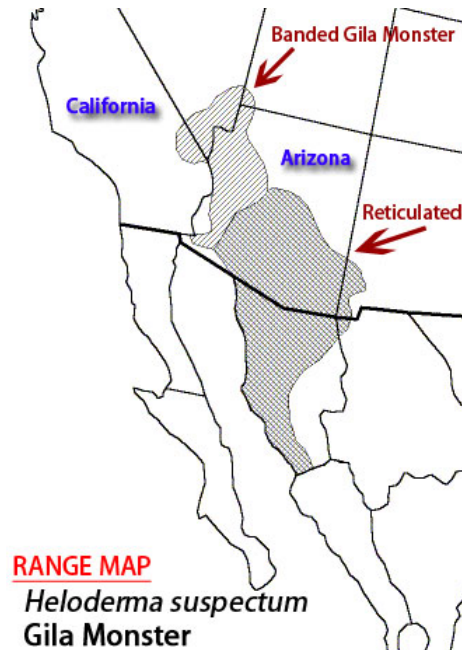


Gila Monster (*Heloderma suspectum*)

Range: The majority of Gila monsters are found in Arizona and Mexico, with some in the extreme southeastern corner of California, the southern tip of Nevada and the southwestern corner of Utah and New Mexico. Of the two subspecies, the banded Gila monster occupies the northern extent of the range, with the reticulated will be found in the southern range.

Habitat: Gila monsters are desert dwellers, living near washes and arroyos and in semiarid rocky regions of desert scrub or grasslands. They seem to prefer rocky foothills with access to moisture and avoid open flats and agricultural areas. They can be found in elevations up to 5,000 feet. They live in burrows of other animals or burrows they dig or under rocks. The Gila monster spends 95% of its time underground in or at the opening of its burrow. Its home range is about one square mile.

Description: The Gila monster is the largest lizard found in the United States and one of only several venomous lizards found in the world.¹ It is a large, heavy-bodied lizard growing from 18 to 22 inches and weighing from 3 to 5 pounds. The family name *Helodermatidae* means “studded skin,” referring to the beaded look of its dorsal scales, due to the presence of osteoderms (small bones) under the scales. In essence, the beads on their skin are actually small individual raised bones within their scales giving them armor-like protection. It is black with pink or orange markings. In the reticulated subspecies, the bands are broken up to form a reticulated pattern. In the northern banded subspecies, the markings generally form an unbroken band across the back.



Hunting/Prey: The Gila monster is a diurnal hunter and most above-ground activities occur during the three months in the spring when its prey is most abundant: newborn rodents, rabbits, hares and birds as well as eggs from birds, lizards, snakes and tortoises. It has an extremely acute sense of smell through its flickering tongue that it uses to locate prey, especially eggs. Its sense of smell is so acute that it can dig up chicken eggs buried 6 inches deep and can follow a trail made by rolling an egg. Its strong claws are useful for climbing trees to nests as well as digging its burrows.

¹ .Recent research by Dr. Bryan Fry speculates that the Komodo Dragon, monitor lizard and iguana also produce venom of less toxicity.

Prey may be crushed to death or eaten alive. Its venomous bite is used as a defense measure rather than to attack prey. The Gila monster eats infrequently (only five to ten times a year), but when it does feed, it may eat up to one-third of its body weight. Young Gila monsters may consume as much as 50% of their body weight in one feeding. Gila monsters store fat in their tail and bodies and have a low resting metabolic rate, allowing them to survive in their harsh environment.

In Arizona, the Gila monster is mainly active during the mornings from March through November. Hibernation is from the end of November through February.

Breeding/Nesting: The Gila monster emerges from hibernation in January or February. The male initiates the courtship by flicking its tongue to locate the female's scent. Rival males will engage in wrestling combat for the female. If the female rejects the male, she will bite him and crawl away. Copulation can last from 15 minutes to 2.5 hours. The female will lay her eggs in July or August and bury them in sand 5 inches below the surface. The clutch will consist of 2 to 12 eggs with the average size being 5 eggs. Incubation lasts 9 months, with the hatchlings arriving from April to June of the following year. The hatchlings are about 6 inches long and are able to inject venom upon hatching.

Lifespan: The average life expectancy of the Gila monster in the wild is 20 years and 30 years in captivity.

Threats: Loss of habitat through urban development and roads, habitat destruction, pet trade, and feral or pet dogs and cats have significantly reduced the population to the point that the Gila monster is considered a threatened species despite their legal protection through state laws and CITES.

Other Gila monster Facts:

- The Gila monster is named for the Gila River in whose drainage it is a common resident.
- The Gila monster was the first venomous animal to receive protective legislation when, in 1952, Arizona enacted a law that made it illegal to collect, kill, or sell them in Arizona.
- Gila monsters are not aggressive and prefer to avoid people. If threatened, it will move or run away or move deeper into its burrow. Sometimes it will just freeze in place. If pursued, it will back away hissing with its mouth open, and if provoked can attack surprisingly quickly.
- Generally, the Gila monster will occupy two burrows over a course of the year. The one located in a higher elevation is used during cooler months while the lower one is used during the warmer months.
- The Gila monster and the Mexican beaded lizard are the only two egg-laying lizards whose eggs incubate over the winter.
- The two generally recognized venomous lizards in the world are the Gila monster and its cousin the Mexican beaded lizard. Recent research speculates that the monitor lizards and iguanas also produce venom.

- The beaded lizard is larger than the Gila monster but has duller coloration, black with yellowish bands of differing width depending on the subspecies.



- The Gila monster is able to survive in a harsh environment because it has a low metabolic resting rate; is able to eat large meals; and store energy (fat) in its tail and body, making it unnecessary to hunt often.
- It has been suggested that its entire yearly energy needs are met in three or four large meals. For this reason, it is not often seen above ground.
- The Gila monster's characteristic bony scales were common among dinosaurs but are unusual in today's reptiles. For that reason, it is sometimes called a living fossil.
- Rather than injecting its venom through hollow fangs as venomous snakes do, Gila monsters latch onto its victim and chew the venom into the wound through grooves in its enlarged, grooved teeth in the lower jaw. The venom is produced in modified salivary glands and is a mild neurotoxin. The bite is described as extremely painful, although initial pain is generally confined to the area of the bite. Victims may also experience localized swelling, nausea, vomiting, high blood pressure, weakness, faintness, excessive perspiration, chills and fever. . While the bite is painful, no human deaths have been recorded.
- The Gila monster's venom is about as toxic as that of western diamondback rattlesnake, but only a small amount is introduced when bitten.
- There is no anti-venom for the Gila monster's bite.
- Of the 13 bites treated by Tucson Poison Center in 2000: 7 victims were dogs; 1 was a cow; and 5 were humans.
- A component of the venom called exendin-4 has been synthesized and approved in 2005 for management of type-2 diabetes. This substance stimulates the secretion of insulin when blood sugar levels rise, allowing diabetics to keep their blood sugar levels under control.
- Translating its Latin name *Heloderma suspectum*: *Heloderma* means "studded skin," while *suspectum* was included because the investigating paleontologist "suspected" that lizard might be venomous due to the grooves in its teeth.

- Gila monsters can be observed in the wild immersing themselves in puddles of water after a summer rain, dispelling the popular belief that holding them under water will cause them to release their bite.
- The Gila monster becomes sexually mature at 3 to 5 years.
- Gila monster myths: Its breath is toxic enough to kill a human; it can spit venom; it can leap several feet in the air to attack; it does not have an anus and therefore expels waste from its mouth; it will not release its bite until the sun goes down; its bite will kill you.

Dr. Ward's Prescription - Arizona Graphic September 23, 1899

Dr. Ward, of Phoenix, an old practitioner in the valley, says: "I have never been called to attend a case of Gila monster bite, and I don't want to be. I think a man who is fool enough to get bitten by a Gila monster ought to die. The creature is so sluggish and slow of movement that the victim of its bite is compelled to help largely in order to get bitten."

Steps to take if bitten by a Gila monster

The Arizona Poison and Drug Information Center offers the following advice if you are bitten by a Gila monster:

-
-
- Remain calm.
- If you are bitten on the arm or hand, try to get the lizard's feet on the ground by lowering it down. It may feel safer that way and let go.
- Pry the jaws open using a strong stick or other device. But, be sure to allow the lizard a strong foothold on the ground while you are prying it off, or you will only increase its agitation.
- Immobilize your bitten limb below your heart level.
- Irrigate the wound with plenty of water.
- Get to a medical facility immediately.
- Do NOT apply ice, a constriction bandage or a tourniquet.
- Bitten pets should be taken to a veterinarian immediately.

Call 1-800-222-1222. Most patients with a Gila monster bite who call the poison center are referred to a medical facility. There, the wound should be carefully explored for broken teeth. It is important to ensure that tetanus immunization is up-to-date and that the patient is observed for signs and symptoms of infection



**R
e
x**

REX came to Liberty in 2001 as a young Gila. He was hit and dragged by a semi-truck, injuring his tail. Because of captivity, he could not be released into the wild once healed.

The law has now changed; it used to be that once in captivity a Gila could not be released back into the wild. However, they may now be released within 6 weeks if able. If longer than 6 weeks, they cannot be released.



Roseanne – “Rosie”

ROSEANNE or Rosie came to Liberty in 1994, as an adult, after being confiscated. She and two other Gila monsters had been tossed into a garbage dumpster and left without food or water. We do not know how long they were in there, but long enough that they turned on one another and tried to eat each other. Roseanne is missing a couple of toes because of this.

The law has now changed; it used to be that once in captivity a Gila monster could not be released back into the wild. However, they may now be released within 6 weeks if able. If longer than 6 weeks, they cannot be released.



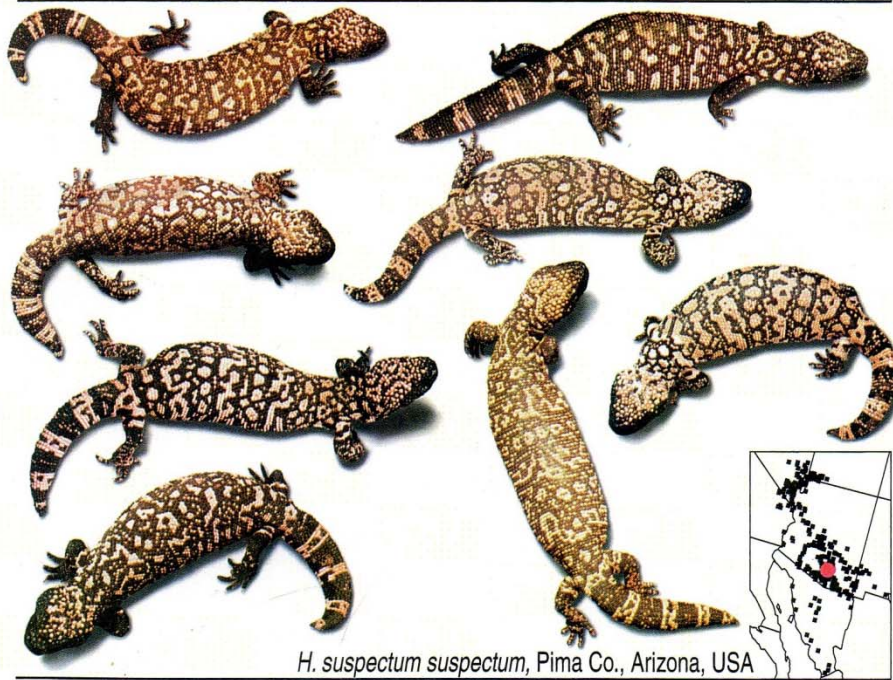
Banded Gila



Reticulated Gila



H. suspectum suspectum, Maricopa Co., Arizona, USA



H. suspectum suspectum, Pima Co., Arizona, USA

PLATE 16. Portraits of populations: These photographs show a typical range in variation of dorsal patterns within populations of *Heloderma suspectum suspectum*, the Reticulate Gila Monster. Individuals from Maricopa Co., AZ (top), near where the “reticulate” and “banded” morphs are thought to intergrade, more commonly show banding. Individuals from Pima Co., AZ (bottom), clearly show reticulate patterns.

Sources: Arizona-Sonora Desert Museum; Smithsonian National Zoological Park; National Geographic; U. S. Geological Survey fact sheet, April 2006; Arkive, Images of Life on Earth; University of Michigan Museum of Zoology; Wikipedia, Biology of Gila Monsters and Beaded Lizards by Daniel D. Beck