Care Cards

Helodermas

The genus *Heloderma* is primarily made up of two species of reptiles, the Gila monster (*Heloderma suspectum*) and the Beaded lizard (*Heloderma horridum*), although several subspecies also exist. The Gila monster is native to the southwestern part of the United States, namely Arizona, Utah, Nevada, New Mexico and California. It can also be found in the northwestern portion of Mexico. The Beaded lizard is found in central and southwestern Mexico and into Guatemala. Although there is a section of Mexico where both species exist, there is no documented evidence of integration or crossing between the two species. Of the two, the Gila monster is much smaller than the Beaded lizard. Both species were readily caught and imported to the United States in the 1960s. Since then, both species have received protective status along their natural range. Today, permits are required to remove wild-caught specimens. Captive-bred specimens are legal to sell; however, care should be taken to assure yourself the reptile you are purchasing is truly captive-bred. Undercover agents will frequently offer specimens as wild-caught and then arrest any person who buys the reptile.

The Gila monster is the only venomous lizard in the United States. The venom is produced in a pair of glands located beneath the scales on both sides of the lower jaw. The glands have ducts that carry the venom to the mucous membranes near the lizard's teeth, which have grooves as well as sharp cutting edges. The venom flows along the teeth by capillary action. The venom is administered during the chewing phase of battle. The lizard will bite down on its prey item and in a chewing motion, apply its venom to its victim. The amount of venom released is proportional to the duration of the bite. Once inside the victims system, the venom will cause a rapid drop in blood pressure. This can lead to hypovolemic shock and death. Death can also occur from respiratory failure and cardiac arrest. Gila monster venom does not contain any tissue-damaging anticoagulants or digestive enzymes.

HOUSING

Heloderma are easy to maintain in captivity. Their overall small body size will enable you to maintain them comfortably in a three-foot by six-foot enclosure. Many people will use commercially available cattle troughs for the enclosure. They are moderately priced and easy to clean. Most species like to burrow and spend much of the day underground. To accomplish this in captivity, an enclosure with a removable drawer filled with secured PVC pipe should be used. The pipe should extend above the substrate to prevent materials from littering the pipeline. The same setup can be accomplished without a drawer by burying the pipes in several inches of substrate material. The preferred substrate for these reptiles is sand, small gravel or aspen, any of which can be used to bury PVC pipes. These items are also preferred because of the drying effect they provide. The substrate should be deep enough to either cover any buried pipes or, if a drawer is used, to cover the cage bottom. Excessive levels of substrate should be avoided because of the possibility of uneaten food or feces being hidden.

Heloderma are dry, desert-type animals. Humidity must be kept low within the enclosure. Water bowls should be provided several times a week for routine soaking. Care must be taken to prevent excessive spilling of water and subsequent elevation in the humidity level. Many owners have stated these reptiles do not bask. Because of this, heat lights are not necessary. I would still recommend you use a full spectrum ultraviolet light for normal cage lighting. A 14-hour light cycle should be used except during the cooling down period. The enclosure should have a temperature gradient of 86 to 89 degrees Fahrenheit on the warm side and 73 to 76 degrees Fahrenheit on the cool side. Heating tape can be applied to one side of the enclosure to help maintain a good temperature gradient.

FEEDING

Heloderma are carnivorous reptiles. Hatchlings will readily accept pinkie mice. Occasionally you will need to coat the mouse with fresh egg yolk. Fertile eggs are

preferred over store-bought eggs. In the wild, some species will ingest fertile eggs. Feeding of store-bought, unfertilized eggs is not recommended due to the lack of quality nourishment when compared to fertilized eggs. Wild-caught specimens will often require yolk coating of food items to entice regular feeding. In some instances, it will be easier to force-feed the reptile than deal with the mess of egg coating; *Heloderma* are easy to force-feed and rarely fight the procedure. Additionally, many herpetoculturists have stated that *Heloderma* fed eggs will have very messy and foul smelling stools. Beaded lizards can consume larger prey items; however, I prefer multiple small feedings to one large feeding. Gila monsters can easily overeat and become obese if fed too much or too often.

REPRODUCTION

Sexing *Heloderma* is not an easy task. Often times the best way to develop a breeding colony is to start with a group of juveniles and wait for them to pair up. If observed in a group, occasionally you can pick up subtle difference between sexes. Usually males will have larger and wider heads than females. Additionally, the males will have more narrow bodies than females; this can be altered if the animals are overfed, leading to obesity in the males. Adult males housed together will fight, but this usually will only occur during the breeding season.

A three-month cooling period should be utilized prior to breeding. All feeding should be stopped in early November. After two weeks without food, the cage temperature should be adjusted to allow for a drop in temperature near 60 degrees Fahrenheit. An eight-hour light cycle should be maintained throughout the cooling period. Water should either be continuously provided or offered three times per week. If water is left in the enclosure, care should be taken to monitor the humidity level. Excess humidity during hibernation can lead to respiratory disease.

By March you should start increasing the temperature and extending the light cycle. Once the enclosure has returned to optimal temperature and the light cycle is fourteen hours per day, you can resume regular feeding. Approximately four to six weeks following the cooling cycle, courtship and copulation will occur. The pair can remain in a copulatory position for up to one hour. If the pair is not actively breeding, the male should be removed for one to two weeks and then reintroduced to the female. Often the male will begin courtship and breeding. This will be a separate cycle lasting several weeks. Males should be carefully observed for over aggressive behavior.

Gravid *Heloderma* will gain weight and develop an enlarged abdominal region. Gravid females will always lose tail weight regardless of their nutritional status. Feeding frequency should increase and the food item size decrease during this phase. Gravid females should always be separated to prevent injury from fighting with cage mates. Egg laying will occur six to eight weeks following copulation. Gila monsters have smaller clutches than Beaded lizards, four to eight eggs versus fifteen to twenty eggs respectively. Gila monsters will usually lay all their eggs within a few hours while Beaded lizards may take an entire day. Gravid females should be checked frequently for egg delivery, and all eggs should be quickly removed from the enclosure. *Heloderma* are known for their oophagy, or egg eating. Females will consume their own eggs similar to any other fertile egg they encounter.

There are many schools of thought when incubating *Heloderma* eggs. Many herpetoculturists have agreed the optimum temperature is 82 to 83 degrees Fahrenheit, although a range of 79 to 85 degrees is acceptable. It has been shown that temperatures above 85 degrees will cause damage to the eggs. The incubation media should contain less moisture than for other reptile eggs. Whereas most reptile eggs are placed in a 1:1 mixture of vermiculite and water, *Heloderma* eggs require either 2:1 or 3:1 vermiculite to water. Some breeders have gone away from vermiculite and are using Perlite, peat moss or a combination of all items listed. The eggs are buried more than half deep in the mixture. Hatching will occur between 120 to 140 days later. Moisture should be kept to a minimum during the last couple of weeks of incubation. Hatchlings should be separated and housed alone. Within one week the new hatchlings will start feeding on appropriately sized food items. Once eating, the newborns should be fed twice a week for the first couple of months.

Heloderma are interesting reptiles to own. They make a nice addition to any desert style enclosure. Care should always be taken around these lizards because of their potential for biting and venom delivery. Although it would be unlikely for an owner to die from the injury, severe pain and local tissue damage could easily occur.

References:
1) Applegate, Robert; Heloderma, Suspectum-Horridum; Reptilia Magazine; p 28-33.
2) Wagner, Ernie; Ask the Breeder; Reptiles Magazine; p 8-10.
3) North, Greg; Captive Propagation of the Rio Fuerte Beaded Lizard; Reptiles Magazine, May 1996; p 100-106.
4) Seward, Mark; Captive Reproduction of the Gila Monster; Reptiles Magazine, December 1998; p 68-75.
5) Brown, David; America's Aztec Lizard; Reptiles Magazine, November 1995; p 8-29.
6) Danch, James; The Gila Monster: Survival Strategies and Misconceptions; Reptiles Magazine, December 1998; p 32-43.

Animal Veterinary Hospital of Orlando

Questions? Please contact Dr. Bruce Bogoslavsky • Animal Veterinary Hospital of Orlando • 1320 West Oak Ridge Road • Orlando, FL 32809 • Phone: 407.855.7387