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IGUANAS

Giant horned lizard

Phrynosoma asio

Phrynosoma asio is the largest and most slender of the horned lizards. It lives in the dry forests along the Pacific coast of southern Mexico, grows to 12 cm from snout to vent, and has a longer tail and a more lizard-like body than its northern relatives. It is diurnal, eats many kinds of insects and has a long rest period in the dry season.

Family: Phrynosomatidae Former name: *Phrynosoma spinimentum*

KEY FACTS

THE ANIMAL

Adult size	**10-12 cm** snout-vent length
Lifespan	**7-13 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Semi-desert and dry forest**
Difficulty	**Experienced**

CARE

Min. enclosure	**120 × 60 × 50 cm** L × W × H for 1 adult
Temperature, day	**27-30 °C**
Basking spot	**38-42 °C**
Temperature, night	**18-22 °C**
Humidity	**30-60%**
Water	**No water dish**
UVB	**Essential** Ferguson zone 3
Winter rest	**18-20 °C** 20-26 weeks
Diet	**Insects**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**13-16 eggs**
Clutches per year	**1**
Incubation	**77-84 days** at 30-32 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Least Concern (LC)**

About the species

Phrynosoma asio is the largest species in the genus and also the most slender. It therefore looks less like a toad with horns than most other horned lizards, and more like an ordinary, sturdy lizard with spiny scales. The species name comes from Latin and means horned owl.

On the back of the head sit two widely separated, large horns, and horns of equal length sit above the eyes and at the temples. The fact that the horns above the eyes are almost as long as the horns at the back of the head distinguishes the species from all other horned lizards. Along each side of the belly runs a single row of spiny scales. The belly scales are keeled and have indistinct grey spots. The tail is relatively long: at least half as long as the body. The horns on the head have a bony core, whereas the spines on the back and flanks are modified scales.

From snout to vent the species grows to about 12 cm, and with the tail it can reach 15-20 cm. Weight is not documented. The species lays eggs.

The species defends itself first and foremost by camouflage: a half-buried animal is almost impossible to spot. The spines are so sharp that they easily puncture the skin if you take hold of the animal carelessly. How it otherwise defends itself is not documented.

Unlike most horned lizards, *P. asio* does not depend on ants. It readily eats many kinds of insects, especially grasshoppers and crickets. Ants are also taken, but make up only a small part of the diet by weight. This makes the species easier to feed than the ant specialists of the genus.

Read more: Feeder animals: keeping and breeding

Distribution and habitat

Phrynosoma asio lives on the Pacific side of southern Mexico. It is known from the states of Jalisco, Colima, Michoacán, Guerrero, Morelos, Oaxaca and Chiapas. The type locality is near the city of Colima. The species has also been mentioned from Guatemala, but there are no reliable records from there.

The species is the only large horned lizard in this tropical part of the genus's range. The other species live further north, in the USA and in northern and central Mexico.

> **Native range:** Mexico.

HABITAT

Phrynosoma asio lives in semi-arid, hilly terrain with gravelly soil and light, dry forest. It is found on sunlit paths in the forest, in dried-up stream beds, at the edge of clearings and on open patches near villages.

The climate is warm all year and divided into two distinct seasons. The rainy season lasts from June to the end of September and brings about 1,000 mm of rain. For the rest of the year, corresponding to the northern winter, it is markedly dry: it rarely rains, the streams shrink and everything becomes dusty. Animals from higher ground experience greater differences between day and night than animals from the coast.

The species is diurnal and fully active from April to the end of September. When the rain stops, it retreats into hiding and has a rest period of five to six months, during which it only rarely lies in the sun. At night it buries itself half into the substrate. It cannot vanish completely into the sand like the smaller desert species.

Care

THE ENCLOSURE

Little is known about the care of *Phrynosoma asio*, but adults are relatively easy to keep, because they eat ordinary feeder insects. Temperature and lighting are based on *Phrynosoma cornutum*, which is better known in captivity. *Sceloporus undulatus* and *Sceloporus occidentalis* from the same family have similar requirements for sun and heat.

An adult needs a vivarium of at least 120 × 60 × 50 cm (length × width × height). The species is larger and more slender than *P. cornutum* and runs more, so floor area is what matters. In summer the animals greatly benefit from an outdoor enclosure in full sun when the weather is good, with plants that provide shade.

The substrate should be 8-10 cm of a mixture of sand and soil, preferably with a little gravel, so the lizard can bury itself half-way at night and the female can dig an egg-laying pit. Furnish the vivarium openly and simply: flat stones and a few pieces of wood as basking spots and lookouts, and several hides, including a cool corner for the rest period. Secure the stones so they do not shift when the animal digs. The vivarium needs a tight-fitting lid and good ventilation.

TEMPERATURE

The species needs a basking spot where the surface reaches 38-42 °C, measured with an infrared thermometer. The rest of the vivarium should be 27-30 °C during the day, so the lizard can choose for itself how long to lie in the heat. In great heat it seeks shade. The heat lamp must be controlled by a thermostat, and the animal must not be able to touch the bulb. At night the temperature drops to 18-22 °C. The day, basking and night temperatures are borrowed from *P. cornutum*.

From September or October adults have a rest period, which corresponds to the dry season in the wild. They stop eating even though they are in good condition and withdraw to a corner. Keep them at about 19 °C for five to six months. They hardly lose any weight. Do not try to keep them active with heat and humidity in winter, because the rest period helps trigger

mating. The animals only become properly active again in April or May.

Young animals do not tolerate large temperature swings and must not be put outdoors in cool weather.

Read more: Heat and temperature Read more: Humidity, misting and ventilation

HUMIDITY AND WATER

The species comes from a climate with a wet summer and a dry winter, and its care should follow that rhythm. Humidity is not documented; 30-60% during the active period is an estimate based on the climate. The substrate must never be wet, and the vivarium should dry out between waterings.

During the active period the animals are misted once or twice a day with lukewarm water. The species licks droplets and readily drinks droplets from a pipette when it is held at the corner of the mouth. During the rest period the vivarium is kept dry, and the animals are given water once a week.

LIGHTING AND UVB

The species is diurnal and needs strong light and UVB during the active period. Use a UVB tube (Ferguson zone 3, T5 HO 10-14%) or a combined UVB metal halide lamp over the basking spot. The zone is borrowed from *P. cornutum*. Measure the UV index at the height of the animal's back, and replace the light source according to the manufacturer's instructions. Direct sun in an outdoor enclosure in summer is good for the animals.

Keep the lights on for about 12-14 hours a day during the active period, controlled by a timer. During the rest period give shorter days and a weekly dose of UVB. There must be a cooler, shadier place to retreat to. It must be dark at night.

Read more: Lighting and UVB

FEEDING

Adult *Phrynosoma asio* eat many kinds of insects willingly and with a big appetite. Give crickets, grasshoppers and locusts in particular, and offer ants regularly. Ants do not make up much by weight, but they are part of a healthy diet for horned lizards. Wild-caught ants must only be collected from pesticide-free places.

Feed adults daily during the active period, and dust the feeder insects with calcium and regularly with a vitamin and mineral supplement. Gut-load the feeder insects with nutritious food for a day before feeding them. In September the animals eat large quantities before going into their rest. During the rest period they do not eat.

The young need small feeder insects: small ants, small crickets and newly hatched grasshoppers. Weigh the animals regularly, so that weight loss is spotted in time.

Read more: Calcium, vitamins and supplements Read more: Buying animals: captive-bred, wild-caught and transport

BEHAVIOUR AND HANDLING

Phrynosoma asio is calm and moves in short stretches. It blends into the ground and often lies half-buried. Adults can be kept in pairs, but the young must be kept separately, because adults can seize and crush the young to death.

The species is not an animal for handling. The spines are sharp and easily puncture the skin if you take hold of the animal carelessly. Let new animals settle in peace, and handle them only when necessary.

Breeding

SEXUAL MATURITY AND SEXING

The age at sexual maturity is not documented for *Phrynosoma asio*, and the same applies to reliable external sex characteristics. The male visibly lightens in colour when excited during mating. Use only fully grown animals in good condition for breeding, and keep an eye on the female's weight when she is carrying eggs.

MATING

Mating only takes place after the rest period, once the animals have been active for a couple of months, typically in mid-June. This corresponds to the timing in the wild, when the rainy season has brought plenty of insects. The species does not mate shortly after its winter rest like many other horned lizards.

The male approaches the female from the side, licks at her and bites hold of her neck horn. The female lies flat, nods and lashes her tail. Mating lasts 10-15 minutes, and a pair may mate four or five times in the course of a week. A pair can stay together all year.

EGG-LAYING AND CLUTCHES

The female lays eggs a good two months after mating, typically in late August. The clutch is 13-16 eggs, and she lays one clutch a year. The figures are based on few clutches.

The female digs a pit in a moist mixture of sand and soil or peat, lays the eggs and covers them. Afterwards she tamps the soil down with her forelimbs in quick thrusts for up to two hours, leaving a flat, round mound about 25 cm across over the nest. Give her an area with at least 25 cm of deep, slightly moist sandy soil. Without a suitable place the female may retain her eggs, and this can become life-threatening.

INCUBATION

The eggs hatch after 77-84 days at 30-32 °C. Incubate them on slightly moist sand or vermiculite, and move them carefully without turning them. Eggs that are kept too moist and too cool shrivel, and the embryos die. Keep the substrate only slightly moist and the temperature closer to 32 °C than to 30 °C.

The young hatch in November, corresponding to the start of the dry season in the wild, while the adults are resting.

REARING THE YOUNG

Newly hatched young are 4-5 cm long including the tail and weigh 1.6-2 g. They are no larger than the young of far smaller species, and rearing is the most difficult part of keeping the species. The young must be kept separately and given small ants, small crickets and other small feeder insects daily, dusted with calcium, and kept at a stable temperature without large swings. Pneumonia after chilling is a known cause of death.

The young shed for the first time after about 50 days. A four-month-old young weighs 6-7 g.

Health and common mistakes

Most illnesses are caused by mistakes in diet or in the set-up. The typical problems are:

- Emaciation and starvation. If the diet is not right, the lizard slowly loses weight and dies. This is the most common cause of loss, especially in wild-caught animals.
- Calcium deficiency and brittle bones (metabolic bone disease) from too little UVB and calcium. This causes soft jaws, bowed legs and tremors.
- Stress from too few hides or too little peace.
- Intestinal parasites, especially in wild-caught animals. Amoebic infection (*Entamoeba invadens*) is fatal, whereas pinworms (oxyurids) are tolerated in small numbers. Have a faecal sample examined, and check the skin for mites.
- Pneumonia in young animals exposed to cold and large temperature swings.
- Shedding problems in air that is too dry.
- Burns from unguarded heat lamps.

A healthy animal is alert and has a plump body. An adult that stops eating in September and withdraws is in its natural rest period and is not ill. Weigh the animal regularly, because sudden weight loss is often the first sign of illness. Consult a vet with reptile experience if the animal loses weight, does not eat, is lethargic or has swellings on the jaw.

Read more: Common diseases and signs of illness

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.