herpy

IGUANAS

Texas horned lizard

Phrynosoma cornutum

Phrynosoma cornutum is a broad, flattened lizard with horns on its head and two rows of pointed scales along its sides. It lives in open, dry grassland and scrub in the southern USA and northern Mexico. It reaches 7-13 cm from snout to vent, is diurnal and feeds mostly on ants. It is precisely the food that is the great obstacle: it is hard to replace, and the species is one of the most difficult lizards to keep in a terrarium.

Family: Phrynosomatidae Former name: *Agama cornuta; Phrynosoma brevicornis; Phrynosoma bufonium; Phrynosoma harlanii; Phrynosoma planiceps*

KEY FACTS

THE ANIMAL

Adult size	**7-13 cm** snout-vent length
Weight	**25-90 g**
Lifespan	**7-9 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Semi-desert and savanna**
Difficulty	**Expert**

CARE

Min. enclosure	**100 × 50 × 40 cm** L × W × H for 1 adult
Temperature, day	**27-29 °C**
Basking spot	**38-42 °C**
Temperature, night	**18-22 °C**
Humidity	**20-40%**
Water	**No water dish**
UVB	**Essential** Ferguson zone 3
Diet	**Insects**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**24 months**
Clutch size	**14-37 eggs**
Clutches per year	**1**
Incubation	**40-61 days** at 27-30 °C

PROTECTION AND PAPERWORK

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

About the species

Phrynosoma cornutum is a short, round, flat lizard that looks like a small toad with horns. The scientific name means "toad-bodied" and "horned". Two large horns sit at the back of the head, and several smaller horns sit along the jaw and temples. Two rows of pointed scales run along each side of the body, and the back is covered in large, keeled scales. The tail is short.

The colour follows the ground: yellow to reddish brown on sandy soil and brown to grey on the dry grass of the prairie. On the back sit large dark spots with a paler edge, and a pale stripe runs from the nape down along the back. Dark bands run from the eyes out towards the horns. Newly hatched young are dark brown and lighten with age. During the breeding season the colours become stronger.

The female is the larger. From snout to vent the female measures up to 13 cm, the male about 9 cm. Adults weigh 25-90 g.

The species has several lines of defence. It lies completely still and is hard to spot. If it is found, it inflates its body so that the scales stand out, and it can jab with its horns. Against canids it can squirt a jet of blood from the corners of its eyes, up to 1.5 m.

Phrynosoma cornutum is a specialist, and this shapes everything about keeping it. About 70 % of its food is harvester ants (*Pogonomyrmex*), and the rest is mostly other ants and insects. It has a substance in its blood that neutralises the venom of harvester ants, and mucus in the oesophagus that wraps the ants up. This food cannot be fully replaced in a terrarium, and most problems in captivity are caused by the wrong diet. The species has declined across large parts of its range, partly because of pesticides, development and introduced fire ants, which displace the harvester ants.

Distribution and habitat

Phrynosoma cornutum lives in southern and central North America. In the USA it is found from south-eastern Colorado and Kansas through Oklahoma and most of Texas to south-eastern New Mexico and the far south-eastern corner of Arizona. In Mexico it is found in eastern Sonora, most of Chihuahua, Coahuila, Nuevo León and Tamaulipas and in parts of Durango, Zacatecas and San Luis Potosí.

The species has also been introduced in the south-eastern USA, including Florida and South Carolina, where small populations have persisted since the 1920s-1940s. The map does not show these. It is found from sea level on the islands off the Texas coast up to about 1,800 m above sea level.

> **Native range:** United States and Mexico.

HABITAT

The species lives in open terrain with sparse vegetation: sandy and stony semi-desert, prairie and dry grassland, often near the mounds of harvester ants. Here the lizard hides by lying completely still on the ground, where its colour matches the surface. It likes to sit on a slightly raised spot, for example a stone or a tussock, and look around with its upper body raised.

It is exclusively diurnal. In the morning and evening it basks and hunts on open ground, and in the hottest afternoon hours it seeks shelter under stones, in rodent burrows or under bushes. It hunts at the entrances to the ant mounds in the forenoon, when the ants are most active. On average it moves about 50 m a day.

The species gets its water mostly from dew and raindrops, which it licks from plants and from its own body, and from its food. From October to late March it hibernates, buried in loose soil and leaves. The hibernation burrows are about 14 cm deep and often face south or south-west, where the sun reaches best.

The female digs a burrow system at a depth of 12-25 cm, lays the eggs and closes the hole again. She does not stay with the eggs.

Read more: Brumation and the seasons

Care

THE ENCLOSURE

Little is known about the care of *Phrynosoma cornutum*. Care is therefore based on its habitat: open, dry terrain, loose soil, strong sun and a diet of ants. *Sceloporus undulatus* and *Sceloporus occidentalis* from the same family have similar requirements for sun and heat, but they are far easier to keep, because they eat ordinary feeder insects.

An adult needs an enclosure of at least 100 × 50 × 40 cm (length × width × height). The species uses only the floor and does not climb, so floor area is what matters. The substrate should be 5-10 cm of a loose mixture of sand and soil, so that the lizard can dig itself in at night and during rest. Juveniles and subadults can be kept in 75 × 30 cm with about 5 cm of a substrate of sand, soil and granite grit.

Furnish the enclosure openly and simply: flat stones and a couple of pieces of wood as basking spots and lookouts, and a couple of hides so that the lizard can retreat. Fix the stones in place so that they cannot slip when the animal digs. The enclosure needs a tight-fitting mesh or glass lid and good ventilation. Place it somewhere quiet, because the species is stressed by disturbance.

TEMPERATURE

The species loves the sun and needs a basking spot where the surface reaches 38-42 °C, measured with an infrared thermometer. The rest of the enclosure should be cooler, 27-29 °C by day, so that the lizard can choose for itself how long it lies in the heat. The heat lamp must be controlled by a thermostat, and the animal must not be able to touch the bulb.

At night the temperature falls to 18-22 °C. No heat is needed at night if the room stays at least 18 °C.

Both too little and too much heat are harmful. If it is too cold, the lizard eats and digests poorly. If the whole enclosure is too hot, it digs itself in and does not come out.

In the wild the species hibernates from October to late March. Temperature and duration for hibernation in a terrarium are not documented, and hibernation may only be given to healthy, well-nourished animals.

Read more: Heat and temperature

HUMIDITY AND WATER

Air humidity should be low, 20-40 %, and the enclosure should dry out completely during the day. The substrate must not be wet.

The species hardly ever drinks from a bowl, but licks dew and raindrops from plants and from its own body. Mist stones and plants lightly once or twice a day so that droplets form, and let it dry off again. A fogger that runs twice a day for short periods is a good solution.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is diurnal and spends the day in open sunlight, so it needs strong light and UVB all year round. 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 set on the basis of the habitat. Measure the UV index at the height of the animal's back, and replace the light source according to the manufacturer's instructions.

Keep the light on for about 12 hours a day, preferably 14 hours in summer and 10 hours in winter, controlled by a timer. There must be a cooler, shadier place to retreat to. At night it must be dark.

Read more: Lighting and UVB

FEEDING

Food is the decisive limitation. In the wild about 70 % of the diet is harvester ants (*Pogonomyrmex*), and the young eat only small ants. The rest is termites, beetles and grasshoppers. The diet cannot be fully reproduced in a terrarium.

In a terrarium, feed fruit flies, small crickets and mealworms, dusted with a calcium supplement for ant-eaters, once a day. Offer as many different feeder insects as possible, and offer live ants when they can be obtained. The feeder insects must be small. Ants from the wild can carry intestinal worms, and they may only be collected in places free of pesticides.

Give the feeder insects nutritious food for a day before they are fed. Keep an eye on weight: an animal that is losing weight is not getting enough of the right food.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Phrynosoma cornutum is calm and quiet and lives alone. It does not make much fuss and is easy to overlook, because it blends into the ground. It moves in short bursts, raises its upper body and looks around. The males nod their heads quickly at each other and at the females.

The species is not an animal for handling. It is easily stressed, and newly hatched young are shy. Always choose captive-bred animals, because they do better than wild animals. Let new animals settle in peace, and handle them only when necessary. If the animal feels threatened, it inflates itself and can squirt a jet of blood from its eyes. This is a defensive reaction and not a sign of illness, but it is a sign of strong stress.

Keep one animal per enclosure. The species lives alone, and the males may fight over ant mounds. Put the animals together only for mating, and keep watch.

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

Breeding

SEXUAL MATURITY AND SEXING

The sex is seen first and foremost from size: the female reaches up to 13 cm from snout to vent, the male about 9 cm. Other reliable characteristics are not documented. Both sexes are sexually mature after two years, when they measure about 7 cm from snout to vent. Females must be fully grown and in good condition before they are used for breeding.

MATING

In the wild the species mates from mid-April to mid-June, right after hibernation. The male nods his head quickly and goes in search of females, especially in the first month after hibernation. The female rejects a male by walking away or waving her tail. During mating the male lies on top of the female for a couple of hours and holds on with a bite on one of her horns. Afterwards the female rejects other males, and the male loses interest in her. Take the male out again after mating. How mating is triggered in a terrarium is not documented.

EGG-LAYING AND CLUTCHES

The female lays one clutch a year, about 44 days after mating. The clutch is 14-37 eggs, and the largest females lay the most. She digs a sloping tunnel at a depth of 12-25 cm with her forelegs and pushes the soil out with her hind legs. The whole job takes 5-10 hours. After laying she fills the hole and scatters soil over the spot. She does not stay with the eggs.

For laying, the female needs a box or a corner with at least 25 cm of slightly damp sandy soil. Without a suitable place she retains the eggs, and this can become life-threatening.

INCUBATION

The eggs are white and leathery and measure about 10 × 16 mm. Move them carefully to a box with slightly damp vermiculite or perlite without turning them. Incubation takes 40-61 days. The incubation temperature is not documented; 27-30 °C is borrowed from *Sceloporus undulatus*. Keep the humidity even, so that the eggs neither dry out nor become wet.

Read more: Incubating eggs

REARING THE YOUNG

Newly hatched young measure about 2 cm from snout to vent and weigh 0.6-0.8 g. They are independent from the first day. In the wild they eat only small ants, so rearing is the hardest step. Feed the young every day with fruit flies, small crickets and small mealworms, dusted with a calcium supplement for ant-eaters. Keep them separately in small enclosures with the same set-up as the adults': loose substrate, a basking spot and UVB. They are shy, so give them peace and several hides.

Health and common mistakes

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

- Emaciation and starvation. If the food is not right, the lizard slowly loses weight and dies. This is the most frequent cause of loss, especially in wild-caught animals.
- Calcium deficiency and metabolic bone disease from too little UVB and calcium. This causes soft jaws, bent legs and tremors.
- Stress from too few hides, too little peace or several animals together.
- Intestinal worms and mites, especially in wild-caught animals. Have a faecal sample examined, and check the skin.
- Shedding problems from air that is too dry. Scales can remain on the toes and tail.
- Egg-laying problems if the female does not have a suitable place to dig.
- Burns from unprotected heat lamps.

A healthy animal is alert, has clear eyes and a plump body. Weigh the animal regularly, because sudden weight loss is often the first sign of illness. Seek a vet with experience in reptiles if the animal loses weight, does not eat, is limp or has swellings in 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.