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AGAMAS

Ornate Mastigure

Uromastyx ornata

Uromastyx ornata is a small and unusually colourful spiny-tailed lizard from the rocky deserts on both sides of the Red Sea. The male is green, blue and sometimes red with yellow spots on the back. It reaches 30-36 cm, is almost purely herbivorous and digs into a deep substrate. It needs a large, hot, dry enclosure with strong UVB and lives for many years, but it is not a cuddly lizard.

Family: Agamidae Former name: *Uromastyx philbyi*

KEY FACTS

THE ANIMAL

Adult size	**30-36 cm** total length incl. tail
Lifespan	**15-25 years**
Active	**By day**
Lifestyle	**Rock-dwelling, terrestrial and burrowing**
Habitat	**Desert and rocky terrain**
Difficulty	**Intermediate**

CARE

Min. enclosure	**120 × 60 × 60 cm** L × W × H for 1 adult
Temperature, day	**27-32 °C**
Basking spot	**50-55 °C**
Temperature, night	**18-22 °C**
Humidity	**20-30%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Winter rest	**16-22 °C** 8-12 weeks
Diet	**Plants**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**4-20 eggs**
Incubation	**60-70 days** at 33-34 °C

PROTECTION AND PAPERWORK

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

About the species

Uromastyx ornata is a compact, heavily built agamid with a short, broad body, short legs and a flat tail covered in whorls of spiny scales. The tail consists of 20-23 rings and is used both for defence and to block the entrance to the burrow. There are small spines on the upper side of the thighs and some enlarged scales in front of the ear opening.

The sexes differ in colour. The male's ground colour on the back is green, blue and sometimes red, with yellow eye-spots in rows. The female is a more neutral sandy to pinkish colour and has duller yellow spots. Males acquire their full colours only after 3-6 years and are most colourful in the breeding season. Some females are as brightly coloured as males. Males are usually slimmer than females and have a broader head, while adult females become pear-shaped.

The species reaches about 30-36 cm including the tail and thus belongs to the medium-sized spiny-tailed lizards.

The species was described in 1827. Two subspecies are recognised: *U. o. ornata* from Egypt, Israel and Saudi Arabia and *U. o. philbyi* from western Saudi Arabia and north-western Yemen. The species has formerly been treated as a subspecies of *Uromastyx ocellata*.

Adults are calm and spend much of the day basking and eating. Juveniles, by contrast, are very active and skilled climbers. *U. ornata* rarely becomes truly tame, and it is best kept as an animal to watch rather than handle. Care itself is fairly simple once temperature, UVB and diet are right. The species suits a keeper who has experience with herbivorous reptiles and room for a large enclosure.

Read more: Lighting and UVB

Distribution and habitat

Uromastyx ornata lives in eastern Egypt including Sinai, southern Israel, western Saudi Arabia and north-western Yemen. An occurrence in Jordan is possible but unconfirmed. The nominate form *U. o. ornata* occurs in the northern part of the range, while *U. o. philbyi* lives in the mountains of western Saudi Arabia and north-western Yemen.

The species is tied to rocky terrain and mountains on both sides of the Red Sea. Globally it is not regarded as threatened, but in Israel it is listed as threatened on the national red list.

> **Native range:** Egypt, Israel, Saudi Arabia and Yemen.

HABITAT

Uromastyx ornata lives in rocky desert and stony land with sparse vegetation. It digs burrows in crevices, under stones and in loose soil, and the burrows can be up to about 1 m deep. The animals are diurnal and bask in the morning before they go foraging. In the northern part of the range frost can occur in winter.

The burrow gives a cooler and more humid microclimate than the surface. The plants cover most of the water requirement, and the species rarely drinks. The animals mostly live alone and meet to mate; small groups with one male and several females also occur. The food is almost exclusively plants: insects make up only about 1% of the diet and are probably eaten by accident along with flowers.

The length of the winter rest in the wild is not documented for the species. In the closely related *Uromastyx acanthinura*, the animals are less active from October to February.

Care

THE ENCLOSURE

An adult needs an enclosure of at least 120 × 60 × 60 cm (length × width × height), and bigger is better. That is larger than ordinary glass terrariums offer, so choose an enclosure made of wood, PVC or plastic with a glass front. Three solid sides give a sense of security, especially for newly acquired animals. Juveniles can also live in 120 × 60 cm, because they need the same temperature gradient as the adults.

The animal digs, so the substrate must be deep: at least 10 cm, preferably more, of fine sand or sandy soil. A mix of half sand, 30% soil without fertiliser and 20% clay keeps the burrows from collapsing. Keep the top few centimetres dry and moisten only a little at depth. Avoid calcium sand and crushed walnut shells, which can cause impaction. Remove faeces and urates daily, and replace the substrate completely every 3-4 months. Sick or injured animals are temporarily moved onto kitchen paper.

The enclosure should open at the front and be well ventilated, ideally with a mesh lid. Build the basking spot from flat stones or slate under the heat lamp, preferably as a stack with gaps, so the animal can crawl in and choose its temperature. Fix the stones in place so they do not topple when the animal digs underneath them. Provide at least three hides per animal, preferably twice that, spread between the hot and the cool side. Shield heat lamps so the animal cannot touch them. Keep one animal per enclosure, and never keep different species of *Uromastyx* together.

Read more: Heat and temperature Read more: Calcium, vitamins and supplements

TEMPERATURE

The basking spot should have a surface temperature of 50-55 °C, measured with an infrared thermometer directly under the lamp. The cool side sits at 27-32 °C. The heat must come from above, for example from a 100 W halogen spotlight about 25-30 cm above the basking spot, never from a heat mat under the substrate: the animal does not move away from an overly hot floor in time and can be burned. If the basking spot is too hot or too cold, adjust it with a dimmer or by raising or lowering the stones.

At night the heat is switched off, and the temperature may fall to room temperature, about 18-22 °C. The animal must always be able to retreat from the heat.

In winter a cool rest is given: the day length is cut to 6-8 hours, the room temperature is lowered to 16-22 °C, and the basking spot is kept at about 30 °C, so the animal can warm itself and empty its gut. The rest lasts 8-12 weeks. Give a winter rest only to healthy, well-nourished animals, and weigh them before and during the rest.

HUMIDITY AND WATER

Humidity must be low, about 20-30 %, measured at the substrate on the cool side. Persistently high humidity makes the animal ill, so do not mist the enclosure. The substrate is moistened only slightly at depth, so that the tunnels hold and the burrows get a more humid microclimate, while the top few centimetres are dry.

The animal gets almost all its water through its food and rarely drinks. A water dish is not necessary, but a small dish of fresh water does no harm in a well-ventilated enclosure, and thin or newly acquired animals may benefit from it. Change the water daily.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is diurnal and needs strong light. Use an LED lamp or a fluorescent tube of about 6500 K as daylight, separate from the heat; the animals are more active and eat better with it. UVB is essential: the species belongs to Ferguson zone 3, and a 12-14% T5 HO tube over roughly half the length of the enclosure on the hot side should give a UV index of 4.5-6 at the basking spot. Check with a UV meter, and replace the tubes after 6-12 months or according to the manufacturer's instructions. The day is 12 hours in summer and shorter in winter.

FEEDING

Uromastyx ornata is herbivorous. About 90 % of the diet should be leafy greens and flowers, about 5 % hard vegetables and about 5 % dry food. Vary between salad mixes, rocket, dandelion leaves, endive, pak choi, turnip greens and a little kale, and give edible flowers such as dandelion, hibiscus, rose petals, marigold and nasturtium, preferably from your own garden and always free of pesticides. Hay and grass are also eaten. Hard vegetables such as squash, carrot and peas are grated finely.

Seeds and pulses are a natural part of the diet: dried, crushed peas, lentils and white millet provide protein and fat, but lead to obesity if given too often. Give adults a small portion no more than once a week. Juveniles under six months get no seeds. Fruit is a rare treat. Insects are not necessary; a single dusted mealworm or superworm can be given now and then, especially to females after laying and to animals that need to put on weight.

Juveniles are fed every day with as much as they can eat, and adults are fed 4-5 times a week. Sprinkle the food with calcium and a vitamin supplement once a week, when the animal gets enough UVB and a varied diet. Bee pollen is often given in far too large amounts; let the flowers cover the need instead.

BEHAVIOUR AND HANDLING

Adults are calm and sedentary, but territorial towards other adults, especially males towards males. Keep them singly. A pair can be kept together only in an enclosure at least twice the minimum size, and even then there is no guarantee. Juveniles are not territorial and can be kept together until they approach sexual maturity.

A new animal needs peace for the first few weeks. Captive-bred animals settle in fastest, while wild-caught ones can take up to six months. If the animal has not eaten after two weeks, a vet should see it. Do not handle the animal during settling in, apart from weighing, and cover any glass sides. Afterwards you can offer food from your hand. Approach slowly and always from below, never from above, as that looks like a bird of prey. Keep the animal out of the enclosure for no more than an hour at a time, because it needs the heat. Weigh the animal once a month, and see a vet if there is significant weight loss. Wash your hands after contact, as reptiles can carry salmonella.

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

Breeding

SEXUAL MATURITY AND SEXING

The male has a broader head and is usually more colourful. If the tail is gently bent upwards, a V-shaped row of scales can be seen in the male just below the vent, together with hemipenal bulges at the base of the tail. The adult female is pear-shaped and has a skin fold in the neck, which the male bites into during mating. Some females are brightly coloured and resemble males.

The age and size at sexual maturity are not documented for the species. Males acquire their full colours only after 3-6 years. Breed only well-nourished, fully grown animals.

MATING

Breeding follows a cool winter rest, which gets the animals going. The day length is cut from 12 to 6 hours and then to 4 hours, and the temperature is lowered. After about two months the light is increased again in stages to 12 hours. Only then are the female and male put together, and both must be in good condition.

Mating is violent. The male circles the female and does push-ups; a female who is not ready turns over onto her back. The male bites into the female's nuchal fold and can drag her around the enclosure before he lies over her and inserts a hemipenis. Mating itself lasts 2-10 minutes. Make sure the female is not injured, and separate the animals if it goes too far.

EGG-LAYING AND CLUTCHES

The female lays her eggs 4-6 weeks after a successful mating. The clutch is 4 to over 20 eggs depending on the female's size, age and health. Place a laying box with a mix of sand and soil on the cool side well in advance, for example in January, so the female gets used to it. If she does not use it, move it to the hot side. The soil should be damp enough for the tunnel to hold.

After laying, the female is clearly thinner. Give her peace, plenty of food and, if needed, an unflavoured electrolyte solution. She usually regains most of her weight and eats and basks normally within 1-2 weeks.

Millet and bird seed are not suitable as substrate for a female that is about to lay: the grains stick to the eggs and sprout in the incubator.

Read more: Incubating eggs

INCUBATION

Dig the eggs up carefully wearing gloves and place them in the same orientation as they lay in a closed container with damp perlite that is just damp enough to clump when squeezed. Place them a couple of centimetres apart. After 1-2 days there should be condensation on the sides of the container; otherwise add a little water. An open dish of water in the incubator keeps the humidity up. Weigh the containers once a week to monitor evaporation.

At 33-34 °C the eggs hatch after 60-70 days. A higher temperature gives a shorter incubation time.

REARING THE YOUNG

The young are kept singly or in small groups in enclosures of 120 × 60 cm with the same basking spot and temperature gradient as the adults, or in large plastic boxes. Give them plenty of hides. The substrate is kitchen paper, tiles or bare floor until the young are at least a year old.

The young get the same green plants and flowers as the adults, chopped finely, and are fed every day. Seeds and dried pulses are given only from six months of age. Thin or dehydrated young can be offered water. Separate the young before they become sexually mature.

Health and common mistakes

Most problems are caused by too little heat or UVB, too high humidity and the wrong diet:

- Metabolic bone disease (secondary nutritional hyperparathyroidism) from too little UVB, calcium and D3.
- Respiratory infection and mucus in constantly high humidity.
- Obesity from too many seeds and too much protein.
- Impaction from calcium sand, walnut shells and too low a temperature.
- Burns from heat mats and unprotected lamps.
- Parasites in newly imported animals. Quarantine new animals for 3-6 months.

- Crusty sores on the lips and skin, which may be caused by the bacterium *Devriesea agamarum*. It spreads between agamids and can be controlled only with veterinary treatment and thorough disinfection of the enclosure.
- Egg-laying difficulties (dystocia) in females without a suitable laying site.

A healthy animal is plump and firm, has clear eyes and eats regularly. Weight loss, loss of appetite and lethargy call for a vet with experience of reptiles.

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.