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AGAMAS

Eyed butterfly agama

Leiolepis ocellata

Leiolepis ocellata is a ground-dwelling, diurnal agamid from northern Thailand that digs burrows in dry deciduous forest, grassland and fields. It differs from *Leiolepis belliana* in having large, eye-like spots on the back, and the females have a red chin. The species requires an enclosure with a deep, diggable substrate, strong heat and UVB, and in the wild it stays in its burrow during the cool season.

Family: Agamidae English name: Eyed Butterfly Agama Former name: *Leiolepis belliana ocellata*

KEY FACTS

THE ANIMAL

Adult size	**35-50 cm** total length incl. tail
Weight	**45-100 g**
Lifespan	**8-10 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Savanna and dry forest**
Difficulty	**Intermediate**

CARE

Min. enclosure	**120 × 60 × 50 cm** L × W × H for 2 adults
Temperature, day	**26-35 °C**
Basking spot	**35-37 °C**
Temperature, night	**20-25 °C**
Humidity	**40-70%**
Water	**Water dish**
UVB	**Essential** Ferguson zone 3
Diet	**Insects and plants**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Clutch size	**3-8 eggs**
Incubation	**55-100 days** at 27-33 °C

PROTECTION AND PAPERWORK

CITES	**Not listed**
EU annex	**Not listed**
IUCN	**Least Concern (LC)**

About the species

Leiolepis ocellata is a slender, flattened agamid with a long tail. Its hallmark is large, eye-like spots (ocelli) on the back and a pale midline stripe that is continuous only over the pelvis. In *Leiolepis belliana* three unbroken stripes run the whole way along the back. Adult females of *L. ocellata* have a red chin, a sexual difference that *L. belliana* lacks. The species name comes from Latin *ocellus*, little eye, and alludes to the spots.

Adult males measure 12-16 cm from snout to vent and weigh 45-100 g. The tail length has not been measured for the species. In the other species of the genus the tail is a good twice as long as the body, so the total length is probably 35-50 cm.

L. ocellata was described in 1971 as a subspecies of *L. belliana*. It is now regarded as a species in its own right, because it looks different, has a different chromosome number and is genetically distinct, even though in the family tree it lies inside *L. belliana*. The chromosome number is 34 against 36 in *L. belliana*, but 36 has also been found in both. The species reproduces sexually.

The animal is shy and flees into the burrow when disturbed. It is easily confused with *L. belliana*, so it is worth making sure an animal has been identified correctly.

Distribution and habitat

Leiolepis ocellata lives in northern Thailand, in the lowlands between the mountain ranges in the provinces of Chiang Mai, Lampang, Lamphun, Nan, Phayao and Tak. The type locality is Kokariet (Kawkareik) in south-eastern Myanmar near the border with Thailand, and there are old museum specimens from there. Recent studies know the species only from Thailand, so its occurrence in Myanmar today is uncertain.

> **Native range:** Thailand and Myanmar (Burma).

HABITAT

The species lives in open, dry lowland between the mountain ranges: dry deciduous forest, grassland and cultivated fields, for example cassava fields, at about 170 m above sea level. The animals are diurnal and dig burrows, which they use for shelter and for spending the night. Their food is insects and young plant shoots.

The climate has three seasons. The cool, dry season lasts from mid-October to mid-February, and January is coldest with a mean temperature of about 25 °C. The hot, dry season lasts from mid-February to mid-May, and April is warmest with a mean temperature of about 33 °C. The rainy season lasts from May to October. Humidity varies from about 50 % in March to over 80 % in October.

From the end of October to January, about four months, the animals lie in their burrows and are not active on the surface. Males have large fat reserves in late summer and autumn and draw on them during the inactive period.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

There is little knowledge about the care of *Leiolepis ocellata*. The enclosure, temperature, light and lifespan are therefore based on the close relative *Leiolepis belliana*, while humidity and annual rhythm are based on the climate in the range.

A pair needs an enclosure of at least 120 × 60 × 50 cm (length × width × height). A single animal can manage with 90 × 45 × 45 cm. Floor area is most important, but the height must accommodate a deep substrate.

The substrate should be at least 20 cm deep and consist of a mix of sand and unfertilised garden soil, so the burrows hold. The bottom layer is slightly damp, the rest dry. Lay flat stones, cork and roots, so the animal has basking spots and hides, and fix them in place so they cannot be undermined and topple over. Ventilation must be good, and the lid must be lockable, because the animals are fast and shy.

TEMPERATURE

The basking spot should have a surface temperature of 35-37 °C. The air at the warm end is 30-35 °C, and the cool end is 26-29 °C. At night the temperature falls to 20-25 °C.

The animal must always be able to move away from the heat, down into the substrate or into a hide. Use halogen spots or ceramic heaters with a guard in front and a thermostat. Measure with digital thermometers and an infrared thermometer, and check the basking spot regularly. An animal that constantly seeks shelter from the heat is too hot, and an animal that does not bask is too cold. The mean temperature in the range is 25-33 °C over the year, so the values suit the climate.

Read more: Heat and temperature

HUMIDITY AND WATER

In the range, humidity varies from about 50 % in the dry season to over 80 % in the rainy season. In the enclosure 40-70 % is suitable. The surface of the substrate should be dry, while the bottom layer is kept slightly damp, so the burrows do not collapse. A wet substrate causes mould. The animal needs a bowl of fresh water, which is filled daily.

LIGHTING AND UVB

The species is diurnal and basks in open country, so it needs strong light and UVB. Use a tube or LED of 6,500 K over the whole enclosure and a T5 HO UVB tube of 10-12 % over the basking spot. The Ferguson zone has not been established for the genus; zone 3 suits a lizard that basks in open country. Check the distance with a UV meter, and replace the tubes according to the manufacturer's instructions. Day length in northern Thailand is about 11 hours in December and 13 hours in June, and the light can follow that rhythm.

Read more: Lighting and UVB

FEEDING

Leiolepis ocellata is omnivorous and eats insects and young plant shoots. Give crickets, roaches, grasshoppers and mealworms, and offer dark green leaves such as dandelion, cabbage leaves and mustard greens as well as flowers. Fruit is given only sparingly, and lettuce has almost no nutritional value.

Juveniles and adults are fed every day during the active season with what the animal eats in about 10 minutes. Dust the insects with calcium at every feed and with a multivitamin with D3 once a week. Feed well in late summer, when the animals build up fat reserves in the wild.

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

BEHAVIOUR AND HANDLING

The animal is shy and fast and flees into a burrow when anything moves. It tolerates handling poorly.

The animals can be kept singly or in pairs. Two males must not be put together, because they fight. Provide plenty of basking spots and hides, and quarantine new animals.

During the cool season the animals are not active in the wild. Whether a rest period is necessary in the enclosure is not documented. An animal that withdraws into its burrow and eats less in the winter months should not be forced to eat.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

Adult females have a red chin, which males do not. Adult males measure 12-16 cm from snout to vent. Age and size at sexual maturity are not documented. The female must be fully grown and in good condition before mating, because egg-laying drains her of calcium and strength.

MATING

Males have two breeding periods a year: January-February, just after the inactive period, and June-July. In March and April, the hottest time, reproduction rests, and males store sperm from the first period for the second. Sperm are produced while the animals lie in the burrow in the cool season, so a rest period probably matters for breeding; how it should be handled in the enclosure is not documented. Only keep a pair together for as long as it goes peacefully.

EGG-LAYING AND CLUTCHES

The reproduction of females has not been studied, and the number of eggs per clutch is not documented; 3-8 eggs is borrowed from *Leiolepis belliana*. Give the female the chance to dig a burrow in a deep, slightly damp substrate at the warm end of the enclosure. A female without a suitable site may retain the eggs, and that is life-threatening.

INCUBATION

Incubation has not been described for the species. In *Leiolepis reevesii* the eggs hatch after about 70 days at 30 °C, after 55 days at 33 °C and only after about 100 days at 27 °C, and temperature does not determine the sex. 30 °C is therefore a good starting point. Carefully dig up the eggs without turning them, and place them in damp vermiculite in a closed box in an incubator with a thermostat.

Read more: Incubating eggs

REARING THE YOUNG

The hatchlings are moved to an enclosure of their own with a deep substrate and many hides. Feed them daily with small insects and finely chopped greens, dust with calcium, and provide UVB. Juveniles grow fast, and too little calcium and UVB causes metabolic bone disease.

Read more: Common diseases and signs of illness

Health and common mistakes

Diseases have not been described for the species. The typical problems in the genus are caused by mistakes in the set-up:

- Metabolic bone disease from too little UVB and calcium.
- Emaciation in the cool season. An animal that rests in its burrow should have taken fat reserves with it from late summer; weigh it regularly, and end the rest if it loses noticeable weight.
- Egg-laying difficulties in females without a deep, damp digging substrate.
- Parasites and gastrointestinal problems, especially in newly bought animals. Have a faecal sample examined.
- Intestinal blockage if the animal swallows large amounts of loose sand.
- Mould and skin problems if the surface of the substrate is wet.

Contact a vet if the animal is lethargic, has no appetite during the active season or has problems shedding.

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.