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AGAMAS

Common butterfly lizard

Leiolepis belliana

Leiolepis belliana is a ground-dwelling, diurnal agamid from South-East Asia that digs deep burrows in sandy soil. It has yellow spots on the back and orange and black crossbands on the flanks, and it can spread its flank skin like a butterfly. The species grows to 40-50 cm, mostly tail, feeds mainly on insects and requires a dry enclosure with a deep, diggable substrate, strong heat and UVB.

Family: Agamidae English name: Common Butterfly Lizard Former name: *Leiolepis bellii; Uromastyx belliana*

KEY FACTS

THE ANIMAL

Adult size	**40-50 cm** total length incl. tail
Lifespan	**8-10 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Savanna**
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	**30-50%**
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	**55-75 days** at 28-30 °C

PROTECTION AND PAPERWORK

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

About the species

Leiolepis belliana is a flattened, slender agamid with a rounded head, a long tail and small, granular dorsal scales. The base colour is grey to olive green with elongated, pale yellow spots on the back, which can merge into three longitudinal stripes in young animals. On the flanks there are orange and black crossbands, which are strongest in males during the breeding season. When the animal displays, it spreads its sides so the coloured bands stand out like wings. The species name was given in honour of the British zoologist Thomas Bell.

The body length from snout to vent is about 15 cm and up to 18 cm. Including the tail, adults measure at least 40 cm and large animals about 50 cm. Newly hatched juveniles measure about 4 cm from snout to vent. Both sexes have 13-20 femoral pores on each side, and males are more colourful than females. The species was described in 1827 as *Uromastyx belliana* and is a close relative of the spiny-tailed lizards. The genus *Leiolepis* is taxonomically complicated. Several species are parthenogenetic, that is, all-female populations that reproduce without a male. *Leiolepis ocellata* lies genetically within *L. belliana*, but is regarded as a species in its own right because it looks different and has a different chromosome number. The

boundary with *Leiolepis reevesii* is not entirely sharp either, and the two species can interbreed. The red-banded form *rubritaeniata*, which was formerly regarded as a subspecies of *L. belliana*, is now placed under *L. reevesii* or treated as a species in its own right. When buying, it is therefore worth making sure the animal has been identified correctly.

The animal is shy and flees into its burrow at the slightest disturbance. It suits a keeper who wants to watch an active animal that digs and basks, and who does not want to handle it.

Distribution and habitat

Leiolepis belliana lives in Southeast Asia: Thailand, Myanmar, Cambodia and Vietnam, Malaysia, and on Sumatra and Bangka in Indonesia. Records from Laos and India are uncertain and are not counted.

> **Native range:** Thailand, Myanmar (Burma), Cambodia, Vietnam, Malaysia and Indonesia.

HABITAT

The range has a tropical monsoon climate with a wet season and a dry season. The species lives in open, sunny and warm areas with well-drained, sandy soil: low, flat stretches with scattered grass tussocks, coconut palms and coastal vegetation, often near the coast and along rivers where loose soil has been deposited, but also on cultivated and cleared land and along sandy forest tracks. The animals dig burrows that are on average 30 cm deep and 70 cm long, a few up to 75 cm deep. The burrow is often Y-shaped, with each branch ending in an opening, so the animal always has an escape route, and there may be blind passages. The same animal uses the same burrow again and again. The burrow is also a place to spend the night, shelter from weather and fire, and lay eggs. At night the animal closes the entrance with its flat body.

The animals bask on mounds of earth, driftwood, stumps and open ground. At midday the soil in the shallow burrows becomes so hot that the animals stay out of them. They are shy and flee into the burrow at little disturbance. A male and a female often share a burrow, and in the dry season the animals retreat into the burrows.

Care

THE ENCLOSURE

A pair needs an enclosure of at least 120 × 60 × 50 cm (length × width × height). Floor area is most important, because the species is ground-dwelling, but the height must accommodate a deep substrate. A single animal can manage with 90 × 45 × 45 cm, but remember that the deep substrate takes up part of the height.

The substrate should be at least 20 cm deep, preferably more, and consist of a mix of sand and unfertilised garden soil, so the burrows hold. The bottom layer should be 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. Watch the animal's behaviour, and adjust accordingly. 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.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 30-50 %, and the enclosure should be dry. Spraying is normally not necessary, except in very dry surroundings. The animal needs a bowl of fresh water, large enough to bathe in. The animal drinks a lot, so the bowl must be filled daily. The substrate must not be wet, because that causes mould.

Read more: Humidity, misting and ventilation

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 species; zone 3 is an estimate for a lizard that basks in open country. Check the distance with a UV meter, and replace the tubes according to the manufacturer's instructions. The light must be on for 10-12 hours a day.

Read more: Lighting and UVB

FEEDING

Leiolepis belliana eats mostly insects, but also plants. In the wild it takes grasshoppers, beetle larvae, butterflies and crabs, and the animals also eat grass and other plants. Give crickets, roaches, mealworms and superworms, and offer dark green leaves such as dandelion, cabbage leaves and mustard greens as well as flowers. Fruit is given only sparingly. Lettuce has almost no nutritional value and is avoided.

Juveniles and adults are fed every day. Give 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. Vary the food, because the animal can be fussy.

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. In the wild the animals are monogamous and share a burrow with a partner.

The animals can be kept singly or in pairs. A pair will probably breed. Two males must never be put together, because they fight, and two females of the same size usually get along well. Provide plenty of basking spots and hides, and quarantine new animals.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

Both sexes have femoral pores, so they cannot be used to tell the sexes apart. Males are more colourful, especially on the flanks in the breeding season, when they have 7-9 orange-red and blue-black crossbands. When the species becomes sexually mature is not documented; animals from the age of 2 years are used for breeding. A female must be fully grown and in good condition before mating, because egg-laying drains her of calcium and strength.

MATING

The animals breed in summer, in the warm, dry season. Males fight by circling each other and displaying their coloured flanks. A pair is monogamous and shares a burrow. Whether a cool rest period promotes breeding is not documented. Keep the pair together for as long as it goes peacefully, because the species lives in pairs.

EGG-LAYING AND CLUTCHES

The female lays 3-8 eggs per clutch in a burrow in warm, dry weather. Give the female the chance to dig a burrow with a damp base at least 30 cm deep at the warm end of the enclosure. A female without a suitable site may retain the eggs, and that is life-threatening.

INCUBATION

Incubation is not documented for the species. 28-30 °C and about 55-75 days is an estimate based on other egg-laying agamids. Carefully dig up the eggs without turning them, and place them in damp vermiculite in a closed box in an incubator with a thermostat. Whether the species has temperature-dependent sex determination is not known.

Read more: Incubating eggs

REARING THE YOUNG

The hatchlings are looked after by the parents in the burrow for a few months before they dig their own burrows. In the enclosure they are moved to an enclosure of their own with a deep substrate and many hides. Feed them daily with small insects, 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

Most problems are caused by mistakes in the set-up: too little heat, too little UVB, a substrate that is too thick or wet, and a diet that is too one-sided. The typical problems are:

- Metabolic bone disease from too little UVB and calcium. Provide UVB and dusted insects.
- Dehydration if water is not available. Provide fresh water daily.
- Intestinal blockage from eating loose sand in large quantities; use a mix with soil so the burrows hold.
- Gastrointestinal diseases and parasites, especially in newly bought animals. Have a faecal sample examined.
- Egg-laying difficulties in females without a suitable digging substrate.
- Skin problems from a substrate that is too wet.

Contact a vet if the animal is lethargic, has no appetite 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.