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GECKOS

Psychedelic rock gecko

Cnemaspis psychedelica

Cnemaspis psychedelica is a small, diurnal rock gecko found only on two granite islands in southern Vietnam. It has orange limbs and tail, a blue-grey to purple body and a yellow net across the nape. The species was first described in 2010, is threatened and is listed in CITES Appendix I, so in practice it is only for specialists and conservation programmes.

Family: Gekkonidae

KEY FACTS

THE ANIMAL

Adult size	**6-8 cm** snout-vent length
Lifespan	**6-7 years**
Active	**By day**
Lifestyle	**Rock-dwelling**
Habitat	**Dry forest and rocky terrain**
Difficulty	**Expert**

CARE

Min. enclosure	**80 × 70 × 120 cm** L × W × H for 2 adults
Temperature, day	**27-31 °C**
Temperature, night	**24-28 °C**
Humidity	**65-85%**
Water	**Water dish**
UVB	**Recommended** Ferguson zone 1
Diet	**Insects and small invertebrates (springtails, fruit flies)**
Kept	**In pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**11-16 months**
Clutch size	**1-2 eggs**
Incubation	**60-103 days** at 27-31 °C

PROTECTION AND PAPERWORK

CITES	**Appendix I**
EU annex	**Annex A**
IUCN	**Endangered (EN)**

About the species

Cnemaspis psychedelica is one of the most striking rock geckos in South-East Asia. The forelimbs, hands, feet and tail are bright orange. The body is blue-grey to pale purple with three or four yellow crossbands on each side, and the head has a greenish tone. Across the nape lies a raised yellow net cut through by thick black stripes. The underside is beige. Both sexes and all ages have the same bright colours on the limbs and tail.

The neck pattern differs from animal to animal, like a fingerprint, and it stays stable in adults for several years. It can be used to tell individuals apart without marking, which is important for a species so small and light that rings and chips cannot be used. Hatchlings are dull: the ground colour is pale lilac to light grey with dark longitudinal stripes and pale crossbands, and the tail is pale orange. The colour change begins about five weeks after hatching and is well advanced by the age of three months.

Adults grow to 6-8 cm from snout to vent. The largest males are at least 8 cm and the largest females at least 7 cm. The sexes look alike, and the difference is visible only at the base of the tail: in the male it is thickened close to the vent, in the female it is flat.

The species was described in 2010 by Grismer, Ngo and Grismer and is one of many *Cnemaspis* species that are diurnal, unlike most other geckos. The species name *psychedelica* alludes to the psychedelic, brightly coloured markings. Trade started quickly: only a few years after the description, wild-caught animals were being sold illegally abroad.

The animals are shy and retreat into crevices or under stones if disturbed. They are so small and fragile that they are not suited to being handled.

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

Distribution and habitat

Cnemaspis psychedelica is found only in Vietnam, on the island of Hon Khoai (about 8 km²) and its small neighbour Hon Tuong (about 250 m²) in Ca Mau Province. The islands lie about 18 km off the southern tip of Vietnam in the South China Sea. The type locality is Hon Khoai at 8°26' N, 104°49' E.

The total population is estimated at just over 500 adults. It is a very small and vulnerable population, and the habitat is under pressure. Road building, new artificial ponds and blasting have already removed parts of the best sites, and animals are caught illegally for the trade and for use in traditional medicine. The species is also eaten by a snake that lives on the island. Records outside the two islands on the map come from captive animals or misregistrations.

> **Native range:** Vietnam.

HABITAT

The species lives among and on large granite boulders and rock faces in dense, partly deciduous forest from almost sea level up to about 80 metres above sea level. The animals are almost always in shade under a closed canopy: on average just under 80 % shade in the rainy season and over 90 % in the dry season. They prefer the shaded side of a rock, even when the other side is in the sun. They sit low, on average about 70 cm above the ground and never higher than 3 m, and they are seen on rocks and rock walls and only rarely on leaves. They are never found on branches or on the forest floor. Adults sit slightly higher than young.

The climate is monsoonal and close to the equator, with an almost constant temperature all year round. The air averages 29 °C (26-31.5 °C), while the substrate is slightly cooler, about 27 °C (20-32 °C). It is the humidity and rainfall that change. In the rainy season about 270 mm of rain falls per month, and the humidity in the animals' retreats is typically 86 % (71-100 %). In the dry season almost no rain falls, and the humidity is about 73 % (65-80 %). In the rainy season the animals more often lie inside crevices, in the dry season more often out on the rock faces.

The diet consists mainly of small arthropods: spiders, cockroaches, ants and termites, but also snails, flatworms and a little plant material, more than 20 groups of prey in all. The eggs are attached to vertical rock faces under an overhanging ledge, out of direct sun.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Cnemaspis psychedelica is so rare and so strictly protected that only a few animals are kept outside conservation programmes. A pair (1 male and 1 female) needs an enclosure or a mesh cage of at least 80 × 70 × 120 cm (length × width × height), and more is better. A mesh cage raised 50 cm above the floor in a covered, partly outdoor room with foggers and natural light is a good solution.

The furnishings should imitate a rock slope: stacked stones, slate or cork slabs forming deep, narrow crevices at several heights, and a back wall with vertical, flat rock faces where the female can stick her eggs. The species lives only on rocks and cliffs and never on the ground or on branches, so it needs mostly granite stones and only a little in the way of branches and roots. Provide shaded zones with plants so that the animals can withdraw from the light.

Choose a substrate that tolerates moisture and is easy to keep clean. Good ventilation is important, and all cracks and openings must be sealed so that ants cannot get in. A water-filled moat around the cage keeps the ants out.

TEMPERATURE

Keep *Cnemaspis psychedelica* at 27-31 °C. This corresponds to conditions in the wild, where the air temperature averages 29 °C and the substrate about 27 °C, with small fluctuations over the year and only slightly cooler nights. The species needs steady tropical warmth and not temperature swings.

At night the temperature falls a couple of degrees, to 24-28 °C. The exact night temperature in the wild is not known. The species always seeks the shade, even when a patch of sun lies right next to it, and its body temperature follows the temperature of the substrate. A sharp heat lamp or a hotspot is therefore not necessary, and the stones must not be heated by direct sun. The species has no known winter rest and should not be kept cooler in winter.

Read more: Heat and temperature

HUMIDITY AND WATER

Keep the humidity at 65-85 %, preferably around 75 % with a misting system, which also dampens the temperature. In the wild the humidity in the animals' hiding places varies from 65-80 % in the dry season to 71-100 % in the rainy season, so give the highest values during a period that imitates the rainy season, and slightly drier conditions in between. The stones must be able to dry out between sprayings, and the air must not be stagnant.

Droplets on sprayed stones and leaves are the natural water source, and a small bowl of fresh water should always be available. Change the water every day, and wash and disinfect the bowls regularly.

LIGHTING AND UVB

Cnemaspis psychedelica is diurnal but lives in the shade under a dense canopy and seldom goes out into direct sun. Natural, filtered daylight in a partly roofed room can be used.

Given the species' way of life, a weak UVB light for shade-dwelling species (Ferguson zone 1) at one side of the enclosure is suitable, so there is always shade to retreat to. Near the equator the day is about 12 hours all year, and that is a reasonable light cycle. Avoid strong spotlights, and keep it dark at night.

Read more: Lighting and UVB

FEEDING

The species eats small, live arthropods. In the wild these are mainly spiders, cockroaches, ants and termites as well as snails and a little plant material, over 20 different prey types in all. Variety is therefore more important than quantity.

Feed once a day, in the morning or in the late afternoon. Give a mixture every day of, for example, small beetle larvae, small crickets and fruit flies, enough that a little is left over, and remove what is not eaten. Once a week, mix a quarter teaspoon of calcium, a quarter teaspoon of vitamin A and a quarter teaspoon of vitamin E into the food. The prey must be small in relation to the animal, and crickets and fruit flies are suitable for juveniles and adults. More variety, for example small woodlice, springtails and tiny crickets, is an advantage.

Food variety and supplements are not a detail: without a wide selection of insects and enough vitamins and minerals, the young often become deformed and die. Remove uneaten food and wash feeding dishes every day.

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

BEHAVIOUR AND HANDLING

Cnemaspis psychedelica is a shy rock dweller that flees into crevices when disturbed. The animals are small and easily injured, so treat them as animals to look at and not to pick up. Also keep disturbance low, especially around eggs.

In the wild several animals are seen close together, and several females lay eggs in the same spot. Keep the animals in pairs (1 male and 1 female); other arrangements have not been tried. Whether several males can live together is not known, so expect that they may be incompatible. The animals spend the day moving up and down stones and rock walls and retreat into crevices to rest.

Breeding

SEXUAL MATURITY AND SEXING

The sexes have the same colours and are hard to tell apart. The male has a thickened tail by the cloaca, the female a flat one. Females become sexually mature at about 11 months and males at about 16 months; the figures are based on few animals. Only put fully grown, healthy animals together, and wait until they are in good condition.

MATING

The animals are put together as pairs, 1 male and 1 female. The species has no known breeding season or winter rest and lays eggs in most months of the year. It can take a long time from pairing to the first eggs, for example just over four months. Mating behaviour is not known.

Keep an eye on the female's condition. She loses calcium and weight by laying eggs, and the animals are so small that a couple of weeks on a poor diet can have consequences.

EGG-LAYING AND CLUTCHES

A clutch most often consists of 2 eggs (75 % of clutches), more rarely of 1 egg (17 %) or 3 eggs (8 %). The interval between clutches is not known. The eggs are white and round with a flat side where they stick to the surface, and the colour changes to pink and later faintly grey as the embryo develops.

In the wild the eggs are stuck to vertical, shaded rock faces under an overhanging edge, 0.3-3.5 m above the ground. Several females use the same site and lay new eggs on top of old shell remains, so that egg-laying sites with up to ten eggs form. In the enclosure there should therefore be flat, vertical stone or cork surfaces with an overhang and shade, preferably several close beside each other. The parent animals can damage the eggs by moving about, and eggs can be eaten, so the site must be possible to protect.

INCUBATION

As a rule, leave the eggs where they were laid and protect them with a bag or a net so that the parents do not hit them. If the parents damage the eggs, they can be taken out and cared for separately. The temperature is the same as in the cage, 27-31 °C; the best humidity is not known.

The eggs hatch after 60-90 days, but it can take about 103 days. Only about half of the eggs hatch, and single eggs and clutches of 3 eggs often do not hatch at all. When eggs do not hatch, it is usually due to dead embryos or damage from the parents.

REARING THE YOUNG

Newly hatched young are moved to a cage of their own that resembles the adults', with small stones, hides and the same temperature and humidity. For the first few days they live on small prey such as fruit flies and tiny crickets, and calcium and vitamins are given. The change of colour starts after about five weeks.

Survival is the greatest challenge: only a little over half of the young are alive after a month, about a quarter after a year and fewer after three years. The figures are based on few animals. The young die from weakness, lack of appetite, mineral deficiency and deformities such as weak hind legs and an eye that does not open, as well as from a poor diet. Young that survive can later have young themselves. Give the young many small meals and a wide selection of food, and weigh and check them often.

Health and common mistakes

The most common problems in *Cnemaspis psychedelica* in captivity are:

- Undernourishment: the animal becomes thin and slow. Give plenty of varied food with calcium and vitamins, and move a weak animal to a cage of its own so it can eat in peace.
- Infection in wounds and scratches: the animal stops eating and loses weight. Remove sharp edges from the furnishings, and have wounds cleaned and treated by a vet.
- Malformations and mortality in juveniles, especially when the parents' diet is deficient.
- Intestinal worms and single-celled gut parasites, which can be detected with a faecal sample.
- Ants and other pests getting into the cage, especially near eggs and juveniles.

Keep the cage clean, change the water daily, and disinfect dishes regularly. See a vet experienced with reptiles if an animal loses weight, stops eating or gets injuries.

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.