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GECKOS

## Kuhl's flying gecko

# *Gekko kuhli*

An almost invisible shadow of the bark from the rainforests of Southeast Asia. Skin flaps along the body, legs and tail, webbing between the toes and a bark-like pattern mean that it can glide down from tree to tree. It is an animal to look at, not to touch, and it requires high humidity.

Family: Gekkonidae  Former name: *Ptychozoon kuhli; Ptychozoon homalocephalum*

KEY FACTS

### THE ANIMAL

| | |
|---|---|
| Adult size | **12-18 cm**<br>total length incl. tail |
| Lifespan | **5-10 years** |
| Active | **At dusk and at night** |
| Lifestyle | **Arboreal** |
| Habitat | **Rainforest** |
| Difficulty | **Experienced** |

### CARE

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|---|---|
| Min. enclosure | **45 × 45 × 60 cm**<br>L × W × H for 1 adult |
| Temperature, day | **24-28 °C** |
| Basking spot | **30-33 °C** |
| Temperature, night | **21-23 °C** |
| Humidity | **60-85%** |
| UVB | **Optional** |
| Diet | **Insects** |
| Kept | **Singly, in pairs or one male with several females** |

### BREEDING

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|---|---|
| Reproduction | **Egg-laying** |
| Sexually mature | **18 months** |
| Clutch size | **2 eggs** |
| Incubation | **60-120 days**<br>at 24-27 °C |

### PROTECTION AND PAPERWORK

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

## About the species

*Gekko kuhli* is one of the most unusual geckos you can keep. Along the sides of the body, on the backs of the legs and under the jaw there are thin skin flaps, the toes have distinct webbing, and the tail is flattened and edged like a serrated banner. When the animal presses itself flat against a branch or trunk with the flaps laid against the body, the shadow disappears, and the marbled pattern in grey, brown and black merges with the bark. Even when you know where it is sitting, it can be hard to spot.

The gecko does not fly but glides. When it jumps from a branch, it spreads the skin flaps, the webbing and the tail and slows the fall, so it can steer towards another trunk. In the wild it uses this first and foremost as an escape route. In an enclosure you see at most a short, slowed hop between the branches, because there is rarely room for more.

The species was originally described in 1809 as *Lacerta homalocephala*, but the name was already taken and was replaced in 1902 by *Ptychozoon kuhli*. The name honours the German ornithologist Heinrich Kuhl. After a genetic review in 2019-2020, the flying geckos now belong to the genus *Gekko* as the subgenus *Ptychozoon*, so the species is officially called *Gekko kuhli*. Keepers and dealers often still use the old name. It is thus related to *Gekko gecko*, but far smaller and calmer. The species is also very variable, and it possibly covers five to nine as yet undescribed species.

Adults reach 10-20 cm including tail, most 12-18 cm. The male can be recognised by a row of distinct pores in front of the vent, which the female lacks. The skin is very thin, and the skin flaps can easily tear if the animal is grabbed or gets caught on sharp objects. The animal is quick and shy, and most never become truly tame. It is an animal to enjoy through the glass.

The vast majority of animals in the trade are still wild-caught. They often arrive with mites and intestinal worms and are weakened by transport, so buy captive-bred animals when you can find them, and expect a quarantine and a faecal sample at the vet.

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

## Distribution and habitat

*Gekko kuhli* lives in Southeast Asia. The species is known from southern Thailand (Nakhon Si Thammarat, Satun and Pattani), Myanmar, the Malay Peninsula with islands such as Pangkor, Tioman and Besar, Singapore and Indonesia with Sumatra, Java, Bali, the Natuna Islands, Simeulue, Sulawesi and the Indonesian part of Borneo. To this are added Sabah and Sarawak on Malaysian Borneo as well as the Nicobar Islands.

The registered records lie especially in Indonesia, Malaysia and Thailand. The Nicobar Islands belong to India, but the species probably does not occur in India. India is therefore not among the countries on the map. Because the species may contain several species, the range may be revised.

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

### HABITAT

*Gekko kuhli* lives in tropical lowland and hill forest and spends its whole life in the trees, where it sits on trunks and thick branches. There it is almost impossible to see, because the pattern resembles lichen and bark. It is also found at forest edges, in plantations and near settlements, but is always tied to tall trees.

The climate is warm and humid all year round, with a rainy season that makes the air almost saturated. The gecko is most active at night and at dusk. By day it sits motionless on the bark, and only when darkness falls does it go hunting for insects and drink water droplets from the leaves. Rainy weather outside seems to be able to set off mating. There are only a few measurements of the exact conditions where the species lives, so the figures for the enclosure are based on experience from captivity, not on field data.

## Care

### THE ENCLOSURE

Use a tall enclosure with front doors. For one animal, 45 × 45 × 60 cm (length × width × height) is a good minimum size, and height matters more than floor area, because *Gekko kuhli* never goes on the ground. Small enclosures make it hard to hold the humidity without shutting out too much air. For two or three animals the enclosure must be at least 60 × 45 × 90 cm, so the animals can keep out of each other's way. Enclosures with mesh lids are hard to keep humid enough without the help of a fogger.

Furnish with flat pieces of cork bark on the back wall as trunks, slanting branches and bamboo tubes at several heights. The gecko prefers to sit flat against bark, so provide surfaces it can hide against. Live plants such as pothos, philodendron or ficus provide cover, and artificial plants work just as well. The hiding places should sit high, not on the ground.

Coconut fibre or a bioactive mix in a layer of 5-7 cm works as substrate and holds the moisture. Make sure the ventilation is good, so the air does not become stagnant. Use smooth materials and avoid sharp edges, because the thin skin flaps can be torn.

Read more: Humidity, misting and ventilation Read more: Terrarium construction and bioactive substrate

### TEMPERATURE

By day it should be 24-28 °C in the enclosure, with a warm spot at the top of 30-33 °C. Do not go higher, because a shade-dwelling rainforest gecko should not be baked, and dry heat immediately costs humidity. At night the temperature may fall to 21-23 °C, but not below 21 °C.

Give *Gekko kuhli* a gradient by placing a low heat bulb or a ceramic heat emitter at one end at the top, controlled by a thermostat. The animal is nocturnal and rarely basks openly, but it willingly chooses a warmer resting place during the day. Measure with digital thermometers both at the top and at the bottom, and keep the enclosure away from sunny windows.

Read more: Heat and temperature

### HUMIDITY AND WATER

*Gekko kuhli* needs high humidity, typically 70-85 %, and it may fall to about 60 % during the day. Mist the enclosure thoroughly with lukewarm water every evening, just before the light goes out, so that leaves and glass are covered in droplets. It is these that the gecko prefers to drink from, and not all animals use a water bowl. It may be necessary to mist up to three times a day. Still, put out a shallow bowl of fresh water, and add stones so that the animal can climb out again, because it is a poor swimmer. The water is changed daily.

A digital hygrometer in the middle of the enclosure shows whether the humidity holds. Humidity that is too low causes skin problems, and stagnant, humid air causes respiratory infection, so ventilation and humidity must balance. An automatic mister can help, especially in a bioactive enclosure.

### LIGHTING AND UVB

*Gekko kuhli* is active at dusk and at night and can survive without UVB. A weak UVB light is nevertheless a good idea, as studies suggest that it benefits the animal's health. If so, choose a tube for shade-dwelling animals (Ferguson zone 1, for example a 2-5 % T5 tube), mounted over one side, so that the rest of the enclosure lies in shade. The light should also provide a regular daily rhythm.

Keep the light on for 10-12 hours in winter and up to 14 hours in summer, preferably controlled by a timer. Avoid strong spotlights, because the animal seeks away from bright light. At night it should be dark, and if extra heat is needed, use a heat source without light.

Read more: Lighting and UVB

### FEEDING

*Gekko kuhli* lives on live insects. Give a varied mix of small crickets, dubia cockroaches, Turkestan cockroaches, soldier fly larvae and occasionally waxworms as a treat. Some animals show no interest in mealworms. The prey must not be wider than the distance between the animal's eyes, and it should be well fed before it is passed on.

Young are fed every day, and adults every second to third day with 4-8 insects. Feeding is best done in the evening, after the light has been switched off. If the animal gets UVB, dust the food with calcium without D3 at every feeding and with multivitamin about twice a month. Without UVB the calcium must contain D3: calcium with D3 at every second feeding and multivitamin once a week. Some animals take prepared diet for *Correlophus ciliatus*, preferably fig or mango flavour, as a rare treat, but it cannot be the main food.

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

### BEHAVIOUR AND HANDLING

*Gekko kuhli* is calm, but shy. It spends the day motionless on the bark, and when approached it flees or spreads its skin folds and jumps. It should not be handled routinely. The skin is thin and can be torn, and the animal drops its tail if it is grabbed. Keep handling to necessary examinations, and be quick and calm. Captive-bred animals can become less shy with patience, while wild-caught animals often bite, squeak and twist if they are grabbed.

Males must never be kept together, because they are territorial and fight. One male can be kept with one or more females, and females can usually live together if they are the same size and there is space and many hides. Keep at most one male and two to three females, and separate them if any lose weight. Kept alone, the species does very well. The males chirp to lure the female, and both sexes can scream when they are grabbed.

## Breeding

### SEXUAL MATURITY AND SEXING

The male can be recognised by a row of distinct pores in front of the vent. The female does not have these pores or only very faint ones. The animals should be about 18 months old before they are bred. That is sensible, because females that lay eggs too early are drained of calcium. No weight limit has been documented, so judge instead by the animal's condition.

### MATING

In captivity *Gekko kuhli* can breed all year round. The pairs begin around midsummer, and rainy weather can put them in the mood for mating. More frequent misting and rising humidity imitate the rainy season and can help. The male lures the female with chirping. When the animals mate, you should first and foremost make sure the female gets plenty of food and calcium.

No fixed winter rest has been described for the species, so follow the animal's condition. A female that loses weight should have a rest period.

### EGG-LAYING AND CLUTCHES

About two to three weeks after mating the female lays two eggs, which she glues to a surface. This often happens somewhere you would rather not have them, for example under the lid of the enclosure or behind the background. How many clutches she lays per year is not documented.

Give her bamboo tubes or cork tubes with a hole of a suitable size high up, which she can regard as safe. Eggs stuck to glass should not be torn loose, because the shell is fragile. Each pair of eggs can instead be covered with a clear plastic cup taped to the glass, so that they lie in their own little incubation chamber. If you can move the whole object the eggs are stuck to, it can go in the incubator. Check weekly whether they are developing.

Read more: Incubating eggs

### INCUBATION

If possible, incubate the eggs at about 25-26 °C. At roughly 25.5 °C the young emerge after 60-90 days. The incubation period can, however, be far longer than in many other geckos: about four months at 26-29 °C by day and up to six months at room temperature (24 °C by day and 21 °C at night).

No exact humidity is documented, but moist substrate such as vermiculite or perlite and humid air in the box are normal for gecko eggs. This is borrowed from geckos in general and has not been tested specifically for *Gekko kuhli*. It is unknown whether sex depends on temperature.

### REARING THE YOUNG

The young are about 4 cm long at hatching and shed after 8-12 hours, after which they begin to eat. Adults have not been seen eating young, but this has not been studied over a longer period, so take them out and put them in a small enclosure of their own, for example 30 × 30 × 45 cm, with the same conditions as for the adults.

Give them fruit flies (*Drosophila hydei*), week-old crickets, small cockroach nymphs and small soldier fly larvae every day, dusted with calcium. The young are somewhat delicate at the start and need plenty of water and food. Keep the young in groups of the same size or singly, and separate them if one bites or is bitten. There are no reliable figures for the growth rate.

## Health and common mistakes

Wild-caught animals often have problems, while captive-bred animals rarely do. The typical mistakes are:

- Mites, which sit in the skin folds of newly bought wild-caught animals. Remove them carefully with a cotton bud with a little vegetable oil, and check the animal every second to third day for three weeks and then weekly for a further three weeks, or have the vet help.
- Intestinal worms and other parasites, which show up as weight loss and loose droppings. Hand in a faecal sample at a vet within the first month.
- Skin problems and hanging shed skin on the toes, caused by air that is too dry. Provide a humid hide or drip lukewarm water over the animal, so that the remnants loosen. Shed skin on the toes can constrict them.
- Respiratory infection with wheezy breathing, mucus at the nose and lethargy. Nights that are too cold and stagnant, humid air increase the risk. Requires a vet.
- Tears in the skin folds after rough handling or sharp objects in the enclosure.
- A dropped tail. It grows back, but never as before, and it is a good reason not to grab the animal.

A healthy animal has clear eyes, a plump body and a firm grip. See a vet experienced with reptiles if *Gekko kuhli* loses weight, does not eat for several weeks or seems limp.

## 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.