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GECKOS

Koch's giant day gecko

Phelsuma kochi

Phelsuma kochi is a large, green day gecko from the dry forests of north-western Madagascar. It is slightly smaller than the better-known *Phelsuma grandis* and is cared for in the same way, but lives in a drier climate. It is diurnal, needs UVB and a warm basking spot, and is an animal to observe rather than handle.

Family: Gekkonidae Former name: *Phelsuma madagascariensis kochi*

KEY FACTS

THE ANIMAL

Adult size	**20-24 cm** total length incl. tail
Lifespan	**8-15 years**
Active	**By day**
Lifestyle	**Arboreal**
Habitat	**Dry forest**
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 60 × 120 cm** L × W × H for 1 adult
Temperature, day	**26-30 °C**
Basking spot	**32-35 °C**
Temperature, night	**22-25 °C**
Humidity	**50-70%**
UVB	**Recommended** Ferguson zone 3
Diet	**Insects, fruit, nectar and complete diet**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**12-14 months**
Clutch size	**1-2 eggs**
Incubation	**48-80 days** at 27-29 °C

PROTECTION AND PAPERWORK

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

About the species

Phelsuma kochi is one of the large day geckos. It reaches up to about 24 cm including the tail, and males are larger than females, with a larger head and more body mass. The ground colour is green, and the species belongs to the group around *Phelsuma madagascariensis*. Like other day geckos it has round pupils, no movable eyelids and thin, velvety skin that is easily damaged.

Robert Mertens described it in 1954 as the subspecies *Phelsuma madagascariensis kochi*, and since 2007 it has been regarded as a species in its own right. The species name honours Karl Ludwig Koch-Isenburg, who collected the type specimens. Animals in the trade are not always reliably identified, and confusion with *Phelsuma grandis* and *Phelsuma madagascariensis* occurs.

The gecko is shy and fast. It sits still for long periods on trunks and thick branches, waiting for prey. Males each hold their own territory, which partly overlaps those of the females, and two males should therefore not be kept together.

Distribution and habitat

Phelsuma kochi occurs only in north-western Madagascar. It is known from the area around Mahajanga (Majunga), Tsaramandroso and Ambahanbongo, and the type locality is Maevatanana inland south of Mahajanga.

The map covers the area between Maevatanana and the coast at Mahajanga.

> **Native range:** Madagascar.

HABITAT

Phelsuma kochi lives in dry, deciduous forest in north-western Madagascar. The area has a clear rainy season from about November to April and a long, dry season without rainfall, when the forest loses much of its foliage. The gecko lives on tall, thick trees and rarely comes down to the ground.

It follows the air temperature and rarely basks. When the air is very hot, its body temperature is lower than the air's. It hunts from a fixed spot by sitting still and seizing prey that passes by: insects and other small animals. Young are seen only in the rainy season, and in the rainy season the adults are harder to spot.

Care

THE ENCLOSURE

Little is known about the care of *Phelsuma kochi*, so the figures in this guide are borrowed from the close relative *Phelsuma grandis*.

A single gecko needs a tall enclosure of at least 60 × 60 × 120 cm (length × width × height). A pair needs more room and many hides. Height is more important than floor area, because the species lives on vertical trunks and thick branches.

Furnish with thick bamboo tubes, vertical and sloping branches and plants with large, strong leaves, for example sansevieria, pothos and bromeliads. Bamboo is used as basking spot, hide and egg-laying site. Keep the light and the heat lamp out of the animal's reach, and provide shade in the middle of the day.

For substrate, use 10 cm of unfertilised soil mixed with coconut fibre, preferably as a bioactive substrate with springtails and woodlice, covered with dead leaves. Avoid fine gravel and loose pieces of bark, which can be swallowed. The enclosure must be well ventilated with tight-fitting doors and lid.

Read more: Heat and temperature Read more: Terrarium construction and bioactive substrate Read more: Feeder animals: keeping and breeding

TEMPERATURE

By day the temperature in the enclosure should be 26-30 °C, and the basking spot should be 32-35 °C. At night it should fall to 22-25 °C. *Phelsuma kochi* comes from a dry and warm area and tolerates a clear drop in temperature at night.

Measure with digital thermometers at the basking spot and down in the enclosure, and position the lamp so that no perch exceeds 35 °C. Hang the heat source above the mesh lid at a distance, so the animal cannot burn itself. If the gecko sits with its mouth open or hides all day, it is too hot.

HUMIDITY AND WATER

Humidity should be 50-70 %, measured in the middle of the enclosure, and it may well fall during the day. *Phelsuma kochi* comes from a dry area and does not tolerate constantly saturated air. Mist thoroughly morning and evening, so leaves and branches are covered with droplets. The gecko licks the droplets, and this is its most important way of drinking.

A shallow bowl of fresh water can stand on a feeding ledge and be changed daily. If droplets are still on the glass the next morning, there is too little air exchange, or too much misting.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

Phelsuma kochi is diurnal and needs UVB. Use a T5 tube of a strength and at a distance that gives a UV index of 3-4 at the uppermost perches (Ferguson zone 3), and preferably measure with a UV index meter. The rest of the enclosure should lie in shade, so the gecko can always withdraw from the light. Replace the tube after the time the manufacturer specifies, often after a year.

Keep the light on for 13 hours in summer and 11 hours in winter, preferably on a timer, and supplement with a bright daylight tube. At night it must be dark.

Read more: Lighting and UVB

FEEDING

Phelsuma kochi eats both insects and sweet foods. Give crickets, cockroaches, grasshoppers and silkworms as the staple, lightly dusted with calcium before each feeding, and choose insects no wider than the distance between the animal's eyes. Supplement with prepared food for fruit-eating geckos, mixed to a thick paste and served in a shallow dish on a feeding ledge.

Young get insects daily and prepared food every other day. Adults manage on insects two to three times a week and prepared food once a week. Breeding females need extra calcium throughout the season. Choose a varied diet, and adjust amounts to the animal's body condition, so it becomes neither thin nor fat.

Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Phelsuma kochi is shy and fast and poorly suited to handling. The skin is thin and can be torn if the animal is grabbed, so let it walk voluntarily onto a hand instead of taking hold of it. If it is necessary to move the animal, lure it into a container.

Keep adults singly, or as a pair in a larger enclosure with many hides. Males must never be kept together, because they fight to the death. Pairs can also reject one another, and then they must be separated. A stressed animal turns dark, hides or stops eating.

Breeding

SEXUAL MATURITY AND SEXING

In *Phelsuma kochi* males are larger than females and have well-developed pores on the underside of the thighs. Females have weaker pores or none. The animals are typically ready to breed after 12-14 months, but females should have reached their full size before laying eggs, because egg-laying drains them of calcium.

MATING

A healthy, acclimatised pair is put together in a large enclosure with many hides. Mating happens on its own, and the male may bite the female on the neck. If the female is constantly chased, or wounds appear, the pair must be separated. A cool, dry period with slightly shorter days imitates the dry season and can set breeding going. The species' annual rhythm in the enclosure is not documented.

EGG-LAYING AND CLUTCHES

The female of *Phelsuma kochi* lays one or two hard-shelled eggs at a time, and the eggs are often stuck together. They are not glued fast, so they are easy to move. The female prefers to lay them in cavities, for example in a bamboo tube or in the leaf axils of a sansevieria. How many clutches she lays per year is not documented; in *Phelsuma grandis* the clutches come a few weeks apart through the season.

Give the female plenty of insects and calcium with D3 throughout the season. Take the eggs out for incubation, because adults may eat newly hatched young.

Read more: Incubating eggs

INCUBATION

Put the eggs in a small, ventilated box on moist vermiculite without turning them. Keep the temperature at 27-29 °C and the humidity at about 60 %. At about 28 °C the eggs typically hatch after 55-65 days, and depending on temperature it can take from 48 to 80 days. In day geckos temperature affects sex, but how large the effect is in *Phelsuma kochi* is not documented.

REARING THE YOUNG

The young are small and delicate when they hatch. Keep each young in a small, humid faunarium with mesh ventilation, a piece of bamboo and a plant, and mist daily. Give small insects such as fruit flies and newly hatched crickets from the first week, dusted with calcium, and a thin prepared food every other day.

Keep the young separate from the adults, which may eat them. Young from the same clutch can stay together while they are small, but the males must be separated as they approach adult size.

Health and common mistakes

Phelsuma kochi is hardy, but the skin is fragile, and most problems are caused by mistakes in care. The typical ones are:

- Too little calcium, D3 and UVB, which cause soft jaws, bent limbs and tremors. Breeding females in particular are at risk.
- Too little heat or too low humidity, which cause poor appetite and problems with shedding.
- Constantly wet conditions and mould, which cause skin infections.
- Fights between males or incompatible pairs, which cause wounds and lost tails.
- Tears in the skin if the animal is grabbed.

A healthy animal is active, has clear eyes and a plump tail. See a vet with reptile experience if the gecko loses weight, stops eating or is lethargic and dark.

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.