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GECKOS

Madagascar day gecko

Phelsuma madagascariensis

Phelsuma madagascariensis is a large, green day gecko from the east coast and north-east of Madagascar, with a red stripe from nostril to eye and adhesive lamellae under the toes that grip glass and bamboo. It is active by day, needs UVB and a warm basking spot, and is an animal for anyone who wants to see their geckos in full swing.

Family: Gekkonidae Former name: *Gekko madagascariensis*

KEY FACTS

THE ANIMAL

Adult size	**20-25 cm** total length incl. tail
Lifespan	**10-20 years**
Active	**By day**
Lifestyle	**Arboreal**
Habitat	**Rainforest**
Difficulty	**Intermediate**

CARE

Min. enclosure	**60 × 60 × 120 cm** L × W × H for 1 adult
Temperature, day	**26-30 °C**
Basking spot	**30-35 °C**
Temperature, night	**23-26 °C**
Humidity	**50-75%**
UVB	**Essential** Ferguson zone 3
Diet	**Insects, fruit, nectar and complete diet**
Kept	**Singly or in pairs**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**12-24 months**
Clutch size	**1-2 eggs**
Clutches per year	**3-4**
Incubation	**47-82 days** at 25-29 °C

PROTECTION AND PAPERWORK

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

About the species

Phelsuma madagascariensis is one of the large day geckos and grows to about 20-25 cm including the tail. The ground colour is light to bright green, sometimes with a bluish sheen between the scales. A rust or red stripe runs from the nostril through the eye to a point behind the ear, and the back has brown spots that may merge into a line. The eyes are large, round and without eyelids, with a ring of blue skin around them. Under the toes there are broad, flat lamellae that adhere to smooth surfaces.

The male is larger and more strongly coloured than the female and has a larger head. Adult males have distinct pores on the back of the thighs. The young look like the adults, but have a proportionally larger head and an orange underside to the tail.

The species was described in 1831 by John Edward Gray as *Gekko madagascariensis*, and the scientific name refers to Madagascar. *Phelsuma grandis* was formerly regarded as a subspecies and is today a separate species. Several subspecies are in use, among them *Phelsuma madagascariensis boehmei* from the area around Périnet, but the classification is disputed and not

recognised by everyone. The large day gecko most often seen in the trade is normally *P. grandis*, so make sure which species you are buying.

The skin is thin and fragile and can tear if the animal is grabbed. The tail can be dropped when in danger. The species is an animal to look at in the enclosure rather than to handle.

In captivity it lives on average about 15 years, while the lifespan in the wild is estimated at under 6 years.

Distribution and habitat

Phelsuma madagascariensis lives only on Madagascar and the nearby islands. The core of its range is the east coast between Fénérive and Mananjari, and it is also found in the inland rainforest area around Périnet and Andasibe. It is also known from Ranomafana, northern Madagascar around Diego Suarez, and the islands of Nosy Be, Nosy Komba, Nosy Sakatia and Nosy Tanikely.

The exact limits of the range are not fully settled, because the species has been separated from closely related forms, and older records may belong to other species. The species has been introduced to southern Florida in the USA.

> **Native range:** Madagascar.

HABITAT

The animal lives in trees and is tied to tropical rainforest, but is also found in trees in grassland and on cultivated land, often close to people. Records lie between about 40 and 320 metres above sea level. The gecko sits on vertical trunks and branches, where it rests and basks, and it is active by day.

The climate is warm and humid with rain most of the year. The gecko gets its water from dew and rain on the leaves. Nectar and fruit juice probably also form part of the diet, as in other day geckos, but this is not documented in more detail for the species.

Care

THE ENCLOSURE

Few care records exist for *Phelsuma madagascariensis* itself, so the figures in the care and breeding sections are taken from the closely related and equally large *Phelsuma grandis*. A single adult needs a tall enclosure of at least 60 × 60 × 120 cm (length × width × height), and bigger is better. A pair needs at least the same dimensions and preferably more, so that the animals can get away from each other. Smaller juveniles can be kept singly in smaller boxes, where they easily find their food.

Furnish with branches, bamboo, cork tubes and live plants at all heights so that the animal can climb, bask and hide. Bamboo is especially suitable for both climbing and egg-laying. Good plants are pothos, philodendron, dracaena and sansevieria. Artificial plants are poorly suited to day geckos.

For substrate, a moisture-retaining mix of coconut fibre and unfertilised soil works, about 5 cm thick, preferably with a layer of leaf litter. The substrate must be coarse enough that the animal cannot swallow it when catching insects. Use an enclosure with both side ventilation and a mesh lid so that the air does not stand still.

TEMPERATURE

The species requires a clear temperature gradient. The warmest spot, a branch directly under a heat bulb, should be about 30-35 °C. The rest of the enclosure should hold about 26-30 °C by day, and the coldest parts down at the bottom may be a little cooler. At night the temperature should fall to 23-26 °C.

For a large enclosure, two heat bulbs of about 40 W are often used. Position them so that it is warm only at the top, and regulate with a dimmer or thermostat. Measure the temperature with a digital probe fixed to the basking branch, and also measure down in the enclosure. If the animal stands still and opens its mouth on the warmest branch, it is too hot.

Read more: Heat and temperature

HUMIDITY AND WATER

The humidity should be about 50-75 % measured in the middle of the enclosure. It may rise at night and fall during the day. Mist the enclosure thoroughly morning and evening, so that plants and branches are covered in droplets. The gecko licks the water off the leaves and can also remove water from its eyes and nose with its tongue.

A water bowl is not necessary for animals that drink from misted leaves, but a shallow bowl of fresh water can stand on a feeding shelf and be changed daily. A hygrometer shows whether the rhythm is holding. Constant very high humidity and stagnant air cause mould and skin problems.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is active by day and needs strong light and UVB. Use a UVB tube that can give a UV index of about 3-4 on the basking branch (Ferguson zone 3). Mount it above the mesh lid, and choose the strength of the tube according to the height of the enclosure: a 6 % tube suits when the animal sits about 17-23 cm from the tube, and a weaker tube for shade-dwelling species when the distance is 10-15 cm. UVB tubes should be replaced after about 12 months.

Supplement with a white light of about 6500 K. Switch the light on for about 13 hours in summer and 11 hours in winter, ideally controlled by a timer. This gives more active animals and better colours. At night it should be dark.

Read more: Lighting and UVB

FEEDING

The species eats insects and other small arthropods and occasionally fruit and nectar. In the enclosure the diet can be built up from live insects and a ready-mixed powdered diet for fruit-eating geckos, which is mixed with water and served in a small dish on a shelf high up. The placement of the shelf matters, because the animal hardly ever goes on the ground.

Young animals under six months are given insects daily and the powdered diet every other day. Adults are given insects 2-3 times a week and the powdered diet once a week. Alternate between crickets, grasshoppers, roaches and other insects, so the diet is varied. The insects should be smaller than the distance between the animal's eyes. Dust them with calcium at every feeding and with a vitamin and mineral supplement once a week. The animals often pick out pieces before deciding what they want to eat.

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

BEHAVIOUR AND HANDLING

The species is territorial and aggressive towards its own kind, especially the younger animals. Two males must never be kept together, because they fight until the loser is wounded or dead. A pair can get along well, but some pairs reject each other and must be separated. Females can be kept together if the enclosure is large enough, but it is often calmer to keep the animals singly.

The gecko gets used to its keeper and in time takes insects or powdered diet from the hand. Never grab the animal, because the skin can tear. Let new animals settle in for at least two weeks before you try to get close. Stressed or sick males may change colour and become darker. The gecko can make a clicking, frog-like sound, which it produces with its tongue against the palate.

Breeding

SEXUAL MATURITY AND SEXING

The male is larger and more strongly coloured than the female and has a larger head. Sexually mature males have large pores on the back of the thighs, and the pores may secrete a waxy substance. Sexually mature females may have calcium deposits in a pouch on each side of the neck. The animals become sexually mature after one to two years.

The female should be bred only when she is fully grown and in good condition, so she has enough calcium for the eggs.

MATING

In the wild, eggs are laid from January to July with a peak from February to April. In the enclosure the animals can breed regularly if the diet, light and temperature are right. The male approaches the female with jerks of the head, and the female often licks with her tongue. Then the male grips the female between head and neck with his mouth and becomes darker in colour. The female may give a distress call when she is gripped.

Mating looks violent, but is normal. Make sure the female is not injured, and separate the pair if the male keeps chasing her.

EGG-LAYING AND CLUTCHES

The female usually lays two eggs at a time and several times during the season, at intervals of about two to three months. With a season from January to July, this gives an estimated three to four layings a year. The egg is white and has a hard shell. She glues it to crevices or hollows, so a bamboo cane, a cork tube or a similar hiding place is a good spot.

She uses a lot of calcium on the eggs. Provide plenty of calcium and insects throughout the season, and stop breeding if she loses weight.

INCUBATION

The eggs are removed and incubated at 25-29 °C. In this species the temperature determines the sex: at about 25-27 °C it is most often females, and at about 27-29 °C most often males. The eggs hatch after 47-82 days. Use an incubator with a thermostat and a small box with slightly damp substrate, so the eggs do not dry out.

Eggs that collapse or grow mould are usually infertile or dead. Remove them only when you are sure.

Read more: Incubating eggs

REARING THE YOUNG

The young are independent from hatching and look like the adults. After the first shed they take small insects, for example two-week-old crickets. Keep each young one in a small plastic container of about 30 × 30 × 30 cm with a branch, a plant and hiding places.

Give small insects daily and powdered diet every other day, and dust the insects with calcium. Keep the young separately, because they are aggressive towards each other. Growth to adult size takes one to two years.

Health and common mistakes

Phelsuma madagascariensis is considered hardy, but the skin is fragile, and most problems are caused by wrong care. Typical mistakes are:

- Lack of UVB and calcium, which causes weak bones in young animals and breeding females.
- Too little heat or too low humidity, which causes poor appetite and problems with shedding.
- Substrate that is too fine or too coarse, which can be swallowed along with insects and cause intestinal obstruction.
- Fights between males or between incompatible pairs, which cause bites, wounds and lost tails.
- Tears in the skin if the animal is grabbed. Do not handle the animal with your fingers, but let it walk of its own accord.

A healthy animal is active, has clear eyes and a plump tail. See a vet experienced with reptiles if the gecko loses weight, stops eating or is limp 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.