herpy

GECKOS

Madagascar giant day gecko

Phelsuma grandis

One of the largest day geckos in the world: a bright green, robust climber from northern Madagascar with red markings and a bold, inquisitive nature. It needs warmth, strong light and plenty of height, and suits a keeper with some experience who wants to watch their animal rather than handle it.

Family: Gekkonidae Former name: *Phelsuma madagascariensis grandis*

KEY FACTS

THE ANIMAL

Adult size	**23-30 cm** total length incl. tail
Lifespan	**8-20 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	**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 grandis is one of the largest species in its genus. Adults reach 23-28 cm including the tail, and a few males grow up to 30 cm. Females are usually slightly smaller than males. The body is robust and clear green, occasionally with a bluish sheen, and the belly is cream to pale yellow. A red stripe runs from the nose towards the eye, and the back often has red spots or crossbands. The markings vary greatly from animal to animal and may be almost absent. If the gecko becomes stressed or cold, the colour darkens.

It has no movable eyelids and keeps its eyes clean by licking them with its tongue. Many females have distinct white calcium sacs on the sides of the neck, a store of calcium for the eggs. Under the toes there are adhesive lamellae, so it walks effortlessly up vertical glass. It often moves calmly, but if startled it is lightning fast, and the species is known as a skilled escape artist.

The species was described by John Edward Gray in 1870. For a period it was regarded as a subspecies of *Phelsuma madagascariensis*, and the name *P. madagascariensis grandis* is still seen in older literature. Today it is a separate species.

It is the temperament that sets it furthest apart from the classic beginner geckos. It is bold, active and inquisitive, but it does not tolerate being grabbed, and the males are strongly territorial. On the other hand, it is one of the most beautiful animals you can keep in a planted enclosure.

Read more: Calcium, vitamins and supplements

Distribution and habitat

The species is native to northern and north-western Madagascar and is also found on the island of Nosy Komba off the north-west coast. The type locality lies about 25 km south of Antsiranana (Diego Suarez) at the northern tip of the island.

Outside its natural range the species has been introduced in several places. Today it lives wild on Réunion, where it was released in the mid-1990s, on Mauritius and in parts of Florida and Hawaii. On Mauritius it is regarded as a threat to the island's own day geckos, because it displaces them from their habitats. The introduced populations are not part of the species' original range.

> **Native range:** Madagascar.

HABITAT

On Madagascar the gecko lives in the trees of tropical forest, but it is not fussy. It also thrives at forest edges, in gardens and on plantations with palms, banana plants and bamboo. This adaptability is part of the explanation for why it has established itself in the places where people have taken it.

In the morning it basks on trunks and leaves, and in the hottest part of midday it seeks shade. The climate in northern Madagascar is hot, with a rainy season from about December to April and a drier period for the rest of the year. The breeding season follows the rains and lasts from about December to June. Only a few measurements of temperature and humidity from the species' habitats exist, so the enclosure values are based on experience in captivity.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

An adult needs a tall enclosure of at least 60 × 60 × 120 cm (length × width × height). Smaller sizes are often given, but an active gecko of 25 cm needs room to run and climb, and the height allows a proper difference between the warm top and the cool bottom. Keep adults singly. A breeding pair needs an even larger enclosure with many hides.

Furnish with thick bamboo tubes, vertical and diagonal branches and plants with large, strong leaves, for example sansevieria, pothos and bromeliads. Bamboo serves as a basking spot, a hide and a laying site. Position the branches so that the animal can get close to the light without being able to touch the heat lamp, and group a couple of plants together so that there is a shady place in the middle of the day.

About 10 cm of fertiliser-free soil mixed with coconut fibre works as a substrate, preferably as a bioactive substrate with springtails and woodlice. Without a bioactive substrate, droppings and white urate lumps must be removed daily, and the substrate changed a couple of times a year. Avoid loose pieces of bark and fine gravel, which can be swallowed. The enclosure must be well ventilated and have 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

Day geckos are sun lovers and need a warm place to bask. During the day it should be 26-30 °C in most of the enclosure and a basking spot of 32-35 °C on a branch right under the heat lamp. Start at the low end, and see how the animal uses the space.

At night the temperature should fall to 22-25 °C, and in most rooms the heat can be switched off completely. Use an ordinary heat bulb or halogen spot on a thermostat or dimmer. Two weaker bulbs distribute heat better than one powerful one. Hang the lamp above the mesh lid with some distance, so the animal cannot burn itself when climbing up the mesh. Measure with a digital thermometer both at the basking spot and below, and check the basking spot itself with an infrared thermometer.

HUMIDITY AND WATER

Humidity should be 50-70 % and may well be highest at night. The species tolerates fluctuations, as long as conditions are neither constantly dry nor constantly wet. Mist thoroughly morning and evening, so that the gecko can lick droplets from the leaves, and let the substrate and branches dry out during the day.

It rarely drinks from a dish, but provide a shallow dish of fresh water anyway, and change the water often. Live plants help retain moisture, and a hygrometer shows whether the rhythm is holding. Persistently wrong humidity eventually causes problems with shedding and the respiratory tract.

LIGHTING AND UVB

The species is diurnal and needs both strong light and UVB. Use a T5 tube of about 6 % in a reflector, so that the UV index at the basking spot is around 3-4, corresponding to Ferguson zone 3. Follow the manufacturer's instructions on distance, and preferably measure with a UV index meter. Replace the tube after the time the manufacturer states, even if it still lights up.

Supplement with an ordinary daylight tube or an LED lamp of about 6500 K, so that the enclosure is bright. Keep the light on for 12-13 hours in summer and 10-11 hours in winter, preferably on a timer. There must always be shade where the animal can retreat, and at night it must be dark.

Read more: Lighting and UVB

FEEDING

Day geckos eat both insects and sweet things such as nectar, ripe fruit and pollen. In the enclosure a mixture of live insects and prepared food for fruit-eating geckos, for example Pangea or Repashy, works very well. The prepared food is mixed into a thick paste and served in a small dish high up, where the gecko feels secure.

Adults get 3-5 insects slightly smaller than the head two to three times a week and prepared food once or twice a week. Use crickets, dubia roaches and locusts and now and then waxworms as a treat. Gut-load the insects with nutritious food one to two days beforehand, and dust them with calcium at every feeding, with D3 about every other time, and with a multivitamin once a week. Juveniles under a year get insects daily and prepared food twice a week.

Fresh fruit such as mango and papaya can be given as a treat, but it cannot replace the prepared food, because it contains too little calcium.

BEHAVIOUR AND HANDLING

The gecko is calm until it is frightened, and then it is very fast. Most animals never become truly hand-tame. Some learn to take food from tweezers, and a few will happily sit on a hand, but the species is first and foremost an animal to watch. Never grab it round the body, because the skin is fragile and can tear off, and the tail is easily dropped.

Males are territorial and must never be kept together, because the fights can cause serious injuries. Keep adults singly, therefore, unless you want to breed. A male and a female can be kept together as a pair, but here too the male can be rough with the female, and they must then be separated at once. One male with two females increases the risk of aggression and is not recommended. Give new animals at least two weeks in peace before you start working close to the enclosure.

A day gecko that is dark in colour and presses itself against the glass is either stressed or cold. Check the temperature first.

Breeding

SEXUAL MATURITY AND SEXING

Sexually mature males have large, distinct pores on the underside of the thighs, while the females' are faint or absent. Males also grow larger and more robust. Most animals are ready to breed when they are 12-14 months old, and young females can begin to lay unfertilised eggs from 10 months of age. Wait to breed until the female is at least 15-20 cm long and in good condition. There are no reliable figures for weight at the start of breeding. Large, white calcium sacs on the neck show that she has reserves.

MATING

The breeding season runs from about December to June. Put the animals together in a clean enclosure that neither has lived in before, and introduce them right after one another, so neither has home advantage. Signs of acceptance are head nodding, tail wagging, the male showing the female his back, and her letting him bite her neck during mating. If the male chases her constantly, or she hides all the time, they must be separated.

The need for a genuine winter rest is not documented. Feel free to lower the temperature and day length a little in the dark months, and take the male out so the female can recover between seasons and build her calcium reserves up again.

EGG-LAYING AND CLUTCHES

The female lays one or two hard-shelled eggs at a time, and the two eggs are often stuck together. They are not glued to the surface, so they are easy to move. She prefers to lay them in cavities, for example in a bamboo tube or in the leaf axils of a sansevieria. Several clutches come during the season, often four to six weeks apart, but there are no reliable figures for how many clutches a female lays per year.

Give her plenty of insects and calcium with D3 throughout the season, and keep an eye on her condition. Remove the eggs for incubation, because adults may eat newly hatched young.

Read more: Incubating eggs

INCUBATION

Carefully move the eggs to a small box of damp vermiculite or perlite without turning them, and mark the top with a pencil. The box must have small ventilation holes and stand at 27-29 °C with a humidity of 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.

The eggs can also be incubated at room temperature with natural fluctuations between day and night. In day geckos temperature affects sex, and high temperatures appear to produce more males. How large the effect is in this particular species is not well documented, so do not count on being able to control the sex ratio. Leave eggs that look doubtful for a long time before discarding them.

REARING THE YOUNG

Keep the young separately in small, ventilated boxes or enclosures of about 30 × 30 × 30 cm with thin branches, a few plants and hides. They must not be housed with adults, and preferably not with each other either, because they compete for food and can become aggressive.

Give them the same climate as the adults: 26-30 °C during the day with a basking spot of 32-35 °C, 22-25 °C at night and a humidity of 50-70%. After the first shed the young begin to eat. Give small insects daily, e.g. crickets or fruit flies, and alternate between insects and prepared food. Dust the insects with calcium with D3. At about nine months of age they can move to the adults' feeding rhythm. The young grow quickly and are almost fully grown after a year.

Health and common mistakes

The species is regarded as hardy, but it requires the right care. The typical mistakes are:

- Too little UVB, calcium and D3, which causes metabolic bone disease with soft jaws, bent legs and tremors. It affects mainly juveniles and breeding females.
- Too little heat and light, so that the animal becomes dark and sluggish and loses its appetite.
- Persistently too high or too low humidity, which causes problems with the skin and shedding.
- Fights between males or between male and female. Wounds and bites must be kept clean, and the animals must be separated.
- Swallowed substrate, if the substrate contains small pieces of bark or gravel. It can cause constipation and intestinal blockage.
- Skin injuries, because the skin is fragile and tears off if the animal is grabbed. Never grab the body.

A healthy animal has clear eyes, a robust body and a plump tail base. See a vet with reptile experience if the gecko loses weight, does not eat for a couple of weeks, has soft jaws or seems apathetic.

Read more: Common diseases and signs of illness

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.

The full guide with map and updates: herpy.org/en/geckos/phelsuma-grandis