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GECKOS

Namib web-footed gecko

Pachydactylus rangei

An almost transparent, salmon-coloured desert gecko with enormous eyes and webbing between the toes, which it uses as a shovel in the loose dune sand of the Namib Desert. It is nocturnal and buries itself by day. It needs deep sand, dry air and cool nights, and is a species for the experienced keeper.

Family: Gekkonidae Former name: *Palmatogecko rangei; Syndactylosaura schultzei*

KEY FACTS

THE ANIMAL

Adult size	**11-14 cm** total length incl. tail
Weight	**5-10 g**
Lifespan	**5-8 years**
Active	**At night**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Desert**
Difficulty	**Experienced**

CARE

Min. enclosure	**60 × 40 × 30 cm** L × W × H for 2 adults
Temperature, day	**24-28 °C**
Basking spot	**32-35 °C**
Temperature, night	**18-22 °C**
Humidity	**30-50%**
UVB	**Optional** Ferguson zone 1
Diet	**Insects**
Kept	**Singly, in pairs or one male with several females**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**9-12 months**
Clutch size	**1-2 eggs**
Incubation	**56-75 days** at 30 °C

PROTECTION AND PAPERWORK

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

About the species

Pachydactylus rangei is a small, slender gecko with pale, almost transparent skin in a salmon tone. Some animals have light brown stripes or a fine net pattern, others are almost without markings. The head is clearly set off from the body, and the large, dark eyes have vertical pupils. The legs are thin, but the feet are broad, and the toes are joined by skin right out to the tips. The webbing has nothing to do with water: it works as a shovel. The gecko spreads its toes so that the foot forms a flat surface, and front and hind legs work together when it digs in and throws the sand backwards.

The species was described in 1908 by the Swedish zoologist Lars Gabriel Andersson as *Palmatogecko rangei*. The species name honours the collector Paul Range, who found the type specimen near Lüderitz. In 2005 it was moved to the genus *Pachydactylus*, where together with *Pachydactylus vanzyli* it forms the so-called Palmatogecko group, and it is still known under the old genus name *Palmatogecko*. *Syndactylosaura schultzei* is a junior synonym.

It is one of the smaller geckos, about 11-14 cm including the tail. Females are larger and heavier than males and can weigh up to 10 g, while males weigh 5-6 g. In the wild there are equal numbers of adult males and females. The gecko also has a voice with a wide range from squeaks and clicks to croaking and barking sounds, which it uses when disturbed or looking for a mate.

In the wild the animals seldom live more than about five years, and in captivity they often live longer. The maximum age is not known; 5-8 years is a cautious estimate.

The gecko is fragile and has thin skin, so it is better suited to being watched than handled. On the other hand it is fascinating to keep when it gets what it is built for: deep, loose sand, warm spots, cool hiding places and dark nights with some moisture in the air.

Distribution and habitat

The species lives along the south-western coast of Africa in the Namib Desert and the adjoining sandy areas. The range extends from Moçâmedes (now Namibe) in southern Angola to Daberas in the Richtersveld in north-western South Africa. The bulk of the population probably lives in Namibia's broad coastal desert between the Koichab and Kuiseb rivers. The type locality is Lüderitz.

The gecko mostly stays near the coast, but has been found up to about 130 km inland and up to an altitude of about 300 metres.

> **Native range:** Namibia, Angola and South Africa.

HABITAT

The gecko is a specialist of loose, wind-blown sand: dunes and their lee slopes, sandplains and margins with sparse, wind-swept vegetation and rocks. Juveniles often sit on the steep lee slopes of the dunes, males less often. Densities can reach about 19 animals per hectare, and some adults have home ranges of more than 4 ha, so the gecko ranges widely at night.

The environment is extreme. At the ground surface the temperature over the course of the year swings from about 1 °C to just under 43 °C, while down in the sand it varies only between about 21 and 32 °C. About 60 mm of precipitation falls per year, and less than half of it is rain, the rest being fog. Cold seawater and a warm coast produce dense fog at night. The gecko spends the day in a self-dug burrow that can be up to a metre deep, and comes out only after sunset. It gets water mainly from fog condensing on plants and grains of sand, and it can also absorb moisture through the skin. This pattern of dry days and humid nights is what you need to imitate in the enclosure.

Care

THE ENCLOSURE

Use a long, low enclosure, because it is the floor area that counts. A pair should have at least 60 × 40 × 30 cm (length × width × height), and larger is better.

The substrate is the whole set-up. Use fine, round-grained natural sand or beach sand entirely without clay, so that it neither clumps nor becomes hard when it dries after misting. Crushed industrial sand and calcium sand should be avoided. The sand layer must be 8-10 cm deep so that the animal can dig a proper burrow and withdraw from the heat. Lay flat pieces of cork or wood or an upturned clay saucer as hides. Heavy stones must stand directly on the floor of the enclosure so that they cannot slide down over a digging animal.

The gecko cannot climb at all, so the enclosure can stand entirely without a lid for the best ventilation. A mesh lid does, however, keep other animals and loose insects out and does no harm. Ventilation is essential because the surface of the sand must dry out during the day.

Read more: Calcium, vitamins and supplements

TEMPERATURE

Provide a temperature gradient so that the animal can choose for itself. By day the background should be 24-28 °C, and about a third of the floor area is heated to 32-35 °C. The rest of the enclosure should not fall below about 24 °C by day. At night the temperature should drop to 18-22 °C. The large difference between day and night is natural for the species. Also measure the temperature down in the sand, because that is where the gecko lies by day.

A heating cable or heat mat under part of the floor can be used. This works as long as the heat sits under only a third of the area and is controlled by a thermostat, so that there is always cool sand to dig into. Remember that the sand over an under-floor heater gets warmer the deeper the animal digs. A low-output heat lamp over one end is a good alternative, because it heats from above, so the gecko can cool off by digging further down.

For breeding, a winter rest of about two months at 18-21 °C is kept, see the section on mating.

Read more: Heat and temperature

HUMIDITY AND WATER

The species lives in desert, but depends on the night fog and dew. Keep the air relatively dry and well ventilated, at about 30-50 % relative humidity. The range is an estimate based on its way of life.

Mist lightly once a day, in the evening, on the back wall and on the sand in part of the floor, preferably under the hides, so that the animal can drink droplets. The sand should become damp only at the surface and be dry again the next day, otherwise it gets cold and mouldy. Never make the whole floor wet.

A shallow dish of fresh water does no harm, even though many desert geckos never seem to use it. A hygrometer shows whether the air stays dry.

Read more: Humidity, misting and ventilation

LIGHTING AND UVB

The species is strongly nocturnal and lies buried by day, so UVB is not essential when the insects are dusted with calcium and vitamin D3. The species can be kept without special lighting. If you want to provide UVB, use a low-output tube over part of the enclosure (Ferguson zone 1, UV index of about 0.5-1 at the most brightly lit spot), and leave the rest, especially the sand, in shade. This is a precaution.

Keep the light on for 12 hours a day, and keep the night completely dark. Avoid coloured night lights, which can disturb an animal with such large eyes.

Read more: Lighting and UVB

FEEDING

The gecko is an insectivore and in the wild takes termites, ants, beetles, grasshoppers and spiders. It is greedy but not a skilled hunter, so the prey must be easy to catch. Crickets of a suitable size are the best staple, supplemented with small dubia roaches and mealworms. The insects should be smaller than the distance between the animal's eyes.

Adults are fed every second to third day according to appetite. Offer a varied selection, gut-load the insects well beforehand, and dust them lightly with calcium. Give calcium with D3 regularly, especially if there is no UVB. Remove live leftovers afterwards, because they stress the animals.

Juveniles need the very smallest insects: newly hatched crickets and especially firebrats (*Thermobia domestica*), which are particularly well suited. Give enough that everyone gets some, but not so much that the box teems with feeder insects, which stress the young.

Read more: Feeder animals: keeping and breeding

BEHAVIOUR AND HANDLING

The gecko is nervous, fast and fragile, and its skin is thin. It is an animal to look at. Handle it only when it has to be moved, and let it walk into a small container rather than grabbing it. Never take hold of the tail.

The social life is unpredictable. Several males can live together peacefully, but they can also fight. Keep the animals singly, in pairs or as one male with two or three females in a spacious enclosure, and keep a close watch. Separate them if you see chasing, biting, weight loss or animals that keep away from the food. Wait to try several males together until you know the species well.

Breeding

SEXUAL MATURITY AND SEXING

Males have a row of 7-11 enlarged, spiny scales on the side of the tail. Females have them too, but they are much smaller and indistinct. With some experience the animals can be sexed from about three months of age, and as adults the females are also larger and heavier.

Sexual maturity is normally reached at about nine months, but females can lay unfertilised eggs as early as six months old. Therefore keep the sexes apart until the animals are a year old, and put a female to breed only when she is fully grown and in good condition. A young, light animal that produces eggs risks being drained of calcium.

MATING

In the wild the species breeds in April and May. The male bites the female on the neck, holds her fast and moves his tail in under hers.

In captivity breeding is triggered by an artificial winter rest of about two months at 18-21 °C. The animals become sluggish and eat little, and the sexes do not need to be kept apart in the meantime. When the temperature is raised again to normal, mating begins, and a few weeks later the eggs can be seen through the female's transparent skin.

EGG-LAYING AND CLUTCHES

The female usually lays two eggs at a time, while young females laying for the first time may manage only one. The eggs have a hard, calcareous shell, measure about 8-11 × 7-9 mm and may be stuck together or lie separately. The female buries them in the sand and covers them carefully. Because the eggs can be seen through the skin, you can follow when she is carrying eggs and when she has laid them. The number of clutches per season is not known.

The eggs are extremely fragile and break easily. Dig them out carefully with your fingers or a soft brush, and turn them as little as possible. Give the female calcium and plenty of insects throughout the season, and stop breeding if she loses weight.

INCUBATION

The eggs themselves must lie dry, but in humid air. Use a box-in-a-box method: the eggs lie on dry sand in a small box, which stands in a larger box with wet substrate, so that the air around them becomes humid. The eggs must not lie in wet material, and condensation must not drip on them. In the wild, however, they lie buried in damp sand.

Incubate at about 30 °C. The young hatch after about eight weeks to two and a half months, that is 56-75 days. It is not known whether temperature affects the sex of the young.

REARING THE YOUNG

The hatchlings shed right after hatching and begin to eat after two to four days. Keep them like the adults, with fine sand, hides, a warm zone, light misting every day and the smallest insects. They can be reared in groups without difficulty.

Once the young have started eating, they grow quickly and rarely cause problems. Size at hatching and growth rate are not known, so weigh them regularly, and separate them by size if any fall behind. Separate the sexes before they become sexually mature.

Health and common mistakes

The advice is based on the species' way of life and on experience with other desert geckos. The typical mistakes are:

- Overheating. In the wild the gecko avoids the heat by digging down, so heat everywhere and no cool sand to retreat into is the most obvious mistake.
- Too much moisture. Wet sand causes mould, skin problems and respiratory infections. The surface must dry out during the day.
- Dehydration. The signs are sunken eyes, lethargy and poor sheds. Do not make the whole enclosure damp, but make sure the animal can drink droplets every evening.
- Stuck skin remnants on the toes and tail tip. Provide a little damp sand under a hide, and loosen the remnants carefully.
- Calcium deficiency (metabolic bone disease), especially in young animals and breeding females. The signs are tremors, bent limbs and a soft jaw. Use calcium and D3.
- Sand in the gut (impaction). Use fine, clean sand, and avoid coarse material that the animal may swallow by accident.
- Dropped tails. The tail grows back, but never regains its original shape.

See a vet with reptile experience if the animal loses weight, does not eat for several weeks, breathes with an open mouth, trembles or is limp.

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.