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CHAMELEONS

Namaqua Chameleon

Chamaeleo namaquensis

Chamaeleo namaquensis is a stocky, ground-dwelling chameleon from the deserts of south-western Africa. It hardly climbs at all, but runs fast over sand and gravel, buries itself and hunts actively. The animals are fiercely territorial and must live alone. Very little is known about their care, and the species is one of the most difficult chameleons to keep.

Family: Chamaeleonidae Former name: *Chamaeleo capensis; Chamaeleo tuberculiferus*

KEY FACTS

THE ANIMAL

Adult size	**20-25 cm** total length incl. tail
Lifespan	**3-5 years**
Active	**By day**
Lifestyle	**Terrestrial and burrowing**
Habitat	**Desert and semi-desert**
Difficulty	**Expert**

CARE

Min. enclosure	**120 × 60 × 60 cm** L × W × H for 1 adult
Temperature, day	**25-30 °C**
Basking spot	**35-40 °C**
Temperature, night	**15-20 °C**
Humidity	**30-50%**
Water	**No water dish**
UVB	**Essential** Ferguson zone 4
Diet	**Insects and plants**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**5-7 months**
Clutch size	**6-22 eggs**
Clutches per year	**2-3**
Incubation	**90-120 days** at 25-28 °C

PROTECTION AND PAPERWORK

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

About the species

Chamaeleo namaquensis reaches 20-25 cm including the tail and is one of the largest chameleons in southern Africa. The body is stocky and compact, the head large with a pointed crest at the back, and the tail is far shorter than in the arboreal chameleons and not prehensile. The back has a crest of large, pointed scales. There is no gular crest or skin flaps. The female is larger than the male. The male has a larger head and a distinct bulge under the base of the tail, where the hemipenes lie.

The base colour is grey or brown with four to six paler spots along the side and dark, triangular markings beneath the dorsal crest. The throat may have yellow or red stripes. Colour change is used mainly to regulate heat: in the morning the animal is almost black and absorbs heat quickly, and in the hottest hours of the day it is pale grey to almost white and reflects the light. The animal can show both colours at once, divided along the spine. When threatened it quickly turns black, inflates its body and throat, hisses and opens its bright yellow mouth, and if cornered it attacks and bites hard.

The lifestyle is unusual for a chameleon. The feet have the same fused toes as other chameleons, but the animal cannot close them around a branch and therefore cannot climb. Instead it spreads its toes and runs, and it is one of the fastest chameleons. Excess salt is excreted from the nose through salt glands. The skin can absorb moisture from the surface: droplets on the sides run through fine channels between the scales towards the mouth.

The older names *Chamaeleo capensis* and *Chamaeleo tuberculiferus* belong to the same species.

Distribution and habitat

Chamaeleo namaquensis lives in the dry, western parts of southern Africa: in Namibia, in south-western Angola and in western South Africa. It is common in the Namib Desert. To the south it has been found as far as Sutherland in the Western Cape, and to the north as far as southern Angola. The type locality is Little Namaqualand near the mouth of the Orange River, and the species is named after the area. In the far east of Namibia the range overlaps with *Chamaeleo dilepis*.

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

HABITAT

The species lives in dry and semi-arid country: Karoo scrub, sand desert, dunes and gravel plains, in some places right down to the tidal zone. The vegetation is often only scattered tufts of low bushes. The animal walks mostly on the ground, while young animals climb more. At night it likes to climb up onto rocks to get a little way off the ground. It digs its own burrows and uses abandoned rodent burrows to regulate its temperature.

The climate is extreme. Along the coast the annual mean air temperature is 19.3 °C, and the ground surface is 27-32 °C. Further inland the mean is 24.1 °C in the air and 30-35 °C on the ground. Summer days can reach about 38 °C, and nights can fall to about 10 °C. In winter the daytime temperature is about 20-23 °C, and frost can occur. Rain is scarce, but dense fog from the sea reaches large parts of the range on most days, and the early morning air can have a humidity of up to 50 %. Dew and fog droplets on plants, rocks and sand are the animal's most important drinking water.

The animal is diurnal, but withdraws into shelter when the sun is highest and hunts again when it gets cooler. It hunts actively and eats mostly tenebrionid beetles and locusts, occasionally lizards, snakes and other arthropods, including young of its own species. Plant matter makes up on average 1-3 % of the diet, especially fleshy parts of succulents, and the animal also eats small stones and sand. Each adult holds a territory of several hundred and up to over a thousand square metres.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

Very little is known about the care of *Chamaeleo namaquensis*, and the species is among the most difficult chameleons to keep. The species has been bred over several generations in Europe, but by a few, very experienced keepers, and animals are rare in the trade. The figures in this guide are therefore based on the climate and lifestyle in the wild. Where no care figures exist for the species, this is stated.

The species is not an arboreal chameleon, and a tall mesh enclosure with branches is wrong. It needs a low, wide enclosure with a large floor area: at least 120 × 60 × 60 cm for one adult. There are no documented minimum dimensions; the figure is an estimate based on size and the running lifestyle, and more floor area is always an advantage. The enclosure must be dry and well ventilated.

The substrate is fine, dry sand mixed with gravel, at least 20-25 cm deep in part of the enclosure, so the animal can dig a burrow as in the wild. The species naturally eats small stones and sand, so small amounts in the droppings are to be expected. Lay flat rocks and rock formations as a basking spot and as somewhere the animal can climb up at night. The animal cannot grip branches, and branches are therefore not necessary. Make hiding places where the animal can withdraw from the midday sun, for example rock caves or half a length of pipe. Plants are optional; the species eats fleshy succulents.

The lamps hang on top of the enclosure, and the rocks and basking spot must lie far enough from them that the animal cannot burn itself.

Read more: Heat and temperature

TEMPERATURE

There are no documented captive figures for the species. The recommendations here are derived from the climate in the range: ground temperature in the wild is 27-35 °C, summer air up to 38 °C and summer nights about 10 °C.

By day the enclosure should be 25-30 °C, and on a basking spot of rock the surface should be 35-40 °C. Measure the surface with an infrared thermometer, not the air. There must be a cooler zone and shade, because the animal withdraws from the strongest heat in the middle of the day. At night the temperature should fall to 15-20 °C, and all lamps must be off. The animal must be able to choose between warm and cooler.

Winter in the wild is cooler, and frost can occur, but it has not been documented whether animals in captivity benefit from a cool resting period. Keep the temperature steady all year.

HUMIDITY AND WATER

Humidity should be low, 30-50 %, and the substrate should be dry. This is a desert climate, where the early morning air can reach about 50 % and where the animal gets moisture from fog and dew.

The animal does not drink from a bowl. Mist the enclosure briefly in the morning, so rocks, plants and the animal's sides are covered in droplets. The animal licks the droplets and can also absorb them through the skin. The species gets a fair amount of fluid from its food, but it needs extra drinking water in addition to the moisture in the air and food, because the bladder is very small and stores almost no water. Let the surfaces dry out between mistings.

Only in the part of the enclosure where a female is to lay eggs should the sand be moist further down (see breeding). The rest of the substrate should be dry.

LIGHTING AND UVB

The species is diurnal and lives in open landscape with plenty of sun, so it needs strong light and UVB for 12 hours and darkness for 12 hours. UVB is necessary. The UV level in the wild has not been measured for the species; Ferguson zone 4 at the basking spot is an estimate based on the open desert habitat, and there must be shade and hiding places where the UV index is lower. Use a T5 UVB tube with a reflector or a powerful UVB lamp on top of the enclosure, and keep the distance the manufacturer specifies for zone 4.

The animal regulates heat with colour: dark and in the sun means it is warming up, and very pale and in hiding means it is too hot.

Read more: Lighting and UVB

FEEDING

Chamaeleo namaquensis eats mostly beetles, locusts and other arthropods, in the wild also lizards and snakes and a little plant material. The animal hunts all day and is very greedy. It can eat prey that seems far too large, and young animals do the same. In the wild an adult eats about 12 meals a day, often 19-23 large beetles per meal, but food in the wild is plentiful and easy to get. In captivity the animals grow more slowly.

Offer varied insects, especially beetles from the same group as the natural diet (tenebrionid beetles and their larvae), locusts and crickets. Prey may be large in relation to the animal. The animal can be trained to take dead food. Also offer fleshy succulents, which the animal eats in small amounts. Amounts and frequency have not been documented for animals in captivity. Overfeeding is a risk, because the animal eats as long as there is food, so weigh the animal regularly and watch its body shape.

Supplements have not been documented for the species, so follow practice from other chameleons: dust the insects with calcium without D3 at most feeds, and give calcium with D3 and a multivitamin a couple of times a month. Females that have laid eggs have used up their fat reserves and should be given as much food as they will eat after laying.

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

BEHAVIOUR AND HANDLING

Chamaeleo namaquensis is bold and does not back away from other animals or objects. It rests in the hottest hours of the day and then goes hunting again. Handling does not visibly stress the animal, and it sits on a hand until it wants to move on. Even so, it is an animal to look at and not to pick up. If threatened or pressed, it hisses, gapes and bites hard.

The species is solitary. Adults are fiercely territorial, both males and females, and the females are the most aggressive. If the animals fight, they are seriously injured, and they can tear each other apart. Adults must never live together, not even a pair outside mating. Even in captivity an animal defends a resting place of about 35 cm. Young animals are not seen as a threat

and can live together for a period, until they approach sexual maturity.

Lifespan has not been documented; 3-5 years in captivity is an estimate based on chameleons of the same size that reach sexual maturity just as early.

Breeding

SEXUAL MATURITY AND SEXING

The female is larger and more aggressive than the male. The male has a larger head and a bulge under the base of the tail. Females reach sexual maturity after about 5 months and males after about 7 months. There is no information on how old or large the animals should be before they are bred.

MATING

Breeding can take place all year. During mating both sexes are spotted and variegated in colour. Only a recently ovulated female is receptive. If the female is not, she attacks the male, and the difference in size can seriously injure him or cost him his life. Therefore bring the animals together only under supervision, and separate them immediately if the female attacks. After mating the animal that holds the territory chases the other away, so the sexes must be separated again. A female can store sperm and lay fertilised eggs several months after a single mating.

EGG-LAYING AND CLUTCHES

The eggs develop for 35-45 days inside the female before they are laid. The female then digs a hole in moist sand and lays the eggs in layers of 6-8 eggs each, covering each layer before the next is laid. Digging and egg-laying take 8-10 hours. A clutch is most often 10-13 eggs, but can be 6-22. A female lays 2-3 clutches a year and in rare cases four. In the wild the hole is 20-25 cm deep, and the eggs lie 15 cm down in the moist layer. Give the female a box of moist, firm sand, at least 20 cm deep, so the hole does not collapse. Dry sand makes the eggs shrivel. The female loses a lot of fat by laying and should eat as much as she can afterwards.

INCUBATION

The eggs hatch about 100 days after laying, in practice after 3-4 months. They lie in moist sand or a moist substrate. The incubation temperature has not been documented for the species; 25-28 °C in captivity is borrowed from other *Chamaeleo* species such as *Chamaeleo dilepis*. The eggs are already well developed when they are laid.

Read more: Incubating eggs

REARING THE YOUNG

Young animals climb more than the adults, so give them low rocks and low branches to climb on. Temperatures, UVB, dry sand substrate and drinking water by misting are as for the adults. They grow more slowly in captivity than in the wild. The size and weight of the young at hatching have not been documented. They can live together for a period, but must be separated before they become aggressive towards each other, and at the latest when they approach sexual maturity.

Health and common mistakes

There is no documented overview of diseases in *Chamaeleo namaquensis*. The typical risks follow from the species and from chameleons in general:

- Injuries from fights between animals, which can be serious. Keep the animals apart.
- Dehydration, if the animal does not get droplets to drink.
- Bone loss from too little UVB or calcium.
- Burns from lamps or rocks that are too hot.
- Obesity, because the animal eats as long as there is food.
- Exhaustion after egg-laying and egg binding in females.

See a vet with reptile experience if the animal stops eating, loses weight, has its eyes closed by day, has injuries from fighting or a female tries without result to lay eggs.

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.