herpy

CHAMELEONS

## Flap-necked Chameleon

# *Chamaeleo dilepis*

*Chamaeleo dilepis* is a medium-sized, tree-dwelling chameleon from savannas, scrub and open woodland across much of sub-Saharan Africa. It is recognised by the two skin flaps at the back of the head and a white stripe along the flank. The species is hardy for a chameleon, but almost all animals in the trade are wild-caught. It needs a tall mesh enclosure with UVB, drinks only droplets and must be kept alone.

Family: Chamaeleonidae  Former name: *Chamaeleo angusticoronatus; Chamaeleo bilobus; Chamaeleo capellii; Chamaeleo isabellinus*

KEY FACTS

### THE ANIMAL

| | |
|---|---|
| Adult size | **20-35 cm**<br>total length incl. tail |
| Lifespan | **3-8 years** |
| Active | **By day** |
| Lifestyle | **Arboreal** |
| Habitat | **Savanna and dry forest** |
| Difficulty | **Intermediate** |

### CARE

| | |
|---|---|
| Min. enclosure | **60 × 45 × 90 cm**<br>L × W × H for 1 adult |
| Temperature, day | **25-30 °C** |
| Basking spot | **32-35 °C** |
| Temperature, night | **16-20 °C** |
| Humidity | **50-70%** |
| Water | **No water dish** |
| UVB | **Essential**<br>Ferguson zone 3 |
| Diet | **Insects** |
| Kept | **Singly** |

### BREEDING

| | |
|---|---|
| Reproduction | **Egg-laying** |
| Clutch size | **20-75 eggs** |
| Clutches per year | **1-3** |
| Incubation | **300-365 days**<br>at 27-28 °C |

### PROTECTION AND PAPERWORK

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

## About the species

*Chamaeleo dilepis* is a medium-sized chameleon with a flat head, a low casque and two movable skin flaps (occipital lobes) at the back of the head, which the species name refers to: it comes from the Greek dis, two, and lepis, scale. The lobes are raised when the animal feels threatened. The whole animal grows to 20-35 cm including the tail. Females are larger and heavier than males; the smallest sexually mature females have a body length of about 8 cm from snout to vent, the males about 6 cm.

The base colour is green, yellow-green, yellow or brown, often with a pale stripe along the lower part of the flank and one to three pale spots higher up. The colour changes with mood, temperature and stress, and the species can display stripes, spots and bands in light or dark tones. A frightened animal turns dark, almost black. Males have a thicker tail base (the hemipenal bulge), and in some subspecies a small tarsal spur sits on the hind foot. A crest of small white scales runs along the throat and belly.

When threatened, the animal inflates its body and throat to expose a pale yellow surface, opens its mouth wide, hisses, sways from side to side, raises the lobes and darkens. If that does not help, repeated bites follow. It looks fierce, but the animal is completely harmless, and most animals calm down when left in peace.

The species is highly variable and is divided into eight subspecies, including *C. d. dilepis*, *C. d. petersii*, *C. d. isabellinus* and *C. d. roperi*. The subspecies differ mostly in the size of the lobes, and the delimitation is disputed: a few of them, e.g. *C. d. roperi* and *C. d. ruspolii*, are treated by some as separate species. Genetic studies have found three main lineages within the species without changing the classification, and the species is therefore called a complex. It is one of the most heavily traded chameleons, and almost all animals in the trade are wild-caught; from Tanzania alone, an average of about 2,700 live animals are exported per year. The trade rarely distinguishes between the subspecies, so the origin is usually known only at country level.

Read more: Buying animals: captive-bred, wild-caught and transport

## Distribution and habitat

*Chamaeleo dilepis* has one of the largest ranges among chameleons. It occurs from Ethiopia and Somalia in the north to northern South Africa in the south, and from Cameroon, Gabon and Angola in the west to Kenya, Tanzania and Mozambique in the east. It has also been recorded in Namibia, Botswana, Zimbabwe, Zambia, Malawi, Eswatini, Lesotho, Burundi, Rwanda, Congo and the Democratic Republic of the Congo, in Nigeria, Togo and Equatorial Guinea and in South Sudan, as well as on the island of Pemba. Its occurrence in Uganda is not confirmed.

In Botswana it is the only native chameleon. The country prohibits the export of all wild animals, so animals in the trade come from other countries. In several areas the species is becoming rarer because scrub is cleared for agriculture, mining and firewood, and because animals are killed by traffic when they cross roads between the trees.

> **Native range:** Ethiopia, Somalia, South Sudan, Kenya, Tanzania, Mozambique, Malawi, Zambia, Zimbabwe, Botswana, Namibia, South Africa, Eswatini, Lesotho, Angola, Congo - Kinshasa, Congo - Brazzaville, Gabon, Equatorial Guinea, Cameroon, Nigeria, Togo, Burundi and Rwanda.

### HABITAT

The species lives in coastal forest, open woodland, dry and moist savannas and scrubby grassland, and can also be seen in villages and suburbs. It stays in low trees, bushes and thickets and rarely reaches the crowns of tall trees. It prefers trees with rough bark, which gives good footing. At night the animal sleeps on a branch deep inside the foliage.

The climate is warm and varies strongly through the year. In southern Africa the winters are dry and cool, and summer days can exceed 40 °C, while the rainy season runs from about December to March. Further north the climate is more humid. The species does not enter true brumation and is active on sunny winter days. It seeks out warmth and is often seen crossing open roads in the middle of the day.

Its food is arthropods, especially orthopterans (grasshoppers and crickets) and, second to those, beetles. Large animals also take small lizards, including geckos, and other chameleons. The species itself is preyed on by birds and by snakes such as *Dispholidus typus* and species of the genus *Thelotornis*. The breeding season is in spring and summer.

Read more: Feeder animals: keeping and breeding Read more: Brumation and the seasons

## Care

### THE ENCLOSURE

An adult needs a mesh enclosure of at least 60 × 45 × 90 cm (length × width × height). For a large female, 60 × 60 × 90 cm is better, and larger is always an advantage. Juveniles can be kept in 40 × 40 × 75 cm. Only one chameleon should live in each enclosure: males are very intolerant of each other, and the sexes also stress each other when they are close together.

The enclosure should be tall rather than wide. Mesh on the top and sides provides the ventilation the species needs: in humid, stagnant air it easily develops respiratory infections. If the enclosure stands in a dry, cool room, two sides can be covered with a panel to hold the humidity better. Lamps hang outside, on top of the mesh.

Furnish the enclosure with many branches of different thicknesses. The branches should be rough and no thicker than the foot can grip; about pencil thickness is ideal for climbing. Plant densely with robust, non-toxic plants, so the animal can retreat into foliage and be hidden from people and from the heat of the light. Without cover the species becomes stressed. Branches must be far enough from the mesh that the animal cannot get up under a heat source and be burned. The floor should have no loose substrate; a tray or a drain is simplest, and live plants stand in pots.

Read more: Humidity, misting and ventilation

### TEMPERATURE

During the day the temperature in the enclosure should be 25-30 °C, and on a basking branch it should be 32-35 °C. Start with a 60 W bulb and adjust according to the reading: a lamp that is too strong can cause serious burns, even through the mesh. Measure on the branch with an infrared thermometer, and place a probe on the cool side. The animal must be able to choose between warm and cool, and the species is a pronounced sun lover that sits in the sun for long periods.

At night the temperature should fall to 16-20 °C. It is not necessary to heat at night until the temperature approaches 10 °C; if it is necessary, use a ceramic heater or a room heater and never a bulb, not even a red or black one. The species is hardy and tolerates short periods of low temperatures, but that is no reason to expose it to them. If the animal sits dark and sluggish, hangs under the lamp all day, or does not eat, the basking spot is too cold.

Read more: Heat and temperature

### HUMIDITY AND WATER

The humidity should be about 50-60 %, and after misting it may rise towards 70 %, as long as the enclosure dries out again. Plants help to hold the humidity. The species does not drink from standing water, only droplets from leaves and misted surfaces, so no water bowl and no waterfall are used.

Mist the enclosure twice a day: in the morning and early evening. Mist the animal gently and let it drink until it stops. A drip running down over the leaves for half an hour is a good supplement. All surfaces must be dry between mistings, so that mould and bacteria do not develop, and the water must not be left standing in puddles. The species can go a long time without water in the wild, but dehydration is nevertheless one of the most frequent causes of death in captivity. A clearly heavier misting from December to March corresponds to the rainy season and can help animals come into breeding condition.

### LIGHTING AND UVB

The species is diurnal and sun-loving and needs strong light for 12 hours and darkness for 12 hours. Full-spectrum light and UVB are necessary, because the animal makes D3 in its skin and needs it to absorb calcium. Fit a T5 UVB tube or an LED bar on top of the mesh, along the whole length of the enclosure, so that the basking branch gets a UV index of about 3-4. This corresponds to Ferguson zone 3; the zone is an estimate based on the lifestyle of a savanna species and has not been measured directly for the species.

Place the branch so that the animal's back is about 20-30 cm below the tube, and check with a UV meter. UVB tubes lose their strength within 6-12 months even while they still light up, so replace them according to the manufacturer's instructions. Direct sunlight is an advantage in a living room with a sunny window, but without shade a closed enclosure can quickly overheat. In that case use only mesh, and make sure the animal can get into the shade.

Read more: Lighting and UVB Read more: Calcium, vitamins and supplements

### FEEDING

The species eats insects: crickets, grasshoppers, cockroaches (e.g. *Blaptica dubia*), silkworms, hornworms, black soldier flies and their larvae, and in smaller amounts mealworms and waxworms, which are fatty. The insects must be live, no longer than the width of the animal's head, and gut-loaded well with greens and calcium for a couple of days before they are given. Variety is important. Wild-caught insects from a clean garden are a fine addition. Feed in the morning, so the animal can warm up and digest.

Juveniles get as many small insects as they can eat, several times a day. Juveniles of 3-6 months get 10-12 small insects daily, and animals of 6-12 months get 10-12 medium-sized ones every other day. Adults get 5-7 small to medium-sized insects every other day. The species quickly becomes weak and sluggish if it gets too little, but a female that is fed too generously produces clutches that are too frequent and too large. Remove insects that have not been eaten, because they stress the animal when they crawl around on it.

Dust the insects lightly with calcium without D3 at most feedings. Every other week they get a multivitamin, and every other week calcium with D3, but the latter only if the UVB lighting is weak. A female carrying eggs needs extra calcium.

### BEHAVIOUR AND HANDLING

*Chamaeleo dilepis* is mild and calm compared with many other chameleons, but it is an animal to watch, not one to pick up. Handling stresses it and should be done only when necessary. Outbursts of fear with gaping, hissing and biting subside when the animal is left in peace. Give a new animal 1-2 weeks undisturbed, and place the enclosure so that people are not constantly walking past.

The species is solitary. Males must never live together, and the sexes must be kept apart, except when they are to mate. At night the animal sleeps on a branch deep in the foliage, and it needs many hiding places. Dark colours, a compressed body and an open mouth are signs of stress. The animal should not be held firmly and must never be picked up by the tail.

## Breeding

### SEXUAL MATURITY AND SEXING

Males have a distinctly thicker tail base than females, and in some subspecies a small tarsal spur sits on the hind foot. Females are larger and heavier. Sexual maturity follows size: the smallest sexually mature females measure about 8 cm from snout to vent, the males about 6 cm. The age at sexual maturity is not documented. Females should not breed until they are at least a year old, so that they have enough calcium for both eggs and their own growth.

As in *Chamaeleo calyptratus*, a female can produce eggs without having met a male, so an adult female must always have access to a laying bin. Clutch size follows the size of the female.

### MATING

The species breeds in spring and summer. A female that does not want to mate rejects the male with dark colours, gaping and hissing. Separate the animals immediately after mating, because the female may attack the male.

A period of heavier misting from December to March, with the male kept apart, increases willingness to mate when the animals are put together afterwards. A cold period or brumation is not necessary to get the animals to mate. Put them together only under supervision.

### EGG-LAYING AND CLUTCHES

The female lays 20-75 white eggs, on average about 45, each 1-2 cm long, and 1-3 clutches a year. A female carrying eggs is easy to spot: the belly becomes lumpy, and the eggs can be glimpsed.

A female with eggs needs a laying bin of at least 40 × 40 × 40 cm with at least 30 cm of washed play sand or a mixture of sand and soil, moist enough that a tunnel holds its shape. Place a branch from the enclosure down to the bin. The female comes down from the branches, digs a tunnel, lays the eggs at the bottom of it and closes it again. She needs complete peace, and the enclosure and bin can be covered with a cloth with a peephole. Egg laying can take from several hours to several days. Eggs that cannot be laid are a life-threatening problem (egg binding), and the female must then go to a vet immediately. After laying she needs at least a week of peace, extra water and calcium-rich food.

Read more: Common diseases and signs of illness

### INCUBATION

The eggs are carefully lifted out and placed in the same orientation as they were laid, without being turned. They are placed half buried in moist, coarse vermiculite or perlite in a tightly closed container with a few small holes. The substrate should be moist enough that only a few drops come out when a handful is squeezed. The lid must fit tightly, because otherwise the eggs dry out.

The incubation temperature is 27-28 °C, and the incubation period is very long: 10-12 months. Remove eggs that turn grey or become mouldy. Temperature-dependent sex determination has not been documented for the species, and the sex ratio at different incubation temperatures is not known.

Read more: Incubating eggs

### REARING THE YOUNG

The hatchlings are hardy compared with many other chameleons, but they dehydrate easily, and dehydration is the greatest risk. Mist each hatchling separately until it stops drinking. Set up a small mesh enclosure with many branches and plants, UVB and the same temperatures as for the adults, and give small insects daily, dusted with calcium. Juveniles that seem stressed should be removed and raised alone. The size of the hatchlings at hatching and their growth are not documented. With up to 75 eggs in a clutch, there must be room for many juveniles before a female is allowed to breed.

## Health and common mistakes

Most problems are caused by husbandry and can be avoided with the right heat, UVB, humidity and ventilation. The typical ones are:

- Dehydration, the most frequent cause of loss. Signs are sunken eyes and wrinkled skin.
- Metabolic bone disease from too little UVB or calcium. Provide UVB and calcium.
- Respiratory infection in humid, stagnant air: mucus in the mouth, open mouth, lethargy. Provide ventilation.
- Egg binding in females, which is acute and life-threatening and requires a vet. Avoid overfeeding.
- Burns from lamps and sores on the feet when branches are wet all day.
- Internal parasites and stress in wild-caught animals. Have a new chameleon checked with a faecal sample before it comes into contact with other animals.

A healthy animal has open, clear eyes and plump skin, grips the branch firmly and eats. Go to a vet with reptile experience if the animal does not eat, loses weight, has closed eyes during the day or sits dark and sluggish.

### 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.