

Old World Chameleon Care

There are over 150 species of Old World or true chameleons, however the veiled chameleon (*Chamaeleo calytratus*), panther chameleon (*Furcifer pardalis*), and Jackson's or three-horned chameleon (*Trioceros jacksonii*) are three of the most common species seen in captivity.

Natural history

Chameleons are found almost exclusively in the southern two-thirds of Africa and the island of Madagascar

Veiled chameleon	Panther chameleon	Jackson's chameleon
Native to Yemen in the Arabian Peninsula. During the wet season, found in "wadis" or valleys that the rainy season transforms into flourishing oases. Feral populations are present in Florida	Native to the lowland, dry deciduous forests of Madagascar. Seems to prefer open habitats that are not overly shaded	Native to the mountain thickets and forests of East Africa, mainly Kenya and Tanzania. Feral populations in Hawaii.

Conservation status

All Old World chameleons are classified as threatened. Veiled, panther, and Jackson's chameleons are commonly bred in captivity, however, other more unusual species are still wild caught.

Life span

Chameleons are relatively short lived. Most free-ranging males survive 1-3 years. Females have a shorter lifespan due to the stresses of reproduction and egg laying. Captive males live an average 4-6 years; females live 2-3 years, although some large veiled and panther chameleons have lived over 10 years.

	Veiled chameleon	Panther chameleon	Jackson's chameleon
Males	4-8 years	4-8 years	5-10 years
Females	2-5 years	3-4 years	4-5 years

Physical description

Old World chameleons are uniquely adapted to life in trees with fused toes that allow them to climb and strong tails designed for grasping. This unique group of reptiles also possess sideways compressed bodies, independently rotating eyes, and an ability to change color. Chameleons use colors primarily for communication not camouflage with brighter coloration signaling dominance. Chameleons also possess an extremely long tongue with a sticky tip that is used to catch prey.

VISIBLE DIFFERENCES BETWEEN THE SEXES (sexual dimorphism): Male chameleons are generally larger and more colorful with elaborate head ornamentation that aids in territorial displays or combat.

Veiled chameleon	Panther chameleon	Jackson's chameleon
Both sexes have a large casque on the head, but the casque is slightly larger in males.	Males have a prominent, rounded, ridge that extends from the back of the head to the snout. The female's ridge is less prominent.	Males have three, long, pointed horns protruding from the forehead. The horns are absent or poorly developed in females.
Males are also more brightly colored. Males also have a spur on their back heel even as hatchlings.	Males display a wide range of colors and patterns and a slightly thicker tail base. Females are uniformly pale green, orange or peach with a thinner tail base. Egg-	

	bearing chameleons can appear deep black with orange stripes	
Males will grow larger, reaching 43-61 cm (17-24 in) in length, while females usually top out at 25-33 cm (10-13 in) by 12 months of age.	Males are much larger than females and can reach up to 56 cm (22 in) in length. Females can grow to 33 cm (13 in) in length.	Males reach a length of 33 cm (13 in), while females top out at 20-23 cm (8-9 in).

Caging

Chameleons are challenging to successfully keep as you are essentially trying to recreate life in the tree tops in your home. **Tall (vertically-oriented), plastic-coated mesh cages** work well. Mesh spacing of 1.3 cm x 1.3 cm (½ in x ½ in) or 1.3 cm x 2.5 cm (½" in x 1 in) often works well. Enclosures with solid walls should have a screened top and at least one screened front or side to ensure adequate ventilation. Never house medium to large chameleons in glass or plastic aquariums as they provide insufficient ventilation.

The larger the **cage size** the better. Minimum dimensions for an indoor cage for an adult chameleon are 0.6 m long x 0.6 m wide x 1.2 m high (2 ft x 2 ft x 4 ft high). The top of the cage should be ideally be approximately 1.8 m (6 ft) from the floor.

Veiled chameleon	Panther chameleon	Jackson's chameleon
0.9 m long x 0.9 m wide x 1.2 m high (3 ft x 3 ft x 4 ft)	30.5 cm x 30.5 cm x 46 cm high (12 in x 12 in x 18 in)	0.6 m long x 0.6 m wide x 0.9 m high (2 ft x 2 ft x 3 ft)

Chameleons are **solitary** animals that should generally be housed as one chameleon per cage except during the breeding season. Males are very territorial and are very aggressive towards each other. (Juvenile panther chameleons can be maintained in small groups).

The **cage floor** should ideally be mesh to allow feces to drop through with a tray underneath. The cage bottom may also be covered with indoor/outdoor carpet, moist sphagnum moss, newspaper, or butcher paper. Do not use bedding since this can accidentally be ingested if the chameleon misses its prey.

TEMPERATURE: Ideally the room should be heated rather than the individual enclosure to achieve the baseline temperature. The cage should also include a **basking spot**. Mount bulbs **ABOVE** and not on the cage to prevent the chameleon from being burned. Place incandescent lights at 15 cm (6 in) above the top of the cage. Undertank heating, such as heating mats or heat tapes, are not recommended for these tree-dwelling lizards. Allowing cage temperatures to cool down at night is extremely important for the long-term health of your chameleon. **Nighttime temperatures** should drop by (3-5°C) 5-10°F for desert and tropical species and by 10-15 degrees F (5-8°C) for montane species.

	Veiled chameleon	Panther chameleon	Jackson's chameleon
Geographic region	Desert or dune species	Tropical species including Parson's chameleon (<i>Calumma parsonii</i>) and Senegal chameleon (<i>C. senegalensis</i>)	Mountain-dwelling species include Fischer's chameleon (<i>Kinyongia fischeri</i>), mountain chameleons, dwarf chameleons (<i>Bradypodion</i> spp.) cannot tolerate high temperatures, particularly juveniles
Daytime temperature	24°C-31°C (75°F-88°F)	22°C-27°C (72°F-80°F)	24°C-26.6°C (75°F-80°F)
Basking temperature	32°C-35°C (90°F-95°F)	29°C-32°C (85°F-90°F)	29°C (85°F)

Nighttime	18°C-24°C (65°F-75°F)	15°C-24°C (60°F-75°F)	16°C-21°C (60°F-70°F)
Winter daytime	22°C (72°F)		

WATER: Chameleons do not drink from standing water. Wild chameleons obtain hydration by sipping morning dew or raindrops that collect on leaves or other surfaces, from their insect prey, and through exposure to high humidity at night. Water can be provided to captive chameleons in a variety of ways:

- Spring water intravenous (IV) line set to a slow drip
- Plastic cup with a pinhole in the bottom filled with water
- Mist leaves with distilled water two to four times daily
- Ice cubes placed on the screen allowed to melt and drip
- Reptile water drippers and automatic watering systems on a timer are also commercially available.

HUMIDITY: Target humidity levels for many chameleons ranges between 50%-70% and is monitored using a digital hygrometer. Strive to increase humidity at night. Humidify the enclosure with:

- Vaporizers or humidifiers
- Moistened sphagnum moss at the cage bottom
- Small fountains
- Water in a tray beneath the mesh floor (changed regularly)
- A radiant heat source directed towards a tree-mounted water bowl

Despite the need for high relative humidity, It is also important to keep the cage interior completely dry, particularly perches. The enclosure must also be **well ventilated** to prevent the overgrowth of bacteria and fungi. The use of axial fans can further improve ventilation.

VISUAL SECURITY: Although chameleons are predators, they are also prey to a variety of species in the wild. **Careful cage placement** in a quiet, less active part of the house is recommended. Also minimize rearrangement of cage furniture. Chameleons also require protected, hidden spaces to feel safe and to minimize stress.

- The use of live, non-toxic, sturdy **potted plants or small trees** serve as natural visual barriers while adding humidity and providing climbing pathways.
- A dense plant layer in the middle of the cage should allow your chameleon to hide its entire body from view and to also block UVB rays from above.
- Commonly used plants include weeping fig trees, umbrella trees, and pothos.
- It is important to properly clean live plants to remove pesticides before placing them in the habitat.
- Cover the tree base with plastic or gravel to prevent insect prey from consuming fecal-contaminated soil.
- Artificial plants can also be used and are easily disinfected.
- Create a complete network of branches in the cage that will allow access to heat and UVB basking, sleeping, as well as drinking and eating.
- Silk plants are not recommended as they are not water proof, and may contain materials unsafe for reptiles.
- Provide chameleons with suitable perching areas behind the plants.
- Large chameleons will require supplemental natural branches or wooden dowels.
- Branches obtained from the outdoors must be cleaned and should be obtained from non-toxic trees.

LIGHTING: Ultraviolet-B radiation simulates the sun and is necessary for many normal behaviors, vitamin D₃ production and processing of dietary calcium, as well as reproduction. Many UVB sources should be placed within 30 cm (12 in) of the chameleon, though newer mercury vapor bulbs may be better placed at further distances. Beware that glass and plastics filter out the healthful UV rays. Unless a UV meter is used, UV bulbs should be changed every 6-8 months. Chameleons also require access to unfiltered sunlight for at least several hours a week when weather permits.

OUTDOOR HOUSING: When weather permits, allows your chameleon to bask in natural sunlight. The enclosure should provide access to sun, shade, and an appropriate temperature gradient. Plastic screening is not sufficient to keep out animals like cats, raccoons, or opossums. Hardwire wire is recommended to prevent both escape and predator attacks. **NEVER** place a chameleon outdoors in a glass or plastic aquarium, where temperatures can quickly exceed 60°C (150°F).

Diet

INSECT PREY: All chameleons require a **variety of insects**, including crickets, wax worms, silkworms, meal worms, king meal worms, superworms, silkworms, goliath hornworms, Madagascar hissing cockroaches, dubia roaches, and beetles. Supplement the diets of feeder insects for several days prior to feeding. If crickets are smaller than the mesh spacing, offer insects within opaque cups at least 15 cm (6 in) deep. Hang the cup below a favorite perch so insects can be seen by the chameleon.

Whenever possible, supplement the chameleon diet with wild-caught insects, such as flies, bees, grasshoppers, locusts, cockroaches, non-Monarch butterflies, caterpillars, stick insects, arachnids, snails, and moths. **AVOID** brightly-colored species, including fireflies, which can be toxic. Also avoid collecting insects in areas where pesticides are used.

While panther and Jackson's chameleons are exclusively insect eaters, veiled chameleons eat **plant material** (during the dry period in the wild), insects, and even small lizards. Although many individuals may not show interest, you can also offer veiled chameleons small amounts of cut-up leafy greens, bits of broccoli, grated carrots, as well as blossoms and leaves, like dandelions or hibiscus,. Do not offer fruits.

FEEDING INTERVAL: Feed adult chameleons three to five times weekly. Juvenile and gravid (egg-bearing) chameleons should be fed daily.

CALCIUM SUPPLEMENTATION: A calcium supplement without vitamin D₃ can be administered to adult males once weekly; adult females two to three times weekly (egg-laying females should be given supplementation more frequently), and to juveniles with every feeding.

Behavior

Most chameleons do not enjoy being held. Frequent handling can result in significant stress, which may negatively impact their general health of the animal. If you must hold your chameleon, allow the lizard to crawl onto your hand. When returning the chameleon to its cage, place your hand underneath a branch.

Reproduction

Most chameleons lay eggs. This is an awkward process the ungainly female, which produces a large clutch of eggs which fill the body cavity. Most chameleons do not lay eggs in trees, so the female must find a suitable spot on the ground. Then use her mitten-like hands to dig a hole as long as the length of her body. If an acceptable site cannot be found, she may not lay. Females can lay infertile eggs when a male is not present.

Jackson's chameleons internally incubate their eggs and give birth to up to 50 live young that are 2.5 cm (1 in) long at birth. Clutch size ranges from 2-60 eggs.

Common medical problems

- Dehydration
- Metabolic bone disease
- Obesity
- Parasites in wild caught
- Reproductive problems usually related to result from dietary and husbandry mismanagement

References and Further Reading

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