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## CARING FOR YOUR CHAMELEON

**GENERAL:** Chameleons are unique lizards native to various locales and habitats, from lowland jungle to mountainous terrain. They require warm to hot temperatures and artificial sunlight to thrive in Oregon. They are unusual in many respects: their eyes move independently, their feet have toes fused together to create “pinchers” which grab onto branches, and their tails are prehensile. They eat by extending their sticky tongue far out of the mouth to snag their insect prey. Their small to moderate size, unusual appearance and good personalities make them popular reptile pets.

**FOOD:** Chameleons are insect eating lizards; veiled chameleons may also eat a few leafy greens. They may dislike eating on the ground and often prefer food that can crawl up onto the branches where the lizards spend most of their time. Silkworms and Phoenix worms are fairly nutritious. Crickets and Dubia roaches may be used as food also (feed these insects a high calcium “gut loading” cricket diet (T-Rex Calcium Plus or Mazuri are the *only* products proven effective) for 2-3 days prior to using crickets or roaches as food, or they will be calcium deficient... the loaded insects should be consumed within a few hours when put into the lizard’s cage, as they eliminate the gut loader rapidly. Remove crickets’ rear legs prior to feeding them to your lizard, as the rear legs are spiny and may cause mouth injuries. Mealworms, waxworms and some roach species are nutritionally poor; use these sparingly if at all. Earthworms are nutritious but may be rejected; rolling earthworm pieces in ground-up reptile kibble may make them more palatable.

Vitamin + mineral supplements should be used *sparingly*. Achieving a healthy balance with supplements is difficult. Never mix products; use a balanced vitamin-mineral powder with many vitamins + calcium and phosphorous provided (not just calcium and Vitamin D), and put a tiny pinch on the food once weekly, no more. Reptocal and Reptivite are 2 brands which offer balanced formulations. Overdosing is a common problem with using these supplements; it is safer to dose conservatively. Another option is to powder the insects with a reptile food such as aquatic turtle food kibble that has been ground to a powder, which will provide safe vitamin and mineral levels. Crickets may be fed softened reptile food as well, prior to gut-loading them for calcium.

**HOUSING:** Try to duplicate natural conditions. Large terrariums are best.. The most important factors are heat & light. The ideal daytime air temperature is 77-84<sup>0</sup> F for cooler climate species such as Jackson’s chameleons, and up to 85-95<sup>0</sup>F for lowland tropical species such as Veiled chameleons. Monitor cage temperature at several spots with good mercury, digital, or dial type thermometers (NOT a color strip or temp gun), and in the shade away from all heat sources, to get accurate readings. Thermometers should be shielded from heat & light by a solid object such as cardboard or wood to read properly. Improper air temperatures can cause stress and failure to thrive. In the Pacific Northwest the cage sides and top should be mostly solid, not screen, in order to trap heat and humidity. A reptile heat pad placed under the terrarium is a good heating method. Hot rocks provide heat but must be covered to prevent direct contact which may burn the lizard. Heat lamps are useful but must be at a safe distance to prevent burns (at least 18 inches usually). Heat lamps must *not* be bright if used at night; the best are lightless ceramic-coated lamps; dim purple or red coated night bulbs may also be used. The terrarium can have a slightly warmer side in the upper temperature range, and a cooler side in the lower temperature range; otherwise attempt to keep the air temperature at the middle of the pet’s range.

Lighting requires special attention. You must provide both visible (white) light and ultraviolet light in the 280-320 nm spectrum (called UV-B). This mimics outdoor sunlight which chameleons require. Our climate provides too little sunlight, and window glass or plexiglass filters out most of the sun’s UV rays. Lack of proper lighting causes poor or picky appetites, poor growth, and bone disease. You can provide correct lighting with a fluorescent “full spectrum” light. Reptisun (made by Zoo med) and Arcadia provide strong UV levels; other brands include Reptile Daylight (Energy Savers Unlimited), Reptiglo, and Reptasun (by Flukers). These are all fluorescent tubes; in general no regular incandescent bulb produces good UV light. These lights have a limited effective lifespan and should be changed every 6-8 months when in use. A good day length is 12-14 hours of light.

These lights won't cause burns, and they need to be close to the pet to be effective, usually closer than the length of the light bulb. (A 24 inch tube should be within 18 inches of the lizard to be effective). Bulbs smaller than 24 inches (including coils) are usually too weak. Tall narrow cages require a fluorescent bulb that runs lengthwise down the side of the cage, to keep the UV source always close to the lizard. Avoid plastic or glass barriers between the light and the pet (these block UV). Minimize excessive shady areas where the animal can hide from the light; instead provide sheltered hiding spots where the UV light still reaches, or cover part of the transparent cage wall with paper to allow the animal to feel hidden while still basking. Call us for light sources.

More recently incandescent (screw type) bulbs have appeared which *do* produce strong UV levels. These are mercury vapor lamps; they produce high UV output and heat, so must be kept at a safe distance (at least 18-24 inches away). Their effective life span is uncertain; to be safe replace them yearly. These devices typically cost \$45-\$100, and when shut off must have a "cool down" period before they can be turned back on. (Other "full spectrum" round bulbs which cost less and require no "cool down" cycle are simple light bulbs, and do *not* produce good UV output.) Used properly, vapor bulbs can light a tall narrow cage from on top of the cage, as they project UV light further than fluorescents. To keep heat in, the bulb will need to be sitting directly on the cage top, shining through a small opening in an otherwise-solid top. Prevent the lizard from climbing within 18 inches of the light to avoid burns.

A small water bowl provides drinking water, although chameleons may drink sparingly. Some will take dewdrops if the cage is sprayed with water. Do not allow prolonged soaking and defecating in the water, as this contaminates the water source and may also cause skin infections. Artificial turf is a good cage bedding which can be cleaned and reused. Sand, gravel, corn cob, walnut shells, etc. are harder to keep clean and may cause intestinal blockages if eaten. Always provide branches (without splinters) for your chameleon to climb on; these lizards do not like being on the ground.

#### **COMMON DISEASES:**

**Osteodystrophy (Rickets):** A calcium deficiency usually due to poor diet and/or too little UV light. Symptoms include weakness, tremors, soft jaw, swollen or crooked legs. Treatment is via injectable or oral calcium, and correction of diet and lighting.

**Limb fractures:** Due to trauma (falling), or secondary to soft bones (rickets). The limb is usually splinted. Correcting diet and lighting is critical.

**Stomach or bowel blockage:** Chameleons may develop blockages from swallowing bedding such as bark chips, sand or gravel, but this is uncommon unless they are forced to eat prey on the ground. Small amounts of bedding may be passed with the aid of oral mineral oil. Severe cases may need surgery to remove the obstruction. Cool temperatures also slow the bowel and increase risk of blockage or constipation.

**Heat burns/skin infections:** Unprotected hot rocks, heat pads or heat lights can cause burns. Burned skin often becomes infected. Branches with splinters may cause foot infections when the lizard grabs the branch; be sure all climbing apparatus is free of splinters or spines. Treatment: for mild infections, chlorhexidene or Betadine solution applied 2-3 times daily for 5-10 days may be adequate. For severe lesions, dead tissue may need surgical removal followed by oral antibiotics. Correct the habitat also.

**Mouth and respiratory infections:** These are usually caused by normal bacteria which take advantage of a stressed or weakened lizard; underlying factors such as cool temperatures or imbalanced diets often play an important role in causing these illnesses. Mouthrot causes red swollen gums and sometimes pus, odor or drooling. Cool air temperatures or mouth injury are common causes. Cricket rear legs are spiny and may cut the delicate mouth tissues; ideally remove the rear legs before feeding the cricket to your lizard. Tongue infections cause swelling or paralysis of the tongue; the lizard may try to eat but the tongue won't extend out of the mouth as far as it should, making eating difficult. Respiratory infections can cause mucus discharge in the mouth or nose which may resemble mouthrot, but the gums are usually normal. These diseases are treated with antibiotics and correction of diet and environment.

**Intestinal parasites:** Various parasites are found in chameleons. Intestinal worms are probably the most common; when severe they can cause diarrhea, weight loss, straining to defecate and even colon prolapse (bowel protruding from the anus). Diagnosis of intestinal parasites is done via examination of a fresh (within 24 hours) fecal sample. Treatment with appropriate medication, along with thorough cage cleaning, eliminates the parasites.

**Egg binding:** Female veiled chameleons may produce large numbers of eggs more than once a year; some may refuse to lay the eggs, either due to lack of suitable laying sites or due to inability to lay them. Retained eggs may be reabsorbed; if not they must be laid or surgically removed. Suspect egg production in a female veiled chameleon who suddenly looks fat through the belly, especially if her appetite is slowly decreasing. Encourage egg laying by providing warm air temperatures (85-95 F) and a laying box, accessible from above via a branch, and filled with at least 8 inches of moistened sand (this will allow digging of a tunnel without it collapsing). Female chameleons dig a tunnel, turn around and deposit the eggs within; the eggs are not fertile unless she was bred. Repeated frequent egg production can drain nutrition from a female chameleon; consider spaying her if she produces eggs more often than twice yearly.

**Appetite loss:** This often results from husbandry stresses (low temperatures, inadequate UV light, short day length, noise/disturbances around the cage, etc). Illness such as infection can also reduce appetite. Treatment includes correction of diet and environment, and treating disease if present.