



THE CHAMELEON ENTHUSIAST

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Chameleon Owners Manual

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Introduction

This care package has been compiled in memory of Dietriche, my first, and dare I admit, favorite veiled chameleon, who passed away on March 4, 2000.

Over the past few years, I have acquired many other endearing reptiles including three more veiled chameleons, an ambanja panther chameleon, a rainbow panther chameleon, a leopard gecko, a royal python, and a green iguana ... not to mention a few fur bearing pets. I have also become affiliated with "Reptile Rescue", an organization that rescues unwanted reptiles and places them in foster homes until they can be adopted permanently by a loving and responsible home. We are also committed to educating the public about reptiles and dispelling the many myths and stereotypes that surround them.

It was not until April 2000 that I decided to found my own organization dedicated primarily to chameleons. Hence, the Chameleon Enthusiast was born!

The purpose of this manual is to prepare the potential chameleon owner for the undertaking of such a commitment. I aspire to assist other people by answering their questions, and providing them with the information and resources that I have compiled over the years through research, observation, and talking to veterinarians and breeders.

You will not find information regarding the "natural history" or descriptions of varying species in this package. There are many wonderful books that already provide that. My goal is to provide the chameleon owner with the necessary resources, support and fundamental requirements necessary for your chameleon to flourish.

Chameleons have become very popular as pets. In response to this market, developments to improve their health and care have become available. There are now several veterinarians who specialize in reptiles, supplements that reflect a chameleon's dietary needs, even accessories to make your chameleon feel right at home! But most importantly, there are organizations like Reptile Rescue, and now, The Chameleon Enthusiast, who are dedicated to the ethical treatment of all reptiles and educating the public.

Remember ... chameleons may look "cute" and "cool", but they are not novelties to be taken lightly. It takes a lot of effort on your part to keep a chameleon healthy. These remarkable creatures demand 24 hour care, so if you like going away for the weekend, or plan to go away to University soon ... think again, another pet may be a better match for your lifestyle.

Please be responsible when committing to any pet.

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What Goes Into Making a Healthy Chameleon?

- ❖ Enclosure of the proper size and orientation. Vertical height for arboreals (tree-dwelling) as well as width and depth to enable proper thermoregulation.
- ❖ Sufficient humidity
- ❖ Water offered in a manner that can be utilized by the reptile
- ❖ Suitable & safe substrate (depth & type)
- ❖ Furnishings (logs, sticks, foliage)
- ❖ Proper heating & thermal gradients
- ❖ Proper lighting (day/night cycles , UVA/UVB light)
- ❖ Healthy food, of the size appropriate for the individual
- ❖ Proper cleaning and disinfecting of enclosure, substrate & furnishings
- ❖ Regular monitoring of enclosure & equipment to ensure proper maintenance
- ❖ Regular monitoring of reptiles to detect early signs of stress or ill health.
- ❖ Access as needed to an experienced reptile veterinarian for initial examination of new reptiles & exams & treatment as needed as problems arise.

1997 Melissa Kaplan from *"Reptiles: A teacher's Guide to their care and keeping in the classroom"*

Things To Consider Before Acquiring a Chameleon

Do you go away for weekends or are you planning any vacations? Do you have someone who will look after your pet? If so, do they mind handling insects, know what supplements they get and will they be around to turn on and shut off their lights?

In my opinion, chameleons should not be left unattended. However, some people feel comfortable leaving their chameleons for the weekend if they put the necessary lighting on timers and implement an automated watering system. I would recommend you either have someone you trust visit your chameleon every day to monitor the lighting and administer water. Remember ... heating, lighting and water are crucial to your chameleons survival!

Don't forget ... The Chameleon Enthusiast will care for your chameleon!

Points to ponder before purchasing a chameleon:

- ❖ Are you planning on going to University or moving? You must always think ahead before you commit to any pet.
- ❖ Are you prepared for vet bills? Are you willing to travel quite a distance to the nearest clinic that specializes in exotic pets? Do you know a veterinarian who treats chameleons?
- ❖ Can you afford to pay approximately \$10.00 a week (for one chameleon) for food (insects)?
- ❖ Are you prepared to clean your bug's habitat out twice a week? If not, the food you give them will become moldy and will make your chameleon sick, not to mention become smelly and unsanitary.
- ❖ Are you willing to provide your feeder insects with the proper nutrients? It can be quite time consuming and difficult finding certain ingredients.
- ❖ Can you afford light fixtures that cost over \$90, basking bulbs that cost at least \$14 each or the very necessary UVA/UVB light bulbs that cost \$45 each? (It is also important to note that UVA/UVB light bulbs should be replaced every 6 months and not just when they burn out)

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- ❖ Can you afford an outdoor structure for your chameleon, so it can enjoy the summer months outside (only when supervised, of course)? This is not necessary, but it is a nice perk for your pet! A small, secure birdcage work great!
- ❖ Can you afford other expenses like, calcium and multivitamin supplements?
- ❖ Are you willing to clean/sterilize you chameleon's enclosure at least one a week? If not, bacteria and infections can and will occur.
- ❖ Are you ready to take on the responsibility to create a stimulating, safe environment for your chameleon?
- ❖ Will you take the time to sterilize the aquarium, sticks, and only use pesticide free plants?
- ❖ Do you have other pets? If so, they must never come in contact with your chameleon while unsupervised. The stress produced by the presence of another animal can shorten your chameleon's life significantly. Cats are particularly attracted to crickets that may be moving around the bottom of your chameleon's enclosure.
- ❖ Does anyone in you household smoke? Your chameleon should never be exposed directly to any foreign fumes like; air freshened, smoke, perfume, paint, etc.
- ❖ Are you looking for an interactive pet? Chameleons cannot be roughoused, and are not suitable for children or anyone else who cannot respect their delicate nature. You can handle your chameleon and should if you want to tame it, however, remember that it requires 12 hours of light within its enclosure, so that leaves only a small portion of the day left to interact.

Where To Purchase Your Chameleon

Chameleons find their way to your local pet stores through various paths. Even though pet stores may display the animals in attractive settings, you must not only closely examine your potential chameleon physically, but you should inquire as to where it came from.

Remember ... you not only have the RIGHT, but you have an OBLIGATION to ask where your new chameleon came from! Don't support pet stores that do not take care of their animals or do not deal with reputable sources. Keep in mind that few stores use only one source and they usually combine good and bad methods of acquisition.

Common Sources:

❖ Professional breeder

In my opinion, this is the optimal source to acquire your chameleon. Professional breeders can be found at reptile shows, contacted directly, as well as supply large pet store chains. Connie, who owns "Arboreal Exotics" in Waterdown is an example of an excellent breeder who I have had the pleasure of meeting, who supplies many chameleons to large stores, as well as selling privately and exporting Internationally. If you are interested in purchasing a chameleon from Connie please call her at (905) 689-2916.

❖ Adoption

Adopt from an organization that works with people who no longer want their reptiles. Many reptiles are dropped off at local pet stores, by owners who are tired of them, hoping to make some money off them, or who want to trade them in for something more novel, or because they have no where else to drop it off! Although some of these reptiles may be healthy, usually they have been neglected, hence they are no longer wanted and find their way back to the pet stores. You will also be unaware of any health complications or behavioral traits. I see countless chameleon with severe MBD (calcium deficiency) dropped off at pet stores, where the managers try to resell them for \$150 and up! If that was not irresponsible enough (selling a sick animal) some actually take them home to breed them. I would recommend offering to adopt an animal in this state, but would not offer to purchase it. It will simply add momentum to a market that supports this kind of behavior. For more information about adoption please contact Reptile Rescue or the Chameleon Enthusiast.

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❖ People who breed their chameleons with no knowledge

People often breed their own pet chameleons for “fun” or to try to make a few fast bucks off them or it happens by accident!. Generally speaking, they have no idea of how to care for chameleons and are not conscientious of bloodlines. Most pet stores will readily offer to purchase reptiles from ANYONE, which is a practice which perpetuates breeding chameleon for “sport” and “quick cash”.

❖ Wild caught

Most wild caught chameleons are illegal. Professional breeders sometimes have to use them to “freshen up” their blood lines, however, we are now cultivating a large enough supply of captive bred chameleons to prevent this practice (except with the more exotic species). Imagine the stress a chameleon would go through being captured and transported out of its natural environment. Only a professional should even deal with a wild caught chameleon, as they must be treated for parasites and various diseases.

What To Look For When Purchasing A Chameleon

Keys to identifying healthy chameleons:

- ❖ Good size (relative to the others hatchlings). When comparing, ensure they are from the same clutch or you could be comparing hatchlings of different ages!
- ❖ Eyes must be open at all times. Chameleons NEVER “nap” during the day. It is normal to see a chameleon resting/lounging on a branch, but it should still appear alert. Closed eyes except during the night time hours is always a bad sign. Chameleons react to light, so if you shut all your light off during the day to make it dark, they may assume it’s nighttime and go to sleep.
- ❖ Plump in appearance, signifying hydration and a healthy appetite.
- ❖ Colour is not necessarily a good indicator of health. Color of vibrancy of a chameleon may better reflect their mood. Brilliancy is partly attributed to genetics (different morphs, phases, etc.) however, a drab or dark chameleon may be stressed or cold. These factors can lead to future health concerns.
- ❖ Smooth, even skin. Hatchlings shed often as they are growing very quickly, so it is normal to see a chameleon with dull or wrinkly skin (old skin forming on top) or with dead skin sloughing off. Just ensure there are no signs of an “incomplete shed cycle.” This may be symptomatic of their environment (humidity level), but it could also be linked to the metabolic cycle.
- ❖ Casque (point on head) should be straight. This is more of an esthetic concern than anything else. The casque for a veiled chameleon is an ornament used to attract members of the opposite sex and may not have any other significant purpose, although there is always speculation.
- ❖ Bones in arms/legs should be straight. NO lumps or bumps!
- ❖ Should be agile and have good balance (good grip).
- ❖ You may not have the opportunity to see your chameleon eat that moment, but hatchlings do eat every day and are usually very interested in food all the time.
- ❖ Feet should have well formed toes and nails.
- ❖ Chameleon should be well hydrated (puffy “cheeks”, round raised eyes and taunt skin).

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Keys to identifying chameleons that are not healthy:

- ❖ Wrinkly skin or lateral folds along the sides of the body, signifying dehydration.
- ❖ Cuts or abrasions.
- ❖ Black dots (mites/tics).
- ❖ Sunken or closed eyes.
- ❖ Any bumps.
- ❖ A chameleon that appears to be breathing with its mouth open. This is a sign of an upper respiratory infection! Do not however, mistake it for other possible behavior such as “mouth gaping” which is exhibited when a chameleon loosens its jaw and opens its mouth in order to cool down. This is a form of ventilation that occurs when the environment is too hot. The chameleon may also be in a defensive posture and about to hiss!
- ❖ Bones which look misaligned.
- ❖ Toes that are not divided properly or that are missing nails (sign of inbreeding).
- ❖ Thickening of the ankles or bumps along the spine (symptom of MBD).
- ❖ A chameleon that appears to be sleeping during the day (stationary, closed eyes).
- ❖ Lack of coordination (falling occasionally however can be anticipated).
- ❖ Inability to grip branches properly (weak grip).

IMPORTANT NOTE: Never purchase a chameleon that is lying down with its eyes closed during the day or appears to be breathing through its mouth!!!

Checklist: Everything You Need For Your Chameleon

Aquarium suitable for adult.

If purchasing a hatchling, only accessorize a portion of the aquarium so the little guy does not feel overwhelmed by vast space, OR purchase a small container to place inside the aquarium temporarily. Ensure its large enough so the chameleon can move around to “thermoregulate” (cool down/warm up).

A large bowl to keep insects in so hatchling can easily find food source.

Ensure the bowl is deep enough so the bugs cannot get out. The bowl should be wide and relatively shallow. Make sure it has a slippery finish, or the bugs can grip the walls of the bowl and climb out! It also helps if you use a transparent bowl so the bugs can be seen from angles.

Remember ... crickets can irritate and even harm your chameleon! When dealing with a hatchling especially, you must provide a constant and plentiful food sources and make it so they are easy to find. If the bugs are allowed to run freely and are not offered their own food sources, they can start to nibble on the soft flesh of your chameleon! NEVER place your chameleon in a small container with many crickets! The chameleon and the crickets should be separated!

To make it easier for your hatchling to get to the food source you have provided, keep the bowl in one spot and extend a vine or stick beside the bowl so your chameleon can climb down and make a selection! Make certain the vine or branch does not lead directly into the bowl or the crickets can climb out!

If a few stray bugs escape, don't panic. As the chameleon matures, he may in fact refuse to eat from a bowl, and prefer to “hunt”. Be observant! If your chameleon stops eating, you may want to try different ways of offering food, not just changing the variety.

Keeping your feeder insects in a bowl is also advantageous because, if they are not eaten, you can remove the bowl and continue to gut-load the bugs. It also makes misting enclosures much easier, as you can remove the bugs before you mist, therefore you will not rinse off the vitamins and minerals you dusted them with first!

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❑ Sterile branches and foliage.

Similar to birds, chameleons require branches of varying circumferences to exercise their feet! Branches should be slightly larger in diameter than the chameleon's grip, so the animal can walk and perch comfortably.

For hatchlings, it is sometimes difficult to find small enough branches, but a trip to a local craft store can solve this easily! There you can find grapevine wreaths and accessories which can be torn apart to furnish small twigs. Place the branches or twigs inside the enclosure crisscrossing each other to form little "chameleon highways"! Always make sure the grapevine or other accessories you purchase are not painted or varnished and are free from nails and splinters.

You can select your own sticks, as long as you ensure there are no sharp areas and you sterilize them! (bake at 350° in your oven!)

I recommend artificial foliage, as real plants are very difficult to keep hygienic. Water tends to become stagnant, crickets kick up the soil, and perlite (white balls in soil) are toxic to chameleons and unfortunately they are very fond of eating them!

Artificial foliage is also more versatile! You can glue them to the walls of the aquarium to produce a "canopy effect". Remember ... your chameleon is arboreal; he dwells in the treetops and needs privacy to feel safe and secure!

❑ An appropriate substrate.

I recommend AstroTurf, calcium sand or nothing. Anything else has the potential to cause impaction (blockage of the intestines if ingested). Stay away from wood chips or small stones, even if they advertise they are for chameleons!

Never use newspaper! The humidity will cause the paper to curl offering the perfect place for feeder insects to hide instead of being available for your chameleon to hunt!

❑ Feeder insects.

Ensure you have the appropriate size and quantity of crickets that is suitable for the age of your chameleon. Hatchlings are unable (or do not feel comfortable) eating large crickets or mealworms.

❑ An appropriate container for the feeder insects.

You will need to place your insects in a well-ventilated container and provide food and water constantly. Place empty egg crates in the enclosure to allow bugs to climb and hide from one another (they are cannibalistic)!

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A Watering system.

For hatchlings/juveniles, I recommend heavy misting and offering them water with an eyedropper. Other methods used for adults (ie. ponds) could be hazardous to small, uncoordinated babies who could fall in.

Light bulbs and fixtures.

You will require a UVA/UVB light bulb (I recommend a 5.0 Repti Sun, by Zoo Med) and fixture. A basking bulb (wattage depends on size of aquarium, should be between 60-100) and fixture is also required. The UVA/UVB fixture should be as big as possible and cover the majority of your aquarium.

Appropriate supplementation.

This is essential. I use a two-in-one (calcium and multivitamin) called "Miner-All" by Sticky Tongue Farms.

A humidity/temperature gauge.

Spray bottle.

Your Chameleon's Enclosure

Always use common sense. Remember the goal is to provide as close to a natural environment as possible.

More than one way to house a hatchling:

1. Introduce your hatchling to an adult sized aquarium immediately. When you accessorize the enclosure, only accessorize a portion of the aquarium so your hatchling will be contained to a smaller region inside the larger space.

For your hatchling to find food easily, purchase a small (approximately 8 Inch diameter top) terra-cotta planter without the bottom pan. Place all food items in the pot, with one or two vines or sticks leading down beside it, making it very accessible. Terra-cotta pots are cheap, natural in appearance and are heavier than plastic containers that can tip over easily if your chameleon grabs onto it! If they don't respond to this method try using a transparent container, which makes the prey more visible.

Placing food items in a separate container prevents the insects from hiding under foliage and ground cover. It also allows you to remove them before misting the enclosure (therefore preventing the mineral supplementation you have dusted them with from washing off). It also enables you to remove any insects that are uneaten so you can put them back to gut-load them, making sure they are well hydrated & nutritious when your hatchling eats them! (Tip: do not keep this container directly under the basking lamp It will kill the bugs very quickly) If your chameleon has a favorite branch, you may want to place the container underneath the branch so it can easily see the food items. If your chameleon does not respond to this feeding method, you may want to try using a transparent container to keep the bugs in so it can see them from any angle and not just when looking down!

2. You can also purchasing a "critter container" (small plastic container with a ventilated lid) for the hatchling and place it inside the aquarium (without the lid). This method has both pros and cons.

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PROS:

- The hatchling feels comfortable and safe. A large aquarium can be intimidating and cause stress due to the vast space.
- It is much easier for your chameleon to find food when it's confined.
- Since your chameleon is already in a confined area, the bugs can be placed in loosely. This is definitely the method to use if your chameleon is having difficulty finding the bugs in a container. It is very important that the insects will not bother your chameleon. To ensure this, place branches high off the ground so that your chameleon can escape them and only put a few in at one time!

CONS:

- Your hatchling will grow at an astonishing rate and will not like being confined to a small region for long! This will cause extreme stress it is forced to.
- Your chameleon requires a basking lamp and UVA/UVB light immediately. The UVA/UVB light may be too far away using this method.
- Your chameleon may overheat, as it does not have a large enough region to move to in order to cool down.

I recommend using the first method with chameleons of all ages due to the noted advantages. However, many chameleons enjoy hunting free-roaming bugs. Observe your pet and determine which method it prefers.

General Tips

- ❖ Beware of placing your enclosure near a window or near an indoor real or artificial tree. You may think your chameleon will enjoy looking outside, but it actually causes stress. At least 3 sides of your enclosure should be opaque, so your chameleon has privacy. If your chameleon can see a tree near its enclosure, it may try to get out to climb it and become extremely stressed. I house mine “near” windows, but ensure the blinds are down when it’s hot out. I like to give them stimulating things to look at, without causing stress. You will have to observe how your chameleon reacts to various stimuli.
- ❖ Leaving your chameleon near a window can be deadly! The sun will produce enough heat to cause a “greenhouse” effect especially if your chameleon is being housed in an all glass aquarium that has no circulation.
- ❖ Your enclosure should be on a stand (or desk, table etc.) so it is off the ground. Chameleons dwell in the treetops and like height. Ensure you purchase an appropriate stand for stability. Never place your enclosure too high, as it will make it difficult for you to access.
- ❖ Your chameleon may be able to see his reflection in the glass of the aquarium. As they are VERY territorial they can get very angry if they think there is another chameleon near by. To combat this reflection, you can purchase aquarium wallpaper (sold by the foot in the fish section!).
- ❖ If you have other pets, beware, especially regarding cats. Cats love to watch the bugs in the enclosure and tend to jump on top of the enclosure (especially if its situated near a window, that way, they get a better look to by sitting on top!). If you have a cat, keep the door closed at all times to whatever room your chameleon is in. I would also recommend purchasing a metal top, so it could sustain a cat jumping up by accident! They are also much more durable and cost the same.
- ❖ If you do not use substrate, you may want to place colored paper underneath the bottom of the aquarium, so your chameleon cannot see through the bottom. Mine became stressed when I stopped using substrate (they kept looking down at the glass floor trying to get out!).
- ❖ Never attempt to lift your chameleon up by grabbing its body and pulling him/her off a branch. Instead, let your chameleon come to you or slip your fingers (one at a time) under his/her feet. Pulling can easily break an ankle or wrist!

REMEMBER: *Your chameleon and its reaction to its environment is dynamic. It may notice or react to something immediately or a year later, so be observant and do not assume a particular variable is not a fault for a sudden reaction just because he has never reacted to it before!*

Lighting

UVA/UVB light and fixture:

- ❖ The BEST brand of bulb to purchase is: REPTISUN by ZOOMED, costing approximately \$45 each (should be replaced every 6 months, not when they burn out). There are many cheaper brands that do not produce a full UVA/UVB spectrum, therefore inhibit calcium and other vitamin absorption and metabolic functions. Chameleons require 12 hours of this light per day. They need this light in order to produce Vitamin D3, which enables them to absorb calcium properly from their gut. You want this light to be as close to the chameleon as possible and do not want anything preventing the light from hitting your chameleon (i.e. leaves, other accessories). Make sure any wires found in artificial foliage or flowers are not protruding. Place a favorite branch directly under the UVA/UVB light and not too much else around it, so your chameleon has no choice but to sit under it! This light fixture should be placed directly on the enclosure, at a diagonal angle. Water contact caused by misting will not harm it, but should be avoided.
- ❖ Get the longest fixture your enclosure will accommodate. This will ensure your chameleon receiving the necessary benefits. PLUS, the UVA/UVB bulb itself is the same cost for any size, so you might as well get the largest one you can!

Basking light and fixture:

- ❖ The best brand of bulb to purchase is a 50-100 watt BASKING BULB by ZOOMED. In the summer you may want to decrease the wattage, depending on the ambient temperature in your chameleons room. A higher wattage bulb is dangerous, even for large enclosures. You want to create a “basking zone” for your chameleon, not warm the entire area. There should be a temperature gradient of about 65-85. This light must be at least one foot away from your chameleon. Ensure there are no vines or anything else around the basking area that could allow your pet to climb up higher and possibly get burned. Chameleons will try to get as close to the heat as possible and do not seem to recognize the danger or discomfort of a burn! A basking bulb is shaped like a mushroom and has a silver, frosted rim. This type of bulb creates a specific ray of light, allowing one small zone to be heated. Stay away from other bulbs on the market that are clear blue in color and resemble a light bulb because they create dispersed heat that can overheat your pet’s enclosure.
- ❖ There are other cheaper bulbs on the market. Don’t be fooled by the price. They do not last more than a few weeks and do not produce a concentrated basking zone for your chameleon.
- ❖ ALWAYS have a spare basking bulb on hand. After all, they will not give you any warning before they expire. In a pinch you can use a regular light bulb, but this should

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be avoided, as they produce heat that will diffuse and heat the entire enclosure, not just a spot where your chameleon can visit to heat up.

- ❖ I recommend a dome fixture with ceramic socket. These fixtures may be placed flush on top of your enclosure, providing it is far away enough from your chameleon (minimum - one foot) and that you do not have any materials that will melt! You can also purchase a suspension device that allows you to lower and heighten the lamp as well as providing security. Remember, other pets or small children can easily knock the heat lamp down and could cause a fire!!! A chameleon itself can even knock it over if you let him hang out on a tree or vine in the room his enclosure is kept. Remember, they will gravitate towards anything they can climb and the cord attached to the lighting fixtures will be tempting!
- ❖ Remember, thermal burns (burns caused by being too close to the heat lamp) are the number one cause of death in chameleons.
- ❖ Never use a nocturnal bulb as a heat source (unless the room temperature drops below 65 degrees). Your chameleon NEEDS a cooling down period. This is what would occur in its natural environment. A constantly heated aquarium can make for a sluggish, unhappy chameleon who may not want to eat and whose metabolism and other physiological functions can be disrupted.

There is a magazine written for marine and freshwater fish enthusiasts called Freshwater and Marine Aquarium (FAMA for short) that has tons of mail-order pet suppliers in the back of the magazine. There are a few advertisers listed in the back of FAMA that sell the ZooMed UVB 310 bulb for under \$25.00 (not including shipping). In the second fixture, use a full-spectrum fluorescent bulb such as a Vita-lite (which can also be found cheaper through mail-order). Both of these bulbs must be replaced after 6 months, as their ability to emit true full-spectrum light diminishes over time.

Enlightening information:

It is critically important that the owner provide a heating lamp to create a basking spot of 90° to 105°F [32° to 38°C] at one end of the enclosure. The ambient air temperature in the rest of the cage should be in the 70's at nighttime, with a preferred rise to the 80's over the course of the day. Veiled chameleons that are not provided with appropriate basking spots will develop respiratory and/or digestion problems over time.

The wattage of the heat bulb required to create a basking spot of 90° to 100°F varies with the ambient temperature, but do not "guess" the temperature inside the enclosure. Purchase a good quality reptile thermometer and use it to determine the wattage needed. For example, if you purchase a 75 watt bulb, and it only raises the temperature under the basking spot to 85°F, move up to a 100 watt bulb, which should raise the temperature to 90° or 95°F. Different types of bulbs produce different results!

Accessories

- ❖ Use artificial vines and flowers found at any craft store. I would stay away from artificial berries, beads that simulate water droplets or anything else that may look like “food”. It is a good practice to offer your chameleon REAL plants to improve the air quality in its habitat and to simulate its natural environment as much as possible (See list of plants to use and those to avoid). When using real plants, beware of the tiny, white bits mixed into the potting soil (perlite) that look like Styrofoam. Hatchlings are drawn to these thinking they are tasty bugs and will eat them. Don’t wait for it to happen, place large stones over the plant’s exposed soil before introducing it to your chameleon! ONLY use real plants in the enclosure if you circulate them (i.e. use artificial plants one month, real the next). Water can become stagnant and breed bacteria, so I would recommend exposing your pet to a real tree near a window instead!
- ❖ You don’t have to buy branches from pet stores. Harvest your own, preferably in the winter when they are bare and easier to clean. Use sand paper to smooth out any splinters or sharp regions, remove bark and make sure it’s clean (make sure they are not too smooth or your chameleon will have difficulty gripping on). If the branches are small enough to fit, bake in your oven for about 2 hours @ 250 or wash them in detergent and scrub with a wire pad. Run hot water over it to soften the bark. Soak the branches in diluted bleach mixture but make certain you rinse and soak them in clean water to get any bleach residue off! A bird ladder makes a great accessory too! Found in the parrot/bird section of your local pet store, they come in a variety of sizes and are inexpensive!
- ❖ Beware of any plant you purchase that has been treated with insecticides! Don’t let your little guy run around on a pesticide treated lawn!
- ❖ A nice thing to put in your chameleon’s aquarium is a “veggie-clip” (found in the reptile section of any pet store). It is a suction cup with a plastic clip attached. You adhere it to the cool end of the aquarium wall and you can fasten a large leaf (romaine lettuce, leaf lettuce etc.) to it! This way your little one can nibble on fresh veggies if he desires!
- ❖ Remember, what you may consider as “esthetic” your chameleon views as functional. Make certain vines and sticks are strongly affixed. You can use a glue gun to affix artificial foliage to aquarium walls. The glue peels off easily, and this makes it possible to build bridges and fun things to climb for your chameleon! Never use a glue gun while your chameleon is in the enclosure. Always wait at least 15 minutes to ensure glue is dry and any fumes have dissipated. Make sure any stings of glue that have dripped are cleaned up, as your chameleon or insects could ingest them. Using a glue gun is a great way of making your chameleon’s environment stimulating and secure, IF you remember to clean out any extra glue and use it VERY sparingly, and wipe away any fine glue webs that are left behind. Keep it simple. If you create elaborate habitats, you will be less enthusiastic about disassembling it to clean it every week.

ENVIRONMENT

- ❖ Substrate. There are several options on the market, but only 3 are safe: Calcium sands, astro turf and nothing at all. I do not recommend towels, newsprint etc. as insects will crawl and hide under it. Wood chips are good for increasing humidity, however, many incidences have been reported of chameleons ingesting them when hunting, leading to fatal results. It won't hurt to have "nothing" as substrate, chameleons are arboreal (they dwell primarily in the treetops) and its not often you will see them walking on the ground. In the winter, you may want to use something to add more insulation.
- ❖ Remember not to place branches or sticks to close to the basking lights. The basking light should be not less than 1 foot away from your chameleon. The first sign of a thermal burn is a light green patch on the skin, gradually turning black, usually on the casque (cone on head) as it's the closest area to the light. You may also see a small blister. If this appears, alter your light immediately and take your chameleon to a vet! If allowed, your chameleon will sit directly under a light, and unfortunately, does not seem to "learn" if they have been burnt already. BEWARE thermal burns and Calcium deficiency are the top 2 causes of death for chameleons.

Non-Toxic Plant List

Suitable for landscaping reptile and amphibian enclosures:

Common Name	Scientific Name
Abelia	Abelia grandiflora
African violet	Saintpaulia ionantha
Sweet alyssum	Allyssum sp.
Asperagus fern	Asperagus setaceus plumosis
Aster	Aster sp.
Baby tears	Helxine soleriolii
Bird's nest fern	Asplenium nidus
Boston fern	Nephorlepis exalta
Bottle bush	Callistemom
Bouganvillea	Bouhanvillea
Bridal veil	Tripogandra multiflora
Bromeliads	Aechmea; Bilbergia; Cryptanthus
Cactus, spineless	Astrophytum
Camellia	Camellia japonica
Coleus	Coleus
Corn plant	Dracaena fragrans
Creeping charlie*	Pilea nummulariifolia
Croton	Codiaeum sp.
Dracaena	Dracaena
Emerald ripple	Peperomia caperata
Eugenia	Peperomia caperata
Fuschia	Fuschia
Geranium	Pelargonium sp.
Hen and chicks succulent	Echeveria
Hibiscus	Hibiscus rosa-sinensis
Hoya	Hoya exotica
Iceplant	Mesembryanthemum crystallinum
Impatients	Impatients
Jade plant	Crassula argentea
Japanese aralia	Fatsia japonica
Jasmine	Jasminum officinale: J, grandiflourm
Lavender	Lavandula officinalis
Marigold	Calendula officinalis
Monkey plant	Ruellia makoyana

ENVIRONMENT

Mother of peral	Graptopetalum paraguayen
Natal plum	Carissa grandiflora
Painted nettle	Coleus
Palms	Areca sp.
Pampas grass	Cortaderia selloana
Parlor palm	Chamaedorea elegans
Peperomia	Peperomia caperata
Phoenix	Phoenix roebelenii
Piggyback plant	Tolmiea menziesii
Pilea	Pilea sp.
Pink polka-dot plant	H. ypoestes sang.
Ponytail plant	Beaucarnea recurvata
Prayer plant	Maranta leuconeura
Purple passion: purple velvet	Gynura
Spider plant	Chlorophytum comosum
Staghorn fern	Platynerium bifurcatum
Swedish ivy	Plectranthus australis
Tree mallow	Lavatera assurgentiflora
Umbrella plant**	Eriogonum umbrellum
Velvet plant	Gynura aurantaca
Wandering jew	Tradescantia albiflora
Warneckii	Dracaena deremensis
Wax plant	Hoya exotica
Zebra planty	Calathea zebrina
Zinnias	Zinnia sp.

* Not to be confused with another "creeping charlie," Glecoma heteracea which is toxic

**Not to be confused with another "umbrella" plant, Schefflera actinophylla which is toxic.

Source; <http://www.LLLReptile.com/plants.html>

Cleaning Your Chameleon's Enclosure

- ❖ I suggest using diluted bleach to clean the enclosure. Once you remove ALL the foliage, branches and debris, using a sponge, saturate the entire enclosure! Then, using a scouring pad (you don't have to use iron wool or S.O.S. pads, but plain abrasive pads found at any dollar store) scrub the enclosure. You will find sediments accumulate on the glass walls of an aquarium from the constant misting. Hot water and bleach should dissolve this. Glue also can be removed readily this way.
- ❖ Once the enclosure has been sterilized (not merely "cleaned") you must ensure it is completely rinsed! I use a bucket and clean sponge to soak up the bleach (your enclosure will be too large to simply pick up and tip over!) Use clean water to rinse and then absorb the water. Once you feel it is completely void of any traces of cleaning products, use your misting bottle to get into any small crevasses. Remember, if there are ANY cleaning products left in the enclosure, it can spell death for your chameleon!
- ❖ For the artificial foliage, I suggest placing them in your bathtub or basin and letting them soak in a diluted bleach solution. I then drain the water and use dish soap to give them a final cleaning. Once again, rinsing is crucial!
- ❖ I also suggest cleaning your branches, as there will probably be traces of fecal matter on them. Simply take a scouring pad and rub them down with hot soapy water.
- ❖ If you are using a bowl with air pump for your watering system, the water must be changed daily and the bowl sterilized at least once a week. You can use the same method; bleach and a scouring pad to remove slime/sediments that form a ring very quickly! Remember, chameleons tend to go to the bathroom in water, and insects fall in and die so you must ensure this method of providing water to your chameleon is clean at all times
- ❖ I'd stay away from ropes made of fabric, as they cannot be cleaned well enough.
- ❖ If you find stains caused by mineral deposits on the glass (caused by spraying) use some CLR.

General Information and Tips

- ❖ Even if your chameleon learns to drink from a rubber eyedropper (found in the reptile dept.), it will still have the innate desire to lick water droplets from leaves.
- ❖ The water you offer your chameleon should be cool to tepid. We enjoy cold water, but remember, would your chameleon get cold water in it's natural environment? There have also been recent studies indicating that you should only offer your chameleon bottled-water (or boil your own)!
- ❖ Chameleons are able to absorb a small amount of water through their skin. You must however, mist their environments at least twice daily. Use relatively warm water to increase humidity. By the time it is diffused into the air, its quite cool, so don't be afraid to fill your bottle up with "hot" water.
- ❖ Never spray with great force. Hold the bottle directly over the aquarium and spray lightly, concentrating on the walls and leaves.
- ❖ Always ensure your basking lamp is turned off or moved away when spritzing. The mist will rise and can come into contact with the bulb, causing it to explode! Please try to prevent this as loose glass can injure your chameleon.
- ❖ Avoid pools of water in the enclosure (caused by too much misting or spilt water). It will cause feeder bugs to die and will become unhygienic.
- ❖ Chameleons do absorb small amounts of water through their noses and skin!
- ❖ Mist them directly very gently to clean their eyes.

Watering Systems

Chameleons NEED fresh water daily! Some people rarely see their pets drink and some see them they drink all the time. It may take some time and experimenting to see which method your pet likes. One thing is for certain; one method should never be used exclusively and regardless of the method you choose, always continue to mist the environments at least twice daily.

The eyedropper method:

Some chameleons accept water from an eyedropper. Especially, if trained from a young age. Your chameleon may not “get it” for a while, but keep trying, they do learn! Hold the dropper about 5 inches away from your chameleon’s face, so it can see the droplets. You may let several drops fall gently on his “lip”.

The only catch to this method is that someone has to be there to administer the water. Therefore, it’s only a method that works as long as you are around to offer your pet a drink. You can purchase RUBBER (never glass, as they can bite them and injure their mouths) eyedroppers at your local pet or drug store.

Fill a small cup up with water and show the chameleon the water in the dropper, slowly dripping out. Your chameleon will be attracted to the droplets of water glistening in the light. Let a few drops fall on its nose if it does not respond. It may take a few times before your chameleon learns what you are trying to do!

Another trick is to mist them lightly, so they start to open their mouths, licking the moisture in the air and then start to drop water in their mouths slowly! You do not want to force water in. Remember they drink by lapping with their tongues and do not gulp water! As soon as they know it’s water, they will continue to move towards the dropper. If you see your chameleon tilting his head, nose to the ceiling, he is trying to drain the water he was collected in his gullet so give him a chance to do so before giving him more.

HYDRATION

The ice cube method:

Some people place ice cubes on the top of the enclosure, and allow their chameleon to drink while it melts, however, it does not provide a constant source of water. You can also place ice cubes in a large plastic cup with a small hole in the bottom, creating a slow drip. You must also provide a catch basin for the water dripping down into the enclosure.

The only catch with this method is that you **MUST** ensure there are branches near enough to the water droplets so your chameleon can reach them. You will also want to ensure they can't get too close to the basking light! Make certain you use a container with significant weight to it, or your chameleon can knock it over and cause a mess. I also place a few large rocks in the container, to ensure a smaller chameleon cannot fall in and drown!

The spritzing method:

Chameleons are attracted to droplets of water suspended from leaves glistening in the sun. When you spritz the walls and foliage in your chameleon's enclosure, ensure there is enough to form drops for your pet to lap up. Misting the mesh screen lips of the enclosure is a good idea, as droplets easily form and suspend for a good period of time before dropping. Make sure your chameleon has access to the water, like a branch that reaches the top on the cool end of the enclosure.

Even if your chameleon does readily drink, allow it to follow its instincts and spritz the leaves heavily, so it has the opportunity to lick the water droplets off of them.

The pond method:

You can then either purchase a "reptile hammock" with a pond in it that hangs in the corner of your aquarium or just fill up a shallow bowl with water. You can purchase an air pump for about \$9 at any aquarium store. The air pump creates bubbles that seem to attract most chameleons.

DO NOT use this method for babies, as there is a significant risk of drowning. **ALWAYS** place rocks in the bowl or glue a thin stick across the bowl to aid your chameleon if it accidentally falls in.

The water must be changed daily and the bowl sterilized at least once a week. Remember, chameleons tend to go to the bathroom in water, and insects fall in and die, so if you are using this method you must ensure that the water is clean at all times!

Ponds: The Pros and Cons

Pros:

- ❖ Some chameleons love to drink out of ponds if there are air bubbles (created by an air pump, costing under \$10!). Without air bubbles chances are a chameleon will not respond to still water.
- ❖ They are esthetically pleasing.
- ❖ If you do have a pond, make sure it is swallow to prevent your chameleon from drowning. I suggest gluing a couple of thin sticks across the pond to give your chameleon something to grab onto, making it easier to get out of AND placing a large rock in the pond.

Cons:

- ❖ A pond develops a slimy ring very quickly and if it is not cleaned regularly it can become unhealthy.
- ❖ Difficult to change water if it's connected to a "reptile hammock" (popular type of pond).
- ❖ Bugs drowned daily.
- ❖ Chameleons tend to go to the bathroom in water.
- ❖ The air pump can be quite loud, air stones must be changes monthly (they dissolve and get clogged with sediments).
- ❖ There is a risk of your chameleon drowning. Do not use a pond if you have a weak chameleon, as it may not be able to pull itself out of the water if it accidentally falls in.
- ❖ For some reason my chameleons always got very relaxed in the ponds, and I caught one of mine so relaxed, that his head was submerged, and eyes closed! Luckily I was there to pull them to safety.

Showers

If your chameleon's diet and environment are correct, your pet should not ever become dehydrated. Some people enjoy "steaming" their chameleons on a weekly basis. If you decide to, use one of the methods described below. Be careful that the water/steam is not too hot. Excess heat causes dehydration. Try to think of how thirsty you would be if you spent some time in a Jacuzzi or sauna!

A chameleon is very delicate and half an hour in a hot bathroom can be very damaging. These are useful methods if you notice your chameleon has not desiccated for a while. Chameleons realistically do not become "constipated", this would be an example of a symptom of an underlying problem; impaction, incorrect humidity, temperature, insects etc.

What not to do:

- ❖ Never put your chameleon into the shower directly. There is no traction and the water pressure is too high.
- ❖ Never put your chameleon into a bathtub filled with even a few inches of water. They drowned very easily, not to mention get extremely stressed, as this is NOT a natural environment they would encounter and hate flat, smooth, open surfaces.
- ❖ Be careful of residues from; bath oil, soap, shampoo, bottles or bars of soap falling, etc., as these can all harm your chameleon.

What you can do:

- ❖ Tie a cotton rope (can braid old clean rags together) from your showerhead and let your chameleon "hang out" while you shower or bathe. Make sure no shampoo gets on them, and NEVER leave them! They can fall into the bathtub while trying to reach another part of the bathroom!
- ❖ Place your chameleon in a shallow sink with about 2 inches of warm water in it. Use a turkey baster or clean sponge to gently pour water over him. Make sure the water is replaced frequently as it will cool off quickly. If your chameleon is dehydrated or sick, soak him twice a day in **Pedia-Lite fluid** (clear, unflavored) found in the baby section of any drug store (once opened must be used within 24 hours).
- ❖ Place a large plant on the floor of your bathroom. Place your chameleon on the plant. Run a hot shower so the room fills up with steam.

What to Feed Your Chameleon

Variety is Key

Offering your chameleon a variety of vegetation and insects will promote a healthy appetite. Chameleons become bored with the same bugs day in and day out, so it is crucial that you “mix it up” and offer them a variety of insects! If not, they may go on “hunger strikes”; refusing to eat. Many insects you may be able to find around your house are toxic (i.e. ladybugs) or have been exposed to pesticides so beware.

Offering your adult chameleon food about three times a week keeps them interested in eating. If a constant supply is provided, they tend to get bored and stop eating. Hatchling/Juveniles will however, require a constant supply

Insects:

- Hissing and other various tropical cockroaches
- Hornworms
- Fruit Flies (wingless) and house flies
- Meal worms (tenibrio)
- Superworms (zoophoba)
- Preying mantice
- Silk worms
- Slugs
- Stick insects
- Waxworms (No nutritional value. Just high sugar/fat, like candy for your chameleon! Good for a treat.)

DIETARY GUIDELINES

Tips:

- ❖ Any insect you offer your chameleon must be bred as “food” to ensure quality and sanitation. Insects you may find outside may have been exposed to pesticides!
- ❖ Most pet stores do not “gut-load” their insects, as they are unable to have an extensive variety of fresh ingredients on hand. Therefore, it is that you do not offer them to your chameleon until you flush out systems and “gut-load” them for at least 24 hours!
- ❖ Never offer your chameleon a dead, unhealthy insect or one that escaped and you found wandering around the house. After all, they are what they eat! An unhealthy cricket will be dark in color, inactive, and dehydrated (wrinkled). Crickets that have ingested poison etc. may look fine initially, so discard any you “find” outside the bug cage or enclosure.
- ❖ Ensure you feed your bugs small amounts of food frequently. Offering them a large quantity will only lead to mould and rotting food items. If your bugs eat this, it can make your chameleon ill, not to mention producing an offensive odor! Remove any uneaten, shriveled wet/fresh food every other day. Try to spread it out. Layering it will only produce mold.

Bringing Your Feeder Insects Home

The store you acquire your bugs from will put them in a clear plastic bag, full of air and applicable substrate. Egg crates for crickets (they must be divided or they will eat each other), woodchips for waxworms, or oatmeal/wood based bedding (anything they can burrow under) for superworms/mealworms. Ensure you keep them at room temperature! Do not place them in the trunk or leave them in your car on a hot or cold day. They can die in a matter of minutes! You can bring your own container and ask the salesperson to place them directly in there. That way, you can be prepared and have food and water for them, especially if you anticipate a lengthy drive.

Once home, transfer your crickets into a “critter container” you can find at any pet store in the small animal reptile department. This is a clear container with porous removable lid. I would not recommend making your own container out of a large ice cream or Tupperware container, as they are not the correct dimensions. Your crickets need SPACE or they will die from one of the following; being smothered, not being able to find water or food, being eaten. Other options to accommodate your feeder insects are; large Tupperware containers which you can drill holes in for ventilation.

Pour your bag of bugs directly into the container. Then, place some clean egg cartons in with them (make sure you ask all your friends to save their empty egg crates). Then flush out their systems and “gut-load” them for at least 24 hours prior to feeding them to your chameleon.

“Gut-Loading” Your Feeder Insects

“Gut-loading” refers to what and for how long you feed the bugs you offer to your chameleon. Most insects are under-nourished and dehydrated when you purchase them. Remember, your chameleon “is what it eats” and they will not obtain any nutrients from a meal like that! Your insects (pending on type) will require a very specialized menu in order to survive and thrive.

Quick recipe for “gut-loading” your bugs:

Week 1: Collard greens, oranges, tropical fish food flakes

Week 2: Mustard greens, melon, crushed dry iguana diet

Week 3: Crushed alfalfa pellets, carrots, crushed high quality cat food

Contrary to popular belief, captive insects are extremely delicate and will die in a matter of hours if the conditions are not optimal! This is not only costly but also unsanitary, so follow the guidelines below to prevent unnecessary death.

Guidelines:

- ❖ You can place superworms in the same container as crickets; however, you **MUST** keep waxworms in a separate container and keep them refrigerated! Other insects will **EAT** waxworms, and unless chilled, they can pupate into moths!
- ❖ I would suggest keeping your superworms in a separate container, as they are burrowing bugs, they can be difficult to find when mixed in with crickets, not to mention the risk of crickets escaping when you are moving all the egg crates around trying to find them!
- ❖ For worms in general, any deep container will do. No lid is needed, as they cannot go anywhere. Use a lid however if you have a curious cat who might tip the container over! Just ensure there are lots of air holes in the top.
- ❖ Make sure you have enough egg crates and other applicable substrates for the bugs you bring home. Ask the salesperson for “bedding” when getting waxworms or superworms. You will need more however, for superworms, as they need to “burrow”. You can use plain oatmeal or wheat germ.

Other Food Items

And so it goes for your bugs, whatever you should avoid feeding your chameleon, you should not feed your bugs! Here is a list of food items that are safe to offer your chameleon.

Dry:

Oatmeal
Wheat germ
Rice baby cereal, Gerber or Beechnut
Crushed alfalfa blacks from local feed store
Bee pollen
Monkey chow
Dried sea kelp
Dried egg yolk
Raw, unsalted sunflower seeds
Baby Parrot food

Vegetation:

Romaine lettuce
Escarole
Collard greens
Dandelion leaves
Bok Choy
Kale
Mustard greens
Carrots
Sweet Potato
Squash

Fruit:

Any citrus fruit (except lemons, as they are too bitter!)
Apples/peaches (not the seeds!)
Blueberries
Prickly pear cactus
Mango

DIETARY GUIDELINES

Food item tips:

- ❖ If it's not on the previous list, research it before you feed it to your chameleon. Things like peaches, apricots, spinach etc. have toxic portions to them.
- ❖ Most grocery stores have discount sections/shelves for old produce. Here you can find mangos, prickly pears and cantaloupe, grapefruit to mention a few for a under \$1 making it very affordable to feed your insects properly.
- ❖ Your chameleon will not eat a "piece" of fruit, as they do not really "chew". Offer pureed fruit or baby food in the following varieties: blueberries, apples.
- ❖ Never offer your chameleon canned/jarred fruits with added sugar or spices!

Baby food:

Baby food may be fed to sick reptiles or reptiles on hunger strikes. However, it is never advisable to force feed an animal unless absolutely necessary, as it causes tremendous stress. Baby food also has an unbalanced calcium/phosphorous level, which is unhealthy for chameleons, therefore should never be offered as the sole nutrient for a prolonged period of time. It also makes your chameleon lazy and they may stop hunting on their own. They also tend to become very poor hunters after being hand fed (they lose the ability to aim and coordinate their tongues). All fruit baby foods however, are good, like applesauce, carrots for beta-carotene and blueberries! There are techniques to feed your unreceptive chameleon insects if necessary (contact me to discuss).

Your vet may recommend special cat food instead of baby food. Keep in mind as well that you want to select a baby food that is high in protein like; veal, beef and broth. My chameleon always loved ham and egg casserole! To add extra protein, you can buy dried flies (in the fish section of your local pet store) and grind them up with a mortar and pestle and mix them in the baby food. You may want to add a small amount of liquid calcium (calcium sandoz) to thin out the mixture!

Supplementation

Supplementation	Brand	Frequency
Calcium (no phosphorous)	Repti-Cal	With every feeding
Multivitamin	VIOLITE by Tera	1 – 2 times per week
Two in One (Calcium and vitamins!)	MINER-ALL by Sticky Tongue Farms*	<ul style="list-style-type: none"> - Babes to ½ grown – daily. - ½ grown to sub-adults – every 2nd feeding. - Adults – every 3rd feeding

*Sticky Tongue’s Miner-All can be difficult to find. Ask your pet store to order it!

Note: Remember, too much or too little calcium/multivitamins can harm your chameleon!

Things You Should Never Do

- ❖ Never house two chameleons together. Even if they appear to be agreeable initially, they will become stressed and can injure or possibly kill each other (they have even been known to eat each other!).
- ❖ Never have your basking lamp closer than 1 foot away from your chameleon! If placed any closer it could result in thermal burns.
- ❖ Never have your UVA/UVB light farther than 10 inches away from your chameleon. The closer the better!
- ❖ Make sure you don't overdo it with plants and sticks. A chameleon needs a place of privacy but also "space".
- ❖ Never use "hot rocks". Many reptiles do not recognize when they are being burned. Just as a basking light can burn a chameleon, so can a hot rock. Unfortunately, they are not too smart when it comes to heat! Even if they do get burned, they will not "learn their lesson" and can keep going back hoping to get as close to a hot surface as they can! "Thermal pads" are good for many reptiles, but NOT chameleons, as they do not spend much time on the ground. Remember, chameleons require both a hot zone and a cool zone so they can adjust their body temperatures. Keeping them hot all the time will dehydrate them and cause a fast death.
- ❖ Never leave your chameleon outside unsupervised. Even for a second! It will be gone in an instant. They can move quickly when they are excited, and will be gone up a tree, or under a bush without you knowing. By the time you start looking in one spot, they will have moved to another in the opposite direction, and you have virtually no hope of finding him. Is it worth leaving your pet for an instant with this at risk? If you must leave, take your pet with you or you may never see him again. Even though they may appear to be basking, and relaxing, they become extremely stimulated when outside and will bolt to the nearest tree at any moment. Remember, they live to climb! Personally, I never let my chameleons roam freely, even if I am supervising them, as birds are a very dangerous threat as are pesticides and toxic plants.
- ❖ If your chameleon does get lost (it only takes a few seconds), it will become so camouflaged it will be like finding a needle in a haystack. Your chameleon will either die from lack of water, food, fall prey to a cat/bird or most likely lack of heat. Summer nights can be very cold and don't forget fall and winter, so don't risk it.

GENERAL CARE

- ❖ How do you prevent this? Simply, put your pet on your shoulder (hold onto its tail!) and take it for a walk! NEVER let your pet run around on the ground a bird could scoop it up, or get hit by a car, or could burn its feet on hot pavement.
- ❖ If you do take your pet with you, bring water (a small container and an eye dropper and spritz bottle). NEVER travel with your chameleon unless you are willing to purchase a large travel container, provide it with water and bring ALL the essential housing requirements.
- ❖ Make sure you come home before it cools down, or your chameleon will get cold. Remember, they should not go below 65 degrees!
- ❖ A good way of letting your pet enjoy the summer months is to either construct an enclosure or purchase a birdcage (at least 3 feet x 3 feet). I find this the cheapest and easiest method. It's also transportable and strong. Just make sure it is sitting on solid, level ground and preferably on a table, away from cats and other critters. Remember, chameleons like a bird's eye view and will not enjoy sitting on the ground in the middle of the backyard. They will feel very vulnerable.
- ❖ Ensure your chameleon cannot squeeze through the cage. This type of outdoor housing is only suitable for large adults. Smaller ones know how to angle their heads to fit through. You'd be surprised what a small space they can squeeze out of. They will also crawl around the perimeter of their new outdoor enclosure looking for a "way out". Ensure there are NO tears or gaps! Observe your chameleon, it may begin to rub his head against the metal trying to squeeze out. One of my Boys actually rubbed the tip of his casque off by attempting this. If the skin breaks, infections are a risk.
- ❖ Never use real plants that have been treated with pesticides. If you purchase a plant that has fertilizer or small white balls that look like Styrofoam mixed in with the earth, replant it, as your chameleon will try to eat these!
- ❖ Never leave your chameleon in his outdoor enclosure alone. You may be tempted, as the weather is so nice and you think you're doing him a favor, however, remember chameleons cannot regulate their body temperatures. They take on the temperature of their surroundings. As the sun moves through the sky, your chameleon will either get too hot or cold. Move the cage around, but never leave it stationary and unsupervised. It may start to rain, wind may blow the cage over, your chameleon could die in an hour if over heated or a curious cat may wonder by. Be responsible!!!

GENERAL CARE

- ❖ When constructing an outdoor enclosure, you can use fresh leaves from surrounding trees (see list of toxic plants to avoid). You can also use non-sterile branches ONLY outside, once inspecting them for bugs, thorns, splinters, fungus etc. NEVER bring these items inside and be sure to change them daily, as the heat will cause all foliage to wilt and render them useless. The heat, moisture and lack of ventilation can cause bacteria to form inside and your pet is in their for at least 12 hours a day! But its all right to use these non-sterile materials for a couple of hours outside when changed daily. Ensure your pet has a shaded area to retreat too so he may cool down, and a basking area to warm up in. You can weave leaves through a birdcage well, so accommodate this environment.
- ❖ Never pull your chameleon off a branch! It can be frustrating when you want to get your pet down from a stick or rope, as they are so slow moving and hesitant to release their grip. However, pulling your chameleon can cause stress and make it grip on tighter. A chameleon is delicate, and you can break an arm or leg in a second if you pull or twist them. To entice him down, slip your fingers under his hands and feet one at a time. Remember, holding and pulling his “body” will not reassure him and make him release his grip, as he needs his feet on solid ground first!
- ❖ Never house your chameleon in a high traffic zone. They require privacy. Stress will shorten their lives considerably.
- ❖ Never place your enclosure directly next to a window. They will be too cold in the winter and too hot in the summer. A sunbeam may appear to be a warm comfortable spot for your pet, but don't forget the “greenhouse effect”. Your aquarium will heat up and your chameleon will have no way of cooling itself down. You can place your chameleon in view of a window if you take care to close the blinds when it's too sunny or cold. You should always keep the blinds closed in the winter as your chameleon will seasonally change and react to the shortened diurnal cycle.
- ❖ If you see your chameleon walking around the bottom of his enclosure or scratching the walls of his enclosure, he may simply want “out” or there maybe something wrong. Ensure the temperature is all right. If this action persists investigate further. There maybe something irritating him, as this is not normal behavior. If you have a female, it is a sure sign that she wants to deposit her eggs!

GENERAL CARE

- ❖ Never put your chameleon in view of another, near a mirror or surface where it may see its reflection. It will cause extreme stress, as they are very territorial.
- ❖ Never try to get a chameleon to change his colors for you on demand. Any type of stress is detrimental.
- ❖ Never expose your chameleon to a group of people, or curious children. Chameleons are solitary, shy creatures. Share your chameleon with one individual at a time, under supervision.
- ❖ Beware of things like; fire places, hot stoves or open toilet lids. You get the picture.
- ❖ If you take your chameleon into the shower or steamy bathroom under your full supervision, remember that moisture is beneficial, but steam for too long or that is too hot will cause dehydration! Again remember, more is not better.

Female Chameleons

First of all, how can you tell a male from a female chameleon apart?

A male veiled chameleon will have little bumps on the backs of his heels on his hind feet. These are called, tarsal spurs. As they mature, males generally are larger and have taller casques and more pronounced gular crests.

A male Panther Chameleon can be easily identified by their dorsolateral ridge extension on each side of the head over the eyes to the snout so it looks like a shovel. Females have a smaller ridge. Females though are gray, light green or brownish depending where they live. Of course the color depends on things like breeding season, age, moods of the chameleons or the temperature of the area they are in at the moment.

Your female will lay infertile eggs a few times a year. How do you know when she is ready to deposit her eggs? The first sign is that she will stop eating. You will notice the bugs in her enclosure are not being eaten and that there is less fecal matter. You may then notice her crawling on the ground, or scratching at the enclosure. When you notice one of these indicators, place her in a large container filled with sandbox type sand, ensuring it is moist enough that she can dig a burrow and it will not collapse on top of her. The sand should be at least 1.5 feet in depth. They like to dig down deep and sit in the hole while depositing their eggs. If the sand is not deep enough or moist enough they will not lay them. The container should be deep and relatively wide (2.5 feet). DO NOT offer her food while in the container. The bugs will bother her and she will not want to eat anyways. Do give her heat and UVA/UVB lamps. Make certain the heat lamp is not too close or it will dry out the sand and may cause her to dehydrate. You may want to switch to a lower wattage while she is in a more confined enclosure. You can mist her and offer her water however, do not disturb her! Do not keep checking on her to see if she has deposited the eggs, she will require privacy.

At night, you may put her back in her regular aquarium. I do not recommend letting them sleep on the moist sand as it cools down considerably at night. At that point, you can run your fingers through the sand to see if there are any eggs. If not, repeat the procedure for a couple of days. Ensure you offer the chameleon water and give her liquid calcium orally daily!!!! This will help to keep her strength up.

If your chameleon does not deposit her eggs or only some of them, you can gently feel her belly to detect the presence of any eggs and take her to a vet immediately!! They may give her a drug called oxytocin that helps contractions. If that does not work, they will have to perform a C-section.

Female chameleons reach sexual maturity anywhere from 4½ to 5 months, but the occasional female may become ready as soon as 3½ months!

GENERAL CARE

Please note:

While your female is attempting to lay eggs it is crucial to administer water and liquid calcium and possibly some baby food. The eggs will absorb the majority of the nutrients she ingests, therefore weakening your chameleon considerably. If you wait too long, your pet can either suffocate (eggs keep developing and compress lungs) or she will become so weak she cannot lay the eggs or recover after the C-section. Nutrition after the egg laying process is very important as well!

It is very important that you are observant if you opt to choose a female chameleon. Once the onset of the above symptoms you only have a few days to provide your chameleon with the appropriate conditions and nutrients so she successfully deposits her eggs. If not, take her to a vet immediately!

GENERAL CARE

Chameleon Journal

Use this chart or develop your own to keep track of your chameleon's progress. I feel it is best to designate certain days of the week to administer multivitamins, that way you will not forget or over/under dose! Keeping a chart or journal is also a good way to track observations regarding your chameleon's appearance and behavior! I also recommend photographing them in order to detect changes in physical appearance.

Name:				Month:		Year:	
Day	Decication	Shed	Baby Food (fruit, veggies, etc.)	Multi-Vitamin	Calcium (Powder/Liquid)	Worms, Crickets, etc.	Other
1							
2							
3							
4							
5							
6							
7							
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Identifying and Preventing Common Medical Problems

The purpose of this section is to aid you in identifying a potential problem with your chameleon's health. The key is prevention and keen observation!

Note: *If you encounter symptoms you are concerned about that are not described in the following list below, please contact me or even better, your veterinarian!*

MDB (Metabolic Bone Disease)

Causes: Lack of calcium and/or lack of UVA/UBV lighting.

Symptoms: Thickened jaw line and/or ankles, bumps along spine, poor color, brittle/broken/misaligned bones, lack of coordination, weakened grip or tendency to fall.

Treatment: Liquid calcium daily to fortify bones (see your vet for dosage, based on your chameleons weight. You cannot reverse the effects you can only prevent further deterioration. Your vet may recommend a series of calcium injections. Calcium Sandoz is available at any drug store.

Prevention: The only way to prevent MBD is to ensure your chameleon gets both Calcium and UVA/UBV lighting (at least 12 hours a day). In order for the intestinal tract to absorb the calcium, it requires activated Vitamin D3 to be present. Vitamin D needs to be exposed to UV radiation (light) in order to become activated. This is why is curial to have full spectrum UV light in your reptile's environment!

GENERAL CARE

Thermal Burns

- Causes:** Chameleon able to get too close to his basking light.
- Symptoms:** Usually, you will observe a light green patch, accompanied with/or without a blister(s). The area then turns black and eventually sloughs off leaving a raw area prone to infection.
- Treatment:** Immediate professional medical care must be sought! Your vet may prescribe an oral antibiotic, topical compresses and or a cream called flamazine that is very occlusive and will sooth and protect the raw area while providing antibacterial properties. You must of course re-adjust your lighting.
- Prevention:** Ensuring the basking light is about one foot away from your chameleon! Make sure your chameleon cannot scale the walls or ceiling and hang under the bulb! If you see this occurring, use a stand to suspend your basking lamp so it does not sit flush on the aquarium ceiling. Make certain there are no sticks or vines/other accessories your little guy can climb to get closer! Trust me, it is their goal in life to try to get as close to that darn light as they possibly can!

GENERAL CARE

Egg Retention

- Causes:** A female chameleon, whether mated or not, will lay infertile eggs a few times a year. If you do not provide the appropriate conditions for her to deposit her eggs, she will retain them and die from either suffocation (eggs accumulate and compress lungs) or become so weak and dehydrated due to the eggs absorbing all the nutrients she manages to take in, as well as the stored reserves she will not survive.
- Symptoms:** When your chameleon wants to deposit her eggs she will stop eating, but continue drinking. You will notice less fecal matter and more bugs uneaten. She will either begin scratching at the walls/ground of the aquarium or start hanging out on the bottom. Symptoms of a very weak chameleon that is egg bound are: closed eyes, inability to eat or drink, tendency to sleep on the ground or lower branches in her enclosure, tends to breathe with her mouth open periodically.
- Treatment:** When you see this behavior put her in a container of moist sand and do not disturb her! While your chameleon is trying to lay her eggs, you should be giving her liquid calcium! After a few days, if she has not laid all of her eggs (you can gently palpate her belly and readily feel any) take her to the vet immediately! Pending on her state of health/strength, your vet may give her some calcium and Saline injections plus a drug that aids in starting contractions (oxytocin). As a last resort, she may have to have a C-section. After you observe the initial symptoms of your chameleon needing to lay eggs do not wait longer than 5 days (or pending on her health) to seek help! The longer you wait, the weaker she will grow and the less chance she will have of recovery.
- Prevention:** Keen observation! Some people opt to keep a container of sand in the enclosure all the time, just in case they miss the initial symptoms, however, most chameleons need a very deep, private area. My chameleon never used it when I offered her a container in her enclosure, and it took up a lot of space and the bugs burrowed in it and I did not want to risk my chameleon ingesting some of the sand while trying to catch a bug.

GENERAL CARE

Mouthrot (Stomatitis)

- Causes:** This is a bacterial infection, which settles into the gum tissue, palate or tongue. If left untreated it can invade the jaw bone. One important fact often overlooked by a pet owner is that mouthrot is not a disease itself, it is a secondary infection triggered by a systemic infection.
- Symptoms:** Stomatitis presents as yellowish-whitish plaques, or irregular blotches on the gums.
- Treatment:** A vet can show you how to work on it. Because stomatitis is a secondary infection, the reptile must be placed on a course of antibiotics. Broad-spectrum antibiotics are usually tried first. A culture is usually done to identify the organism at large. Any reptile that is sick needs to be kept warm and hydrated. For the duration of the treatment, the nighttime temperature should stay about the same as the daytime temperature. They may have to be hand-fed, and hydrated with Pedialyte.
- Prevention:** You must always take the time to evaluate why your chameleon got sick. Something must have happened to make it sick in the first place. Temperatures may not have been calibrated correctly, a new the enclosure and furnishings may have gone a little to long without being properly cleaned and disinfected, or reptile may have been under stress.

Hunger Strikes

- Causes:** When your chameleon stops eating for a prolonged period, this is referred to as a hunger strike. This can be prompted by seasonal change as your chameleon senses the fluctuating diurnal cycle (this is why I recommend your lights are on timers, to keep it consistent!). This can also be prompted by a lack of variety in your chameleons diet. You should initially rule out any ailments such as parasites or stress.
- Symptoms:** Symptoms are obvious, your chameleon shows no interest in food, but otherwise, looks healthy.
- Treatment:** Introducing a greater of variety into your chameleons diet, ruling out any ailments, keeping your chameleon's lighting on "timers" so they are not stressed by staying up to late, or by seasonal change. Your veterinarian may suggest an alternative food.
- Prevention:** Variety in diet and consistent lighting!

GENERAL CARE

Dehydration

- Causes:** Inappropriate delivery of water is the most common cause of dehydration.
- Symptoms:** Signs of low-level dehydration are easy to miss! In advanced cases, it can lead to loss of appetite, lethargy, sunken eyes/cheeks, wrinkled skin, and eventual death. A chameleon desperate for water may be seen trying to lick water off the ground.
- Treatment:** For a mild case, orally administer electrolyte solution (Pedialyte). You can also soak your chameleon in this (note, once opened the container must be used within 24 hours!). You should also heavily mist the enclosure and alter your water system. For advanced cases, your vet can inject saline solution subcutaneous.
- Prevention:** Correct husbandry! Kidney Failure; is the most common cause of death in captive chameleons. Probably a result of a general lack of overall quality of water delivery systems provided to captive chameleons. Kidney disease is detected through diagnostic blood tests.

Constipation/Impaction

- Causes:** Ingesting an object (i.e. wood chip, pebble, inappropriate sized insect, or substrate).
- Symptoms:** No fecal matter, chameleon attempting to go to the bathroom but not accomplishing anything. They tend to hang their “vents” over a branch and “go” in a designated area.
- Treatment:** Increased hydration, mineral or cod liver oil (orally once a week).
- Prevention:** Avoiding causes as noted above! Realistically chameleons will not become constipated” it is a sign that something is wrong (i.e. diet, humidity, etc.) and can even be a sign of something more serious like cancer or parasites!

GENERAL CARE

Respiratory Infections

- Causes:** Respiratory infections are probably one of the most common of all reptile ailments. Generally it is caused when a reptile is not being kept warm enough.
- Symptoms:** Symptoms of respiratory infection include; “gaping” of mouth, wheezing, gurgling, and bubbling from the mouth/and or nose.
- Treatment:** In its early stages, simply maintaining the animal at a constant, higher heat level, between 85 and 90 degrees, can clear a respiratory infection. If left untreated too long, pneumonia may ensue and prescription antibiotics required.
- Prevention:** Generally speaking, maintaining the correct temperatures.

Tounge Disfunctions

- Causes:** The chameleon could have a problem with his mouth, tongue or throat. This could be caused by a tongue infection, mouth abscesses, hypocalcaemia or vitamin deficiency. The infection could also be caused by puncture wound from enclosure or the sharp part of cricket leg!.
- Symptoms:** (a) Your chameleon misses food constantly, probably due to the fact that he cannot “shoot” his tongue properly.
(b) Your chameleon will not be able to retract its tongue. In sever cases it can be completely extended, and your chameleon will not be able to coil it back into its mouth.
- Treatment:** Seek Veterinarian treatment immediately. Your chameleon will become rapidly dehydrated and starve unless treated immediately. Missing the insects is often a sign of a deficiency in B vitamins (and sometimes vitamin A deficiency). A good supplement containing these usually helps within 1-3 days if vitamin deficiency is the reason.
- Prevention:** Proper enclosure, supplements, lighting and hydration/humidity.

GENERAL CARE

Sunken Eyes

- Causes:** Dehydration; attributed to by improper humidity level and accessibility of drinking water.
- Symptoms:** Eyes will be sunken, as opposed to full and round. Other signs of dehydration are lateral folds of skin along the sides of the chameleons.
- Treatment:** Increased accessibility to water and increased humidity. For immediate treatment, soak in pedialite solution (found in the baby section of any drug store) and administer orally as well. You can also offer your chameleon plants (hibiscus) and fruit/vegetable baby foods via an eyedropper!
- Prevention:** Proper humidity level, accessible water to drink.

Alternative Foods

A veterinarian may advise you to use alternative foods if your chameleon is severely ill or on a prolonged hunger strike. It must be stressed however, that force-feeding any animal, is extremely stressful and unnatural. We may be prolonging the animal's life, but, are in fact only treating a symptom and must strive to uncover the source of the ailment.

I believe alternative food items should be used as a last resort only, or as a supplement. No matter how hard we try to replicate the natural diet of a chameleon, we are certain to fall short. Alternative foods are not nutritionally balanced and have an improper calcium/phosphorous ratio. So be cautious, and ALWAYS consult with your veterinarian before trying any of these recipes.

FORCE-FEEDING vs. MANUALLY FEEDING

First off, let me clarify between **"force feeding"** and what I define as **"manually feeding"**. Force-feeding is rather invasive, characterized by "tube feeding", where liquid nutrition is channeled directly into the stomach through a tube. It can also be defined as forcing your chameleon's mouth open and squirting one of the liquid meals listed below into his mouth. If your chameleon is very ill or quite simply does not want to swallow the food, he will usually let you know! If your vet has opted to tub-feed your chameleon (this can only be done by a veterinarian) your chameleon may vomit afterwards. If you force your chameleon to eat a bug or baby food for example, if he does not want it, he will spit it out. Realistically, we cannot FORCE feed a chameleon unless it wants the food on some level, and we are gentle enough in our methodology for him to accept it.

Manually feeding is what I would define as "offering" your chameleon an alternative food due to some inability on its part to obtain it himself. For example, many chameleons suffer from tongue dysfunctions" (see medical red flags), which can be caused by straining or tearing the muscles in the tongue or an inappropriate level of calcium and UVA/UVB lighting. In cases such as these, the chameleon has little control over its tongue and cannot "shoot" or extend sufficiently to acquire a prey item on its own. Other examples would be when dealing sick chameleons or a chameleon who is on a hunger strike, and who is not responding to different varieties of insects.

GENERAL CARE

Some people supplement their chameleon's basic "prey insect diet" with these "alternative" meals, to bulk them up during the winter or as a means of adding variety. I would stress you consult a vet before offering your chameleon anything other than the basic diet. Meals other than insects contain an improper calcium/phosphorous ratio that is not good for your chameleon! So you may have to increase the calcium intake in your chameleon's diet by giving him a liquid calcium supplement (calcium sandoz). You may also get him hooked on the alternative foods and he may refuse to eat prey items in the future! Many ill chameleons who recover lose the use of their tongues as they get out of practice, and few owners will wait to see if they will regain its use before they starve!

Recipies

You can use a combination of the below ingredients to create a nutritional slurry for your chameleon that can be administered through an eyedropper!

- ❖ Ensure Plus – found at any drug store (the “plus” version has extra calories)
- ❖ Pulverized dried flies – found at any pet store
- ❖ Liquid calcium (calcium sandoz)
- ❖ Pedialite
- ❖ Baby food – use high protein varieties only (veal, & lamb!)
- ❖ Carrot baby food, apple sauce (for hydration)

Feeding Method

Place a drop of food on your chameleon's mouth and gently tug on your chameleon's gular crest. It may take a moment, but he will open his mouth and get a taste of the food. It takes coordination, but with practice, you will be able to drop food in his mouth between chews!

NEVER drop food down your chameleon's throat. You want to place it in his mouth or tongue. Doing anything else can cause your chameleon great stress or to choak!

Veterinarians

Just contact me if you require a Vet in another area. I have listings Internationally!

Your best bet is to have a Veterinarian refer you to the Small Animal Clinic at the University of Guelph. This is where interns and in-house Doctors specialize in exotic pets and have the most up-to-date knowledge and techniques. (phone: 519 823-8830) You do however need a referral!

Animal clinic listings

- ❖ THE LINKS ROAD ANIMAL & BIRD CLINIC
(416) 223-1165
41 The Links Road (Yonge & 401)
- ❖ THE ANIMAL HOSPITAL OF HIGH PARK - (Dr. Regan)
(416) 763-4200
3194 Dundas St. West (Toronto, ON)
- ❖ BURLOAK ANIMAL CLINIC - (Dr. Zenker)
(905) 827-1171
3060 Lakeshore Road W (Oakville, ON)
- ❖ BAY CITIES ANIMAL HOSPITAL
(905) 634-9088
3525 Fairview Road (Burlington, ON)
- ❖ CLAPPISON VETERINARY SERVICES (Dr. Chase-Payne)
689-8005
R.R.1, Waterdown, ON
- ❖ PLAINS ROAD ANIMAL HOSPITAL (Cherrie Rafuse)
(905) 639-9593
105 Plains Road E., Burlington, ON

Frequently Asked Questions

Q How much should my chameleon drink?

A Water is essential for your chameleon's health. Fresh water should be constantly available. Some chameleons are rarely seen drinking and others drink constantly. There are several methods of offering your pet water (see "hydration").

Q How much should my chameleon eat?

A Babies and juveniles have voracious appetites and eat anywhere from 20 to 30 bugs a day. They should have a continuous supply during the day. Chameleons are "opportunists" eaters, and will not over eat if they know there is a constant supply of food. They can over-eat, but it is not common. They tend to like to nibble all day. Keep a large amount in a bowl to make it easier for them to find/hunt. I put a wide, deep bowl full of dusted bugs at the bottom of the enclosure and use my glue gun to affix a few small twigs across and leading to the bowl for easy access! It is crucial to use a calcium supplement right from the start. As your baby chameleon matures, he/she needs to fortify his/her bones to accommodate the growth. Too much weight or quick spurts of developmental growth can lead to a weak infrastructure that will not sustain your chameleon.

Q Can I keep more than one chameleon in the same enclosure?

A Absolutely NOT! Chameleons are very territorial, solitary creatures. They will get extremely stressed and upset if housed together. They have also been known to eat one another so be particularly careful if you have an adult around a hatchling! My chameleons react differently to one another. One puffs up in a territorial display if I walk into the room holding another one. One of my others doesn't seem to care too much, as long as they don't get too close.

GENERAL INTEREST

Q Do chameleons require annual “shots” or need to be spayed or neutered?

A Chameleons do not require annual shots, and since they cannot be housed together, you do not need to neuter your males. You should however, consider spaying your female chameleon. Your female will lay eggs regardless of whether she has mated or not. If conditions are not “perfect”, she will retain the eggs and can become “egg-bound” and die. Therefore, it is always a good idea to do so, or get a male! Signs of a female ready to lay eggs are as follows: stops eating, scratches at bottom of cage, generally wants out!. At this point, place her in a deep, wide bucket/tupperware container. You should have about 1.5 feet of moist “sandbox sand” in it. Ensure it is moist, as they like to dig deep burrows and if the substrate is too dry it will collapse. Do not disturb her and do not feed her while in the bucket! Move her back into her enclosure at night and back in the bucket until she deposits her eggs.

Q Are chameleons affectionate? Do they like being stroked?

A Yes! They enjoy being stroked under the chin especially, with the grain of the ventral crest (move finger from nose to tail under the chin). My chameleons enjoy being swaddled in a blanket and gently stroked in circular motions.

Q Can my chameleon recognize me?

A Yes!

Q Do they eat vegetation?

A Most will not. If yours does not, it’s a good indicator that it is not getting enough water and is seeking it out via vegetation. This is fine, just ensure the plants you offer your chameleon are not toxic and implement another watering system.

GENERAL INTEREST

Q How can I tell if my chameleon gets sick?

A Many chameleons will continue to eat and drink even if they are seriously ill. Blood tests can be done to ensure the calcium/phosphorous levels are balanced, but are stressful for the animal, and are no a preventative measure. I suggest photographing your chameleon monthly so you can detect a change more readily in physical appearance.

Your chameleon's shedding cycle can indicate of health and internal functions, but more than often reflect environmental variables such as humidity & heat. Chameleons often go on hunger strikes, triggered by seasonal change or if they are bored with their food. This is not necessarily a sign that something is seriously wrong. Try offering your chameleon some new varieties of insects, and keep the blinds closed during the winter so your chameleon will not detect the shortened daylight cycle. Keep the room lights on during the winter months when its dull & dark. *Tip, put all the lights on timers! That way your chameleon is on a normal diurnal cycle! And they won't care if you sleep in and forget to turn their light on!

Chameleons often walk on the bottom of their environments scratching at the walls if they see a tree or if the temperature is not right (usually too hot) in their enclosures. Make sure these elements are O.K (i.e, temperature, humidity), before you investigate further into a possible illness.

Don't try "quick fixes" or so called remedies you can purchase at your local store. Take your chameleon to a veterinarian and have him/her properly diagnosed and treated. Remember, treating symptoms is not the same as treating the cause of the problem!

Note: A sure sign that your chameleon is ill is if it sits with its eyes closed during the day, or starts to breath through its mouth.

Fast Facts

Veiled Chameleons are classified as the following:

Family: Chamelonidae

Species: Calyptratus (veiled)

- ❖ Did you know that “Chameleon” translated means “little Lion”.
- ❖ A “Herpetologist” is a person who studies reptiles.
- ❖ “Husbandry” is the term used to describe all aspects of how we take care of reptiles.
- ❖ The ability to change color is not unique to chameleons. Many animals including fish, frogs and other lizards, have this ability.
- ❖ Chameleons have several kinds of pigment located with different cells in their skin. The pigment that is most responsible for most color changes is *MELANIN*. This is a dark substance contained in cells known as *MELANOPHORES*.
- ❖ When melanin particles are concentrated in one place inside the melanophores, the bright yellow and blue pigments in other skin cells can be seen. Then, a chameleon’s skin usually looks green. When the dark melanin spreads out within the melanophores, it covers up some of the other pigment cells. This causes the skin to appear black. Other movements can create stripes and spots of color!
- ❖ Chameleons are “*ectotherms*”, animals whose temperatures are controlled from outside their bodies.
- ❖ Chameleons react to heat and cold by changing color too. Unless they can increase their body temperature by absorbing heat from the sun, they stay the same temperature as the air around them. Without warmth, they cannot hunt, move, or digest their food. In the morning they squeeze their sides together and puff out their chins, flattening their bodies to create more surface area. Dark colors absorb heat better, so the side of the chameleon facing the sun becomes almost black, while the other remains its usual color!
- ❖ They often take place in response to changes in temperature, light, mood, and emotions. Changing color is also a way of communicating between other chameleons. If they are fearful or territorial, their emotions will evoke a particular color/pattern.
- ❖ Chameleons cannot camouflage themselves by matching their surroundings! Chameleons protect themselves by moving very slowly, and swaying back and forth as they walk to mimic a leaf blowing in the wind!

GENERAL INTEREST

- ❖ It is not unusual to see a chameleon eat the dead skin they out-grow, once it has been shed off.
- ❖ Chameleons do have taste buds!
- ❖ Chameleons have a poor sense of smell.
- ❖ Chameleons have ears, which are 2 tiny holes (not visible to the eye), which are located near the eyes. They hear vibrations in the air, which help them find food and stay safe from their enemies. They are almost deaf, but can hear tones and feel vibrations. Vision is their best sense!
- ❖ Chameleons have teeth to grasp onto food. Their teeth are also used to help them crush and kill their food. They may chew or swallow their food whole. They can also use their teeth for tearing chunks off and then swallow. Some chameleons hold the dead prey in their mouth for several moments before swallowing it.
- ❖ When a lizard is sick or has eaten something that does not agree with it, it may throw up. This is sometimes harmful to the lizard because they tend to become dehydrated when this occurs.
- ❖ Male veiled chameleons have nubs on the back of their heels called “Tarsal Spurs”. They also develop larger casques (the peak on the top of their heads) and are slightly longer in length.
- ❖ A chameleon’s vision is referred to as “*Binocular*”. Even though their eyes operate independently from one another, they see like humans do. Many other reptiles with eyes on the sides of their heads can only see a separate image with each eye.
- ❖ Chameleon tails are “*Prehensile*”. This means they can wrap around objects and grip them, just like the tails of many monkeys!
- ❖ Veiled chameleons have “*Zygodactyl*” feet. Toes are grouped in opposition to each other.
- ❖ Chameleons cannot re-grow their tails, like many other reptiles can.
- ❖ Most chameleons are “*Arboreal*” creatures, meaning they dwell mainly in the “trees” and are rarely seen walking on the ground unless preparing to lay eggs or hunting. There are some rare species that live most of their entire lives on the ground, under leaves!
- ❖ Chameleons are built for climbing. Their hands and feet develop sharp nails (never clip them) to grip branches. Chameleons can walk fairly well on carpeted surfaces, but do not like any surface where they have lack of traction, like a hardwood floors.

GENERAL INTEREST

- ❖ Many chameleons enjoy sleeping upside down, or in a corner, do not panic if you see this!
- ❖ Unlike most reptiles, chameleons have the ability to see in color!
- ❖ The outer layer of a chameleon's skin is made up of Keratin. Unlike human skin, this material does not expand as the animal grows. Chameleons must replace their outer skin layers from time to time.
- ❖ Unlike a snake, a chameleon will shed its old skin in patches. The entire process could take weeks! A baby will shed every few weeks, as it is growing quickly. An adult will shed every 4 months or so.
- ❖ When a chameleon is ready to shed, he will "puff up" in order to break out of the old skin. You will see him twisting around, rubbing against sticks, and even using his feet to try and pull the dead skin off!
- ❖ Never pull or pick at the skin that is shedding. It will fall off when it's ready and is not doing any harm to your chameleon. You will cause stress, irritation and infections if you start picking! If the skin has not fallen off, it means the underlying skin is too delicate and raw to be exposed, even if it looks tough.
- ❖ Chameleons are not social animals. They are extremely territorial and will display territorial behavior if they even see their reflection in a mirror!
- ❖ Chameleons of all ages seem to have difficulty perceiving variations in height/depth. Many hatchlings will dart off in any direction without warning and run right out of your hand if you are not holding on well to it. Be aware of this! Many chameleons will walk right off windowsills, tables, etc., so be very careful.
- ❖ A chameleon's shed cycle can be helpful when determining a good indicator of its general health. Keep track of how often your chameleon sheds in a journal, along with other variables such as when you give them supplements, food, change bulbs etc.
- ❖ A sure sign that your chameleon is sick, is if it is sleeping during the day, or has one or both eyes closed. Chameleons do not sleep during the day.