



General Husbandry of Captive Reptiles

Basic Biology

Reptiles are ectothermic which means that most of their body heat comes from outside heat sources. Reptiles also have preferred optimal temperature ranges (POTR), which are certain temperatures they need to be kept at to stay healthy. They are able to thermoregulate to some extent, so thermal gradients in their environment are important so they can move to one area to warm up and another area to cool off. Photoperiods are also important for health and reproduction. Many lizards have a light receptor on the top of their head called the pineal, or third, eye. Both the POTR and photoperiods need to fluctuate depending on the time of day and the seasons. Humidity is important for hydoregulation. Being able to reduce the amount of water loss from the reptiles' body will improve overall health (such as helping prevent kidney disease, a common and serious problem of captive reptiles).

Temperature

Reptiles require daily and seasonal temperature fluctuations. A primary heat source is used to keep a somewhat constant temperature within the enclosure (usually the main heat source in the house where the reptile lives). The secondary heat sources provide basking spots. Incandescent light bulbs or heating pads work well for this. Hot rocks are not acceptable for this purpose as they can easily cause burns. General guidelines for temperatures are 80-90° F during the day with a basking spot of up to 100° F. Night temperature should be cooler but not drop below 70° F. Some reptiles require brumation (hibernation) for minimum 10-week periods in the winter months with temperatures dropping to 35 - 59° F. Others just require a drop in their nighttime lows over the winter months. Sick reptiles cannot thermoregulate properly so must be monitored closely.

Photoperiod and Light Quality

A good guideline to follow for reptiles is 14 hours of light in the summer and 12 hours of light in the winter. Electric timers are an easy way to control this. Failure to decrease daylight in the winter months can result in reproductive failure, obesity and disease. Reptiles require ultraviolet light (UVB) to manufacture vitamin D3 in their skin. Vitamin D3 is necessary for the absorption of calcium into the intestinal tract. Insufficient UVB light causes metabolic bone disease. UVA light is beneficial for behavioral reasons. When purchasing UV lights they should be above the 300 nm range. Natural, unfiltered sunlight is very beneficial as well.

Humidity

Reptiles lose water through their skin and through breathing. They require proper moisture levels to help in ecdysis (shedding), egg laying and to prevent chronic dehydration. Vaporizers and humidifiers are helpful in large enclosures. Moisture boxes (or hide boxes) can easily be constructed from a small plastic container (with a hole cut

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out for a doorway) filled with moistened sphagnum or peat moss. These work well for small enclosures. It is very important to keep proper ventilation in the enclosure to prevent growth of harmful bacteria and fungus, however beneficial bacteria may also be found in humid microenvironments.

Housing and Substrate

It is important when constructing an enclosure that materials used are smooth and nonabsorbent to help prevent disease. Shredded newspaper, butchers paper, packing paper or artificial turfs are all acceptable substrates for in the enclosure. Cypress chips look nicer and help provide microenvironments with helpful bacteria similar to that found in the wild, however, may be more appropriate for larger reptiles. Many substrates have the potential to cause impactions if swallowed. Others are known to be toxic, such as some types of wood chips. Large tubs of water, when used as a substrate, can be very beneficial but need to be kept clean and at an appropriate temperature or skin infections leading to sepsis may occur.

Feeding

Reptiles can be carnivores (all snakes and most monitors), omnivores (turtles, tortoises, some lizards), insectivores (many lizards), or herbivores (lizards such as green iguanas and uromastix). In general, food items that are frozen can cause nutrient loss (such as thiamine in plant material) but can also be beneficial to parasite control (rodents). Freezing and cooking can both help improve digestibility of plant materials. However, herbivores should be fed mostly fresh, raw diet-specific greens and vegetables (Uromastix require a variety of seeds). Many lettuces have no nutritional value. Some vegetables contain iodine-binding substances while others have oxalic acid, which prevents calcium absorption. Many fruits are low in calcium and very high in phosphorus so should be fed on occasion or in very small amounts. There are some vegetables and flowers that are toxic to reptiles (avocados, eggplant, rhubarb, azaleas, daffodils and tulips). Herbivores also require a frequent calcium supplement. Omnivores and insectivores require special care as well. Insects used for feeding must first be 'gut loaded' which means feeding a high calcium diet 24 hours before being fed to a reptile. For carnivores, mice and rats raised in captivity are generally considered high quality food. However, if the mice and rats are not being fed properly then complications may occur in the reptile. In captive reptiles, feeding live prey increases the risk of injury to the reptile and causes unnecessary stress on the prey. Never feed wild caught food to reptiles as it may be harboring disease and/or parasites. In an emergency situation an omnivore may be fed a high quality dog food, a carnivore may be fed a high quality cat food and an herbivore may be fed leafy greens or a high quality pellet rodent food. Fruits are often helpful for herbivores or omnivores that are picky eaters or have become ill. Reptiles see color, so brightly colored fruit is enticing, plus fruit has a high water content. Remember, this is only for short-term use.

Stress

Improper nutrition and improper environments make up 90% of illness seen in captive reptiles. Simply dealing with the differences between a captive and wild environment is a huge stressor. Reptiles appear to be creatures of habit, and tend to do very well once a routine is put in place. Any changes in this routine can be very stressful, and stress contributes to ill reptiles.

Bibliography

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