

Reptile Habitats



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Enclosure

Housing the animal is usually the first order of business. Often the enclosure and its associated hardware and furnishings are the most significant costs associated with the maintenance of reptiles and amphibians.

The **size and dimensions** of an enclosure is the first consideration. No animal will thrive when cramped into inadequate space. It is important that owners of juvenile specimens of large species be aware of the requirements for the adult. For example, a 30 gallon aquarium is sufficient for a hatchling iguana, but a full grown iguana needs a cage the size of a walk-in closet.

For terrestrial species, especially tortoises, horizontal space is the most important, while vertical space is more important for arboreal species. In general, enclosures can never be too big. However, one needs to consider that very large cages may be more difficult to regulate with respect to climate parameters.

Reptile enclosures must be **escape proof**. Reptiles that escape are subject to many hazards, including chilling, predation by cats, dogs, or children, injury from household furnishings or appliances, and many more. In addition, some large species can injure children or pets, and can

pose a health risk by contamination of human living areas. On top of these factors, irresponsible owners allowing escapes of specimens give ammunition to groups that would like to ban the ownership of reptiles. All enclosure openings should be securely latched. Venomous reptiles (which should only be kept by professionals) should have locked access.

The enclosure should be set up and equilibrated prior to the introduction of the animal.

HABITAT KEYS

- SIZE
- ORIENTATION
- TEMPERATURE RANGE
- HUMIDITY
- LIGHTING
- SOCIAL ARRANGEMENT
- SUBSTRATE
- SANITATION

Furniture

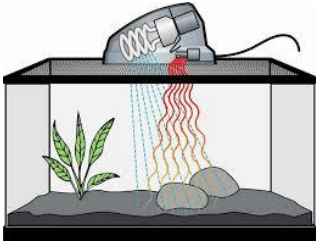
Climbing: Branches, ropes, vines, and ladders can be provided for forest dwelling species. Rocks, cacti, and branches can be used for desert dwellers.

Hiding: This type of furniture serves to reduce stress. Boxes, molded caves, rock crevices, burrowing materials, and artificial foliage can all be used to help reptiles feel safe.



Basking: A basking site (log, stone, or shelf) close to heat and UV source offers a place to regulate temperature and absorb UV light. The basking site should be no closer than 12" to the heat source.

Temperature



"To provide them with the opportunity to engage in important behaviors, a thermal gradient should be provided."



One way to classify living creatures is how they produce and conserve heat and energy.

Endothermic animals are animals that primarily produce their own heat, while **ectothermic** animals are animals that primarily gain heat through the environment.

Homeotherms are animals that have a constant body temperature while **poikilotherms** are animals whose body temperature adjusts depending on the environment. The two extremes in the animal kingdom are endothermic homeotherms and ectothermic poikilotherms. Most mammals, including humans, as well as most birds, are endothermic homeotherms, while most fish, invertebrates, reptiles, and amphibians are ectothermic poikilotherms.

Reptiles (ectothermic poikilotherms) are completely dependent upon their environment for maintenance of their body temperature.

Preferred temperature ranges for the various species represent the temperature range within which normal activity can occur. Many of the body's functions are driven by enzymes. These enzymes tend to increase in activity with increasing temperatures until the point where they denature. This point is known as the critical high temperature.

Most poikilotherms engage in **behavioral thermoregulation**. Rather than producing heat or increasing and decreasing insulation, these animals move toward or away from heat sources, angle their bodies to control heat gain, bask in the sun, etc. To provide them with the opportunity to engage in these important behaviors, a **thermal gradient** should be provided. Preferably, the entire optimum temperature zone (POTZ) for the species should be available in various parts of the cage. In addition, most reptiles benefit from some degree of circadian

(daily) and circannual (yearly) variation in temperature.

Heat sources that can be used to regulate the temperature in reptile habitats include light bulbs, porcelain heaters, heating pads, heat tape. Electric hot rocks should **not** be used because they can cause serious thermal burns. All heat sources should be shielded from direct contact with the animal. It is critical that a **thermometer** is used to monitor the temperature. The thermometer should not be adhered to the side of the cage. It should be put in various parts of the cage at different times to get a true indication of temperature range.



Humidity

The humidity, or moisture content of the air, is very important for maintaining the health of reptiles. A humidity gauge (**hygrometer**) should be placed in the cage. Gauges can be obtained at pet stores or garden centers. The range of acceptable humidity depends on the individual

species.

The humidity can be raised by reducing ventilation and by adding water to the system. Covering some of the open areas can help temporarily reduce ventilation. Water can be added by spraying the cage and substrate, by adding soaked porous

terra cotta pots as hiding areas, or by adding other humidity chambers (plastic boxes with moist moss or paper towels and a hole for entry). Putting the water closer to the heat will increase evaporation thus increasing humidity.



Lighting

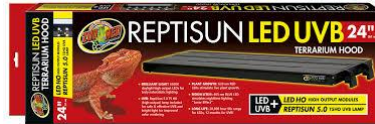
Intensity

Lighting in a reptile enclosure takes on more importance than in most other types of animals. First, reptiles are frequently kept for the purpose of display. The light intensity and color should be appropriate for display of the specimen and the decorations of the enclosure. It is critical that reptiles have access to areas to get out of the light. This allows a feeling of security. Many burrowing and nocturnal species feel stressed when exposed to light.

Wavelength

Wavelengths of the lighting should include the visible spectrum as well as ultraviolet wavelengths. Near wave ultraviolet light (UVA) appears to stimulate more normal behavior in

some species. **Middle wave ultraviolet (UVB)** light, at approximately 300 nm wavelength, is **required** for activation of vitamin D. Natural sunlight is the best means of providing this light. In most parts of the United States, however, this can only be done during a limited time during the year. Full spectrum fluorescent lighting must be provided when sunlight cannot be used. Plant lights do **not** produce the correct UV spectrum and are no more useful than standard bulbs. It should be remembered that glass and clear plastic filter out the UVB light. Sunlight or full spectrum lamps through the window/glass or plastic does not provide for the production of vitamin D. Most reptiles require UVB lighting and if these species



are not provided with adequate UVB lighting, then they will develop NSHP (nutritional secondary hyperparathyroidism or metabolic bone disease). These UVB lights should be replaced every 6 months even though they still put out visible light.

Light Cycles

Photoperiods, day/night light cycles, are important for stimulating many hormonal cycles. Continuous exposure to light becomes very stressful for all animals. They need dark periods as well. For species native to temperate regions, seasonal variation of the photoperiod can be important for stimulating brumation and breeding. Timers are useful for setting the photoperiod.

"Lighting for reptile enclosures should be the right intensity, wavelength, and photoperiod."



Substrates

Substrates are the **flooring** of the enclosure. There are various materials that can be used successfully. The cage floor can be left bare for some specimens. This is most appropriate for those that are arboreal and spend little time on the bottom. Disposable paper liners are, perhaps, the safest and most sanitary type of substrate. They are extremely easy to change, making frequent changes more likely. They also do not hide waste material, allowing earlier detection of diarrhea, or other problems with the droppings. Multiple layers can be used to allow burrowing in those species

inclined to do so. Newsprints used today are non-toxic, allowing the use of this free resource. Specially made disposable liners are also available. Artificial turf provides a more attractive display and can be easily cleaned. Extra sets are needed to allow one to be cleaned while the other is used. Artificial turf mats can be cleaned with a hose or in a washing machine. These types of mats should be discarded when the edges start to fray. Particulate beddings such as shavings and pellets allow burrowing, but also have many disadvantages. Because

they hide wastes, and are cumbersome to change completely, they tend to be cleaned infrequently. This can cause parasites, bacteria, and molds to accumulate and cause *infections*, particularly in the skin and respiratory tract. Additionally, these beddings are often intentionally or accidentally ingested by the reptile, leading to *impactions*. Certain types should **never** be used, such as cedar shavings, clay cat litter, gravel, and dirt. Cedar contains aromatic compounds that can be **toxic** to the animal. Clay litter can desiccate small specimens, is very dusty,



and poses a serious threat if ingested. Gravel is likely to cause impactions, and dirt is very unsanitary. Sand is also an ingestion hazard. Cellulose (paper based) litters or those made of grasses are among the safest of the particulate litters. Alfalfa base pellets such as rabbit pellets have the advantage of being edible if ingested but tend to promote bacterial and mold growth. Also, since they are edible, they make ingestion of contaminated litter more likely.



Sanitation is just as important as providing the proper temperature, humidity, lighting and substrate.

Failure to meet the basic needs of the animal will result in disastrous consequences.

Sanitation

Once the habitat is set up, it is important that it is maintained as a sanitary environment. Wild reptiles may live in the dirt and it may seem unnatural to have a sanitary environment. However, in the wild, a well-developed ecosystem provides for the breakdown of waste products from the various flora and fauna living in a given area. In addition, through the movements of the animals they can and do separate themselves from wastes and debris. In captivity, we have to take the place of the ecosystem.

Wastes should be scooped out whenever they are produced, daily if

necessary. In addition, a complete change of the substrate should be done weekly.

The water container should be washed daily as this is the area where bacteria will build up most easily. If disinfectants are needed, chlorhexidine, which can be purchased in our clinic, makes a safe and effective disinfectant. If a more potent disinfectant is needed, diluted bleach can be used. One ounce per quart of water will kill most bacteria, fungi, viruses, and parasites. This chemical is harsh and should be used when the animal is away from the enclosure. The enclosure

should be thoroughly rinsed and aired before returning the inhabitants.

Wooden furnishings can be scraped to remove debris. If there is a major disease, these furnishings should be discarded and replaced. The pores in the wood will harbor organisms and protect them from disinfection. When trying to eliminate parasites, using disposable furnishings will help. These can be discarded and replaced as needed, and will help reduce reinfestation with the parasites.



Social Arrangement

Social arrangement within the cage should be appropriate for the species. Most reptiles are territorial and will be stressed when kept in

cages with others. Even though they may be seen piled up together, one will eventually fail to thrive. If multiple animals must be housed together, there

should be adequate access to resources for all specimens. This includes food, hiding areas, basking sites, and water.



Our Mission

All Creatures Animal Hospital is dedicated to providing progressive medicine in a caring environment for pets of all species. Through preventative medicine, client education, professional development of our staff, and advanced medical and surgical techniques, we hope to foster a strong and lasting bond with clients and their pets.

All Creatures Animal Hospital

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