



## SNAKE CARE

Several species of snake are common in captivity and each has unique husbandry needs. Every snake keeper should be familiar with the natural history, that is the wild environment, climate, diet and behavior of the species. The keeper's goal should be to provide a microenvironment for the snake. This micro-environment must mimic the wild conditions by providing the range of temperatures, light intensity and humidity which is necessary for the snake to thrive. Research and preparations should be done before the animal is purchased. Keepers should understand the special requirements of these animals and the sometimes – considerable time and expense which their upkeep demands.

Every effort should be made to find a captive bred specimen. It is unnecessary for these animals, many of which are endangered, to be taken from the wild. Wild caught animals are usually cheaper, but typically fail to thrive in captivity. They often have heavy parasite burdens and may not adapt well to captive conditions. Due to the stress of capture, these snakes often have compromised immune systems. Many will fail to eat in captivity and will succumb to disease.

Any snakes brought in to an existing collection should undergo a minimum of 90 days in quarantine. Fecal testing and an examination by a reptile veterinarian are also recommended. Annual examinations are recommended for pet snakes.

The reptile owner is responsible for creating a micro-environment which will mimic the animal's natural condition. Reptiles are dependent on their environment to provide them with a choice of temperatures, within a range specific to each species of reptile. This range is referred to as the Preferred Optimal Temperature Zone (POTZ). Kept at one temperature within this range, a reptile will fail to thrive. Similarly, a lighting gradient should be provided, i.e., there must be areas of shade or filtered light, as well as an area of bright light in which to bask. A humidity range is also recommended.

Without the provision of appropriate temperatures, reptiles cannot digest food properly, their immune responses are poor, they will not grow or shed their skin properly or display normal behavior. Failure to meet the basic physical and psychological needs of the snake, including the need for visual security and privacy, will cause stress. Stress leads to a weakened immune system and increased susceptibility to infection and other disease, a poor appetite and failure to thrive.



## BEHAVIOUR AND HANDLING

Although snakes are predators, they are also prey. Many species consume other snakes, so the young of any species as well as the adults of small and medium species are vulnerable to predation. Snakes should be housed in relatively quiet areas, with good visual security. Although they lack ears, they are exquisitely sensitive to vibration and are susceptible to the negative effects of noise and vibration. They do not enjoy being stared at by "predators", such as dogs and cats. For these reasons it is best to house reptiles in little used, quiet rooms. Snakes, which rub their noses on cage walls or strike at the wall are showing signs of stress. "Stress" can come in the form of excessive handling, improper housing or diet as well as inappropriate temperature, humidity and lighting conditions. Periodically reassess husbandry conditions and diet. Be familiar with the normal appearance and behavior of the species. Pay regular visits to a veterinarian who is familiar with reptiles, and educate yourself as to the natural history and husbandry requirements of the species.

As a snake begins a shedding cycle, the eyes and skin may appear milky or "blue". The skin and eyes will then clear, and the animal should shed 1-4 days later. Do not handle a snake during the shed, unless you must. The fragile skin is easily damaged at this time, and as the snake's vision is affected, it may react unpredictably. Snakes should shed skin in one piece. Animals that do not shed this way, or that retain "spectacles" or eye caps should have their health and environmental conditions assessed. A snake that retains its spectacles cannot see to eat.

## ENCLOSURE, LIGHTING AND HEATING

Any reptile enclosure should be easy to clean, well ventilated, properly lit and adequately heated. It should be designed for an arboreal (tree dwelling) snake or a terrestrial (ground dwelling) snake. The cage must be escape proof and secure from interference by children and other animals. Glass aquariums and terrariums can be suitable enclosures for smaller specimens. A screened top, allowing for adequate ventilation is recommended for aquaria. For larger animals, homemade wood, wire, Formica and Plexiglas cages may be more suitable. Sometimes it is possible to devote a large closet to housing a snake. A smooth sided enclosure is recommended: glass or Plexiglas. The cage should be at least as long as the snake and the width should be half the snake's length.

Heat sources can include heat lamps (infrared, ceramic), heat tape and under-tank heaters. It also helps to keep the animal in a warm room, or one, which has its own heat source. This is secondary heat. Heat must be present 24 hours a day, but white light should not be left on for more than 12 hours. It is recommended that the entire enclosure be heated to within the POTZ with, for example, a ceramic heater, which emits heat but no light, and with a basking heat source, such as a spotlight focused on a small area, to provide an area at the upper end of the POTZ. Installing the radiant heat source (spotlight) at one end of the enclosure provides a temperature gradient. Having the spotlight on a timer will accomplish the goals of a regular photoperiod and of decreasing the cage temperature slightly at night. Be sure that the snake cannot come into contact with any light or heat bulb, as he will bum himself. Hot rocks are not recommended. These heat irregularly, and commonly cause burns. A hot rock does not heat a large snake adequately, and they do not radiate heat significantly.



No place in the cage should be cold. Sick reptiles will often hide, and if the hiding spot is not within the POTZ, the animal's immune system will not function properly. Use a thermometer to check temperatures, not just in the "hotspot", but also in shaded or cooler areas. Ideally, place several thermometers about the enclosure. Do not use your hand to estimate the temperature. Use a thermometer. A hygrometer, a device which measures humidity, is another important tool. These can be bought at hardware stores. Again, it is important to measure humidity where the snake is, not on the shelf beside the cage.

**Temperature Range:** see below for species recommendations. Maintain the cage at the cooler end of the POTZ for your species during the night and at the warmer end during the day. This is made easier by using a thermostat and timers. We recommend secondary or background heating of the whole cage and placement of a spot heat source at one end of the enclosure to create a temperature gradient. Under-tank heating works well, although it will not likely be adequate for arboreal species.

Lighting source: 10-12 hours in 24. Ultraviolet (UV) light is probably not necessary, but filtered sunlight or full spectrum lighting is probably beneficial. A regular photoperiod or day/night cycle is crucial to the mental and physical well-being of reptiles. Some species do need to bask. An automatic timer is recommended. Although snakes are not dependent on UV light for calcium metabolism, natural lighting may be significant to the psychological well being of these animals.

Humidity: 50-80% relative humidity is appropriate for most snakes. Provide a humidity gradient by placing a plastic house filled with moistened sphagnum moss or a sponge in the cage. A humid environment must not be achieved at the expense of good ventilation. Bathing, misting, drip systems and humidifiers can be used. Low grade, long standing dehydration is common among reptiles, and contributes to kidney disease and bowel impactions. Appropriate humidity is crucial to healthy shedding. Excessively moist or dry environments contribute to respiratory and skin disease. Some species have special requirements; research your species.

Good ventilation: fans such as those designed for bathrooms may be necessary in large or solid sided enclosures. Your snake's cage should not smell.

### **SUBSTRATE AND CLEANING**

The substrate or floor covering used in the enclosure should be safe, non-ingestible and easy to clean. Do not use corncob, cat litter, bark, sand or gravel as these are easily swallowed and can cause an impaction or intestinal blockage. Organic substances such as corncob and shavings are excellent growth media for bacteria and fungi. These substrates may appear clean but can hide fecal material and leftover food. Dusty substrates, such as some cat litters and shavings should be avoided, as they can contribute to respiratory disease. Artificial turf, indoor/outdoor carpet or newspapers usually make the best substrates. Paper towel is best for very small snakes with delicate skin. Be sure to clean and change the carpet or turf regularly, as it will eventually grow mould.



A functional, easy-to-clean cage, which meets the needs of the snake should be the goal of the keeper: the more decorative the cage, the more difficult it will be to clean, and as a result, it will be cleaned less often. Questionable or poor hygiene contributes significantly to the burden on a reptile's immune system, and a high environmental bacterial load will increase the chances of any animal developing disease. Fecal material should be removed as it is produced, and water dishes should be cleaned daily. Depending on the size of the cage and the habits of the species, daily spot cleaning, weekly cleaning and monthly thorough disinfection is a minimal recommendation.

"Cleaning" can be achieved with hot soapy water or water and vinegar. Only a clean surface can be disinfected. Once a surface is clean, it can be disinfected with a non-toxic product. Avoid phenol products. A 3% bleach solution is safe and effective for most purposes. Your veterinarian likely stocks other products. No single product is ideal for every situation, and organisms can develop resistance to cleaners and disinfectants, so a rotating schedule of use is recommended. Always rinse well after cleaning and disinfecting. Be sure of good ventilation, as even low levels of "safe" products can produce fumes harmful to delicate reptile lungs.

#### CAGE FURNITURE

All animals need privacy and so an enclosure should include a house or hide. Be sure that the house is also adequately heated: a sick animal will hide and a sick reptile not kept within his POTZ will only get sicker. If the snake is to be kept in a tank, it is important that the glass not be uncovered on all four sides. Some species are especially shy, but all need to feel safe, not exposed, as one would living in a fish bowl. Use plastic vines, safe plants, branches, aquarium backing and cage furniture to provide visual barriers.

#### DIET AND WATER

Research specific species needs, but keep a few general principles in mind:

Snakes are carnivores and derive their nutritional requirements from whole prey items.

White mice are not a natural food source: research your species' wild feeding habits.

Vitamin/mineral supplementation is not usually necessary and can prove harmful.

Pinky mice alone are low in calcium, and supplementation may be necessary.

Only feed killed prey. The feeding of live prey is inhumane and potentially dangerous to the snake.

Feed the snake on a solid surface, so that substrate, such as shavings or sand is not mistakenly ingested.

Frozen-thawed prey may dehydrate, but can be fed wet or can have water injected.

Dehydration is common among captive snakes and so they should always have water available. Many species like to soak and should be provided with an adequately sized bowl such as a heavy, ceramic dish, large enough for soaking.

Do not handle a snake for at least 48 hours (longer in the case of larger snakes that eat infrequently) after it has eaten. Handling increases the risk of regurgitation and inhalation of stomach contents. Obesity is common among captive snakes and usually results from overfeeding or the feeding of high fat prey. A guide is to feed an adult snake 1-3 thawed or freshly killed mice (or larger prey, depending on the size of the snake) once weekly.



### SPECIES COMMONLY KEPT IN CAPTIVITY

#### **Colubrid Snakes** (King Snakes, Rat Snakes, Garter Snakes, Hog-nosed Snakes, Corn Snake)

Their range extends throughout much of the United States and Mexico. They are diurnal snakes (active during the day). Colubrid snakes make good pets, but some species demonstrate cannibalistic behavior, and should be housed individually. The POTZ is 25-30° C (75-85° F), with a drop in temperature of 2-3° degrees Celsius at night. Alternately, heat the cage to 25-30° C in one "hot spot" and allow the rest of the cage to range from 22-27° C. Relative humidity should be 60-80%.

#### **Ball Pythons** (Royal Python, *Python regius*)

This is a shy terrestrial species from the African savannah. It is active at night and spends its days hidden. Wild caught animals are notoriously susceptible to stress, and may be difficult to stimulate to eat. This species is not usually the best choice for a beginner. Daytime temperatures should range from 80-85° F, with a hot spot of 90° F. Night time temperatures should not fall below 75° F. Relative humidity should be 50-70°. Ball Pythons are constrictors and gerbils are their prey of choice. Similarly colored mice or hamsters may work. Snakes can be trained to accept these prey items by "scenting" the mouse with gerbil smell. Larger snakes may eat small rats. These snakes should be fed in the evening.

#### **Boa Constrictor**

These beautiful snakes can grow very large and are susceptible to obesity. Thought must be given in advance to the caging and dietary needs of a large snake. They are an arboreal species. The POTZ is 25-30° C (75-85° F), with a drop in temperature of 2-3° C at night. Relative humidity should be 50-70%.



### COMMON MEDICAL PROBLEMS

The following signs should prompt you to consult a veterinarian familiar with reptiles:

- Anorexia or decrease in appetite
- Blister Disease or Scale Rot – this is a serious condition which manifests as blisters on the snake's underside, or a reddening of the ventral scutes (the scales on the snake's belly). This is a manifestation of septicemia or blood poisoning
- Abnormal stool production-constipation, diarrhea, bloody stool
- Dysecdysis – abnormal shedding. A snake should shed its skin, including the eye caps in one piece
- Dyspnoea – abnormal breathing: open mouthed or noisy breathing, breathing with the head and neck elevated, irregular breathing or excessive saliva in the mouth can point to respiratory disease
- Mouth Rot – swelling, excessive saliva, redness or the presence of crumbled cheese-like material in the mouth can indicate a mouth infection
- Bubbles from the nose or mouth
- Abnormal or absent tongue flick
- Parasites– these can be external mites or ticks, or internal parasites
- Swellings or lumps on the skin or within the body
- Burns, sores or lacerations from prey, cage mates or cage furniture
- Vomiting
- Seizures, weakness or paralysis
- Unexplained behavioral changes – for example, a snake in pain may show uncharacteristic aggression

We recommend an annual examination for all pet snakes.