

## CARE OF INSECT EATING LIZARDS

Lizards are an extremely diverse group of reptiles, varying widely in size, shape, habits, and requirements. In captivity they are subject to many problems. While some of these problems are unavoidable, others can be prevented if some basic husbandry principles are carried out by the caretaker. Each species, of course, has its own particular requirements but certain generalizations can be made. **Those who keep reptiles have the responsibility for getting the specific requirements of the species involved.** Many books are available in pet stores or in the library. Also, anyone interested in reptiles would do well to join the Chicago Herpetological Society (2001 N. Clark St., Chicago, IL 60614, website: <http://207.105.50158/>).

Housing is the first consideration in the care of lizards. The cage should be safe, easily cleaned, secure, and spacious enough for the inhabitants. **The length of the cage should be two to three times the length of the lizard.** Aquaria make suitable cages for many lizards although they may be expensive for some of the larger specimens. If cages are homemade, they must be waterproof to allow thorough cleaning and disinfecting. Ground dwelling lizards may be kept in flat boxes, while arboreal species need height, and suitable branches for climbing. **Lids and doors must be held in place securely to prevent escape.** There are many cage linings that have been successful, but many of them have disadvantages. **The simplest and most sanitary is paper, such as newspaper or brown butcher wrap.** Several layers may be used and the lizard can burrow between layers. If a more attractive display is desired, indoor/outdoor carpeting or terry cloth towels can be used. If there are two sets of these, one can be used while the other is being cleaned. While wood shavings are absorbent and provide excellent burrowing opportunity, they can also hide droppings and urine, giving the keeper the false impression of a clean cage. Shavings and other beddings may be swallowed by the pet and should be removed prior to feeding. Sand, cat litter, corn cobs, and gravel are dangerous and should not be used. **Whatever the cage lining, it should be changed at least weekly or whenever urine or feces are passed. Scooping visible droppings is not enough. The cage should be disinfected with bleach (one ounce per quart of water), Nolvasan, or Wavicide.** These disinfectants should be used according to instructions and should be **thoroughly** rinsed from cage surfaces before returning the lizard to the cage. Phenolic disinfectants such as Lysol are toxic to reptiles and should not be used. The cage must be provided with suitable furnishings for the well being of the specimen. **Branches, hiding boxes, or other simple furnishings provide a more natural environment and help to reduce the stress associated with captivity. The water bowl should be big enough to allow the lizard to soak in the water. Even desert species should have a water bowl.** Water bowls should be emptied and cleaned once a day, or at least as often as the reptile dirties the water.

Like all other reptiles, lizards are poikilotherms (cold-blooded), that is, their body temperature depends on the surrounding temperature. This makes captive reptiles even more dependent on the keeper. Nearly all body functions are temperature dependent, including immune function, digestion, activity, and appetite; and if a lizard is not kept under the correct conditions, these functions shut down. Most reptiles regulate their body temperature by behavior. Basking in the sun, hiding in the shade, soaking in water, and changing their activity during the day are all methods used by reptiles to control body temperature. **To encourage these normal behaviors, it is advisable to provide a range of temperatures. For most temperate species, the range should be from about 75 to 85 degrees Fahrenheit, for tropical species, 80-90, and desert species, 90-110. There are many exceptions to these and it is critical that the specific requirements of the species be determined.** Heat sources that are helpful in keeping the cage temperature up are heating pads, incandescent bulbs, and heat tape. Heat rocks are not recommended because they tend to have focal hot spots that can burn a lizard. The source of heat should be placed at one end of the cage to provide a thermal gradient. **There should also be some daily and seasonal variation in the temperature, with the temperature dropping 5 to 10 degrees in the cool season.** This promotes normal hormonal and activity schedules. The changes should follow the pattern in the lizard's natural environment.

Another important component of housing in diurnal lizards is lighting. Diurnal lizards (those normally active during the day) require a source of full spectrum light, such as Vita-lite, or Repti-lite, that is within two feet of the lizard's basking spot and does NOT shine through glass or plastic (wire mesh or screening is appropriate). Full spectrum light is essential for your lizard to process vitamin D3 and calcium properly. Full spectrum lights only retain the full function for approximately six months, after this

time, despite the fact that visible light is still working, they should be replaced. Heating lamps that produce visible white light and full spectrum lights should never be left on for 24 hours straight, instead they should mimic the natural light/dark cycle of that particular time of year.

Most often, the diet is limited by what is commercially available. Crickets, mealworms, earthworms, waxworms and fruit flies are commonly available. With the exception of earthworms, most invertebrates have a poor Ca:P (Calcium to Phosphorus) ratio and must be supplemented. This problem is most extreme in domestic raised feeder insects with access to only limited feed sources. Gut loading the prey species with a diet charged with supplemental Ca (8% Ca minimum) will bring the Ca:P ratio to within acceptable limits. A crumbled, high quality rodent chow with orange slices is one diet for crickets, however, many recipes exist. The high calcium diet should be the only one available for the insects or they may refuse it. The diet should be fed for three days prior to feeding the prey to the lizard. Keeping a supply of the gut loading diet in the reptile enclosure will ensure that the insect is still supplemented when eaten. It also prevents a hungry cricket from munching on a lizard. An alternative method of supplementation is the "shake and bake" method. This involves shaking an insect around in a bag of supplement. The insect must be eaten immediately or the supplement will be groomed off. Wild caught insects should be used when possible to add trace nutrients from the field. Avoid insects from areas sprayed with pesticides. Your animals are what they eat. If you feed them starving, malnourished prey, your reptiles will end up malnourished. Most insects are not fed or watered properly during their transition from prey breeder to your house. The best way to prevent your lizard from eating malnourished prey is to feed the prey. If you are feeding earthworms, do not buy the earthworms raised for bait. These are generally raised under poor conditions and are prone to carrying parasites. Only use insects or earthworms from your yard/garden if you are sure NO pesticides are used. One way to be sure the insects/earthworms are pesticide free is to capture them and keep them in a container with food and water for 3-4 days. Insects/earthworms contaminated with pesticides will usually die in this period of time.

Pay attention to your lizard when you are feeding it. If it is not killing the prey before eating it (such as by vigorous chewing along the length of the prey or crushing it against the ground or furnishings) then YOU may have to disable the insects before feeding them to your lizard. Do not leave uneaten healthy prey in the tanks for long periods of time. Hungry prey items have been known to eat their predators.

The exoskeleton of most insects is primarily indigestible and of little use to your lizard. Therefore, feeding several small insects is more nutritious for your lizard than one large insect. Smaller prey is easier to digest and have a smaller exoskeleton to insect ratio. There have been reports of transient paralysis and central nervous system damage in some lizards when fed large prey items. Large exoskeletons have also been implicated in some episodes of GI blockage or impaction. Before you add more insects to your lizard's enclosure be sure to check all nooks and crannies in the enclosure for any stray insects that may be hiding out in there. If you are leaving insect food in the enclosure for the prey, then just get the stray insects out of their hiding places and moving. If the insect hasn't been fed recently, put it back in the insect enclosure and feed a freshly fed insect.

It is extremely important to feed a variety of insects. Individual insect species are not a well-rounded diet. Crickets, for instance have a negative Ca:P ratio of 0.26%:0.74%. Obviously supplementation of calcium will help correct this, however, it is best to also vary the diet with other commonly available insects. It is always best to mimic the lizard's natural diet as much as possible and few lizards live on a diet of crickets exclusively.

Once again, it is important to note that this handout has **general care outlines for insect eating lizards**. Each species will have its own idiosyncrasies and should be researched through books and other sources.