



# Milwood Animal Clinic

5942 Lovers Lane · Portage, MI · 49002

Phone (269) 342-9865

Fax (269) 342-6830

[www.MilwoodAnimalClinic.com](http://www.MilwoodAnimalClinic.com)

---

## Iguana Care

### Natural History & Basic Facts

The iguana is a tree dwelling lizard, generally found in southern Brazil and Paraguay. While there are many species of iguanas, the most common one in the pet trade is the green iguana.

In more recent years, with the pet trade and movement of people, these iguanas can be found in the wild as far north as Florida. However, in the United States they are considered an invasive species, and are not welcomed. They can cause a massive disruption to normal flora.



The iguana, nonetheless, is an impressive reptile. It is an herbivorous species of lizards, that is quite large and can weigh up to 20 pounds. They can range up to 7 feet in length from nose to tail as well! Due to its commonly calm disposition, it is found in the pet trade, but these animals are incredibly difficult to care for.

### Iguanas as Pets

Depending on the location where the iguanas originated, you can find a large variance in how they look. Some are more brightly colored, some have horns, and others have different temperature preferences.

In the pet trade, these are considered to be one of the most commonly available reptiles. They are commonly sold as babies, which are quite cute when they're young. However, they can become incredibly demanding to own as they age. They are a long-term commitment too, as they can live 15-20 years.

### Housing & Enrichment

Hatchlings can be started in a 20 gallon aquarium. Older juveniles, that are less than 18 inches in length, can be kept in a larger aquarium, such as a 40 gallon. Small iguanas kept in too large of areas can find it difficult to find food and water. However, they grow rapidly, and soon the aquarium will no longer be appropriate.

An adult iguana will need at least 12 feet by 6 feet by 6 feet (LxWxH) of living space. Since they are tree-dwellers, having a 6 foot tall enclosure is important for behavior and instinct. Since its not easy to find premade terrarium of this size, generally they are kept in home-made wire enclosures as adults. Iguanas should not be housed together, as they are territorial and will fight.

In terms of substrate, iguanas can accidentally ingest what is placed in the environment. As such, you will want something appropriate and safe such as reptile carpet or newspaper.

A hiding place for your iguana should be provided. This can be done via cardboard rolls (from toilet paper or paper towel) for small iguanas or cardboard boxes for larger iguanas.

However, optimal hiding can be done with the use of artificial plants. Because iguanas like to climb and bask, some of the branches and artificial plants provided should arrange to allow this activity above the floor of the enclosure. Silk artificial plants are visually pleasing and easy to clean and maintain, and they also withstand the use of disinfectants.

## Lighting

Ultraviolet light is important for most lizards. The UVB light that comes from the sun allows lizards (and many other animals) to produce Vitamin D in their skin. Vitamin D then travels to the lizard's intestinal tract and makes it possible to absorb calcium from the diet. Without Vitamin D, no calcium can be absorbed. Unfiltered sunlight (i.e. not through glass) is the best source of ultraviolet light and lizards should be exposed to sun whenever it is safely possible. Be careful when taking your lizard outdoors to prevent overheating and escape. Reptiles can become overheated very quickly if left in direct sunlight. Never leave your pet in an aquarium in the sun. Your pet should never be allowed outdoors unsupervised at any time.

There are many UV (sometimes referred to as full spectrum light) bulbs on the market. Most claim that they duplicate the sun's light spectrum, however there is no bulb that can achieve the intensity of ultraviolet light emitted by the sun. Some bulbs provide so little UV light that they are completely useless, and some are so powerful that can burn the reptile. As mentioned in the heating section, good quality mercury vapor UVB bulbs make the best basking lights because they provide both heat and UVB spectrum of light. Lizards instinctively bask in areas that are both bright and hot. Fluorescent type UV bulbs provide brightness without the heat so often the lizard may bask in the wrong area of the cage unless a heating element is paired with the UV bulb. If you are using a UV bulb that does not produce heat it should be placed as close as possible to your basking bulb and on the warm side of the cage.



There are two brands of bulbs we currently recommend for our basking reptile patients: the MegaRay, available at [reptileuv.com](http://reptileuv.com), and Zoo Med's PowerSun, available at most pet stores. Both are mercury vapor bulbs and produce heat as well as UVB light.

Your UV lights must be changed at least every 6 months in order to provide adequate levels of UVB spectrum lighting. Humans can't see the UVB wavelength so there is no way of knowing when that spectrum of the light has died off. We can test your bulb's UVB output for you to help you decide if it is time to replace the bulb. We recommend testing your bulb when you first purchase it to make sure the bulb is good and then every 2-3 months thereafter. Many bulbs are found to be defective right out of the box, thus the importance of testing when you first purchase.

The lighting cycle should be 12 hours of light and 12 hours of darkness. Using an automatic timer to turn your lights off and on is very helpful in regulating your light cycles. Just like humans, reptiles need complete darkness at night. If you need to provide supplemental heat at night, use an under-tank heating pad, a ceramic heating element, or a nocturnal reptile bulb. Never use a white light of any sort at night, for lighting or for heat. This will stress your animal, eventually affecting

its ability to thrive through the resultant lack of sleep, loss of appetite, and other stress-related symptoms.

## Heating

**Basking: 100°F**      **Cool spot: 75-80°F**      **Nighttime: 75-80°F**

Iguanas, especially adults, need a lot of heat and UV. They need a hot spot of around 100 degrees for basking, and unlike other reptiles (snakes in particular), they need to have this heat primarily from above. To appropriately thermoregulate, they need a heating bulb instead of heating pads. NEVER use a heating rock in an enclosure. A cooler side of the enclosure should be provided, and should not be lower than 75 degrees F. At night the temperature can go down to the upper 70s.

## Diet & Nutrition

Water should always be readily available. Not only should it be available via bowl but as misting daily and soaking them (especially young) twice weekly. You'll want a bowl that is large enough for your iguana to sit in and soak as needed.

Iguana food can be difficult and challenging. However, there are commercial foods from Mazuri and Zoo-med that may make this easier, but they are not always nutritionally complete. You will still want to supplement with calcium and vitamin supplements appropriately to ensure full nutrition and consider creating an Iguana food "prep" yourself.

In terms of preparing food, you can mix up vegetables such as collard greens, turnip green, dandelions, etc. for your iguana. Fruit can be used sparingly, as too much fruit can lead to diarrhea. Iguanas should not be fed a diet high in protein.

All plant material should be **washed, chopped** (a food processor is recommended), and **thoroughly mixed**. This will ensure a balanced diet in that all food items will be eaten, rather than just the favorite or tasty ones. Prepare enough for 4 to 7 days, store in the refrigerator between feedings, and serve at room temperature or slightly warmer.

### Hatchlings up to 14 inches in length:

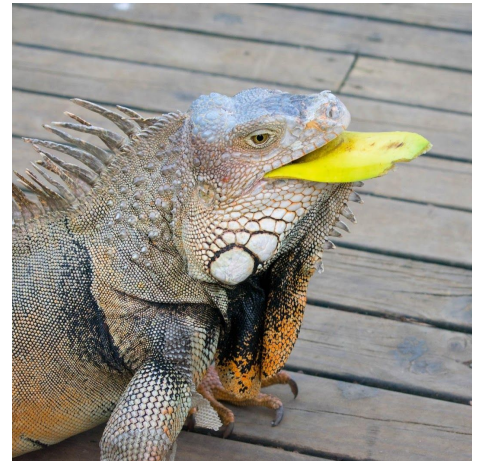
Feed twice a day or provide continuous availability  
Plant matter should be **finely chopped** or shredded

### Juveniles up to 2.5 years or 3 feet in length:

Feed once a day  
Plant matter should be **fine to medium chopped** or shredded

### Adults over 2.5 years and 3 feet in length:

Feed daily or every other day  
Plant matter should be **coarsely chopped**



**EACH MEAL** should contain ingredients from **ALL FIVE** of the following categories:

1. **Calcium-rich vegetables:** 30-40% of the diet, two or more items per feeding:  
Turnip greens, mustard greens, beet greens, kale, collards, bok choy, swiss chard, dandelions, parsley, romaine, escarole
2. **Other vegetables:** 30-40% of the diet, a variety weekly:  
Frozen mixed vegetables, squash, zucchini, sweet potato, bell peppers, broccoli, peas, beans, okra, grated carrots, sprouts

3. **Grain/fiber:** optional, up to 20% of the diet:  
Whole grain breads and natural bran cereals
4. **Fruits:** no more than 15% of the diet:  
Figs, papaya, melon, apples, peaches, plums, strawberries, tomatoes, bananas (with skin), grapes, kiwi
5. **Vitamin/mineral supplementation:**  
Hatchlings and juveniles: 1 small pinch per feeding  
Adults: 1 full pinch per 2 pounds (1 kilogram) body weight twice a week  
Adult females: 1 full pinch per feeding from December until egg laying  
Groups: 1/8 teaspoon per 3 pounds iguana per week

### **Supplements:**

Sprinkle or dust salad with a calcium supplement just before each feeding. We recommend and carry Repashy SuperCal.

We recommend Repashy SuperVit for multivitamin supplementation. Salad should be dusted with the multi-vitamin supplement once or twice monthly.

### **Veterinary Care**

Iguanas should be seen once a year for annual physicals and for fecal examinations. Blood work can be done on your reptile, and the larger they are, the easier this may be. However, while they can tolerate and enjoy their owners, they do not always trust strangers. Thus, they may require sedation for more thorough diagnostics.

Spaying and neutering is recommended, though this can be difficult depending on the size of the animal.

A major reason Iguanas are seen are due to husbandry. Inadequate nutrition and lighting are common causes for many of their diseases. Other common causes for a veterinary visit (excluding wellness) include thermal burns, parasites, kidney disease, and reproductive issues.

Since they get so large, it is best to evaluate whether you can handle a large reptile prior to purchasing.



# Nutritious Dark Leafy Greens

These vegetables are excellent food sources for many small animals including herbivorous and omnivorous reptiles, rabbits, guinea pigs, and other herbivorous mammals.

## **Feed the following greens in abundance:**

Arugula  
Basil  
Cilantro  
Clover (no pesticides or herbicides)  
Dill leaves  
Endive\*  
Escarole  
Mint  
Peppermint leaves  
Radicchio  
Raspberry leaves  
Red or Green Leaf Lettuce  
Romaine lettuce (no iceberg or light colored leaf lettuce)\*  
Watercress\*  
Wheat grass

## **The following greens should be fed less often and in smaller amounts:**

Alfalfa, radish & clover sprouts^  
Beet greens (tops)^\*  
Bok Choy†  
Brussels sprouts†  
Carrot tops^\*  
Collard greens†^\*  
Dandelion greens and flowers (no pesticides or herbicides)^\*  
Kale†\*  
Mustard greens†^\*  
Parsley^\*  
Radish tops^  
Swiss Chard^  
Spinach †^\*  
Turnip Greens†^

\* Contains high amounts of Vitamin A, which is good for skin health

^ Contains high amounts of oxalates & may cause health problems if fed often. Use sparingly.

† Contains high amounts of goitrogens & may cause health problems if fed often. Use sparingly.



# Cleaning, Disinfecting and Sterilizing

How they are different and why you need to know

©1995, 2000 Melissa Kaplan

## A Brief History of Antisepsis

The two perhaps most important contributions to antiseptic procedures in the medical arts both happened during the last 150 years. The French chemist and microbiologist Louis Pasteur set the stage for the later appearance of British surgeon John Lister (1827-1912) who pioneered antiseptic operating room procedures (and after whom Missouri physician Joseph Lawrence named his antibacterial mouthwash). In a time when surgeons operated in their street clothes, surrounded by similarly clothed (and septic) onlookers, and just after surgical instruments were finally being washed in soapy water between operations, Lister campaigned for heat or chemical sterilization (and for surgeons to use something other than sawdust swept up from the floors of the mills, used in surgical dressings). William Stewart Halsted (1852-1922) furthered the cause of antiseptic technique with his introduction of surgical gloves. [The word sepsis is a noun that relates to the presence of organic pathogens (disease-causing organisms) in the blood or tissue; "septic" is the adjective. "Antisepsis" is the noun meaning destruction of such organisms; "antiseptic" is the adjective.]

To many people, these three terms--cleaning, disinfecting and sterilizing--are synonymous but the fact is that they stand for three discrete processes. What you know--or don't know--can at best be a waste of time and money for you; at worst, it can make you ill and be deadly to your animals.

## Cleaning

Cleaning is the general removal of debris (food, feces, urates, blood, saliva and other body secretions) that helps reduce the amount of organic matter that contributes to the proliferation of bacteria and diseases. The more debris that is removed at the cleaning stage, the better able your disinfectant will be able to do its job. Most disinfectants cannot work their way under chunks of debris or smears of blood on the tank or utensils; if any bits remain stuck on, use a little elbow grease--or a putty knife dedicated to cage cleaning--to work it off. Before really getting into it with a scouring sponge or pad, test a small area of the tank to see if it is going to abrade the surface of the tank. Repeated scratching may be unsightly, but worse is the fact that it provides lots of nooks and crannies in which bacteria and other beasties can hide.

Cleaning is best done with hot, soapy water. The hot water and surfactants in the soap work to loosen debris stuck to surfaces. Clean rinse water flushes it away. When you are cleaning enclosures that cannot be taken to a tub, sink or outdoor hose to be thoroughly rinsed out, it must be done with sponges, rags or paper towels. In any case, you must completely rinse out or wipe off all soap residues as some ingredients may interfere with the work of the disinfectant.

A simple cleaning may involve the removal of animal waste and the substrate surrounding it. If the substrate is paper, the entire substrate should be changed. If the enclosure is lined with outdoor carpeting or artificial turf, it should be removed and a clean piece placed in the enclosure. (Rotating pieces allows enough time to thoroughly clean, disinfect and dry the soiled piece.) If the animal waste, food, or fluids from prey have come into contact with the floor or walls of the enclosure, then they should be disinfected after the areas have been cleaned. Almost any good liquid soap can be used for cleaning. Simple Green and regular dishwashing soap both work well; be sure to dilute products such as Simple Green according to

manufacturer's directions. There is no need to bother with soaps advertised as "antibacterial" - all soaps are antibacterial in that they, in conjunction with hot water, help remove bacteria from surfaces. Antibacterial soaps are not disinfectants and should not be used in place of a proper disinfectant. Do not use soaps or cleansers that are abrasive, contain pine scents, or phenols.

### **Disinfecting and Chemical Sterilization**

Disinfecting means pretty much what it says - it removes most of the organisms present on the surface that can cause infection or disease. Disinfecting is not suitable for eradicating mites but is useful against a number of bacterial and viral microorganisms. Sterilization, on the other hand, is the killing or removal of all disease causing organisms. Often the same products may be used to disinfect and sterilize; the difference is in the strength of the solution and/or the amount of time the solution is left in contact with the surface.

There are many products on the market that may safely be used (when directions for use are carefully followed) to disinfect reptile and amphibian tanks. Two may be found on your grocer's shelves - chlorine (household) bleach and ammonia. Both are highly toxic to you and your animals and must be used with extreme care. Other disinfectants may be purchased through animal supply catalogues, industrial supply houses and feed stores: Roccal-D, a quaternary ammonia compound, and Nolvasan (chlorhexidine diacetate). The latter is useful to have in the herper's collection of supplies because in its dilute form it may be used to flush wounds, treat stomatitis (mouth rot) and soak syringes and feeding tubes. These products are expensive, ranging from \$35-55 but, when diluted according to manufacturer's directions (Nolvasan, for example, is used at the rate of 3 ounces per gallon of water) they will last a long time (depending upon the number of enclosures, furnishings and utensils). Bleach should be used at the rate of 4 ounces per gallon of water, ammonia at 3.5 ounces per gallon. Note that weaker solutions should be used on amphibian enclosures and furnishings.)

To disinfect surfaces, generously apply the solution to the surface with a saturated cloth, sponge or spray bottle, or let the object soak in a container of the solution. Let the solution sit for at least 10 minutes; 15-20 minutes is better. To sterilize, let the solution sit for at least one-half hour (be sure to check the manufacturer's directions to see if a stronger solution is necessary for sterilization). Rinse out thoroughly, especially when using bleach or ammonia. If there is any doubt about your ability to thoroughly rinse out an enclosure, or the enclosure is made of wood, you may wish to think twice about using bleach or ammonia. Any residual of these substances left in the tank can cause severe, if not fatal, problems for your animals. Both substances produce strong fumes that can cause internal and external irritations. (Simple Green's aroma is artificial sarsaparilla and is not toxic to reptiles; no information has been found in reference to its use in amphibian enclosures.)

### **Now Comes the Fun Part**

It doesn't make any sense to use disinfectants if you spread organic matter from one animal's enclosure to another on your sponge, rag, gloves or utensils. While your risk of cross-contamination is reduced in a long-established closed group of animals, any group that is subject to change, with new animals coming into the group (not necessarily into the same enclosures as established animals) then the risk of cross-infection is high.

### **Cleaning Equipment and Supplies**

A set of equipment and supplies should be dedicated to new animals. In large groups of established animals, the threat of cross-contamination can be reduced still further by dedicating a

separate set of equipment and supplies to each type of animal: snakes, lizards, turtles and tortoises, amphibians.

The cleaning equipment and supplies required include:

- disposable gloves
- sponges
- scrapers (such as a putty knife)
- glass or metal bowls or buckets for hot soapy water and for the rinse water
- paper towels, sterilized cloth towels or rags, or disinfected sponges
- disposable trash receptacle such as a paper or plastic bag.

Items such as feeding and water bowls, rocks and ceramic, plastic or rock caves and hide boxes should be removed, cleaned and disinfected (as described below) and set aside; they can be placed back into the enclosure once the substrate and tank have been taken care of. Water bowls should be disinfected weekly in a bleach solution.

The disinfection and sterilization equipment and supplies required include:

- disposable gloves
- a spray bottle or bucket of prepared disinfectant solution
- a metal or glass or bucket of fresh rinse water and two for disinfectants.
- large receptacle for soaking and disinfecting furnishings (bowls, rocks, caves).

Utensils such as scrapers, rags, sponges, snake tongs or hooks, and reusable rubber gloves should be washed in soapy water, then soaked in one disinfectant (such as a chlorine solution) for at least five minutes. The utensils are then rinsed thoroughly before being used again. The second container of solution (such as Nolvasan) is used to disinfect the enclosures.

## **The Process**

Begin working with your established, healthy, animals. Once you have finished their enclosures, clean and disinfect your utensils. Move on to any established animals that are ill. Clean and disinfect the utensils before starting to work on the quarantined animals last. (The idea of having separate sets of utensils and spare rags and sponges begins to not sound so crazy, after all...) Clean and sterilize the utensils, sponges and rags after you are finished.

Needless to say, this can make cleaning a frustratingly time-consuming task if only one set of utensils is used. So splurge and buy a couple of inexpensive putty knives. Hit your local thrift shops for old towels and sheets to (rip into rags) and old mixing bowls. Sponges can be bought in packages of 8-10 to a pack. Save shampoo and similar bottles to store smaller quantities of your disinfectants so that you are not always working with the heavy gallon bottles. With all the waste and trash that gets dumped into our landfills, it is nice to know that there are ways that we can reuse and recycle.

Rags, towels, cloth bags and sponges may be sterilized by soaking in ammonia for 30 minutes in a well ventilated place away from the animals, then washing thoroughly in hot soapy water and allowed to dry. Bleach may also be used for this purpose, but after a time it begins to destroy the integrity of the fabric. This isn't a major problem if you buy your towels and rags at thrift shops. If at all possible, establish a routine. Check enclosures daily for messes that can be quickly cleaned. Schedule one day a week to do a complete cleaning of all enclosures. This is a good time for animals that are otherwise enclosure-bound to get some fresh air and sun, or a nice long



soak in the tub while you slave away in their tanks. Crank up the music, plop a drop cloth on the floor if you tend to be a klutz like me, and go to it...it's a dirty job, but somebody's gotta do it.

### **Recipe for Glass And Window Cleaner**

Into a clean, empty gallon bottle, pour:

- 1 quart rubbing alcohol
- 1/4 cup vinegar
- Just a few drops of liquid soap

Fill up the rest of the bottle with clean water; distilled water is preferred but not essential. Shake well. The mixed cleaner can be poured into spray bottles, or directly (I would advise using a funnel) into your windshield wiper cleaning fluid container. Just spray it on and wipe as usual. For stubborn spots, spray some on the spots, let sit for a minute or so while you work