Savahnah Monitor

The different species of monitor lizards belong to the Varanidae family. Found throughout the Old World, four of the thirty-seven or so species are listed as endangered in the Convention on International Trade in Endangered Species (CITES), and the rest are all listed as threatened. Despite that fact, monitors listed as "threatened" are being exported from their counties of origin and shipped to different parts of the world to satisfy the lust for the new--it sometimes seems that beginning lizard owners either start with an iguana, a bearded dragon, or with a monitor.

Click photo to see enlargement
Photo by Melissa Kaplan

Varanus is a Latin word derived from waran, an Arabic word for monitor (so named from the superstitious belief that the Nile Monitor warned of the presence of crocodiles--when what it was probably doing was eating crocodile eggs and young crocs). Exanthema comes from Greek word for 'eruption', an accurate term when describing the bumpy scales (osteoderms) all over the backs of monitors such as the savannah and white-throated monitors. Monitors range in size from the 18-inch tree monitor to the 9-foot water monitor. Within this variety of sizes, temperaments range from shy and reclusive to downright nasty and aggressive.

The classification (taxonomy) of things is a dynamic system, changing as new data revitalizes old discussions resulting in new conclusions. Such has been the story with the lizard commonly known to us as the "savannah monitor." In 1792, Bosc first described the the monitor we now call "savannah" (or Bosc), naming it Lacerta exanthematicus. Nearly a decade later, Daudin described a similar-looking monitor, naming it Tupinambis albigularis.

Through the years, both species went through severeal renamings, ultimately ending up in the genus Varanus. Ultimately, perhaps because of the simularity in many features of these two monitor species, they were combined together into the same species, with Daudin's monitor being named as a subspecies to the moniter earlier described by Bosc. Thus we had Varanus exanthematicus exanthematicus (savannah monitor) and the V. e. albigularis (the white-throated monitor), a situation which has lasted for 200 years. Until recently.

Because of the consistent differences in scales, placement of the nostrils, and color/patterning, discussions during the 1990s resulted in the two subspecies parting ways. The savannah (Bosc) monitor is now by itself in V. exanthematicus, while the V. e. albigularis has been elevated to its own species, with a subspecies: V. albigularis albigularis, the white-throated monitor, and V. a. microstictus, the black-throated monitor.

To further confuse matters, the white/black-throated monitors are larger than savannahs and eat a more varied diet in the wild. They are also far less reclusive than the savannahs, and are native to more temperate regions than the savannah monitors.

The savannah monitors can be found in the grassland zones throughout a broad swath of western to eastern central Africa, in Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Democratic Republic of the Congo (Zaire), Eritrea, Ethiopia, Gambia, Ghana, Guinea, Guinea Bissau, Ivory Coast, Kenya, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Togo, and Uganda. The white-throated monitors are found farther east and south, in Angola, Botswana, Kenya, Mozambique, Namibia, Republic of South Africa, Southern Democratic Republic of the

Congo (Zaire), Southern Ethiopia, Southern Somalia, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

The majority of the Savannahs coming into this country are shipped from Ghana, Kenya, Togo and Tanzania, with the most from Kenya and Tanzania.

Savannah and white/black-throated monitors have a blunter snout compared to the other monitors. The savannahs can be distinguished from the white/black-throated monitors by having larger osteoderms, especially around the head and neck, and by the placement of their nostrils, which are much closer to the end of the snout in the V. exanthematicus than in the V. albiularis.

Coloring is similar in the two species, shades of dark and dusty gray. V. exanthematicus are dotted with more light spots on their backs than the V. albigularis. The V. albigularis have distinctive dark bands around the tail, markings that are faint on the V. exanthematicus. The savannahs have long, blue forked tongue with are actively used in exploring their environment.

The oldest documented Savannah was over eleven years old when it died; other monitors have been documented at more than fifteen years of age. As care practices are improved and more is learned about the species' needs, lifespan in captivity may increase.

The Savannah monitors in captivity tend to be larger than their wild counterparts, due to food being more regularly available: no forced fasting from lack of available prey during the prolonged dry periods, periods that can last from 3-6 months, depending on where the lizard is originally from. While 4 ft STL specimens are rare in the wild, some may reach this length in captivity. Bennett reports wild hatchlings to be around 5 inches (13 cm) STL and 0.25 oz (6-7 gm), with wild adults averaging 13 inches (33 cm) SVL, 25 inches (64 cm) STL. Wild adults weigh about 1.6 pounds (0.753 kg); the largest Bennett weighed was under 4.5 pounds (2 kg). Bennett states that captive bred hatchlings may be larger than than wild hatchlings because of the contolled level of humidity provided in artificial incubators.

Savannahs are generally ready eaters, and will easily increase their weight five to ten times during the course of the first year, more than doubling their hatchling size of two and a half to four inches during that time.

Things To Consider Before You Buy

While monitors are quiet and do not demand the time and attention that a dog does, they do require a large enclosure and, as they eat frequently, their enclosure needs to be cleaned frequently. They are not naturally tame and so significant time must be spent with them the first year to tame them, and then regular time must be spent interacting with them to keep them tame. If not tamed, you may end up with a flighty, squirmy or aggressive lizard who is no pleasure to handle--or even to go near. They prefer a routine, with regular feeding and cleaning times.

Savannahs are reputed to be intelligent lizards and, as with many reptiles (and other animals) with lots of time on their hands, they spend some time every day trying to escape. Once out, they will cheerfully tear your house apart climbing around, looking for that perfect hiding place--some place very dark, very tight, and very difficult for you to get to. Vents and other access into the walls and major appliance are kid's play to these monitors. Unfortunately, not only can this drive you crazy, it can get expensive repairing and replacing broken objects, and repairing your monitor if it gets injured while out and about.

On the other hand, providing a savannah-safe area and things for them to climb on, some will do so, contentedly basking for some time before moving on. You can thus let your savannah out into a secured room for regular periods of exercise and sunning through an open window. This will

benefit the savannah in many ways, not the least of which will be some exercise to offset their tendency towards obesity (and liver disease).

If your monitor escapes outside, your neighbors (and the local animal regulatory authorities) will be less than pleased. In fact, some cities or counties ban the ownership of such animals, or require that they be licensed; it is best to check out your local regulations before you buy.

The American Federation of Herpetoculturists had a good set of guidelines the care and handling of monitors. Their guidelines include the restricting of monitor lizards to events at which the public may reasonably expect to see such lizards. This means taking a walk in the park with your lizard is not a good idea unless that park is the site of a science or nature fair which includes public exposure to the animal. Monitors can escape from more than their enclosures; when transporting them, they must be just as secure as they are in their enclosure. Cat and dog air travel kennels make good transporters for larger monitors (if they are being shipped by air, a more secure enclosure must be devised).

Steps should be taken so that, if by some unlikely happenstance, your monitor does escape its enclosure, it will not be able to escape the house. This is easily done by keeping the door to the room in which the monitor is kept remains closed at all times. If you have young and curious children about (or obnoxious or careless adult friends), you should consider keeping that door locked with a locking mechanism that is out of reach of questing hands.

When handling a subadult or adult monitor, it is preferable to have a second person present. They can inflict painful bites. Their method of killing prey is to grab it, crush the skull, then shake it back and forth. This is not a lot of fun when they do it to your fingers or hand or, as I found out for myself, your throat. (A few drops of liquor or vinegar placed in the monitor's mouth--when it's head is tilted down towards the ground--is generally sufficient to get the monitor to release its grip.) If you keep in mind that pet owners are responsible for medical and property damages inflicted by their pets, and that monitor bites can be severe enough to require stitches and antibiotic therapy, as much as it may cost to securely house the monitor, it may ultimately be a bargain.

Selecting Your Monitor

When at all possible, buy a captive bred monitor; it will be healthier and will acclimate faster to its new surroundings with to human interaction. You want a monitor that is alert, active, inquisitive (not aggressive) and physically filled out. If you must get an imported monitor, look for the same traits. In addition, check for mites, ticks, sores, scabs on the skin. Check the vent to make sure it is clean; ones with fecal matter caked around the vent should be avoided. Eyes should be clear with no secretions. There should be no secretions from the nose or excessive mucous in the mouth. The tissues in the mouth should be uniformly pink. Red spots or yellow cheesy matter are signs of mouthrot. While the animal may not be fully fleshed out, you should avoid those that are "skin and bones."

Once you are home with your new monitor, give it some time to get acclimated. Approach it slowly; avoid abrupt movements. Allow it to hide for the first several days; do not be too concerned if it does not eat during this time. Wild monitors will puff up, hiss, crouch down and back away from you, possible slapping you with their tails. If you allow your animal to get acclimated pretty much on its own, it will be healthier in the long run.

With in a few weeks, your monitor should be well on its way to being comfortable in its new surroundings, and should be beginning to feed well. Weight gain and growth will be obvious. Keep in mind, however, that some monitors, especially wild-caught ones, do not adjust well to captivity. They remain on the defensive all the time, and may fail to gain weight or grow much. Many savannahs have trouble adapting to change. If you get one from a private party rather than a pet store, expect the monitor to go through the same acclimation process. Once they are used to a

routine, it is often difficult for them to get used to a new routine, especially when coupled with new people and different surroundings.

Housing

In the long run, it is less expensive to buy an enclosure for your monitor to grow into, rather than to save some money and buy a small enclosure that will not last more than six months or so. Start with a thirty gallon tank at the least; a fifty-five or sixty gallon is even better. You will still need to quickly start planning the enclosure it will be housed in when full grown. At three feet long, it will require an enclosure at least six feet long (preferably longer) and eighteen inches wide. The taller it is, the less likely it will be able to climb out (and they are agile and persistent climbers!). Stay away from open-mesh enclosures as these monitors must be kept warm and, unless you live in a consistently warm environment yourself, it will be costly and complicated to get such an enclosure heated to the proper temperature.

Stay away from screen-sided or topped enclosures (hardware cloth tops are acceptable). Savannahs have incredibly sharp claws, and can easily shred a hole in screen. Make sure that the walls, floor and ceiling are securely attached to each other. If the savannah finds a weak spot, it will work at it and work at it until it works a hole just big enough for it to squeeze through. Along the same lines, keep the enclosure away from drapes, expensive lamps, computer equipment, etc. When taken out of it's enclosure, savannahs will scrabble around trying to hook their claws into anything they can.

Heat

Savannahs come from hot, dry environments--the savannahs of central and sub-Sahara Africa. The monitors found at the extreme south of the range experience cooler weather. If you live where it is very cold during the winter, the savannah may go through a short seasonal hibernation (but this is not to be encouraged; if it happens it happens, but always have the enclosure set at the proper temperatures). During the day, temperatures should range from 85-90 F (29-32 C). At night, it can drop about 10-15 degrees, to 75-85 F (24-29 C).

Heat should be provided in two ways: a subtank or sub-substrate heating pad under half the tank, and a basking area; eventually, you may wish to purchase a fiberglass pig blanket and connect it to a thermostat. Heat tapes, incandescent lights, ceramic heating elements are all suitable for providing heat. Use what ever combination is necessary to maintain the proper temperature ranges day and night, and without stressing the monitor at night by burning a white light for heat. A slightly more expensive way to heat the monitor is to keep the room warm, usually by use of a space heater.

Hot rocks may be used only for smaller monitors, and only when guarded against getting too hot (see the article on hot rocks for well-known problems associated with them). If using a hot rock, it should be connected to a thermostat to keep the surface temperature down to 85-95 F (29-32 C), not the 105 F (40 C) that the hot rocks typically reach.

Substrate

Brown butcher paper is the easiest and least expensive but rather uninteresting. Astroturf or indoor/outdoor carpeting is another possibility. Extra pieces may be kept on hand, already cut to fit, and popped in the tank while the soiled piece is removed for cleaning and disinfecting. Some keep their monitor on wood chips or bark (not cedar or redwood); others use a fine to medium pea gravel.

While these last two may be aesthetically appealing, there is danger that the monitor may accidentally ingest some of this substrate, causing impactions which may ultimately be lethal. Since male reptiles often evert their hemipenes, and both species may evert cloacal tissue when defecating, small particulate substrate can stick to the everted tissue, being drawn back up into

the cloaca, causing injury and infection. Particulate substrates such as rock, pea gravel and bark are also be more difficult to clean and disinfect, and expensive to replace regularly.

Shelter

Savannahs like their privacy. Provide shelters at both ends of the gradient. Commercially available "caves" and half-logs work well for small monitors, but they become prohibitively expensive or impossible to find in a size suitable for full grown savannahs. Recycle cardboard tissue boxes or any other box into which your monitor will fit. The advantage of using such boxes is that they are easily and inexpensively replaced with bigger ones as your monitor grows. Larger monitors can be provided wooden shelters; they can be decorated with rock, mosses, bark, etc. to "dress" them up. Keep in mind that, when designing a naturalistic terrarium, monitors come from rather sere surroundings.

Lighting

Monitors, like other lizards, do best with ultraviolet B for calcium metabolism, and a regular photoperiod. Use a Vita-Lite or other UVB-producing fluorescent tube (not a plant or aquarium light) plugged into a household appliance timer. Set the timer to be one 10-12 hours a day, slightly less during the winter. Black- and very high output ultraviolet bulbs eyes can damage monitor eyes and cause immune suppression and so should be avoided. If you can provide real sunlight, either coming in through a window screen (not glass or Plexiglas), or in a semi-shaded secured area out-of-doors on a regular basis, you may be able to do without as much artificial supplementation.

Food

A healthy savannah will feed just about any time you offer food; one that does not willingly eat (and who is not in a seasonal hibernation or breeding season), then your monitor is very likely ill. Healthy, well-fleshed monitors can easily get through the hibernation and breeding season without any serious loss; sick monitors should not be allowed to go that long without food.

Hatchlings can be started on crickets, earthworms, Zoophoba ("king" worms) and pink mice. Feed insects that are no bigger than 2/3 the length of the lizard's head, and start on pinkies when the monitor is a couple of months old and have grown large enough for them.

As the hatchling grows bigger, switch to fuzzy mice. Savannahs are secretive, especially small ones who are prey for other, larger, animals. The exercise they get chasing the crickets is good for them, so do feed them crickets during this period as long as they will take them.

A small amount of high quality, low fat, canned dog food may be offered to scrawny hatchlings and juveniles, but do so to adults *only* when sick and they need extra calories. Better yet, use an food product made especially for for force-feeding or otherwise nutritionally supporting sick carnivorous animals, such as Hill's a/d. Better still, get sick savannah's to the reptile vet to be thoroughly checked out and make sure that the sick lizard is getting the right supportive care.

Warning:

With adults and younger savannahs, too much of even a good quality dog food and other commercially prepared non-whole prey foods may be harmful. Cat food should be avoided for *all* animals (other than cats) as it is very high in fat and other things that, depending on the non-felid species it is fed to, can lead to a host of other health problems. Healthy, prekilled rodents should ultimately be the staple food source in your monitor's regular diet. Hepatic lipidosis due to a high fat diet and too little exercise is an all too common disease - often a lethal one - in opportunistic feeders like savannahs and so care must be taken to focus the diet on whole prey other than as absolutely needed.

You can vary your savannah's diet with a variety of healthy invertebrate prey, such as kingworms, crickets, the occasional snail, etc. Too many wild-collected invertebrates, especially snails, can

result in smelly, loose stools that are likely an artifact of the various parasites and other organisms commonly found living in and on snails. There is also the danger of any invertebrate you collect being contaminated with any of the environmental toxins you or your neighbors are using. Since toxins tend to bioaccumulate up the food chain, the top predators are the ones who suffer.

Whether you buy prey or collect or breed prey, you need to make sure they healthy. Housing each species properly in clean, uncrowded conditions, and feeding and hydrating them properly is just as important for the dinner as it is for the diner.

Normally, savannahs will not eat prey that is too big for them; if they do, it is usually regurgitated soon after. While this is not always harmful for the monitor (there is a risk of irritation due to stomach acid and being scratched by the prey's backward-facing teeth, claws and other sharp bodyparts), it is an incredibly aromatic experience for the keeper. Full grown monitors will eat full grown mice, small rats and small hamsters if you can't find gerbils, the latter being native to the savannah range. (Guinea pigs should be avoided due their very thick-and difficult to digest-skin and fur and their high fat content.) Venomous snakes and a variety of other wildlife native to the savannah's range are also on the wild savannah's diet. In captivity we are, at best, able to feed but a pale imitation of their natural diet. The trick is to make sure prey is healthy, the right size, and that your slug-a-bed monitor gets moving on a regular basis.

Feeding

Savannahs will easily eat prekilled prey. If you are using frozen prey, be sure to defrost it thoroughly and warm it slightly before offering it to the monitor.

For safety's sake, offer monitors their prey by dangling it from forceps or kitchen tongs. Wild caught lizards may take some time to convert to a strictly rodent diet; in the wild they have been found to consume a large variety of invertebrates, other reptiles, small animals of many types, snails, frogs, caterpillars, lizard eggs...even baby tortoises.

The greatest period of growth is within the first two-three hears, and this is the period when the greatest amount of food will be required. Feed hatchlings (up to one foot in length) one to four small mice or fuzzies (depending upon the monitor's size) every two-three days. If they were very emaciated and/or sick when you first got them, along with the visit to your reptile veterinarian, read the information in theEmaciation (Starvation) Protocol article to help aid recovery and get them through the initial weeks of acclimation stress. Otherwise, stick to whole prey, and be sure to time your invertebrate purchases so that you can house and feed (and provide water to) the inverts, especially crickets, for a day or so before you feed them out to your monitor. Crickets can be offered as long as they will go for them, using worms and pink mice (which come in different sizes) for variety.

Juvenile/Subadults (up to three feet in length) should be fed one to four mice twice a week. Prekilled whole prey may be injected with Nutri-Cal, Endura-Jel or other high calorie vitamin/mineral paste or gel formulated for dogs and cats (gently heat the gel to make it less stiff, then use a needle-less syringe can be used to suck it up and shoot it down the throat of killed prey.) for underweight youngsters or those recovering from illness or injury.

Adults (three or more feet in length) can be fed twice a week, adjusted as necessary based on weight gain and amount of exercise. Obesity in savannahs, a serious health condition caused by improper husbandry, is all too common in captivity. You will have to use your judgment, observing

how the monitor looks, taking into consideration the temperature and amount of activity. Start with a couple of mice or weanling rats a week.

Due to a recent article that appeared in a herp hobbyist magazine, there has been much discussion on captive diets for savannahs, with many people unnecessarily - and possibly unadvisedly - switching their adult savannahs from rodents to insects.

Water

Despite some accounts, savannahs do enjoy soaking. Provide them with a water bowl or tub big enough for them to submerge themselves (they can stay under water for extended periods of time). They will drink their water, and may defecate in it, so the bowl must be checked at least once a day to keep it clean and filled. Savannahs are also handy at tipping over water tubs, so make sure to use sturdy, bottom-heavy crocks or tubs.