



Xenagama taylori: Captive Care, Breeding, and the Future

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Introduction:

Xenagama taylori (commonly known as Shield-Tailed Agamas) are small omnivorous desert lizards that hail from Somalia and Ethiopia. Triangular shaped heads, squat torsos, bold personalities, cobalt blue throats, and an explosive set of spikes for a tail make these incredibly unique and enigmatic reptile pets. *Xenagama* resemble *Uromastyx* in terms of context in that, at the time of this writing, they have been only sporadically imported into U.S. Herpetoculture but haven't gained a steady foothold in the hobby. Although relatively simple to keep and only moderately challenging to breed, for one reason or another, *X. taylori* simply have yet to make their mark.

Adults range from 3.5in to 4.5in in total length and 20-35 grams in weight. In hand they remind me of the American genus *Phrynosoma*. Although small, they are like little scaly bulldogs and have large personalities. These active diurnal lizards will make use of a great deal of space by darting around the enclosure exploring, kicking around substrate, constructing burrows, and foraging for food.

This care guide is still a work in progress, I'm mostly recording what has worked for me so far and any thoughts/observations about *X. taylori* that I feel are relevant. I kept a couple small groups when I was in college about 15 years ago and today I keep a modest colony of about 15 adults. Much like my care guide for *Uromastyx*, as I learn more I will update this

document to reflect any important changes. Consider this care guide as a 1.0 of sorts, encompassing the last 5.5 years of my work with *Xenagama taylori* and bringing them to 3rd and 4th generations here at my facility.

Housing and Setup:

When constructing a long term enclosure for any pet reptile the initial planning phase must include at least some understanding of the wild habitat occupied by the species in question. As with most reptiles, there is a substantial amount of flexibility in exactly *how* the needs from the environment are met. Work hard to not simply replicate the wild on a visual level. Seek instead to provide as much interest and opportunity as possible inside the bounding box of an enclosure.

For a single animal I recommend an **enclosure** that measures 36x18x18 inches, but seeking larger spaces for our pet reptiles is always a good move. 55 gallon Rubbermaid totes are excellent choices for single animals and pairs. I have also used 6 foot open top pens for small adult groups as well as groups of babies. The greater the number of occupants in an enclosure the greater the challenge. *Xenagama* can do very well in groups but can also be absolutely vicious with one another in certain situations. Due to this possibility, remain ready to split animals and adjust enclosures and occupants accordingly if necessary.

Visual appeal or design of an enclosure is an important consideration for many keepers and it's not necessary to limit choices to one type of material or another. Glass aquariums, open top plastic bins, custom PVC or wood enclosures, and safe/secure outdoor pens can all



be suitable housing for Xenagama.

Note the photograph above taken by Tomas Mazuch of a wild habitat for Xenagama. Images like this one provide invaluable information for those of us keeping Xenagama taylori in captivity. They say a picture is worth 1000 words, in my opinion 1000 is not nearly enough to cover what a photograph like that one can teach us.

For **substrate** I use a mixture of play sand and gravel just like I use for my Uromastyx. I have also used top soil, coco fiber, and just gravel with no ill effects as of yet. Each bedding can be used at various depths and I've used everything from 1 inch to 6 inches of depth. Some prefer to offer their Xenagama the option to burrow, for this I suggest top soil since it seems to be the best for holding a strong burrow and not collapsing when too dry. In my cages I have areas of deeper bedding that allow the animals to dig, sometimes they make burrows when the bedding is moistened but I don't give them the option to keep permanent burrows at this time.

Extra **features** in the enclosure can include basking stones, small sticks and logs (although they don't climb these much if at all), cork slats (which they love to hide under), large magnolia leaves, hide boxes, and a food bowl. I've also included egg crate as temporary features for both baby and adult Xenagama. These make great feeding platforms that allow the lizards to chase insects in and around the egg crate.

I tend to construct enclosures for my Xenagama in a similar way to my Uromastyx but with approximately less features overall. I prefer to anchor a setup with a large object or collection of objects, usually large **rocks** and **stones**, that everything else in the enclosure orbits or extends from. I make an attempt to balance dense hiding places with open space to move in an effort to not overly crowd the space or leave it too open and scarcely furnished. Attempting to offer multiple textures, colors, shapes, and sizes provides visual interest to the keeper as well as variety and stimulation to the animal's experience. In the same way it is good to offer a variety of foods the same applies to every facet of care from temperature to hiding places.

Light and Heat:

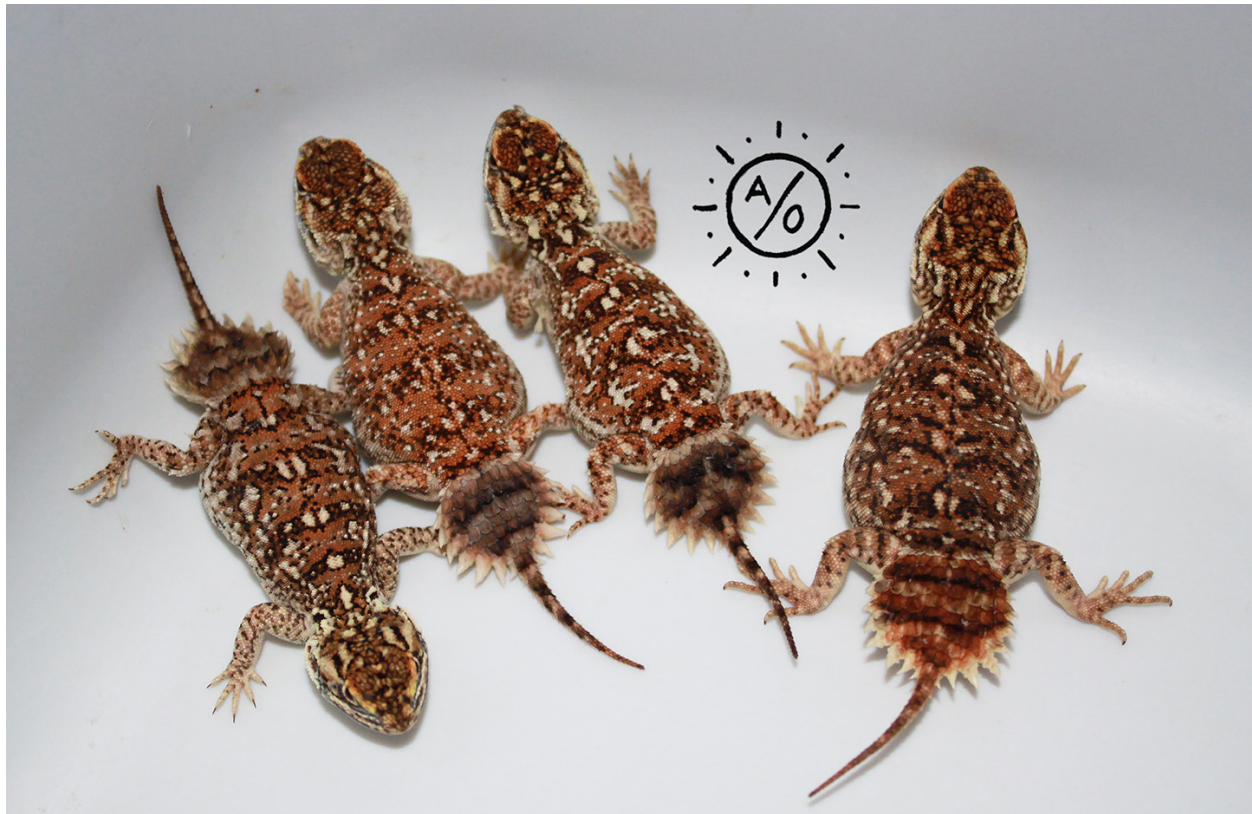
One perk of the smaller size of X. taylori is that providing ideal lighting and heat conditions becomes much easier. All diurnal lizards require a basking zone which is a space that both contains the full body of the lizards from head to tail while also consistently holding the ideal basking temperature. For a smaller lizard this becomes quite easy with a PAR30 Halogen flood light bulb or any of the basking bulbs produced by the various reptile lighting brands. Wattage needs will vary based on many factors including cage size, the region where you live, your average home temperatures, and others, so it's important to experiment with various bulb types and combinations to determine what wattage or combination of wattages to use. Keeping extra bulbs on hand for the inevitable burn out of a bulb will save an unexpected trip to the store. Seasonal changes in local temperatures will also effect bulb/wattage choice.

For UVB lighting I use Arcadia High Output T5 14% bulbs for my Xenagama, the same lights I use for my Uromastyx. I have also used various mercury vapor bulbs for X. taylori from time to time with good results, but these are not my first choice for lighting. The UV light should stretch nearly the entire length of the enclosure. Follow the manufacturers guidelines for how far the light should be placed from the animals.

My Xenagama taylori most commonly utilize basking zones no hotter than 112F and most prefer to lounge lower at 108-110F. Typical ambient temperatures in my enclosures averages between 77-85F depending on the time of year. Night time temperatures are usually between 60-75F also depending on time of year. This does not mean that hotter basking zones won't be used from time to time, but none of my animals have sought out such extremes. Winter night time temperatures down to 55F are safe and likely will benefit the long term health of these animals especially in the context of breeding.

The brighter the cage the better! Adding additional light to increase overall cage

brightness is yet another way to improve your care. Adding supplemental lighting without adding extra heat or UV is not required but is great when and where it can be provided.



Feeding:

X. taylori are omnivorous and will consume a wide variety of foods. **Insect prey items** that I've fed my Xenagama include crickets, mealworms, super worms, buffalo beetle larvae, roaches, hornworms, grasshoppers, ants, wasps, bees, and bean beetles. **Plant food items** include various greens such as collared, turnip, romaine lettuce, kale, and endive as well as shredded carrots, and flowers like dandelions and bane weed. Almost all of my Xenagama have eaten RepCal juvenile iguana pellets in small amounts (as adults) as well as small amounts of millet bird seed.

For new hatchlings and animals up to 6 months old I provide insect food daily or 5 days a week and greens on the off days. For animals older than 6 months I reduce insect food to 3 days per week and greens/veggies 2 days a week. There is some variability here, for example if I feed a substantially sized food source (hornworm, large dubia roach, etc) I may skip feeding the same animal again for 2 days. It's also important to note that season will also effect how often I feed. Animals that are not in a cooling phase are fed only 3 times per week and given fewer food items in each feeding. Some animals may eat less during the cooler seasons.

I use Miner All Outdoor Formula and Exo Terra Multivitamin powder to supplement the insect food items for my Xenagama taylori. These supplements and other brands offered based on the manufacturer's suggestions on the label coupled with high quality basking and UV light and a varied diet should yield excellent health in any Xenagama.

A shallow water bowl should be present in the enclosure. I fill these bowls by lightly

misting the enclosures in the mornings or on hot afternoons. Most of the lizards quickly learn where to find water and will also drink from the sides of the enclosures when sprayed.

Sexing:

At the time of this writing all of my young *Xenagama* are usually sexable at about 3 months of age. Young male individuals will have a row of slightly darker scales just above the vent that eventually become pronounced and waxy pores in sub adult and adult animals. Hemipenal bulges can be seen in males just past the vent, females usually do not have these bulges or they are not nearly as pronounced. Females also lack the dark orange colored pores present in adult males. Both sexes will show brilliant blue chin/face coloration but in males this



display is drastically more intense than in females. I've had males as young as 3.5 months begin to display their outrageous blue throats, but at that age it tends to be less solid and more striped in shape. Male *X. taylori* will also develop orange belly flank coloration as they reach sub adult size. In some males the orange flank color will mingle with the blue chin color around the back of the jaw. The relatively new tool of "candeling" the tail of an animal with an LED light can sometimes reveal the presence of hemipenes in males, but it's worth noting that this method is simply another way of comparing animals and is not a guaranteed way of determining male from female.

I am distrustful of sexing methods that seek to use body and head shape and other more amorphous characteristics to determine male from female. At best I think tools such as those are primarily useful in the context of having large numbers of animals to compare and work best when paired with the other characteristics I mention above. Far too much individual variation occurs in these animals for things such as head shape or body shape to be reliable.



Breeding:

Sexual maturity in *X. taylori* appears to be reached within the first year of life/growth. While I've seen breeding behavior from animals as young as 8 months old, I hold off on allowing them to breed until they are 1.5 years old in an effort to ensure that all animals involved are as ready as possible. Most of my adults range from 25 grams (a female that had just laid eggs) to 37 grams and likely slightly larger.

Much like other lizards breeding can be stimulated by a winter cooling phase. I have provided this in 2 ways. One way involved gradually reducing daylight hours from 12 on 12 off to 7 on and 17 off. I reduced food intake to near 0 at the peak of this reduction and kept them in this state for 3 weeks before beginning the ramp back up to normal hours. Another way I've approached cooling has been to reduce daylight hours for 3 weeks, feeding nothing during the last 1.5 weeks of reduction. After 3 weeks time I leave the lights completely off and reduce ambient temperatures to below 65F and kept them this way for 4-6 weeks. During this time I occasionally observe the animals to make sure no one is losing too much weight or looking dehydrated. I've also offered water during this time and several of the animals drank. After 4-6 weeks the temps and daylight hours are ramped back up to normal over a 3 weeks time frame. Breeding usually occurs around 2 weeks after normal hours and temperatures are reached.

When *Xenagama taylori* attempt to mate the male will show the extreme blue throat and face coloration that ranges from a deep cobalt blue to a dense sky blue depending on the individual animal. The male will wriggle his tail tip (if this tip is still intact) at the female while also bobbing his head erratically. He then chases and latches onto the female's nape and copulation follows. Much like the American genus *Crotaphytus*, the mating time for *Xenagama*

is very brief, lasting only a few seconds before the couple parts. For this reason in my time keeping this species I've only caught the animals copulating just 3 times.

X. taylori can lay between 1-5 clutches of eggs per season. More than 3 clutches in a single season, while they can happen without much harm, is likely less than ideal in terms of the life/health span of the female being taxed to produce and lay the eggs. Splitting males from females has usually been enough to prevent further egg production, but sometimes a final clutch will be produced without the presence the male.

Gestation is typically 4 weeks between mating and egg laying, however in some cases this can last much, much longer. I have had female Xenagama hold eggs for 2 months before laying, seemingly waiting for conditions to be just perfect before doing so.

I use a mixture of topsoil and play sand to provide nesting for my Xenagama. Most females will start a burrow under a stone. Some have laid their eggs just a few inches under the surface of the dirt while others have dug nearly 10 inch long burrows for laying. Clutch sizes range from as few as 4 to as many as 11 eggs in a single clutch.

Incubation:

Eggs from Xenagama taylori appear to be quite resilient. My females lay between 4-11 eggs depending on age, size, time of season, and overall health. After I collect the eggs from the burrow I place them in slightly dampened perlite. While I don't tend to measure moisture/humidity, I prefer to go by feel, in general the moisture content of the perlite can be generally averaged to 1:1.5 perlite to water by weight. Most of my Xenagama clutches hatch between 45-50 days of incubation at 80-84 degrees F. Increasing the temperatures of incubation will



decrease incubation duration but will result in slightly smaller/weaker hatchlings. On average the whole clutch of babies will hatch out within 23-48hrs. The hatchlings can stay in the

incubation container for a couple days until all of them are out and running around before being moved into a rearing enclosure.

Hatchling Care:

I use 20 gallon Rubbermaid totes as rearing tubs for hatchling *X. taylori*. I have also used very large pens made from stock tanks for these lizards but that's not always practical for the average keeper. Both paper towel and playsand/gravel mixtures work well for bedding. I arrange the cage furnishings identically to adult *Xenagama* just on a smaller scale.

Baby *Xenagama* drink a decent amount of water and will readily do so from the walls when they are sprayed. I do so in the mornings and on hot afternoons for adults and hatchlings both. I feed the same insect and plant foods to adult and baby *X. taylori* with the exception of RepCal juvenile iguana pellets and millet seeds. Hatchlings will feed daily on insect foods and will grow very quickly from birth until 6-8 months of age.

It is not uncommon for baby *Xenagama* to fight with their siblings, adding many hiding spots that can only fit a single animal can help mitigate this problem. But it is very likely that, at one point or another, separating them will be required to avoid them hurting one another. Most common injuries are bites along the flanks and missing tail tips.

The Future:

Predicting the future is never a good gamble. However I thought it might be worth offering my thoughts on what could lie ahead for *X. taylori* in U.S. Herpetoculture.

Herpetoculture is changing all the time, reflecting the broader rapid rate of change in our world as a whole. Some trends in Herpetoculture are leaning towards smaller, easier to keep species with a shorter list of demands than some of the larger and more classically popular pet animals. *Xenagama taylori* are small in size which means they take up less space in a home while also being relatively easy to provide them with a high baseline standard of care. They are resilient lizards with a lifespan that lasts at least 12 years (the oldest adult I have heard of so far) and I estimate they might be able to reach around 15 years of age. *Xenagama* are energetic and smart, but don't have bottomless appetites which can run up food bills. They reproduce at a modest rate, not so much that they may flood the market, but not so infrequently as to deter the average keeper from giving them a try. Last and definitely not least, *Xenagama* can range from being bold enough to be active most of the day in a terrarium to being downright puppy dog tame. These features make them quite possibly one of the best candidates as pet reptiles for new and experienced keepers alike. With patience, work, and refinement I believe these lizards have a very bright future in the global Herpetoculture landscape.

Morphs/Mutations: As of the time of this writing no genetic mutations of *X. taylori* exist to my knowledge. It seems somewhat inevitable, since genetic mutations occur in everything. I am open minded to how a future with morphs present in *Xenagama taylori* might look if managed in a responsible manner.

Phenotype refinement: *Xenagama taylori* are highly variable and range in color from brownish grey to a sandstone orange with varying degrees of darker pattern/banding. Much like the bearded dragon and leopard gecko, I believe *Xenagama* have a bright future that includes some level of phenotypic refinement in the form of selection for more and various color forms.

Miscellaneous Photos:

