CONFessions OF AN ALTERnA Addict: THE Care AND Breeding OF THE Gray-BANDED KINGSnake. PART 1

Joel Eidbo

When I was younger, my idea of a good time was hunting garter snakes on the Buffalo River. They were easy to maintain and it was fun watching them catch goldfish. It was at the pet store, while buying some goldfish, that I first discovered the Conant field guide. After buying it, I learned about a whole rainbow of snakes, none of which seemed to occur in northern Minnesota. The most impressive snake to me at the time was the humble corn snake, and soon my lawn-mowing cash bought the first of what was to become a procession of rat snakes. Even though I later fell in love with the gray-banded kingsnake (*Lampropeltis alternia*), you never forget your first love, and I still keep a few corn snakes, even after 20 years.

It was during college when I stumbled across the Audubon field guide. I can remember, like a religious experience, the first time I saw the photos of the gray-banded kingsnake; it was love at first sight. Instantly, I was a brand-new member of “Alternas Anonymous”, but too broke to do anything about it. I spent long hours in the many college libraries of my town, searching for anything written about this fabulous snake. Finally in 1982, using student loan money, I scored my first *alternia*, a beautiful catching from California. Later, anadulth pair followed, and with the marvelous ignorance of beginner’s luck, I was able to successfully breed them. In terms of my addiction, it’s been downhill ever since, and now I tend a colony of about 50 gray-bands of various sizes, ages, and patterns. Through the years I’ve learned a lot about these challenging snakes (often the hard way), and hope to pass on some of my hard-earned experience to other *alternas*.

Gray-banded kingsnakes, *Lampropeltis alternia*, are almost a cult-like toxin, and sometimes the hatching of a favored clutch of eggs is a celebration unlike anything since the Minnesota Twins won the world series. Another transcendent joy is to capture one in the wild. No other snake generates such excitement in the wild; unless you’re being chased by an angry cobra. In southwestern Texas, dedicated alternophiles stalk their prey until the wee hours of the morning. Like prospecting for gold, the crazed hunter patiently sifts rock cut after rock cut, searching for signs that will lead to the mother lode. I can’t begin to describe the excitement of spotting a gray-bend in the wild; I’m no expert at hunting snakes outdoors (although I have many good stories about hunting them in the home). Some of my friends are experienced veterans and they are much better equipped to describe the details of wild-collecting. I leave it to them to write about hunting grays (and I hope one of them will).

A couple of times, a friend of mine has taken me out night-hunting on the roads of west Texas. With blazing spotlight and caffeine-diluted bloodshot eyes, we’ve cruised up and down stretches of the highway, right at a time, scanning the cuts and crevices of the sheer rock walls. I spotted a couple, while my friend spotted three or four that I missed. When you hold that first catch in your hands, eyeing it in the headlights, the feeling is indescribable. I have only hunted a few nights, while my friends have hunted hundreds. Don’t.

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* Due to the length of Joel Eidbo’s article on Gray-banded kingsnakes the usual sections for announcements and new publications have been omitted from this issue.
melanistic alternas. Alterna phase refers to gray-bands with very narrow dorsal saddles usually only a few scales wide. These bands may or may not contain orange, although the most desirable alterna-phase is one with the narrowest bands, lacking any orange at all. Between the saddles are rows of spots or 'alternates'. The alternates may be spread evenly down the entire snake, or may appear at random. Sometimes the spots between bands are so numerous that the snake appears to have a leopard-like pattern. The blairs phase is the easily recognizable one, having bright orange dorsal saddles. The width of the saddles varies; I have seen examples of grays with almost 80% of their dorsal surface bright orange. The quality of the orange is extremely variable as well, ranging from a lifeless, brownish-orange, to scarlet red, to brilliant fluorescent orange that makes your fillings hurt. The orange is sometimes obscured by suffusion with black, to the point where the saddles appear to be black bands with some orange peeking through. The orange or red color may be bright or dull, and uniform or spotty, where the band resembles a starburst or sunspot. Even the number of bands is variable from 10 or 12 to over 20. Black and white photos can't begin to do justice to blairi, but Figs. 1-3 illustrate what I'm talking about.

There are two ways to get a gray-band, catch one, or buy one. It's a lot more fun to catch your own, but if you add up the money you spend on food, gas, motels, and travel, just to have the opportunity to try and catch one, you will soon realize it's much cheaper to just buy one. I have a few wild-caught alterna in my collection, animals I purchased from other collectors. Initially they are more sensitive and finicky than captive born animals. One male I had for several years always refused mice when first brought out of hibernation; he would take lizards first, then switch back to mice. Wild-caughts seem more aware of seasonal changes as well. My wild caught gray-bands are always the first to go off feed in the fall. I managed to kill a couple of males through starvation before I understood this. Now I adjust my hibernation schedule accordingly.

Choosing a gray-band can be a tough decision. Wild-caught animals can be more difficult to get started, and for most of us, it's unlikely that we will be able to collect what we want. You could also buy a wild-caught animal, as I have, but with all the captive breeding today, I would suggest buying a captive bred animal.

Hatchlings can be purchased from wild-caught parents of known locality, which is the best of both worlds. Such a hatchling should be easier to acclimate than wild-caught, and still has a documented locality. Prices vary from $50 to $500, depending on locality, looks, size, sex, etc.

Decide if you want a hatchling or an adult, or something in-between. Ask yourself: why would anyone sell an adult alterna? Good question. Many of the adults I have purchased were not healthy, would not feed, were way older than reported, were uglier

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Fig. 1. Light "Blair's" phase of Lampropeltis alterna
stress of travel to its new home. A yearling also should have a well developed pattern, and you can tell if it is going to be a light or dark phase by now (this is one of the reasons I wait for a year before thinning out my hold-backs). Yearlings are harder to find, and may cost more, but you can avoid some of the headaches of raising a hatchling and get a year's jump on breeding at the same time.

Once the snake is in your possession, there are many steps you should take. First, get the animal probed or popped, and make sure it's the right sex. A guarantee of gender isn't much good a year later. Second, quarantine the snake and carefully inspect it; be on the lookout for ticks, mites, spinal kinks, injuries such as bite marks, hunger folds, evidence of respiratory or other illness, or mouth-rot. If the snake fails the exam, return it and get your money back. If it passes, move on to the next level.

While still quarantined, check the stool, if it's loose and runny, full of mucus, abnormal in color, or unusually foul-smelling, send it back. If the stool is okay, then observe the animal. Is it moving around, acting like a normal, active snake? Or is it lying in the corner like a limp noodle? Muscle tone is a good indicator of overall health, and lack of it is an equally good indication of poor health. Last, of course, is try and feed it. Only when the snake passes through all these checks, and feeds readily, should you accept the snake. Even now, though, there is no guarantee that the snake will do well. That's up to you.

Congratulations! You are the proud owner of a gray-banded kingsnake! After staring at it for a few hours, after counting the number of bands and alternates, after smithy boasting to all in earshot that you scored, and after you come to your senses (it alternna addicts ever do), now is when you realize you need a cage to keep it in. How many herp nuts do you know that spend thousands on their animals, and almost nothing on their cages? I guess it's like candy-nobody wants to spend anything on the wrapper.

After I bought my first alternna, I wanted to place it in a captive environment that would replicate its native habitat, like a miniature ecosystem: rocks, sand, live plants, lighting, and of course a large amount of floor space for the snake to roam around in. One quick look at my wallet, and I realized most of my money had gone into buying the snake. I couldn't afford those large impressive enclosures, I had to settle for an efficiency apartment approach. Although the snake seemed cramped, it thrived. Only later, after years of keeping gray-bands, did I realize that too much space is not a good thing, especially if there isn't enough hiding area. Compared to then, nowadays many different housing options exist. Your choice is limited only by your wallet, your imagination, or your wife (at least in my case).

My first cages were simple wood boxes, with a front window, and insides lined with linoleum. They were pretty cheap, but well made and attractive. Trouble was, they were practically air tight, and prone to excessive humidity. Water was always condensing on the walls, soaking the substrate and eventually the snake. I switched to simple glass aquaria; a lot of people still use them, but I think the openness of glass all around is a disadvantage, especially for a relatively secretive snake like the gray-band. I would tape paper around the sides of my aquarium, leaving only the front pane and the top exposed. Even aquarium tanks became passe', when I discovered plastic "shoeboxes." At first, the only kind I knew of were the clear hard plastic type, the kind that break easily. Still, they were easy to clean, lightweight, cheap, and you could stack up unused boxes in a minimum of space. The hard plastic boxes were not large enough for adult alternna, however, and I was always chipping the corners every time I went to clean them.

For at least five years, I have been happy with Rubbermaid plastic boxes. Rubbermaid's are made of a durable, and flexible plastic, and are available in many sizes. The plastic is not perfectly clear, but slightly opaque. The opacity is an advantage when keeping gray-bands. Three common sizes are used, known in the vernacular as "shoeboxes", "sweaterboxes", and "blanketboxes." Shoeboxes are 33 cm long x 20 wide x 8.5 high. They are the ideal size for raising hatchling gray-bands. Sweater boxes are 40 cm long x 27 wide x 15 high, and serve perfectly for yearling to young adult gray-bands. Finally, blanket boxes measure 57 cm long x 41 wide x 15 high, and have ample floor space for even the largest alternna. Rubbermaid produces both the sweater and blanket box sizes with different heights. If you feel the heights I use are too confining, choose boxes that are a little taller. Ventilation is easily accomplished by drilling or melting holes all around the perimeter just beneath the rim. There are other soft plastic boxes besides Rubbermaid, but I have tried several, and none seem to be as tough as Rubbermaid's and none are as easy to find.

Advantages of soft plastic boxes are many: they are cheap, easy to clean, durable, secure for the snake, and easy to incorporate in a rack system. When kept in a rack enclosure, you do away with the lids. Each tub is securely snuggled in its own compartment, and slides out easily. The top of the compartment serves as a lid. Rack housing is as escape-proof an environment as anything I have ever used. If you manage to pull out a box and forget to slide it back in, the unused lids can serve a new function. Place a vertical stack of lids in a corner of the snake room. On the few occasions when a snake has gotten loose, I have always found them coiled up between a couple of the lids. I think the lids act like rock layers and remind them of home.

Some breeder's have enclosures consisting of an upper compartment similar to the standard square box cage with the front window, and a lower compartment consisting of a simple drawer. These drawer type cages are perhaps the best possible combination of other types; the upper compartment allows easy visibility of the snake, as well as lighting if desired, while the lower drawer gives the snake a large hiding place for security. The compartments are connected by a short segment of PVC pipe through a hole in the floor of the upper space. The drawer can be slid out like a rubbermaid tub (the drawer could actually be a rubbermaid tub) for easy cleaning. In the future when I'm rich and famous, or at least rich, I would like to have a series of these drawer style cages.

Both the rack and the drawer systems are now commercially available, but they can be quite expensive. If you are limited by space, the plastic rubbermaid rack systems are the most space-efficient, and less expensive than the two compartment drawer style racks.

No matter how you house your gray-bands, temperature control is important for maintaining and successfully breeding them. Commonly, flexible heating tape is used, either the flat ribbon style, or the newer flex-watt style. Either works well. The heat tape is controlled by a thermostat, using anything from a simple dimmer switch arrangement, to high tech digital electronic thermostats. Personally, I have used various Microclimate brand thermostats for years, but friends of mine report equal success with many of the other brands. If you have enough cages to require more than a few feet of heat tape, it's a good idea to use several smaller tapes each.
with its own thermostat, instead of trying to control the entire assembly with one tape.

Remember physics; heat rises! If the heat tapes are all hooked up to one thermostat, put the probe in a cage towards the top of the rack. If it is put in the bottom, the upper cages may overheat. To offset this potential problem, I have three heat-tapes, one each for the upper, middle, and lower third. Each tape has its own thermostat. The probe from each is fixed into place on the cage floor, underneath the substrate, immediately above the heat tape. Each thermostat is set to control the warmest temperature in the cage. The lower thermostat is set slightly higher than the middle, and higher still from the upper thermostat. After a little fine tuning, the hot-spot temperature in my lowest cage is within 1 degree of my highest cage.

The rack system I use predateS flex-watt style tape, and is fitted for the thinner ribbon style. Because ribbon tape is only about 3/4" wide, it doesn’t disperse the heat very well. To correct this, try covering the ribbon with a layer of adhesive aluminum tape. Much like aluminum foil, the tape conducts the heat over a wider area, about 3", and also covers the heat tape, decreasing any fire hazard. Ribbon tapes are about 1/4" thick, so they are fitted into a 3/4" routed groove in the back of each shelf. The grove is then covered with the aluminum tape. The bottom of each shelf on the rack is smooth, and there is no resistance felt when pulling out one of the boxes.

Put heating elements on the bottom, to allow the heat to rise. By heating the floor of each cage, the belly of the snake is warmed first, which aids digestion, and also basking in pregnant females. You will always know if the temperature is too warm over the heat tape, because all the snakes will been seen at the front of the cages. Using heat tape in the floor of the rack creates a temperature range from back to front. I prefer to use temperature gradients rather than heating the entire cage to a uniform temperature. A constant temperature is not natural, and if it gets too hot, the snake has no place to escape. Many breeders are concerned about higher temperatures causing sterility in males; I don’t know of any studies that prove it, but I think if you provide a temperature range in a large enough enclosure, the snake, male or female will be able to thermoregulate itself adequately.

Verifying temperatures is still an inexact science. It isn’t a good idea to rely on the settings of the thermostat. An independent measurement of the cage temperature is prudent insurance in case of a thermostat failure. Of course this means checking thermometers every day. Everyday swarms by the cheap digital thermometers, like the kind at Radio Shack for 15 bucks. Most of these are not too reliable. For example, I set three identical models in the same place, with their sensors resting on the exact same spot. I got three different temperatures, with a difference in readings of up to 4°F. Not only do individual thermometers differ from each other, but from themselves as well. To assess overall and general conditions, the inexpensive digital thermometers are okay. But if an exact reading is needed, use a mercury thermometer (the glass kind from science lab), or the more costly laboratory grade digital models. Even though I still use the Radio Shack specials, I back them up with equally cheap mercury thermometers from the pet stores (used in fish tanks), with one expensive lab-style mercury thermometer. After setting up the

racks, thermostats, and thermometers, take the time to fine-tune everything to before the snakes are moved in.

After everything is set, the next obvious question is “what’s the best temperature for gray-banded kingsnakes?”

There seems to be as many answers as there are gray-band keepers. Naturally the answer may depend on the time of year, the age of the snake, and the gender. If the cages are setup with a temperature range, a single gradient can accommodate males and females, young and old, spring through fall.

In general, hatchlings can be maintained year-round at the same temperature. I have great success with a range of 78-83°F. Hatchlings don’t need to be cooler at night, and also don’t need to be hibernated. Yearling and juveniles (2 year olds, and non-breeding three year olds), can be kept at the same range.

Breeding adults are kept a little warmer, letting the hot spot reach 86°F. Temperature range for breeding adults is 78-86°F. The wider range is possible because they are housed in blanket boxes, while the rest are in shoebox and sweaterboxes. Higher temperatures are especially important for breeders immediately out of hibernation. Gray-banded kings, particularly males, are prone to respiratory ailments of various severity, from mild sneezing noises, to full-blown pneumonia. It has been my experience that warming the snakes up quickly out of hibernation, and letting them have a warmer hot-spot, tends to alleviate the respiratory problems. Once all the snakes are out of hibernation, feeding, and appear healthy— with no signs of respiratory illness— then I lower the temperature range to 78-84°F. Maintain it through the breeding season, and into the fall. It is when the temperature drifts into the 88-90°F range that snakes begin to migrate to the front of the cage, and you know it’s getting too warm!

Those are the temperatures I keep my alterna at. Some would argue that’s too warm, and risks having steriles males. Yet every time I try a lower temp, I end up with sick males. I can’t dispute this worry, though, and I have never achieved 100% fertility in alterna eggs, so I guess the jury is still out.

One other suggestion: put a hidebox in both the front and back of the cage. Gray-bands are nocturnal and secretive, and will suffer overheating rather than moving to a cooler area with no hiding spot.

Hide-boxes are another favorite topic. Anything can be used, from an old milk-carton, to a naturalistic cave made of flattened rocks siliconed together. As long as they are kept clean, anything will work just fine. My favorite type is an inverted flower pot base with a hole in the top. The bases are plastic or clay. A hole can be made in the clay type by tapping in the middle of the inverted base with a nail. I like either type because they’re cheap, easy to clean, stackable, and durable. There is something about the clay material that seems to appeal to alterna. I have had many different hatchings I could not get to feed, suddenly start eating pinkies after placing a clay flowerpot base into their cage to replace a plastic hidebox.

Piece by piece we are constructing a gray-band habitat. The next piece of the puzzle is substrate, the material used on the floor of the cage. Over the years I have tried every different material I could find. Pine shavings were popular for a time, as was newspaper, astro turf, corrugated cardboard, corn cob pellets, much, compressed pine chips (Sani-chip), even shredded egg cartons. New products
are continuously appearing, and every type has its pluses and minuses. There is no perfect substrate.

Substrate should not injure the animal resting on it, and large amounts of dust may lead to respiratory illness. Particulate substrates may be ingested with possible intestinal obstruction. Nonabsorbent materials will expose the snake to waste material. In essence, the substrate should isolate waste material, give the snake a substance to use in locomotion, be visually appealing, cause no injury, and be economical. Remember, the cost of substrate adds up quickly if you’re cleaning more than a few cages on a regular basis.

I currently use aspen bedding. Aspen substrate is composed of needlelike fragments compressed into a tight bale. It is relatively cheap, dust-free, and absorbent. Aspen flattens and molds into the bottom of the cage, and forms a mat. Gray-bands will burrow into it, and the aspen has enough structural integrity to allow tunnel formations. The possibility of ingestion causing problems exists, but I have never had any difficulties. Snake waste is absorbed into a clump, kind of like cat litter in a cat-box, and you can spot-clean the cage every day without having to do a complete change. Aspen is the overall preferred material.

Newspaper is the cheapest, but it really isn’t absorbent, and its flat surface gives the snake no texture to gain a purchase on for movement. When the snake defecates, you need to completely change the material, many times a week. If you have the time to immediately change soiled cages, newspaper is probably the most absolutely hygienic, and is the second best material to use.

Sani-chip pine chips are okay but getting expensive, are not as absorbent, and I have lost an adenoma after it ingested some of the chips. Corn cob pellets will mold, and create humidity problems.

Pre-cut pieces of corrugated cardboard are the best new substrate I have tried. Each piece has a roughened surface for aiding locomotion, and the material is absorbent, with zero dust. The trouble is, the pieces tend to curl on the edges in just a few days, and they also don’t fit the larger rubbermaid boxes very well. A substrate isn’t much good if the snake can crawl under it, and foul the bare floor. Over time, the pre-cut sheets can be expensive. In cages other than Rubbermaid boxes, however, I think they would work well.

Astroturf offers texture, no dust, durability, and visual appeal, but lacks absorbency, economy, and snakes still tend to root it up and crawl underneath. It is easy to clean, and with a stack of clean backup sheets, the soiled pieces can all be soaked together after the new clean sheets are in place. Pine shavings are too dusty, and can be ingested with unfortunate consequences. Mulch is expensive, leads to excess humidity, and I find it awkward to use. My bottom line on substrates is: dry, dust-free, absorbent, safe, and cheap.

Lighting of gray-bands doesn’t seem to be an issue. No evidence exists to suggest it’s necessary for health or breeding, and I have bred altena for years with nothing more than the lights in the ceiling of my snake room. If I could afford it, though, I would like to have a fluorescent light in each of my cages. The light really seems to bring out the color, talk about visually appealing!

At the time of hibernation, I turn off all room light, and leave the snakes in total darkness for three months. It is more important to withhold light than it is to provide it.

All year long, including the winter hibernation months, each cage is provided with a small, heavy water dish. I prefer the plastic cock style, and I don’t like large dishes. I don’t want my altena curling up inside the waterbowl! Put the water dish on the cool side of the cage, away from the heat-tape, or the water will evaporate quickly; not only will this require constant refilling, but it may also lead to too much humidity. Don’t have lids on the water bowl, like cutting a hole in the lid of a plastic margarine container and using it as a water dish. A snake can drown in one of these lidded containers—it has happened.

Sometimes a problem feeder can be induced to feed by depriving it of water for 3 or 4 days, and then offering it a small fuzzy or pinkie dipped in water. Place the mouse next to the snake’s head, with droplets of water covering the mouse. Many times the snake will start drinking the water drops, and end up eating the mouse. I don’t know if the water gets flavored with mouse, but it is a technique that has worked many times.

Setting up a cage with the proper temperature, substrate, hidebox, and water-dish is an obvious and important first step. Selecting a healthy gray-band, and getting it settled and secure in its new home is vital, but it will all be for naught if you fail to keep everything clean and neat. Even though some substrates allow spot-cleaning, it isn’t enough to just scoop out the waste. Every cage ought to be completely cleaned, and disinfected, at least every other week. Cleanliness isn’t just important for the snakes’ health, but for the health of everyone living in close proximity to them.

Don’t keep cages and accessories scattered around the house. Put the animals and the paraphernalia in one place. Put the materials infrequently used into storage containers (guess what? Rubbermaid boxes also seem to work as storage boxes too!). Treat your reptile area like a laboratory, because whether we like it or not, snakes and other reptiles do carry Salmonella bacteria. Ideally, the snakes should have their own closed room. Wear disposable latex gloves whenever you are in the snake room. During cleaning, don’t use a sink or faucet in the kitchen, and don’t use the dishwasher. Clean the entire cage, water dish, and hidebox with a bactericidal disinfectant. Keep the snakes out of the kitchen, and keep the kitchen out of the snake room! Take the soiled cage litter, and other garbage outside. When finished, wash your hands carefully in soap and water. All of this sounds extreme, but with the growing public awareness and uneasiness about reptiles and Salmonella, we owe it to ourselves and those already against us, not to provide any further ammunition.

Ask any snake breeder, and they will agree. We need to display a professional competence before our friendly cansoles decide what’s best for us. I speak from personal experience here. My 8 month old daughter developed diarrhea, and a culture was positive for Salmonella arizona, an organism usually found in cold-blooded animals. How she got the bacteria is beyond me—I follow all of the precautions mentioned above. It just emphasizes the obvious—be careful.

Salmonella may have all the press, but I am worried about the possibility of a gray-banded kingsnake breeder contracting Hanta virus. If you will recall, this virus produces an aggressive and often fatal respiratory disease. The virus is harbored in wild rodents, especially mice. Most of the cases have been in the American southwest. In the past, I have used wild caught mice to entice finicky altena to feed. Until more is known about this latest threat to our existence, avoid wild mice.

(to be continued)