“Wow --- I never knew hognose snakes came in those bright colors. I want one!” It’s a typical reaction lately when people first lay eyes on our newest project’s progeny. After all, who isn’t delighted when your captive breeding efforts are appreciated and in demand? I had to chuckle, though, because a misconception was fueling it. The admirer clearly was confusing the ‘new boys on the block’ with long-beloved western and Mexican hognose snakes (*Heterodon nasicus*).

Our hope is for this article to help clear up that common misidentification as of late. To avoid confusion, please note that I (Kathy) have done the actual writing, so the experiences noted are my own. But all breeding was done at Roy’s facility, under his direction. The in-depth breeding information in the latter part of this article is from him via the extensive notes he has shared with me.

**New Kid on the Block**

Enter a new player on the pet herp scene --- tricolor hognose snakes (*Xenodon / Lystrophis pulcher*) from southern South America, from countries such as parts of Brazil, Argentina, Paraguay, and Bolivia. Not familiar with them? That’s perfectly understandable considering their spotty herpetocultural history in the U.S. Tricolor hogs are a
species checkered with failures and semi-successes at being embraced and propagated on a large or steady scale in the U.S. The good news is, that’s all in the process of changing!

My first encounter with these creatures was back in the early 1990s when we bought and sold a limited number of imported adults via Glades Herp, a reptile breeding and importing business co-owned by my husband Bill at the time. I was excited by the compact, but reasonably stout, little critters with the pointy, upturned nose of a North American hognose, but the colors of a typical milk snake. What could be more cool than that combination?

Unfortunately, the imported adults turned out to be difficult to acclimate. Many refused to eat anything at all, and most customers reported that their specimens eventually died without reproducing. In the early 2000s, it seemed that only a few people in the US were successful in keeping and breeding them.

Finding a captive-born baby to purchase was almost impossible in the early days, and even up until the last couple of years. I didn’t see them offered again until I obtained a pair of Florida-bred babies about 2009. The babies did great and grew quickly, but the male inexplicably developed spinal kinks as he matured. He survived for about six years, but the pair never produced fertile eggs.

Europeans started producing more of them by then, but they were still very difficult to find here in the United States. I finally acquired another adult pair in 2014, but lost the male soon after. It seemed a long-term quest doomed to fail, with the old pair long gone, and only a single female left. That’s when hubby Bill remembered that Roy Engeldorf had some of those prized rarities in West Texas. I asked him
to drop off my lone female on a driving trip back east during the early summer of 2015. Prior experiences with breeding loans suggested that it would be the last I would see of her, and that I should look for other future projects. But as luck would have it for a change, this became my most successful joint breeding project since I first started keeping snakes back in the late 1960s!

**Leap of Success**

Upon introduction, Roy’s male immediately bred my female, but her initial clutch of eggs were all infertile. Presumably her ‘bad’ eggs were already in development and that first pairing came too late. But her next clutch was fertile, and so was the next, and the next, and the next.

I quickly found out that these little guys are amazingly prolific once a healthy, compatible pair get together. The trek from the original wild adults that wouldn’t even survive to trying to obtain at least a pair that would eventually breed, has been a real roller coaster ride. At this point, our wildly successful pair appears to have founded a whole new dynasty. Our ongoing project is one that I wanted to share so our trials and tribulations might help you start your own project with these beauties.

There are currently 12 species in the genus *Xenodon* (formerly *Lystrophis*) according to *Reptile-Database.org*. But only *X. pulcher* is currently offered in the U.S., as far as I am aware, and is the sole subject of this article. There isn’t a lot of published information about them in the wild or in captivity. I hope that will soon change as
quickly as the number of successful breeding efforts have changed the past couple of years!

Adults usually average about two feet in length, females averaging slightly larger than males. They are more stout than a corn snake of similar length, but more slender than North American hognose snakes of the genus *Heterodon*. Their size and shape, in addition to their colors, personalities, feeding response, and upturned hog noses, will contribute to a huge rise in popularity once they become more common. People seem to like snakes that are compact and not too thin. Surprisingly, many attendees at reptile expos have expressed the desire for a pet snake that grows to only half the size of the corn snakes *Pantherophis guttatus* I usually offer. Corns never seemed particularly large to me, but tricolor hogs are the exact size that some herp keepers have been craving.

A great personality is an important attribute for pet herps, and tricolor hogs score an ‘B+’ in that category. Let me explain further. An interesting observation I’ve made is that specimens not used to handling exhibit the same thrashing behavior that I’ve noticed in milk snakes *Lampropeltis triangulum* as well as in eastern coral snakes *Micrurus fulvius*. It makes me wonder if coral snake mimics, which tricolor hogs are considered to be by some observers, also mimic the spastic movements their venomous look-a-likes exhibit. That behavior would make it difficult for a predator to identify them precisely, leaving only the flash of red as a warning to leave it alone.

Even though they may thrash, I have never had one try to bite me - unless I get my fingers in the way while it is grabbing food. Unlike corn snakes, babies don’t seem to strike from defensive poses. They just bump and jerk, hoping you will drop them. Once they are
habituated to gentle handling, that thrashing subsides or disappears altogether. The reluctance to bite is a great asset since they are rear-fanged and probably mildly venomous like their North American counterparts. I haven’t found any accounts of envenomation effects from a bite published or through a survey of keepers. It doesn’t seem to be as much of a concern as for the several species of hognose snakes native to the U.S., some of which are known to produce bites with some swelling and soreness. Of course, most people don’t allow prolonged chewing in the rare bites that do occur, making it hard to make an accurate statement on potential toxicity.

Raising Babies

Most neonates start out on frozen / thawed (f/t) pinkie mice. I start mine in deli cups containing nothing but the baby snake and its meal. Baby tricolors seem slightly shy about feeding while you watch, so I leave them alone and nearly always find the mouse is gone within an hour.

Most young snakes never look back, working up to f/t adult mice by the time they mature. The few babies that don’t start on their own can usually be prompted by scenting mice with lizards or toads, or can be started by using a feeding assist technique such as described in one of the photo captions. Once again, I have found a higher percentage of baby corns require these tricks than with this species. Once they are well-started, keep your fingers out of the way; their feeding response can be frenzied! Adults may leap out of their cages just like king snakes sometimes do when food is introduced. When in feeding mode, anything that moves is fair game.
Flattening out the forepart of the body when threatened (similar to North American hogs but not as extreme) is an intimidation behavior I’ve observed occasionally. But after querying keepers on an international forum, nobody seems to have seen this species playing dead.

Babies can start out in plastic shoeboxes (approximately 6 x 11 inches long and 4 inches high) for the first year or so of life, though some of mine have clearly outgrown those starter enclosures before their first birthdays. Adults will need something with the footprint of at least the size of a 10-gallon aquarium, but preferably more like a 20-gallon long aquarium that spans 30 inches. Because they are terrestrial and fossorial (burrowing), the height of a typical aquarium is not needed so much as adequate floor space. My tricolors will usually be found curled up under the bedding, so it is important to give them a substrate such as shredded aspen, cypress, or coco chips that they can hide in completely. Avoid pine or anything with a resinous odor to it.

In dry climates such as in Arizona where I live, I prefer coco chips because they are easy to purchase locally, allow burrowing, and can take some added moisture without a fungus bloom (as happens with aspen shavings). Tricolor hogs need a moist place to hide, which can be provided by either dampening one end of the bedding, or using a small hide box with damp moss in it. The rest of the cage can be dry to allow them to choose what they feel most comfortable in.

I’ve raised neonates both with and without supplemental heating cables / pads. My house is normally about 72 degrees Fahrenheit in winter and 78 in summer. They have fed and done well at those temperatures alone, which seems to indicate they are not particularly sensitive, but I have more recently used a heat cable to raise the
temperature on one end of their cages to about 82F to offer them a range of digestion temperatures. The rest of the cage stays close to the ambient room temperature, which is the end where I usually find them spending the majority of their time. A gradient is always preferable so that they can choose the best temperatures and moisture content for feeding, hiding, digestion, or shedding. Both of our colonies are kept in rooms in which the snakes can sense the local photoperiod as it changes from month to month.

Breeding

Although I (Kathy) have kept specimens of Xenodon pulcher for the last decade or more, and I have been raising up babies for this past year, all of the breeding in our joint project has occurred at Roy’s facility in Texas. The following information concerning breeding comes entirely from his experiences.

Tricolor hogs seem to be examples of “live fast, die young” animals. We haven’t so far found anyone who has any specimens older than eight years of age. To balance the seeming negative aspect of their shorter lives, they grow very quickly and produce lots of eggs. Babies usually mature by two years of age, and possibly even sooner with aggressive feeding schedules. They typically hatch out at weights of 4-6 grams. Most hold-backs have weighed 20-35 grams at about 6 months, and 60-90 grams at one year of age. Females should be more than 150 grams, preferably 200 grams or more, before breeding.

Growing babies can be fed every 4 or 5 days, and adults about once per week - except for females laying eggs which need additional meals. They will eat almost constantly, and need as much as they can
get. The tendency to produce consecutive clutches of eggs may wear females out if a frequent feeding regimen is not maintained during the warmer reproductive part of the year.

The most prolific females have the capacity to produce 4 or 5 clutches of eggs per year. Eight clutches in a year is the largest number I have read of, but we discourage them from more than 5 in one year. It takes a lot out of the female, of course. Heavy feeding is paramount! Actively breeding females represent the most aggressive feeders. This is the time to keep your fingers out of her way!

Roy had two sexual pairs when my female was brought to him for breeding. My female had been cycled the previous winter in a dark closet for two months without food in the upper 50s most of the time prior to arriving in Texas. Roy kept his somewhat cooler than active summer temperatures the previous winter - about 65 - 70F, with local photoperiods experienced through the windows.

My female bred in June and laid bad eggs in July. But she went on to lay 3 good clutches between September and November, with nine eggs in each clutch.

The second half of 2015 was a great start to our joint project, and 2016 followed suit and even surpassed it. That year saw my female and Roy’s younger female each produce 5 good clutches. Each clutch contained 6 - 9 eggs, and were laid about 4 - 7 weeks apart. The male was introduced again after each clutch was laid, and females were fed approximately every 3 days during this period. Feeding response was so intense that females occasionally grabbed males, and probably would have tried to eat him without intervention. Re-introducing males a day or two after the females eat a good-sized meal seems to
calm her feeding aggression towards him. The male usually either started breeding immediately - or tried to run for his life if the female was not receptive.

Pairs were not left together unattended. After five clutches, females were kept separated from males and allowed well-deserved rests and plenty of food. Although the females were not weighed, they appear to be none the worse for wear and of average weight, probably due to the stepped-up feeding schedule to build them up. As of this writing, they are in their December / January cool down of 65 - 70F while experiencing shorter days through the windows. Occasional meals a couple of times per month, unlike the winter schedule for corns, kings, and other North American colubrids, are offered and consumed. The adults will be warmed up after about two months, with new pairings again planned for March.

Females laid in small, plastic, nest boxes lined with moist coconut fiber. Eggs were incubated in Perlite, with approximately the same moisture level maintained for corns, kings, and other colubrids. The average room temperature was 78F, with minor daily fluctuations between day and night temps. No incubator was used, since the room temperature is relatively constant. Incubation times averaged 70 days, but ranged from 60 - 90 days. Virtually all eggs that looked good at laying hatched. There have been a couple of sets of twins, which hatched out very small. Some fed and thrived, and some died without feeding.

What Does the Future Hold?
Captive-bred babies have been available to the public in Europe for several years longer than in the U.S., but the total numbers produced are still small compared to other species of popular colubrid snakes. Only small numbers have ‘trickled’ over adding to U.S. bloodlines so far. We’re obviously excited about our two prolific females finally helping start a new dynasty of this hardy, attractive, and not-yet-widely-known species of snake in herpetoculture.

Selective breeding holds tremendous possibilities for this species as the obvious goals of enhancing the red and white bands are carried out with coming generations. Some examples develop considerable black pigment that obscures the pattern; this will certainly be selected against in herpers’ efforts to clean up and brighten the species. Getting in on the ground floor in this respect is one of the many perks as this exciting ‘new’ species to herpetoculture finally gets established and gains a wider foothold with hobbyists.

Aberrant genes that are likely hiding in the genome have not surfaced yet. One European breeder has been offering hypo-erythristic (less than the normal amount of red pigmentation) babies, but I have not seen any other morphs on the market so far. That means there is still much to be discovered! Tricolor hogs’ already beautiful pattern and color variability, combined with their perfect size for those preferring smaller snakes than most rat and king snakes, poises them with the potential to be one of the ‘next big things’ in herpetoculture.

PHOTO CAPTIONS
Comparative width of color bands will be another tool for herpetocultural “artists” to manipulate in producing tomorrow’s version of the natural variation we see now.

(Please merge the photo above and the one below into one as a comparison shot)
Moist Perlite has successfully incubated all of our eggs so far - even without an incubator. Rooms temps of 78F have sufficed for high hatch rates after after 2 - 3 months.

Broken patterns hold just as much promise as color variations for future selective breeding projects.
Both parents of our first clutches have retained their bright colors, and passed that trait onto the next generation. Selective breeding will only increase that brightness in the future.
This chunky adult is the perfect size many snake pet keepers have been looking for - not too big and not too small!
The sharp, upturned hog nose is a favorite trait South American tri color hognose share with those in the U.S. and Mexico.

This fossorial species needs the security of hiding places, and loves to burrow. But they will also utilize whatever decorative hiding spots that are provided.
Roy Engeldorf admires two of his charges in his breeding facility.
Belly patterns and colors are also variable. Underside colors range from black to almost white, many exhibiting dark patterns on a white background. A few also sport small amounts of orange or red. Perhaps tendencies towards certain dorsal and ventral colorations will prove to be regional variations?
Most babies start off eating frozen / thawed pinks while confined in a deli cup. If they don’t, a simple assist technique often works. Unlike tease feeding many other baby colubrids, simply holding a bloodied pink’s nose against the nose of the snake steadily - and patiently - for a couple of minutes often results in the snake opening its mouth and starting to consume the mouse. If you don’t move and the snake doesn’t get scared, it often eats it. This technique sometimes requires multiple attempts, but often works eventually, and becomes easier after each success. After a few meals, the assist is usually no longer needed. Sometimes scenting with toads, anoles, or other lizards also works to start stubborn feeders.
Because their heads are so small, many underestimate the size meal that can be consumed. The neck is very stretchy and the mid girth is big compared to many colubrids. After a few newborn pinkie meals, they are often ready to graduate to slightly larger pinks, and continue to go through increased prey sizes until eating fuzzies by at least 6 months of age.

Once they have some size and are well established, a little disturbance rarely dissuades them from eating, as demonstrated by this yearling being hand fed by Kathy.
There is considerable size difference between this two month old and a six month old sibling from another clutch.

Much of this species’ allure lies in their natural variation - soon to be increased with selective breeding. Many individuals darken with age until they are virtually black, while many retain some or most of their juvenile brightness. Colors range from red to orange and from white to yellow, interspersed with black.
Patterns range from symmetrical banding to various blotches and broken bands. Who knows what the future holds when starting out with a palette such as this?