

## Royal Reptiles

Breeding gray-banded kingsnakes.

**T**he gray-banded kingsnake (*Lampropeltis alterna*) has held an almost mythical appeal to countless herpetoculturists for the past 30 years. These animals dominate our collection, and we've bred them successfully for the past 28 years.

Gray-banded kingsnakes are found in New Mexico, Texas and northern Mexico. Animals in the pet trade are from Texas because *Lampropeltis alterna* is protected from collection in both New Mexico and Mexico. These beautiful animals have two basic morphs or color patterns: the "alterna phase," a pattern of reduced blotches with little or no red and disjunct black alternates, or the "blairi phase," which consists of wide orange or red saddles. Base color of both morphs is highly variable, ranging from a light, almost-blue-gray to black.

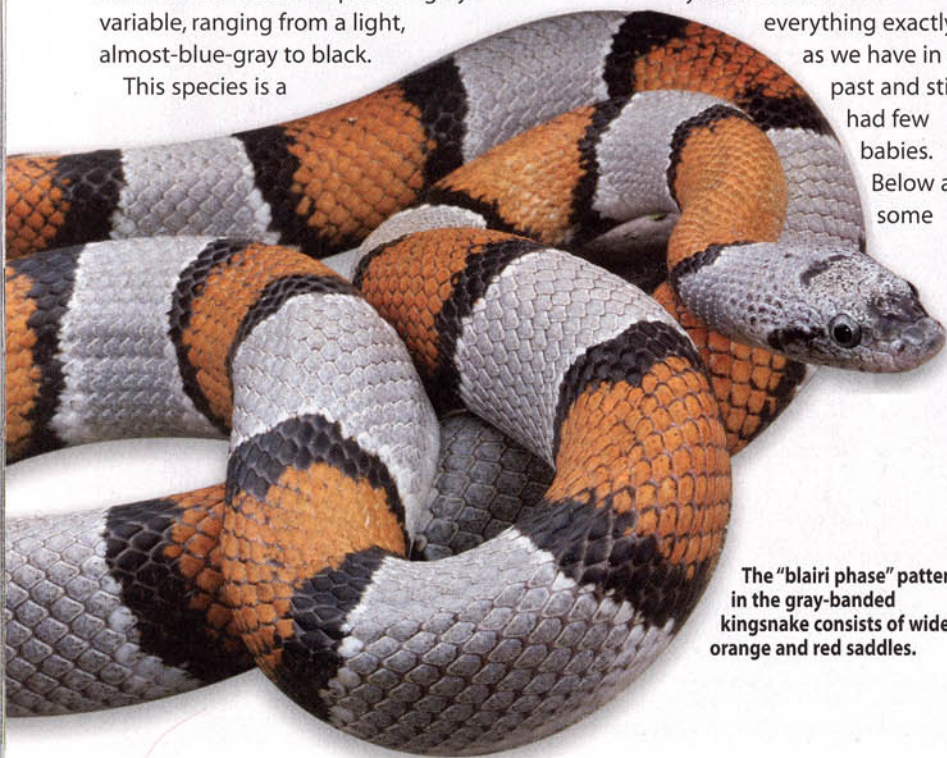
This species is a

rock-dwelling animal. For the most part, they are nocturnal, rarely venturing from their rock catacombs to the surface. They feed on lizards, small rodents and occasionally frogs in the wild. We have also found a wild-caught specimen that ingested what appeared to be a clutch of snake eggs. Given proper captive care, this species can live more than 20 years.

### Breeding in Captivity

Breeding gray-banded kingsnakes is hardly an exact science, but it has occurred commonly for more than 35 years in herpetoculture. In our collection, we have had years in which we had many baby *L. alterna*. Other

years we have done everything exactly as we have in the past and still had few babies. Below are some



The "blairi phase" pattern in the gray-banded kingsnake consists of wide orange and red saddles.



Hatchlings usually take 24 hours to fully emerge from their shells after pipping.

basic strategies that should increase your chances for breeding these wonderful colubrids.

Winter cooling (brumation) is essential to breeding these snakes. Cool them in late fall. After the last feeding, allow them to remain at their preferred body temperature, anywhere from 72 to 88 degrees Fahrenheit, for 10 to 14 days. This allows any food item to be completely digested before the cooling period begins. Snakes with food in their guts could experience problems because the food rots in their stomachs at the cooler temperatures of brumation.

Cool the animal to the mid-50s. We have kept animals at 50 degrees and at 60 degrees with little change in breeding success. The kingsnakes should have access to water. At these temperatures, gray-banded kingsnakes still move about in their enclosures albeit much more slowly than during the warmer months.

Keep snakes at these temperatures for two to four months. At the end of the brumation period, warm up the animals over the course of a few days to 85 to 90 degrees. Feeding should

commence within a couple of weeks.

During the spring emergence, feed females several times weekly to increase her energy stores for egg formation. Also offer males food. Occasionally a male goes "off feed" during the breeding season, so ensuring that the male has enough energy stored before breeding commences is prudent. Otherwise anorexia could become a problem.

In early April we usually start putting our breeding adults together. By mid to late April, breeding is in full swing. Animals have bred as late as early July on our cooling and warming schedule, but by mid-May most of our adult females are gravid. Egg formation takes approximately six weeks.

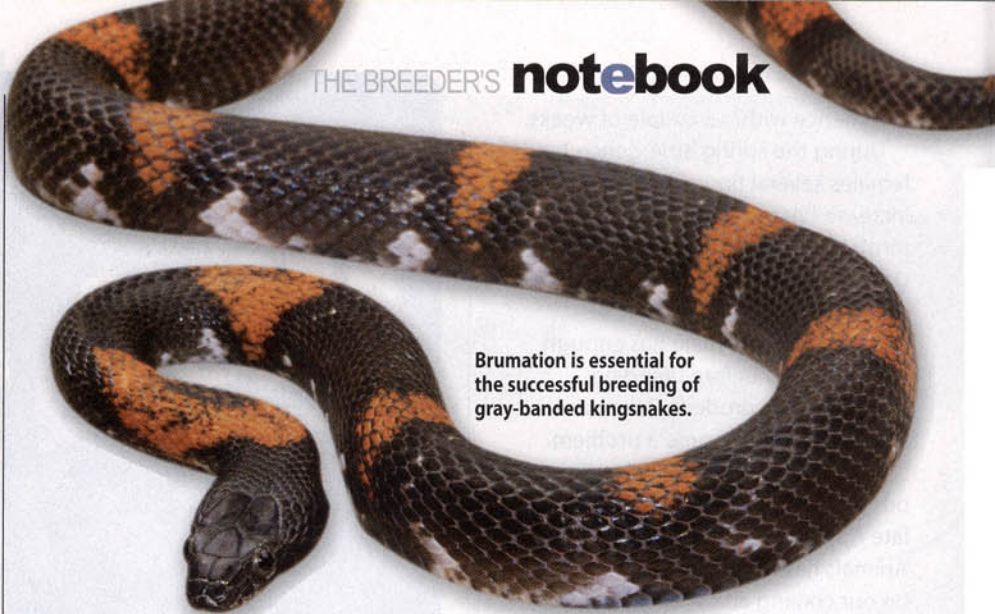
Females always shed six to 12 days before actual oviposition. After this pre-egg-laying shed, we usually place a nestbox in with the female. This nestbox is simply a plastic container with a hole twice the diameter of the snake cut out of the top. We moisten three paper towels with spring water, squeeze out most of the excess water and place the damp towels in the container. We replace these towels as needed, usually once every four days. Monitoring the moisture in these towels is important. If they dry out, the female may not lay her eggs in the nestbox.

Once laid, the eggs are removed to be incubated separately. When moving eggs, keep their orientation similar to how they were laid. We try to keep the red disk observed in the egg toward the top. We place the eggs on vermiculite or perlite.

We have had success incubating eggs at room temperatures (72 to 80 degrees) or at a constant 82 degrees in an incubator. Eggs incubated at room temperatures take up to three weeks longer to hatch, but the advantage is it reduces the possibility of the eggs overheating, a problem we

### info

Feeding gray-banded kingsnakes is rarely a problem, especially with the adults. A mouse diet is good for maintaining good body weight for adult *Lampropeltis alterna*, and most feed readily on the rodents.



Brumation is essential for the successful breeding of gray-banded kingsnakes.

encountered with our incubator.

One recent strategy we employed to increase egg hatch rates is to place a damp paper towel on top of the eggs one to two weeks before they are due to hatch. The idea is to soften the eggs before hatching, so the hatchling has better success cutting through the eggshell with its egg tooth. Although it is too early to definitively tell, we feel this strategy has helped our hatch rate.

Once the baby has pipped, it usually takes 24 hours for the snake to fully emerge from its shell. During this time, the baby absorbs its yolk sac.

There has been a lot of debate and discussion regarding increasing the egg hatch rate in gray-banded kingsnakes. In the early 1990s, we started

supplementing the diet of our adult females with a vitamin and mineral supplement that contains vitamin D<sub>3</sub>. We added this supplement to the hindquarters of dead feeder rodents before giving them to the snake.

We do this once or twice a month; the rest of the time the females are fed unsupplemented rodents. Our success rate has increased dramatically. The numbers of deformed babies have decreased, and the numbers of full-term, dead-in-the-shell babies also have declined. We are not sure what exactly causes the increase in hatch rate. Much more research needs to be done.

Baby gray-banded kingsnakes always have a post-hatch shed usually a week to 10 days after hatching. Typically, they accept food items a couple weeks after shedding.

Many babies only take a lizard as their first food item. We use trickery to get the babies to feed on pinky mice. Rubbing a clean pinky mouse with a lizard before offering it to the snake is the best strategy. Within a few months most of our babies are eating "undoctored" pinkies.

Gray-banded kingsnakes make an excellent subject for a captive breeding project. Much about how to successfully reproduce these serpents in captivity still needs to be discovered, so we hope others will work with this species to uncover some of those secrets.

*The authors would like to thank Ric Blair for help with the photography of the kingsnakes depicted here. Jean Allured also helped immensely with the initial editing of this article.* **REPTILES**



The rock-dwelling gray-banded kingsnake ventures out at night to hunt for food such as lizards, small rodents and frogs.