Gerold pleaded with Cindy to go to Texas. "It would be wonderful! It's beautiful there!" This, of course, was not to mention the snakes—a reason unto itself.

So, Cindy relented. Two days of intense driving in a car with no air conditioning through mostly questionable countryside (in terms of beauty) brought them to Van Horn, where, indeed, there were some snakes to be found. The most memorable moment, however, was the flat tire that inevitably occurred. Not to worry; Gerold had a can of neat stuff with which you could reinflate the tire in just a moment. He shook the can, and globs of goo dribbled out and around the tire stem. After frustrating attempts to inflate the tire in this manner, and with the help of expletives that don't bear repeating in this article, the can was heaved. Out came the tire wrench, only to discover that the lug nuts wouldn't budge. Two hundred pounds of angry herper furiously stomping repeatedly on the wrench finally caused the lug nuts to loosen their hold. Welcome to Texas—now on to gray-banded kingsnake country.

The gray-banded kingsnake (Lampropeltis alternata) has had its scientific name changed many times since its description in 1901 (Brown, as cited in Miller, 1979). Miller (1979) provides an excellent review of gray-banded kingsnake taxonomy in his master's thesis on the natural history of this species. At that time, gray-banded kingsnakes were considered to be members of the mexicana complex. Other members of this group included the Greer's kingsnake (Lampropeltis mexicana greeri), the variable kingsnake (L. m. thayeri), and the San Luis Potosi kingsnake (L. m. mexicana). Later, the gray-banded kingsnake was defined as a separate species based on biochemical studies (Gartska, 1982). Most people refer to the gray-banded kingsnake as Lampropeltis alternata, although some herpetoculturists still refer to it as Lampropeltis mexicana alternata.

Habitat and Distribution

The gray-banded kingsnake ranges from western Texas into northern Mexico. These animals have recently been discovered in extreme southern New Mexico, in a mountain range that extends north from Texas. In Texas, they are found in at least nine of the 10 western counties (Miller, 1979; Tennant, 1984; Cranston, 1991). Recently, Lampropeltis alternata was also found in Upton county, Texas, on the west side of King Mountain (Hollister, pers. comm.).

Preferred habitat for this animal includes the rocky limestone hillsides that are prevalent in west Texas (Miller, 1979; Tennant, 1984; Barringer, 1995). Dominant plants associated with gray-banded kingsnake habitat are sotol, acacia, and...
TOP: These gray-banded kingsnakes represent the extremes in coloration. The animal with the reduced bands is known as an *alterna* morph, the animal with the wide orange saddles is a *blairi* morph.

MIDDLE: This *blairi* morph from Val Verde County, Texas, is typical of some populations in which alternates exist between a few of the bands.

LEFT: Some herpetoculturists prefer to call the gray-banded kingsnake *Lampropeltis mexicana alterna*.

ON OVERLEAF: The gray-banded kingsnake is a very variable species. It ranges from western Texas into northern Mexico. It has also recently been discovered in extreme southern New Mexico.
This captive-bred snake is a light phase *blairi* morph from Val Verde County, Texas. Some of the light phases have an even more vibrant orange-red in the saddles.

This light phase gray-banded kingsnake was captive-bred from parents of unknown origin. Note the bright orange coloration in the saddles.
Description

Lampropeltis alterna is a mediumsized snake within the family Colubridae. Conant and Collins (1991) list the record for this form as 57 inches (1.46 meters). John Hollister (pers. comm.) observed a large male in Langtry, Texas, that was more than 50 inches (1.28 meters+) in length. The largest wildcaught individual in our collection is a male measuring slightly more than 42 inches (1.07 meters+) in total length. We do have a captive-bred female that measures 45 inches (1.15 meters); however, most individuals are much shorter, with adults measuring as little as 20 inches (0.49 meters). These kingsnakes usually weigh less than 200 grams, although under captive conditions, gray-banded kingsnakes can become obese and weigh more than 350 grams! The gray-banded kingsnake has a flattened head with large eyes that protrude slightly.

Coloration in this species varies tremendously. Some are almost coal-black, while others have an extremely light gray background with bright orange saddles. Two basic color morphs exist: The alterna phase has as many as 23 saddles with greatly reduced red/orange coloration and thin black alternate bands between the saddles (Mecham and Milstead, 1949); the blairi phase has less than 15 wide red/orange saddles and usually few, if any, alternate bands (Miller, 1979). The alterna morph is found mainly in the western populations, and blairi almost exclusively in the eastern populations. However, it should be noted that both forms can occur in the same population.

In the wild, gray-banded kingsnakes...
prey upon lizards, frogs and small mammals. We have captured two gray-banded kingsnakes with obvious stomach contents. Eventually, both of these animals defecated lizard scales. References list the following lizards as wild prey items: eastern fence lizards (Scoloporus undulatus), crevice spiny lizards (Scoloporus poinsetti); canyon spiny lizards (Scoloporus merriami), and various whiptail (Cnemidophorus) lizards (Mecham and Milstead, 1949; Wright and Wright, 1957; Miller, 1979). Canyon tree frogs, Hyla arenicolor (Miller, 1979; Tennant 1984), pocket mice (Wright and Wright 1957) and reptilian eggs (Miller, 1979) also have been recorded as prey.

Reproduction In the Wild

Reproductive data about wild specimens is sparse due to the secretive nature of these snakes. Several collectors have found snakes copulating in the wild in both Terrell and Val Verde Counties, Texas. On June 12, a pair of these snakes were observed at 11:05 PM copulating on a rock cut in Terrell
County, Texas (John Hollister, pers. comm.) at an ambient temperature of 27 degrees Celsius (82 degrees Fahrenheit). Another pair copulated soon after capture upon being placed in a cardboard box (Blair, pers. comm.). During the latter part of June and early part of July, gravid gray-banded kingsnakes are occasionally found. We found a gravid female at 10:20 PM on June 25 while walking among rock piles below a rock cut in Langtry, Texas. This blairi phase individual weighed 96 grams at the time of capture, and on July 28, she laid five fertile eggs. The eggs measured approximately 6 mm x 10 mm and hatched 57 days later. The neonates averaged 26 cm in total length (range 24 to 28 cm) and weighed an average of 7 grams (range 6 to 8 grams). John Hollister's copulating female produced four eggs on July 12, 30 days after he first observed the pair breeding.

If you want to try your luck at capturing a gray-banded kingsnake and you live outside of Texas, keep in mind that you must possess a five-day ($25) or annual ($75) nonresident small game hunting license. A similar residential hunting license is required for Texas residents. Furthermore, one may collect gray-banded kingsnakes only by walking along roadsides and utilizing a hand-carried light. Hunting while using a vehicle is frowned upon by the Texas Parks and Wildlife Service and may result in a ticket.

**Captive Care**

We maintain neonatal gray-banded kingsnakes in clear shoe boxes housed within a heated rack. When the snakes reach approximately 50 grams (2 ounces), they are placed into Herpatatt™ modular cages that allow the snakes access to a heated subterranean region. In these cages, the animals grow to maturity—which can occur anytime between 18 to 30 months. Once snakes reach approximately 150 grams (6 ounces), they are housed in large sweater boxes in a lidless shelving unit built by Sandmar Enterprises. Some of our larger specimens (200 grams plus) are kept in display cages, also designed by Sandmar Enterprises. These cages have a large display area with access to a subterranean area via a PVC-lined hole. All cages have several hiding areas.

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**JULY 1996**
and fresh water at all times. Any cage that provides a secluded region should prove satisfactory for successfully keeping gray-banded kingsnakes.

**Substrate**

We have used many substrates for gray-banded kingsnakes with varying degrees of success. Newspaper is easy to change, but it is not aesthetically pleasing. The same could be said for indoor/outdoor carpeting. Sand has been used for its natural appearance; however, it has several inherent problems. Sand does not absorb water from feces and spilled water as well as other substrates, and it is extremely heavy. This may cause the underside of plastic sweater boxes, weakened by heat tape, to collapse, or cause shelves to bend or be pulled off the walls. Corn cob is lighter than sand and is visually pleasing, but it can quickly become a breeding ground for bacteria after it gets wet. The product used in many large-scale collections is wood (mainly pine) shavings. This substrate is inexpensive, light and absorbent. We used wood shavings for many years, until recently. Over the years, many of our snakes have experienced varying degrees of respiratory or mouth problems when kept on certain types of wood shavings, especially brands with large quantities of dust. The symptoms included coldlike sneezing and mucus build-up in the mouth and nares of the snakes. Often, these animals would be near the water bowl with their mouths agape. We have several gray-banded kingsnakes (Lampropeltis alternata) and Trans Pecos rat snakes (Boa eraseis subocularis) that have had these problems occur chronically for five to 10 years. The mouths of the afflicted animals were caked with a dried mucus substance, preventing correct closure of their mouths.

In the past 18 months, we have changed to the substrate Care Fresh, a new product made from wood pulp fibers. These fibers are too short to be drawn into paper, so some entrepreneur came up with the idea of using this material to make a new substrate for reptiles and other small animals. These fibers do not have any dyes or any of the dust associated with some types of wood shavings. The latter aspect helps create a more healthful situation for most snakes. By not constantly inhaling wood shaving dust, the snakes' lungs remain clear. Because they do not inhale wood shaving dust constantly, the mouth and nares remain free of the dried mucus. The results of using Care Fresh in our collection have been dramatic, with most of the problems virtually disappearing within two weeks. We now keep all of our adult snakes on this product. Although we find Care Fresh highly suited to our needs, there are a few things to remember. This product can have tremendous desiccating abilities. Even though this may not be a problem with gray-banded kingsnakes, other snakes (especially small ones) can become dehydrated quickly. Make sure that snakes kept on this product have access to water at all times. Also, the color of Care Fresh is a basic gray, which is not terribly attractive. Finally, Care Fresh substrate is costly to use on a large scale. We have spoken to several large-scale breeders that use this prod-
uct not only for their snakes, but also for their breeder mice. These large-scale breeders make it affordable by purchasing large amounts of Care Fresh directly from the manufacturer at reduced prices. For those interested in using this product, this may be the route to take.

In some of our large display cages, we use Lizard Litter cage substrate. Like Care Fresh, this product has small amounts of dust. However, it is also quite costly.

**Thermal Gradient**

Critically important to a good cage design is creating a thermal gradient so the snake has a range of temperatures from which to choose. This is accomplished most easily by placing heat tape in a routed groove under one side of the cage. Once a gradient is established, it is not uncommon to observe a snake keeping part of its body on the heated part of the cage and the other part on a cooler region. For example, after a meal, the kingsnake may keep its stomach region on the heated section of the cage. To ensure that the heat tape maintains a constant temperature, a good pulse-proportional thermostat, such as those designed by Helix Magnetics, Micro-climate or other manufacturers, is a vital necessity. These thermostats maintain a constant temperature (+/-1 degree Fahrenheit), thus preventing the cage bottoms from becoming overly warm. Our temperature regimen ranges from 18 degrees Celsius (65 degrees Fahrenheit) at the cool end to 31 degrees Celsius (88 degrees Fahrenheit) at the warm end of the cage. These temperatures are maintained during spring, summer and fall.

**Feeding**

Feeding adult gray-banded kingsnakes is quite easy. Most captive-bred animals will readily accept domestic mice. The occasional wild-caught snake may refuse to eat domestic mice, but usually they will accept lizards. This can cause problems, especially if the feeder lizards are parasitized.

Before we offer a lizard to a reluctant feeder, we try a lizard-scented pink or fuzzy mouse. To put the lizard scent on the mouse easily, we place a washed pink mouse in with several lizards in a

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small plastic container. Then we place the lizard-scented mouse in with the snake. This usually does the trick. A second effective strategy is to offer a gray-banded kingsnake a previously frozen/thawed pink mouse (Staub, pers. comm.). For some unknown reason, this food item has been accepted readily by several of our reluctant feeders. Once they are feeding consistently, each of our adult stock receives two small mice weekly, an adequate amount that does not encourage obesity.

**Captive Propagation**

An important aspect to the successful propagation and general health of the gray-banded kingsnake is a cooling period for at least two months (Murphy et al., 1978; Miller, 1979; Tennant, 1984; Cranston, 1991; Mattison, 1991; Rossi and Rossi, 1995).

This is accomplished by turning off the heat tapes during winter and allowing the cages to cool to 12 degrees Celsius (55 degrees Fahrenheit). Prior to this cooling, the snakes should be maintained at active temperatures without food for 14 days in order to clear their digestive systems. Failure to do this sets up an extremely hazardous situation, since cool temperatures prohibit digestion. Undigested food can rot in a snake’s gastrointestinal tract, eventually causing the animal’s demise. Our cooling period lasts from mid-November, after the last feeding on November 1, until February 14—approximately 90 days. The snakes are cooled in their individual cages, to which clean cage substrate has been added. During brumation, the snakes are checked weekly, provided with fresh water and weighed. Routinely, gray-banded kingsnakes lose less than 1 percent of their body mass during brumation. The cool-down can help tremendously with their feeding response the following spring. Reluctant feeders often come out of brumation with a fierce feeding response. In fact, neonates that refuse to feed voluntarily often emerge from a short brumation with a new desire to eat pink mice! Successful breeding is another important reason for brumating gray-banded kingsnakes.

Captive breeding of gray-banded kingsnakes has been common for the past 20 years (Wagner, 1976; Assetto, 1978; Murphy et al., 1978; Miller, 1979; Tennant, 1984; Cranston, 1991; Rossi and Rossi, 1995). In our collection, animals begin feeding within two weeks after brumation. This is a crucial time period. It is vital that females are fed large amounts of food during the spring to ensure that they have adequate energy stores for proper egg development.

Within six weeks of the spring “emergence,” most females are ready to breed. At this time, it is important that healthy females be placed with males. Most breeders mention the importance of waiting until at least one post-emergence shed before placing a female with a male. Some breeders believe it is best to wait until the female has undergone two sheds before she is placed with the male. In our collection, we have gone the entire gamut, from no sheds to three sheds. If the female is cycling, successful copulation can and will occur regardless of the number of sheds she has had. However, if a female has undergone a shed recently, this can
indicate that she is ovulating. Excitement on the part of the male once the female is placed in the cage will verify her ovulation.

Courtship in gray-banded kingsnakes is typical of all colubrids and has been discussed extensively (Murphy et al., 1978; and Miller, 1979). Copulation lasts from five to 20 minutes in our collection. Immediately, we microscopically check a cloacal sample from the female for viable sperm—a procedure recommended by Applegate, (1988). If no motile sperm is noted, the female is placed with another male. Sperm production is very sporadic, especially in the older snakes. Our oldest male (20+ years) produces viable sperm some years, but not in others. Furthermore, some males produce no sperm early in the breeding season, but will produce viable sperm later during that same season. We allow females to breed repeatedly to maximize the probability that fertile eggs will result. Some females only breed during a two-week period, others have bred with a male over a span of four weeks. Egg production occurs within 70 days of the first breeding. Our females always undergo a pre-egg-laying shed. Once this occurs, we place a moist sphagnum moss-filled plastic container, with a hole twice the diameter of the female, into the cage. Most females will use this container in which to lay their eggs, but it is a good idea to check them frequently to make sure that eggs are not laid elsewhere. Females oviposit within six to 11 days (usually eight days) following their pre-egg-laying shed. We incubate the eggs in a 1:1 ratio vermiculite-to-water mixture (by weight) at a temperature of 27 degrees Celsius (82 degrees Fahrenheit). The eggs hatch within 55 to 70 days. This is the classic methodology for breeding gray-banded kingsnakes, but it has not always been successful in our collection.

Problems associated with captive reproduction in Lampropeltis alterna are best described with a case study of our first gray-banded kingsnake breeding.

During the spring of 1981, a female gray-banded kingsnake (Lampropeltis alterna) purchased from a reptile specialty shop in 1979 produced seven fertile eggs. We were ecstatic with this clutch, since it represented our first captive clutch for this species. We incubated the eggs utilizing the typical strategy for that time. The eggs were placed in an incubator set at 80 degrees Fahrenheit in a container of vermiculite and water (1:1 ratio by weight). Over the course of incubation, four of the eggs died. After 65 days, one of the eggs had pipped. Within 24 hours, this animal emerged from the egg after having absorbed most of its yolk. Twenty-four hours later, we slit open the remaining two eggs to discover a dead, tiny, deformed embryo, and a very weak, small neonate. The neonate was placed on damp paper towels and kept at 26 degrees Celsius (80 degrees Fahrenheit). Although this snake remained in a catatonic state for several days, it eventually thrived—remarkably surviving to this day!

Over the course of the next dozen years, our reproductive success with this species was similar to our initial experience. As many as 55 fertile eggs would be produced, but a large per-
Here is a dark phase gray-banded kingsnake that was captive bred from adults caught on either side of the gray-banded kingsnake range. This animal is a blairi morph. However, one of its parents was a typical altema morph, so when this animal is bred, depending on the morph of its mate, a whole range of gray-banded kingsnakes could be produced.

This attractive altema morph is typical of specimens from Presidio County, Texas. This animal was captive bred from stock found on River Road.

centage of these would be lost due to one or more unknown causes. Some of the problems experienced included: almost full-term embryos dead in the shell, severely kinked neonates, and neonates pipping and exiting the egg before absorbing the yolk. Many herpetoculturists working with this species related experiences similar to ours.

It should be noted that wild-caught gravid females have produced 100-percent fertile eggs with 100-percent hatching in captivity (Miller, 1979; Hollister, pers. comm.).

After relating our difficulty in getting fertile eggs to hatch, numerous people who had bred gray-banded kingsnakes gave us their ideas. Three main ideas that we examined included: (1) the females were kept too cool during bru-
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**Figure 1**

<table>
<thead>
<tr>
<th>Year</th>
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<tr>
<td>1991</td>
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<tr>
<td>1992</td>
<td>50</td>
</tr>
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</tr>
<tr>
<td>1994</td>
<td>30</td>
</tr>
<tr>
<td>1995</td>
<td>20</td>
</tr>
</tbody>
</table>

- Died
- Kinked
- Normal


**Figure 2**

Percentage of fertile eggs that hatched

- Hatch Rate '91 & '92
- Hatch Rate '93-'95

Hatching success for individual female Lampropeltis alterna comparing the combined 1991-1992 and 1993-1995 breeding seasons. The only difference between the two series of years was that during 1993-1995, the adult females were supplemented with Rep-Cal weekly. Calculations were made by dividing the number of eggs hatching by the total number of fertile eggs produced by the females during those years.
mation; (2) our egg incubation substrate was too moist; and (3) the females were not receiving adequate calcium in their diets.

During the winter of 1990 to 1991, our breeding group of 10 females was divided into two groups. One group was allowed to cool down to 10 to 12 degrees Celsius (50 to 55 degrees Fahrenheit), our normal cooling protocol; the second group was allowed access to heat tape running at approximately 29 degrees Celsius (85 degrees Fahrenheit) for the entire brumation period. During the spring of 1990, both groups were bred with three males, all of which were cooled at 10 to 12 degrees Celsius (50 to 55 degrees Fahrenheit). Sperm production was verified microscopically in all three males. Two females in the “warm” group failed to breed. One died, and the other did not ovulate. The other three “warm” females produced infertile eggs. The females that were cooled to normal winter cooling temperatures produced 37 fertile eggs, 40 eggs total—typical results compared to other years. These eggs were incubated in a modified Hovabator incubator at approximately 26 degrees Celsius (80 degrees Fahrenheit), and 23 hatched. Again, these were typical results when compared to other years.

Miller (1979) reported that females maintained at warmer temperatures during winter failed to produce eggs when bred. For obvious reasons, this was the only season that we allowed females access to warm regions in their enclosures during the winter cooling period.

During the 1991/1992 breeding season, females were cooled to typical levels (50 to 55 degrees Fahrenheit). Our 10-female breeding group, including an extra two females acquired during the summer of 1991, produced a total of 78 eggs, 55 of which were fertile. This was our largest group of fertile eggs ever. Having spoken with several breeders who thought the 1:1 vermiculite:water (by weight) medium we were utilizing was too wet, we decided to incubate some of our eggs on a mixture of 9:1 perlite:water (by weight) medium. These breeders believed that the high water content was causing the eggs to swell too much, reducing the oxygen.
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permeability, resulting in the neonates being suffocated inside the egg. The 55 fertile eggs were broken into two groups. One group was incubated in the normal vermiculite mixture; the second group was incubated in the new perlite mixture. The eggs were incubated at approximately 26 degrees Celsius (80 degrees Fahrenheit). Our dismal hatch rate that year was nine babies out of 27 eggs from the vermiculite mixture, and eight out of 28 from the perlite mixture. Because there were no statistical differences between the groups, we jetisoned the idea that our eggs were not hatching due to improper incubation material.

During the winter of 1993, we talked with Dr. Dale DeNardo at one of the conferences of the Northern California Herpetological Society (NCHS). The discussion revolved around our disappointing hatch rate for gray-banded kingsnakes. In providing information such as neonates being kinked, not absorbing yolk sacs and dead almost full-term in the shell, Dale suggested that the adult females were not receiving sufficient calcium in their diets. Therefore, their eggs did not receive sufficient calcium while developing.

Lampropeltis alternans copulation lasts from five to 20 minutes.
resulting in our grim statistics. We decided to determine if calcium was, indeed, the culprit. We started placing calcium in the form of Rep-Cal on adult females' food items once weekly. Now, you may wonder why we chose Rep-Cal. Actually, it was the only product we had around, because we had received a free sample at yet another NCHS conference! Humanely dispatched mice were placed in a small plastic container with Rep-Cal, and these dusted mice were then fed to the female gray-banded kingsnakes. We supplemented all 10 of our breeder females—no control this time! Once we got the fertile eggs, they were incubated in the standard 1:1 vermiculite:water (by weight) incubation medium.

The results were staggering, at least to us. In 1993, we produced a total of 42 fertile eggs, 39 of which hatched! Also, similar high hatch rates were achieved during the 1994 and 1995 breeding seasons. The only different husbandry procedure was the use of the calcium supplement.

We should point out that although our hatch rate from fertile eggs increased dramatically, our overall production of fertile eggs did not change. We still had a number of females produce either infertile eggs or no eggs after being bred with a fertile male. Furthermore, we should note that Rep-Cal also contains vitamin D₃, which may have been responsible for increased hatch rate. More data needs to be collected to ascertain the impact of vitamin D₃ on egg hatching in gray-banded kingsnakes.

Rearing Neonates

The single most challenging aspect of keeping gray-banded kingsnakes is the rearing of neonates. Many herpetoculturists have become frustrated while trying to overcome the obstacle of enticing a baby snake to eat a domestic pink mouse.

To entice baby gray-banded kingsnakes to voluntarily feed on pink mice, we have employed all of the strategies mentioned earlier, as well as ideas from other sources (Applegate, 1989; Rossi and Rossi, 1995). This includes offering lizard-scented pink mice, pre-frozen then thawed pink mice and split-brained pink mice. Results have been mixed. In general, fewer than 10 percent of our hatchlings will accept an...
undocored pink mouse as its initial meal. Another 10 percent or so will feed on lizard-scented pink mice. The rest will not look at a pink mouse in any shape or form. These animals usually are offered a lizard as their first meal. After several lizard meals, many will feed on pink mice that are either frozen and thawed or are lizard scented. By then, winter is fairly close, and acquiring feeder lizards becomes more difficult. If the snake does not feed on a pink mouse, we usually force-feed the snake using a “pinkie press.” This is done several times to ensure that the snake adds some body mass. If the snake still refuses to feed voluntarily on a pink mouse, it is kept warm for 10 days and then is allowed to brumate for eight weeks. When the snake is warmed during the “spring,” it often eats a pink mouse on its own. By 9 months of age, all our neonate gray-banded kingsnakes usually begin feeding on pink mice.

Medical Problems
Several of our wild-caught gray-banded kingsnakes initially had minor parasite/pathogen problems. Four had
Cage setups for large adult gray-banded kingsnakes provide the animals with a thermal gradient by heating just one side of the cage. Humidity is reduced in the cage by keeping water on the “cool” end.

nematodes; one had a mild bacterial infection and another had protozoans. All were treated with the tried-and-true methods mentioned in many other articles (Klingenberg, 1993; Mader, 1991, 1993).

Nematodes were treated with Panacur (fenbendazole), bacterial infections were treated with antibiotics, and the protozoans were treated with Flagyl (metronidazole). Central to a snake’s recovery is assuring that the animal is kept in a nonstressful situation. This means paying particular attention to caging and furniture, temperature regimens and food. If these parameters are not properly provided, the snake may perish.

Two times during the past 20 years, we have had an outbreak of mites affecting some of our gray-banded kingsnakes. These arthropods were controlled utilizing strategies outlined by
Mader and Palazzolo (1993). Another important medical concern is dystocia, which is egg retention (Mader, 1992). The afflicted female will lay part of her clutch, and then retain one to three eggs in her oviduct. In the past, we have taken these females to a veterinarian to have the retained eggs surgically removed. Lately, we have employed a different strategy. Now, our breeder females are maintained in large sweater boxes. We believe the extra size of the cage encourages the snakes to move about and, in the process of doing so, to exercise. Theoretically, the exercise increases the snake’s overall muscle tone, and this seems to reduce the incidence of egg binding. In the past three years, only two females—as opposed to three times that many in prior years—have experienced dystocia. Both females were maintained on heat with minimal disturbance, and the retained eggs passed within 21 days. This practice has proven effective with other kingsnakes and rat snakes experiencing dystocia. However, it should be pointed out that if retained eggs are not passed, they must be removed surgically by a qualified veterinarian. The longer snakes retain eggs, the greater their risk of complications that may jeopardize their future health and reproduction.
When conditions are correct, multiple breedings of gray-banded kingsnakes can occur, as evidenced by this photograph. The authors have had up to three pairs breeding at once.

Conclusion

Obviously, from reading this article you know that we have captured several gray-banded kingsnakes over the years. However, for us, each animal has been the result of a long, tiring expedition.

That first collecting trip was filled with fruitless efforts. Hours of driving produced only a couple of western diamondback rattlesnakes (Crotalus atrox). “Wonderful Texas” was turning into “Boring Texas” for Cindy. The motel where we were staying was situated nicely, but otherwise, it was beyond our worst nightmare. The “linen” was dirty, the water was nonpotable, and there were more bugs inside the room than outside. No wonder people would rather hunt herps than sleep!

On Father’s Day, we drove about 20 miles to the closest telephone. It was a moonlit night, and we passed one huge western diamondback rattlesnake. The call home put Cindy in better humor, and we decided to call it a night.

Driving by a road cut on the trip back
to the motel, Gerold decided he had to "check it out." A black object caught his eye, and he ran over to it with his flashlight to investigate. Suddenly, he was jumping up and down and screaming! Flat tires, bug bites and a grouchy wife were completely forgotten in the excitement of capturing his first gray-banded kingsnake. The trip to Texas had been worth it, after all.

**Acknowledgements**

We are indebted to numerous people for their help in all aspects of this article. These people kindly provided information on their experiences regarding the natural history and captive husbandry of the gray-banded kingsnake. Others helped with the photography and initial editing of this article. Some even helped with all aspects of this article!

These people include: Jean Allured, Robert Assetto, Jeff Barringer, Ric Blair, Doug Brown, Young Cage, Dr. Dale DeNardo, Dr. Ben Dial, John Fraser, Dr. Ronald Garthwaite, John Hollister, Robert Mackin, Norm Nunley, "Buzz" Ross, Gerry Salmon, Rick Staub, Kamuran Tepedelen, Ron Tremper, Peter and Nancy Wright and the staff at Terry's Filmworks, Inc. If we have left anyone off of this list, kindly accept our apologies.

**References**


Barringer, Jeff. 1995. The alterna worldwide web page. An excellent resource for up-to-the-minute information on this popular species.


It is crucial that female gray-banded kingsnakes be fed large amounts of food in the spring to ensure proper egg development. This female is in the process of laying her clutch.

Note the misshapen egg in this clutch of gray-banded kingsnakes. The egg eventually hatched into a healthy neonate.
Neonate gray-banded kingsnakes remain in their eggs for up to 24 hours, during which time they absorb their yolk sacs.

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