

# Lampropeltis alterna



Close-up of a male  
blairi morph *Lampropeltis*  
*alterna*

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## Captive Care and Reproduction of the Grey-Banded Kingsnake



The grey-banded kingsnake, *Lampropeltis alterna* (Brown, 1901), belongs to a group of similarly patterned species referred to as the *mexicana* complex — the others in the group are *L. mexicana* and *L. ruthveni*. These species are distributed in parts of Mexico and the southwestern United States.

The taxonomy has long been debated, but *Lampropeltis alterna* is currently considered a single species with two distinct colour morphs (GARSTKA, 1982). These forms are so different that they have, in the past, been considered separate species (FLURY, 1950).

Until the 1960s, this snake was thought to be very rare. But with increased collecting during the 1960s and 1970s



it was found to be not really so uncommon — the apparent scarcity was probably due to its secretive, nocturnal habits. Since the 1970s *Lampropeltis alterna* has been successfully bred in captivity and is no longer as rare in collections as it once was.

In this article I will describe how I have successfully kept and bred this beautiful snake, which is quite well suited to captivity. The main problem is getting hatchlings to start feeding on pinky mice, but with some experimentation and persistence this obstacle can usually be overcome. Once this critical stage is passed, *Lampropeltis alterna* can be considered a good species for beginners — it is small, gentle, and easy to care for.

### Description

The grey-banded kingsnake is a medium-sized colubrid that commonly attains a length of 70–90 centimetres and usually weighs less than 200 grams. The head is relatively triangular and well set off from the neck. The eyes are large and somewhat protruding with a silvery-grey iris. The dorsal pattern on the head ranges from almost entirely grey spattered with small black spots to almost entirely covered with a single solid black blotch. A black postocular stripe is present behind the eye. The species has the same sexual dimorphism as most colubrids, with the tail being longer and broader in males than females.

Two colour morphs are recognized, commonly referred to as the *alterna* and *blairi* morphs (MILLER, 1979). The *alterna* morph has 17–33 narrow black crossbands bordered by narrower white bands on a grey background. These black bands may or may not be split by reddish-orange bands, and there may or may not be alternating reduced or broken black bands between the main bands. The *blairi* morph is characterized by 12–15 broad orange saddles with narrow black borders and adjacent white bands on a grey background. The *blairi* morph has no alternating broken



Female *blairi* morph *Lampropeltis alterna*

bands. Ventral coloration in both morphs varies from almost white to mottled to almost black.

### Distribution and habitat

*Lampropeltis alterna* occurs in the states of New Mexico (PAINTER, et al., 1992) and Texas in the United States, and the state of Coahuila in Mexico (MILLER, 1979). The rather small distribution range lies between 100 and 106 degrees west longitude and between 25 and 32 degrees north latitude, including the dry rocky hill-sides of the Trans-Pecos region at the border between Mexico and the United States. Found at elevations of 350–2,300 metres above sea level, *Lampropeltis alterna* prefers limestone semi-desert habitat, where it spends most of its time underground.

Both colour morphs are present throughout most of the range, but the *alterna* morph predominates in the western part and the *blairi* morph in the eastern part (HAKKILA, 1994).

This is a secretive and nocturnal species observed mainly after dark during the spring breeding season. It feeds primarily on diurnal lizards (that it hunts at night), but mice and frogs are also taken. Due to its secretive lifestyle, little is known about the natural history of *Lampropeltis alterna*, and most of the available data regarding its habits are from captive specimens.

### Housing and maintenance

*Lampropeltis alterna* is best housed individually or in mated pairs. If two males are housed in one enclosure they will fight during the breeding season.

For this ground dwelling snake, the floor area is the most important aspect of the enclosure. A pair of adults can be housed in a terrarium measuring at least 60 x 60 x 30 centimetres (LxWxH). I prefer terrariums of 6-millimetre-thick glass with front sliding glass doors. These are



easy to clean and offer good visibility. Rack systems containing plastic boxes are also used successfully, and best when housing large numbers of juveniles.

Newspaper, wood shavings, gravel, and peat moss can all be used as substrate, each having pros and cons. Although not aesthetically pleasing, newspaper is my preference because it is easy to change, and makes faecal and sperm samples easy to collect.

A sturdy ceramic dish of fresh water is kept available at all times. Furnishings can be very simple. A branch or rock facilitates shedding, and a plastic box with a hole in the lid or a piece of curved cork-bark can serve as a hiding place. Hiding places must be provided at both the warm and the cool ends of the enclosure.

The terrarium must be well ventilated and provide the snake with a thermal gradient, which can be achieved with an overhead spot lamp or a heating pad under the floor. During spring, summer, and early autumn, the warmer part of the enclosure should be kept at temperatures of 28–32°C (82–90°F) during the day; and overall cage temperature should be lowered to 18–22°C (64–72°F) at night. I have found this nighttime temperature drop to be very important for stimulating the snakes' appetites — they may even stop feeding if kept at a constant high temperature.

*Lampropeltis alterna* is usually fed appropriate-sized mice. The mice should be pre-killed because this snake is not a very efficient hunter and could be injured by the rodent's sharp teeth. During most of the active part of the year, the snake should be fed 2–3 small mice per week. Feeding should be increased during the early spring to build up fat reserves for the coming breeding season. Care should be taken not to overfeed since obesity could contribute to reduced fertility, dystocia (egg binding), and other health problems.

## Reproduction

The sexes are fairly easy to distinguish by the length and shape of the tail, which is longer and broader in the male than in the female. However it is best to ensure accurate identification of sex by probing: the male has a deeper cloacal cavity. On a regular feeding schedule, snakes of both sexes usually reach sexual maturity in their second year. In any case, it is best not to breed females until they weigh at least 150 grams or more — below this weight, the risk of low egg fertility or dystocia is much greater (EIDBO, 1996a, 1996b).

*Lampropeltis alterna* needs a period of hibernation to trigger breeding. First, in mid autumn, feeding is discontinued. About 2 weeks later, the temperatures are gradually lowered (over a period of 2 weeks) down to 5–10°C (41–50°F). These cool temperatures are maintained for about 2 months before being slowly raised again to the usual conditions.

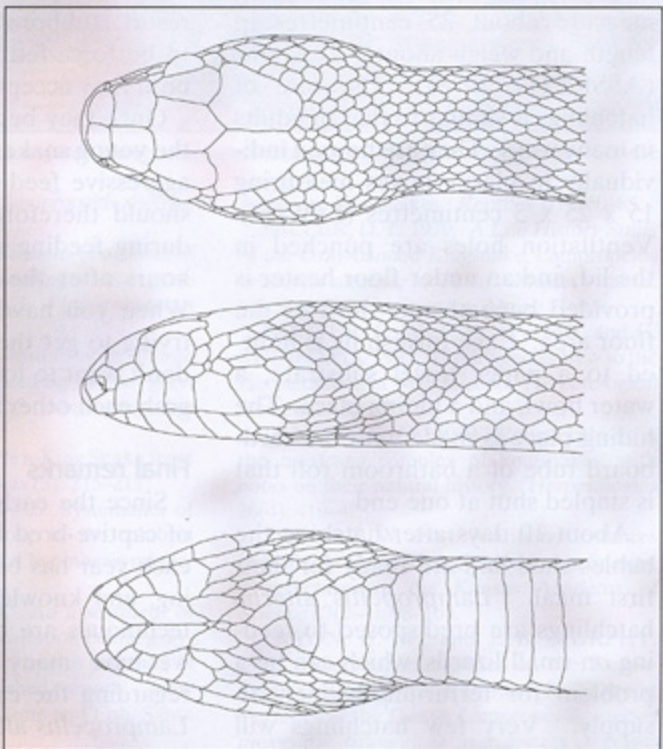
Sexually mature specimens housed together usually begin courtship behaviour and copulation 4–6 weeks after emerging from hibernation. Mating lasts 2–4 weeks (MERKER and MERKER, 1996). Gravidity



Male *alterna* morph *Lampropeltis alterna*. The *alterna* colour morph is characterized by relatively narrow black bands split by reddish-orange bands, and with alternating broken bands between them.



Male *blairi* morph *Lampropeltis alterna*. The *blairi* colour morph is characterized by relatively few broad orange saddles with no alternating broken bands between them.



Head scalation drawn from a captive-bred semiadult male *blairi* morph *Lampropeltis alterna*.



lasts 27–51 days (TRYON and MURPHY, 1982).

About 6–10 days before laying eggs, the gravid female sheds her skin. At this time a suitable nesting box should be provided. A plastic box with a hole cut in the side and filled with moist vermiculite or peat moss is simple and sufficient — given this option, a female will usually choose this site to lay her eggs.

The clutch usually consists of 3–13 white or light cream coloured eggs (TANZER, 1970), which measure about 40 x 20 millimetres. Very soon after deposition the eggs stick together and form a tight egg mass. The egg clutch is then transferred to an artificial incubator. Kept at a temperature of 28°C (82°F), the eggs hatch in 65–70 days.

*Lampropeltis alterna* usually lays one clutch per year, but has been reported to double clutch in captivity (APPLEGATE, 1989; TRYON, 1984; TRYON and MURPHY, 1982). The second clutch is usually smaller than the first (CRANSTON, 1991).

### Care of hatchlings

At the time of hatching, offspring measure about 25 centimetres in length and weigh about 8–10 grams (ASSETTO, 1978). The care of hatchlings is similar to that of adults in many ways. They are housed individually in plastic boxes measuring 15 x 25 x 5 centimetres (LxWxH). Ventilation holes are punched in the lid, and an under-floor heater is provided beneath one-third of the floor area. Cage furnishing is limited to a paper towel substrate, a water bowl, and a hiding place. The hiding place is made with the cardboard tube of a bathroom roll that is stapled shut at one end.

About 10 days after hatching the babies shed and are ready for their first meal. *Lampropeltis alterna* hatchlings are predisposed to feeding on small lizards, which can be a problem for terrarium keepers to supply. Very few hatchlings will take pinky mice from the start; most will have to be trained to do this in



Lateral view of the head of a male blairi morph *Lampropeltis alterna*

order to thrive. You may need to start feeding small lizards, or pieces of lizard, and then switch to lizard-scented pinkies. Then, by gradually reducing the amount of scent, you can usually get the snake to start taking unscented pinkies voluntarily. To avoid the risk of parasites from the lizards, I have tried scenting pinkies with cod roe, which has worked surprisingly well. As a last resort, stubborn hatchlings will need to be force-fed to keep them alive until they accept mice on their own.

Once they begin to feed on mice, the young snakes usually develop an aggressive feeding response. They should therefore be kept separate during feeding and for a couple of hours after the meal is swallowed. When you have spent many hours trying to get the snakes to eat, you don't want to lose any because they grab each other during feeding.

### Final remarks

Since the early 1970s the number of captive-bred hatchlings produced each year has been steadily increasing, and knowledge and husbandry techniques are being refined. Still, we have many problems to solve regarding the captive husbandry of *Lampropeltis alterna*. For example, in clutches from wild-caught gravid females, egg fertility of almost 100



Male alterna morph *Lampropeltis alterna*

percent is not unusual; in captive breeding, however, egg fertility is usually only 50–70 percent. This could be related to a lack of trace minerals or other deficiency in the usual captive diet, which cannot duplicate the more varied diet consumed in the wild. Another possible factor could be the length of hibernation. One thing is certain: we still don't know! I believe hobbyists can play an important role in finding new and better husbandry techniques. ■

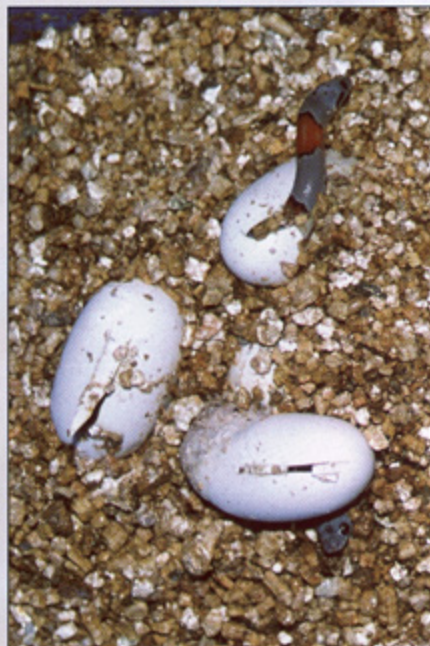
### Acknowledgments

I would like to thank Göran Hedebris for initiating my interest in this beautiful species by giving me a lovely little yearling male (which is





Female *alterna* morph *Lampropeltis alterna* coiled around a newly deposited clutch of eggs



*Lampropeltis alterna* hatchling from a small clutch



Incubator used by the author



Copulating blairi morph *Lampropeltis alterna* pair. The lighter coloured male is on top

still in my collection, to which a couple more breeding pairs have been added; and my family, for putting up with my snake hobby over the years.

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