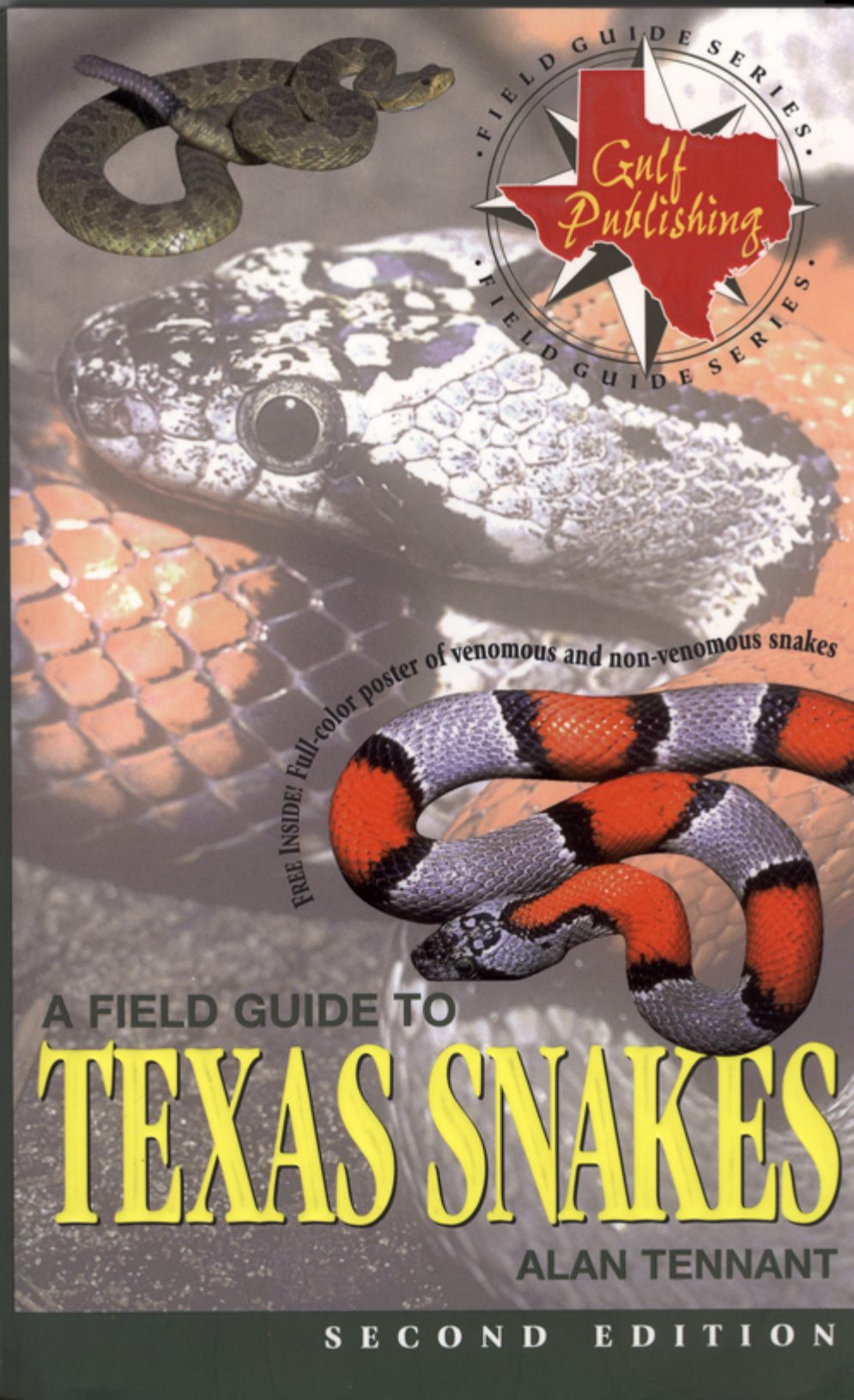

A FIELD GUIDE TO TEXAS SNAKES

ALAN TENNANT

SECOND EDITION

A FIELD GUIDE TO

TEXAS SNAKES

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83 Gray-banded Kingsnake

Lampropeltis alterna

Nonvenomous In captivity, *Lampropeltis alterna* almost never bites, though when first picked up in the field it may give a single frightened nip.

Abundance Widespread but uncommon. Because they are almost entirely fossorial during much of the year, gray-banded kingsnakes were for decades thought to be extremely rare, and this species was long protected by the state of Texas. *Lampropeltis alterna* is no longer regarded as threatened, however, largely because it is now known to be widely distributed, with over 90% of its habitat occurring either on private ranchland or within state and national parks (south of the Rio Grande, where two-thirds of the gray-banded kingsnake's range lies, it has even less contact with humans due to the mostly roadless terrain it inhabits).

While *L. alterna* remains at the center of environmental controversies—several magazine articles have suggested that this species is in danger—the prevailing scientific view is that neither the 50 to 100 gray-banded kingsnakes taken every year by collectors, nor those run over by local ranch traffic, is ecologically significant. (These losses are also unlikely to get much larger because *L. alterna* is entirely inaccessible to the public except where road cuts and canyon bluffs border the few back roads that cross thousands of square miles of its barren range.) As a result, *L. alterna* was denied federal designation as a threatened species in 1980 and is no longer protected in Texas.

Although the gray-banded kingsnake has recently become the object of intense scrutiny, it has been known for almost a century. The type specimen was collected during 1901 in the Davis Mountains by E. Meyenberg, then formally described by A. E. Brown, who named it *Ophibolus alternus* for its alternating broad and narrow dorsolateral bands. For the next forty-seven years this animal, re-renamed *Lampropeltis alterna* after its affinity with the kingsnakes became apparent, was known only from the Chisos, Davis, and Sierra Vieja mountains, from a single locality near Bakersfield in Pecos County, and from the Mexican State of Coahuila.

Then, in 1948, a much paler, broadly orange-banded kingsnake unlike any previously reported from the Trans-Pecos was discovered 9 miles west of Dryden. This animal was thought to be a new species, which was formally described by A. G. Flury and named *Lampropeltis blairi* after University of Texas herpetologist W. F. Blair. This nomenclature was in error, however, for some twenty years later Ernest Tanzer found both pale-and dark-hued gray-banded kingsnakes hatching from a single clutch of eggs laid by a wild-caught gravid female, demonstrating that "*L. alterna*" and "*L. blairi*" were really a single species. The older scientific name prevails, so *Lampropeltis alterna* is the proper term for all West Texas' gray-banded kingsnakes.*

In recent years, herpetoculturalists have bred thousands of gray-banded kingsnakes in captivity, but wild-caught specimens carry far more cache, and even the remote chance of capturing one attracts a cult-like following of enthusiasts who, from all over the world, seek out Trans-Pecos Texas during the breeding season in late April, May, and June. Hoping to intercept an adult male *L. alterna* on its nocturnal courtship for-

*For a time, West Texas' gray-banded kingsnake was also thought to be a subspecies of the wide-ranging Mexican kingsnake *L. mexicana,* and it was known as *Lampropeltis mexicana alterna* until 1982, when W. R. Garstka taxonomically separated Texas' gray-banded kingsnake from its Mexican relative.

ays, bands of enthusiasts sometimes crowd the best-known collecting sites. Yet, despite their sometimes gaudy colors, gray-banded kingsnakes are difficult to see at night because red looks gray in poor lighting, and the variegated dorsolateral patterning of *L. alterna* masks its serpentine shape against shadowy rock faces.

In contrast to these groups, serious collector/breeders such as Joe Forks, D. Craig McIntyre, and Gerry Salmon are primarily interested in preserving, by means of captive propagation, the distinct color/pattern types unique to particular regions of the Trans-Pecos. It is not uncommon for these researchers to spend nearly every night between the first of May and mid-July searching Trans-Pecos roads for new populations of distinctly marked or colored *Lampropeltis alterna,* mapping its regional variants, and expanding its known range, which now includes 15 Texas counties plus adjacent Eddy County in New Mexico.**

Size Adult gray-banded kingsnakes average 28 to 34 inches in length, with those from the Chisos and Davis Mountains averaging slightly smaller. The record is a 58-inch-long male "Blair's" from 17 miles west of Rocksprings in Edwards Co.

Habitat Throughout the Chihuahuan Desert, *L. alterna* inhabits rocky environments in terrain ranging from barren, lowlying desert flats (usually adjacent to bluffs or arroyos) to mountain slopes as high as 7,000 feet. This means it lives amid a huge variety of plant life: Both low altitude mesquite and creosote bush associations and montane pinyon-pine, juniper, and oak communities are occupied, while canyons, craggy ridges, talus slopes, and boulder piles are its preferred microenvironment; the limestone faces of road cuts are where these animals are most often seen.

In this arid country, conditions on the surface are harsh but, except for breeding forays by males, the gray-banded kingsnake seldom experiences them because it spends most of its life in a more sheltered world deep beneath the desert floor. Here, moving slowly through the maze of interconnecting crevices that underlie the region's broken limestone topography, *L. alterna* need never emerge from its chthonic warren because at night the lizards on which it feeds descend into its crenelated lair in search of shelter.†

Prey On the surface, where it sometimes hunts, *L. alterna* uses its prominent ventral scales to grip rough-surfaced stone, inching its way across nearly vertical rock faces while searching every crevice for the side-blotched and spiny lizards that sleep there (Salmon observed an adult male gray-band trying to pull a crevice spiny lizard from a crack in a roadside rock-cut where the lizard had wedged itself by expanding its lungs.) In captivity, *L. alterna*–which is a bit clumsy at conventional constriction–may engage in a specialized form of "constriction" by pressing mice against the walls of its enclosure. (Most wild-caught adults feed readily on small rodents, though the young are exclusively lizard eaters.) Lizard eggs, snake eggs, and canyon tree frogs have also been noted as food items among wild *L. alterna* (I found a desert sideblotched lizard in the stomach of a road-killed specimen), but ophiophagy, which is common among kingsnakes, is rare in gray-banded kings.

**Because endemic populations are often separated by geographic barriers, gene flow between groups is thought to be minimal. Like zoos engaged in endangered species breeding programs, committed herpetoculturalists therefore select their breeders on the proximity of their capture sites–even when that means driving from California or New York to find a mate for an animal taken from a particular stretch of West Texas dirt road.

†Fossil records indicate the presence of this reptile at Fowlkes Cave in Culberson Co. from the Late Pleistocene, while R. W. Van Devender has found *L. alterna* fossils up to 15,000 years old from both a packrat midden in Brewster Co. and Baker Cave in Val Verde Co.

Reproduction Egg-laying. No reproductive behavior has been recorded for gray-bands in the wild, but the fascination of propagating regional variants of *Lampropeltis alterna* has led to the thorough documentation of its courtship and breeding.

Captive husbandry initially focused on building cages with false floors punctured by entrance holes leading to "underground" spaces filled with loose vermiculite. This attempt at recreating the gray-band's natural habitat proved unnecessary, but current techniques–successful propagation was first described by James Murphy of the Dallas Zoo–is equally exacting. Because winter dormancy is necessary for reproduction, the brief but cold Trans-Pecos winters are approximated by keeping breeders at about 55°F, without feeding, for a period of 10 to 12 weeks.

After brumation, males in the wild are likely to become territorial, because contests for dominance occur when two newly-warmed males are placed in the same cage. After a few minutes' struggle to attain the uppermost position, the combatants are separated, a female is introduced to the desired male's cage, and copulation occurs at once.

The clutches of 3 to 18 eggs, 1¼ to 1⅝ inches in length, are deposited from late May to July. After their 60- to 80-day incubation, the young pip through their leathery eggshells but remain coiled within the eggs for another couple of days, peaking out from time to time while adsorbing the last of their yolk sacs. Well-fed *L. alterna* reach reproductive maturity in their second or third year (wild females may become gravid at as small as 24 inches), and in captivity can live more than 20 years.

Coloring/scale form The great variety of this species' color and patterning has made it the jewel of Texas herpetology among herpetoculturists, among whom it is said that, "no two *alterna* are exactly alike." This may not be entirely true, but gray-banded kingsnake populations are so highly polymorphic that wild specimens seem to present an almost infinite variety of color and patterning.

Ground color varies from black to light gray, although two principal color phases prevail. (The original terms "alterna" and "blairi" are still used to differentiate these types, although many specimens are intermediate between them). Individuals from the lower Pecos and Devil's River drainage are most often pale gray, for example, with orange dorsal saddles delineated by narrow, sometimes thinly white-bordered black edges, while among the more northerly and easterly specimens known as "alterna" morphs, heavier pigmentation is likely. Thin black bands, sometimes narrowly split with red, are separated by still thinner intermediate, or "alternating," dark bands or vertical rows of small black spots.

These differences are loosely tied to the hue of the background rocks on which these populations live. In the southern part of the range, where the paler "Blair's" form more often occurs, there is more chalky desert pavement than in the north and at higher elevation, where more moisture causes the lichen-encrusted granite to be darkly weathered. Here, more heavily pigmented "alterna" morphs prevail. Because both sorts of young are produced in the both regions, natural selection determines which color phase is best camouflaged against its local background rock and is thus most likely to survive there.

Ventral coloring varies almost as much as that of the dorsum, ranging from off-white to, in the Davis Mountains, almost entirely black (ventral scale counts range from 208 to 232 with an average of 221; supralabials range from 6 to 8, while infralabials usually number 10). The 25 midbody rows of dorsal scales are smooth and the anal plate is undivided.

The sites where these variable color morphs have been found include:

Brewster County

Five miles west of Alpine on US Hwy. 90; 6 to 28 miles south on US Hwy. 118. About 20 specimens are known from these two sites, mostly medium or dark phase "alterna" morphs with thin (or absent) orange splits in their crossbands. This type, characterized by profuse speckling and variegated patterns on a tan or ocher ground color, is found on the same dark red granite as are the similar-looking *L. alterna* that occur on the same granite formations near Fort Davis.

Black Gap: FM 2627. Black Gap Wildlife Management Area has an extremely variable population of gray-banded kingsnakes that may reflect the region's well-known diversity of terrain and vegetation. Both this area and that around Sanderson, just to the northeast, are famous for the bold colors and patterning of the resident *L. alterna,* and may be the part of the gray-band's range where the highest degree of color/pattern variation occurs. Both light and dark "Blair's" color phase animals are known—one such individual, collected on FM 2627 on June 10, at 12:10 a.m., is a light phase "Blair's" whose twelve large, bright orange saddles are separated by alternate markings. Still, "alterna" morphs are the more abundant color morph found here, a dark ground color is more common than light, and both heavily speckled and completely patternless specimens also occur.

Christmas Mountains: North of Study Butte on US Hwy. 118. Snakes from the Christmas Mountains are usually speckled "alterna" morphs, many with all their primary bands split by orange wedges. One of these, a male found here by Joe Forks on June 26, at 4:20 a.m., had 19 primary bands, the four anterior-most split with bright orange. Orange scales were speckled throughout the remaining bands, and both speckling and triple alternate bands were present in the neck. "Blair's" morphs have also been collected in the Christmas Mts., but seem to be uncommon there. Dennis Miller of the Chihuahuan Desert Research Institute reports black specimens in this area. Additional gray-bands are known from 17 miles east of Marathon on US Hwy. 90, Big Bend National Park, Pepper's Hill on FM 170, and Bee Mountain (Hwy. 118 just north of Study Butte).

Crane and Upton Counties

King Mountain. Only a handful of *L. alterna* are known from this locality. Most are light- or dark-phase "Blair's" with symmetrical patterns: one young male "Blair's" found by Forks on the east slope of King Mountain in Upton County during September is indistinguishable from specimens that occur far to the southeast in Val Verde County. One "alterna" morph has also been reported from this locality.

Crockett County

Iraan: US 190 East of Iraan. Suitable habitat extends some 20 miles east of Iraan on US 190. Both "Blair's" and "alterna" morphs occur here, most of them showing the symmetrical patterning typical of the easternmost reaches of the gray-band's range.

FM 2083 southwest of Ozona: Pandale Paved Road. The gray-banded kings seen here are predominantly "Blair's" morphs; as of 1996, only 8 live specimens were known from this area, none of them "alterna" morphs.

Sheffield and Fort Lancaster on US Hwy. 290. Few *L. alterna* have been recorded here, although both "alterna" and "Blair's" morphs are represented. An "alterna" phase found southwest of Fort Lancaster in May 1995 has a primary band count of 19, the first 7 of which are split by 3 horizontal rows of markings called triple alternates.

Other Crockett County Localities. There are few reports of *L. alterna* from FM 163 (Juno Road and I-10) in Crockett County. I saw two "alterna" morphs–one a heavily speckled adult male road-kill found in May, the other a smaller, typical "Blair's" phase male seen on June 19–just south of Sheffield, where FM 349 drops into a limestone canyon.

Culberson County

Guadalupe Mountains. Lampropeltis alterna has been reported from 3 miles south of Pine Springs on US 62/180, as well as on the east side of Guadalupe Peak. All are typical "alterna" morphs with few primary bands consisting of thin, white-edged black rings separated by wide gray patches and containing little or no orange. Another specimen found on the east side of Guadalupe Peak had 19 dark body blotches and lacked red pigment.

Beach Mountains. Toby Hibbitts found a single gray-band 3.3 miles north of Van Horn in the Beach Mountains. It is a light "alterna" morph male with 13 dark primary bands, most separated by alternate dark markings. There was very little orange except in its X-shaped nuchal blotch.

Edwards County

FM 674 south of Rocksprings. A single specimen–a dark "alterna" male with almost no orange–is known from this county. It was found 31.5 miles south of Rocksprings on FM 674 on June 19.

Other Edwards County localities. At different times, both Forks and I have found gray-banded kingsnakes in this county; Forks in Carta Valley, a cave in the Devil's Sinkhole, and I at a site 17 miles west of Rocksprings on Hwy. 377. Gehlbach & Baker (1962) report a specimen from Dunbar Cave, 21 miles southwest of Rocksprings. All were light "Blair's" morphs.

El Paso and Hudspeth Counties

Hueco Mountains: El Paso and Hudspeth counties. Few gray-banded kings have been found in this area, all being typical "alterna," with a low crossband count and little or no orange. A female collected on August 25, by Richard Worthington, on the Hueco-Gasline Road, had 15 body blotches, no more than 2 scale lengths wide, with 4 of the anterior blotches being laterally incomplete.

Eagle Mountains: Hudspeth County. A small male gray-band–a dark ground-colored "alterna" morph–was found on June 25 at 5,500 ft elevation on the Eagle Mountain Ranch. It had 16 dark body blotches, most of which contained scattered red scales.

Jeff Davis County

Fort Davis: FM 1832, Limpia Canyon, McDonald Observatory, Musquiz Canyon. Typical specimens from these localities are medium to dark phase "alterna" morphs with a tan or brownish-orange ground color. Both light phase *L. alterna* and individuals with heavy speckling are also known, and in both varieties the ventral scales are darkly pigmented. A male "alterna" collected by D. Craig McIntyre and Mark Brown at 10:10 p.m. on July 3 about 20 miles north of Fort Davis, had 26 primary bands on a brownish-gray ground color. Alternate markings were present between every primary crossband except the last four posterior bands, and there was orange pigment within 19 of the primary bands.

Kinney County

FM 674 north of Bracketville. One light-hued "Blair's" female with a black head was found 12 miles north of Bracketville.

FM 2523 in northwestern Kinney County. One live and one road-killed specimen are reported for this locality. The living specimen was a dark phase female found a mile south of the Edwards County line on FM 2523. She had narrow primary crossbands, of which only the first four anterior bands were split with orange; her ten perfectly symmetrical dorsal saddles were almost completely black. (Because there were no intermediate or "alternate" markings between her primary dorsolateral bands, this animal would be considered intermediate between the "alterna" and "Blair's" color phases due to the reduced width of her body bands.)

Pecos County

Glass Mountains on US Hwy. 385. The rocky outcrops favored by gray-banded kings lie far from the road in the Glass Mountains, which are private property, so very little *L. alterna* habitat is adjacent to US Hwy. 385. Nevertheless, Dennis Miller reported a single specimen from this locality.

West of Iraan on US Hwy. 190. Both "Blair's" and "alterna" color phases are represented along this stretch of very good habitat. Most individuals have the cleanly symmetrical patterning typical of individuals found far to the south in Val Verde County.

Other Pecos County Localities. L. alterna has been found by Forks and Salmon to the north and west of Sanderson just inside Pecos Co. Other specimens are known from an atypical habitat of creosote plains 14 miles southwest of Fort Stockton, 14 miles west of Bakersfield, and FM 305 northwest of Iraan.

Presidio County

FM 170, or the River Road. "Alterna" morphs occur more often than "Blair's" along this famous scenic drive, most of which is now part of Big Band Ranch, an extension of Big Bend National Park and therefore a wildlife refuge. The few "Blair's" morphs seen here have come from the vicinity of Mud Flats. A male "alterna" phase, found by Troy Hibbitts on June 4, 4.6 miles west of the Big Hill on FM 170, had 20 narrow primary bands split with orange, and laterally restricted dark "alternate" markings between most of them. Several totally speckled gray-bands have also been found in this locale.

Other Presidio County Localities. Very few *L. alterna* have been reported from Candelaria, Shafter, Pinto Canyon, and the Sierra Vieja Mountains.

Sutton County

US 277 south of Sonora. A single individual—a dark phase female "Blair's" with bright orange saddles—is recorded for Sutton Co., approximately 15 miles south of Sonora on US Hwy. 277.

Terrell County

Dryden, Palma Draw, and Lozier Canyon. Several hundred gray-banded kingsnakes are known from this area along US Hwy. 90, most of them dark "Blair's" phase individuals. An "alterna" type, possibly the only one seen between Dryden and Pumpville on US 90, was located by Forks on October 1 in a vertical crevice near the bottom of a roadside cut at 8:00 a.m., some 8 miles east of Dryden.

Sanderson: US Hwy. 285; US Hwy. 90. Lampropeltis alterna from this area are highly variable, sometimes with atypical patterning. Both "alterna" and "Blair's"

morphs are represented, with speckling appearing in the nuchal blotches of both types; the primary markings tend to be faded in the center. (Dark-hued "alternas" with thin, bright red slashes in their primary crossbands are also known to occur east of Sanderson.)

Other Terrell County Localities. A dark male "Blair's" with 15 bright orange saddles is noted from 54 miles northeast of Sanderson on FM 2400; another was located by Hibbitts nearby on US 349. Two "alternas" are also recorded from Myers Canyon 14 miles north of Dryden on US 349.

Val Verde County

FM 163, or Juno Road. This bleak little rural route is world-famous in the herpetological community as one of the few places that brightly colored "Blair's" gray-banded kings occur more often than "alterna" morphs. A light phase adult male "Blair's" with a black head found by Forks at 1:20 a.m., June 11 about 5 miles south of Baker's crossing, had twelve big, bright orange saddles on a light gray ground color. Another male "alterna" morph located at 11:45 p.m. June 21 had 18 reduced primary crossbands, some split with bright red, on a dark gray ground color; there were almost no alternate markings, and wide white borders edged its primary bands.

Langtry: US Hwy. 90; Langtry Loop Road; Pandale Dirt Road. These equally well-known localities—the first a major highway sandwiched between high limestone road-cuts, the latter two, tiny desert tracks—have produced more sightings of *L. alterna* than any other locality. (Most have been "Blair's" color phase with medium to dark gray ground color). As a result, Comstock and Langtry have become headquarters for *L. alterna* fanciers, and because little else happens in this remote corner of the state, each summer every scruffy cafe and motel hangs out a "Welcome Snake Hunters" sign.

Loma Alta, or US Hwy. 277. "Blair's" color phase gray-bands are also often found here, and this road claims some of the most brightly colored, pale-hued "Blair's" with large orange saddles. One such snake, found 32 miles north of Del Rio at 4:20 a.m., July 3, had 14 vivid orange saddles; another pale female "Blair's" with a black head, also found by Forks from at the same site at 11:15 p.m. on July 16, had 11 big red saddles, each split by a dark "alternate" marking.

Similar snakes The light-hued color phase of the **mottled rock rattlesnake (104)** is almost identical in pigmentation to pale-phase gray-banded kingsnake. The heads of both species are somewhat triangular, but rattlesnakes have both a rattle and a dark, distinctly depressed heat-sensing pit midway between the nostril and the slit-pupilled eye (like other subterranean or nocturnal serpents, *L. alterna* has bulging eyes with prominent round pupils).

Behavior Gray-banded kingsnakes' movement on the surface fluctuates according to both season and weather: its infrequent forays usually occur on warm spring nights with low or falling barometric pressure, especially when rainfall has recently occurred and the humidity is higher than normal. (The summer of 1997, which followed the wettest spring in a decade, produced an exceptional number of sightings throughout its range, including individuals discovered in habitats as atypical of this species as the specimen found on the rolling plains 20 miles north of Marathon.) *Lampropeltis alterna* is encountered slightly more frequently in the very dry country near the Pecos and Devil's rivers, however, as well as in desert terrain near the Rio Grande, than in better-watered parts of its range.

Michael J. Bowerman

82 Central Plains Milk Snake, *Lampropeltis triangulum gentilis* (juvenile)

D. Craig McIntyre

83a Gray-banded Kingsnake, *Lampropeltis alterna* (light-hued, Blair color phase with orange saddles; central Val Verde County)

D. Craig McIntyre

83b Gray-banded Kingsnake, *Lampropeltis alterna*
(light-hued, Blair color phase without orange saddles; central Val Verde County)

Michael J. Bowerman

83c Gray-banded Kingsnake, *Lampropeltis alterna*
(dark-hued Blair color phase; southern Val Verde County)

Michael J. Bowerman

83d Gray-banded Kingsnake, *Lampropeltis alterna*
(darker-hued Blair color phase; central Val Verde County)

D. Craig McIntyre

83e Gray-banded Kingsnake, *Lampropeltis alterna*
(hatchling; light-hued alterna color phase; central Val Verde County)

D. Craig McIntyre

83f Gray-banded Kingsnake, *Lampropeltis alterna*
(light-hued alterna color phase; western Brewster County)

D. Craig McIntyre

83g Gray-banded Kingsnake, *Lampropeltis alterna* (medium-hued alterna color phase; Jeff Davis County)

Richard D. Bartlett

83h Gray-banded Kingsnake, *Lampropeltis alterna* (dark-hued color phase, intermediate between Blair and alterna; northern Brewster County)

D. Craig McIntyre

83i Gray-banded Kingsnake, *Lampropeltis alterna* (light-hued Blair color phase; western Terrell County)