

ADDITIONAL OBSERVATIONS ON VARIATION AND
DISTRIBUTION OF THE GRAY-BANDED KINGSNAKE,
LAMPROPELTIS MEXICANA (GARMAN)

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A taxonomic revision of the gray-banded kingsnake, *Lampropeltis mexicana*, was presented by Gehlbach and Baker (1962) and accepted by Liner (1964), who added Nuevo Leon, Mexico, to the distribution of *L. m. alterna*. With several more specimens, it is now possible to extend the range of *alterna*, the most northern subspecies, 100 miles to the Texas–New Mexico border region and place *L. m. greeri* in the synonymy of nominate *mexicana*. Although the new data support treatment of *alterna*, *mexicana*, and *L. m. blairi* as elements of a single polytypic species, earlier observations on sexual dimorphism and coloration in *alterna* are modified. All new localities and taxonomically significant variational data are reported in the following accounts.

Lampropeltis mexicana alterna (Brown).—Five individuals of this form, or intergrades with it, are within the known limits of distribution mapped by Gehlbach and Baker (1962: fig. 2). They are from 15 mi. N Saltillo, Coahuila, Mexico (BCB 10318); Panther Junction, Chisos Mts., Brewster County, Texas (BBNP 3523); 18 mi. S Alpine, Brewster County, Texas (SRSC 311); 2.5 mi. W Ft. Davis, Jeff Davis County, Texas (TNHC 28343); and 16 mi. N Ft. Davis, Jeff Davis County, Texas (FWZP). A sixth, taken by the senior author 3 mi. S Pine Springs, Culberson County, Texas (UMMZ 123494) is a significant northern record.

This Culberson County specimen and TNHC 28343, both males, have fewer ventrals (210, 211), subcaudals (60), red body markings (15, 19), and tail rings (5, 6) than previously recorded in the sex. A female (BCB 10318) has the high number of 34 red body markings and 8 tail bands. Accordingly there is no sexual dimorphism in *alterna* as postulated by Gehlbach and Baker (1962:296). In addition, variational gaps between *alterna*, *mexicana*, and *greeri* are narrowed, and the number of red body markings barely distinguishes *alterna* from *blairi* (Table 1).

Further color-pattern differences between *alterna* and *blairi* are not so apparent when the enlarged nuchal blotch, middorsally expanded body bands (saddles), and unusual, reticulated head pattern (Fig. 1A) of TNHC 28343 are examined. SRSC 311 also has an expanded nuchal blotch (10 × 14 red scales) and midbody saddle (2 × 15 red scales), but broken, black interspace bands, characteristic of *alterna*, are present as in TNHC 28343 (see Fig. 2). Thus, we believe that the *alterna* × *blairi* intergrade zone extends northwestward from Edwards County, Texas, through Pecos County, to the

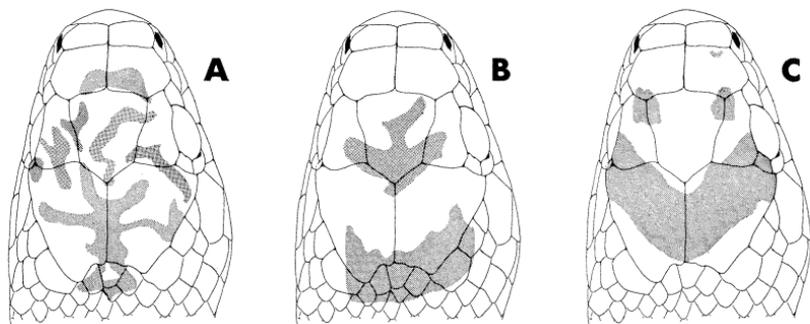


FIG. 1.—Dorsal head pattern in subspecies of *Lampropeltis mexicana*. A. *L. m. alterna* × *blairi* (TNHC 28343), B. *L. m. blairi* (UMMZ 124029). C. *L. m. mexicana* × *alterna* (UCM 21061). Scutellation drawn from UCM 21061.

Davis Mountains. Typical *blairi* is apparently restricted to the Texas–Mexico border region, typical *alterna* to the Big Bend and Davis and Guadalupe Mountains regions, west of *blairi* range, in the United States.

The other four individuals of *alterna* have narrow, relatively unexpanded, black body bands or rings in which red scales are either lacking or mostly scattered without forming discrete red blotches (Fig. 2). This feature is confined to *alterna* and has not been illustrated previously. Saddles with a definite red center occur only in the anal region of UMMZ 123494 and BCB 10318 and nuchal area of BBNP 3523. A complete nuchal blotch or saddle is unusual in *alterna*.

Five large eggs, averaging 12×30 mm. and apparently ready for oviposition, were found in SRSC 311. This specimen was collected May 16, 1964.

Lampropeltis mexicana blairi Flury.—Another male (UMMZ 124029) from 1.5 mi. NW Comstock, Val Verde County, Texas, has a relatively small midbody saddle (3×20 red scales), intermediate in size between those of nominate *mexicana* and *blairi*. Its dorsal head pattern (Fig. 1B) also approaches *mexicana* (cf. Smith, 1942: fig. 2) as well as the *blairi* × *alterna* intergrade figured by Gehlbach and Baker (1962: fig. 1). While various manifestations of head coloration in the *mexicana* complex are often confusing, resemblance to and derivation from the basic trilobed pattern usually can be seen when discrete markings are present.

Lampropeltis mexicana mexicana (Garman).—A male, initially referable to *L. m. greeri* Webb on the basis of geography, is from 42 mi. S Ciudad Durango, Durango, Mexico (UCM 21061). It has 204 ventrals, 60 subcaudals, 25 red body and 9 tail markings, 23-23-23-20-18 dorsal scale rows, 7-7 upper and 10-10 lower labials, 1-1

TABLE 1.—Geographic variation in *Lampropeltis mexicana* (range of both sexes with mean in parentheses). Subspecies, together with sample size, arranged approximately from north to south and east to west (left to right in table).

Characters	<i>alterna</i> (10)	<i>blairi</i> (5)	<i>thayeri</i> (4) ¹	<i>mexicana</i> (13)
Ventral scales	211–229 (220)	208–229 (222)	196–212 (205)	190–200 (195)
Dorsal scale rows at midbody	23–27 (25)	25–27 (26)	22–23 (23)	23–25 (23)
Red body markings	15–34 (24)	13–14 (14)	24–28 (27)	30–47 (35)
Length of midbody marking ²	0–13 (4)	20–26 (23)	15–23 (21)	9–23 (12)
Type of midbody markings	bands or rings; rarely saddles or blotches	saddles only	rings; rarely saddles or blotches	blotches; rarely saddles

¹ Includes two, apparently intermediate specimens (Gehlbach and Baker, 1962:296).

² Red scales counted diagonally from one side of body to the other.

preoculars and 2-2 postoculars. The postocular dark mark is fused with the dorsal head pattern (Fig. 1C). The enlarged nuchal blotch is 6×6 red scales, midbody saddle 3×13 red scales in size; both features are intermediate between nominate *mexicana* and *alterna* as is the number of ventral and subcaudal scales. Moreover, the first four body markings caudad of the nuchal patch are blotches, while the others are middorsally expanded saddles, some of which are truncated laterally as quasi-blotches. Blotches, the dorsal head pattern, and number of dorsal scale rows resemble *mexicana*; the number of red body markings approximates *alterna* (Table 1).

We believe that UCM 21061 and the type of *Lampropeltis greeri* (cf. Gehlbach and Baker, 1962:294; Webb, 1961:328) are *mexicana* \times *alterna* intergrades. On the basis of total character evaluation and geographic proximity, we place *greeri* in the synonymy of *L. m. mexicana*. The range of this form then includes the Sierra Madre Occidental into which genetic influence from *alterna* extends, probably via central Chihuahua, from Trans-Pecos, Texas, and adjacent Coahuila, Mexico.

Conclusions.—Because of considerable color-pattern variation and frequent overlap of meristic features, a standard key is not useful for distinguishing the subspecies of *L. mexicana*. Therefore, we present Table 1, which separates the four subspecies, and at the same time, summarizes geographic trends in taxonomically important characters. Intergrade specimens are few (not included in Table 1), but it is noteworthy that a Mann-Whitney U-test gives significant values ($P = 0.05$) for all ventral scale comparisons between them and both



FIG. 2.—*Lampropeltis mexicana alterna* (BBNP 3523) from Panther Junction, Chisos Mts., Brewster County, Texas. Photographed in life; total length about 550 mm.

“parental forms.” Insignificant values ($P > 0.05$) are obtained in similar comparisons of number of red body markings and dorsal scale rows.

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