

HANDBOOK OF SNAKES

OF THE UNITED STATES AND CANADA

BY ALBERT HAZEN WRIGHT
AND ANNA ALLEN WRIGHT

VOLUME I

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ITHACA AND LONDON

- ii. Black line from eye along upper labials, turning at right angle to cross head; head markings separated from blotch by light collar, bordered front and rear by black, top of head fawn, labials gray, those ahead of eye with dark sutures, rostral band of grayish olive, a light crossband on neck bordered behind and in front at edge of parietals with black; body blotches 23-36, the 1st one long with black edge on scale row 2 except for brief extension on 2 or 3 scales; belly gray, checkered spasmodically with broken-edged patches of black. *L. d. sypila*
- hh. Red or brown dorsal saddles reaching or extending onto ventrals; a single row of dorsal saddles; head markings separated from 1st blotch by light collar bordered front and rear by black.
 - i. First dorsal saddle terminating on scale row 2; black borders not perceptibly widened on mid-dorsum; dorsal head color distinctly marked off by anterior black border of white collar; parietals burnt umber; light bars 18-32. *L. d. temporalis*
 - ii. First dorsal saddle on neck extending onto ventrals; black borders not perceptibly widened on mid-dorsum; dorsal head color wholly black or rufous and yellowish spotted with black, not distinctly marked off by anterior black border of white collar (rather of *pyromelaena-multicincta* type).
 - j. Head black, snout ecru-olive; saddles 25-40. *L. d. gentilis*
 - jj. Head vinaceous-rufous spotted black to black, snout oil yellow, later grayish black; russet or rufous saddles 18-26; anterior black border of neck band evident when head is rufous. *L. d. amaura*

Davis Mountain king snake (5—Ditmars 1907),

Davis Mountains king snake (Pope 1937)

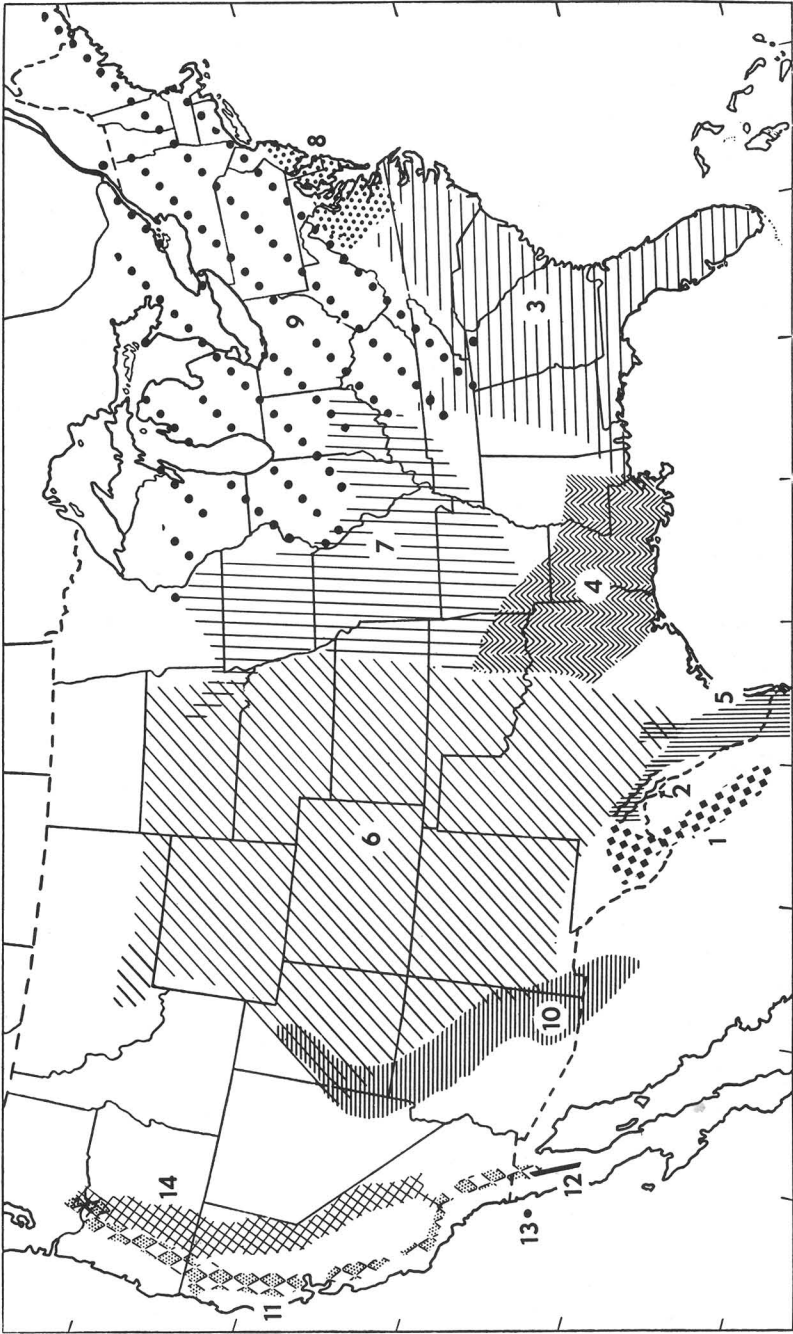
Lampropeltis alterna (Brown) 1901. Fig. 103; Map 31

Range: In s. trans-Pecos Texas (Pecos, Jeff Davis, Presidio, and Brewster Cos.), s. to the old Cruz Verde Mt. near Saltillo, Coahuila, Mex.—U.S.A. Tex. Mex.: Coahuila. **Elevation**—1,500 to 5,000 feet.

Size: Adults, 21.7-34 inches. Only 5 specimens known. Lengths (in mm.) are: 710 (Brown); 848 (Murray); 810 (Smith, Tex., 1941f); 542 (Jameson and Flury); 773 (Mecham and Milstead).

Distinctive characteristics: In general appearance, it looks like a gray "little green rattlesnake" (*Crotalus lepidus*) except for the orange-rufous patches on mid-dorsum within alternate black crossbands. The head is very distinct, triangular with a sharp snout and large eyes, making the snake look more like a *Trimorphodon* than a *Lampropeltis*; temporal scales enlarged.

Five good descriptions have been given. Jameson and Flury's follows: "The



Map 31. *Lampropeltis*—1, *alternata*; 2, *blairi*; 3, *dolata*; 4, *d. amaura*; 5, *d. annulata*; 6, *d. gentilis*; 7, *d. sypila*; 8, *d. temporalis*; 9, *d. triangulum*; 10, *pyromelana*; 11, *z. zonata*; 12, *z. agalma*; 13, *z. herrerae*; 14, *z. multicincta*.

dorsal color is gray. On the body there are 36 black transverse bands narrowly edged with white. Complete bands, 2 to 3 scales wide (middorsally), alternating with a narrower band 1 to 2 scales wide. The narrow bands are broken dorsally, dorso-laterally, or both, by the ground color. Of the wider bands, the 3 most anterior bands and the last one just anterior to the anus are split transversely by a rather definite red band. The remaining wide bands and a few of the narrowed ones have scattered red flecks on the black scales. Small black spots, mostly lateral, are irregularly scattered between the bands. The head is gray, irregularly mottled with black. A dark stripe passes from the eye to the angle of the mouth. Immediately behind the head, there is a red-centered black spot and other scattered black spots which probably represent broken bands. On the tail there are 5 wide bands which form rings around the tail. The first band posterior to the anus is split dorsally by a red band. The narrow bands are represented on the tail by round middorsal spots. The ventral surface is dark gray with an indefinite midventral stripe of white. Along the lateral edges of the ventral plates there is a white stripe which is broken by the extension of the dorsal bands into the dark ventral color."

Remarks—We received a snake from Murray, Aug. 23, 1938. He secured it in the Chisos Mts. The rostral is twice as broad as high, hardly visible from above, and concave on the lower side. Internasals are slightly broader than long and about half the length of the prefrontals, which are also slightly broader than long. The frontal is longer than the suture of the parietals. Nasals 2; loreal 1; preocular 1; upper labials 7-7; lower labials 11-11; temporals left side 3 + 4; right side 2 + 2 + 3. On each side there is a temporal that extends deeply between the 6th and 7th upper labials. Anterior chin shields are twice as long as the posterior ones, which are not separated by scales. The scale rows are 23-25-19. Anal entire. Ventrals 221; caudals 64. Pits on scales inconspicuous. Total length, 818 mm. (32.7 inches), body 700 mm. (28 inches), tail 118 mm. (4.7 inches).

Color: The background of the back is olive-gray or mineral gray. The lower edges and tips of the lateral scales are pale olive-buff. The back is crossed at intervals of 7 to 8 scale rows by composite bands, 20 usually complete ones on the body and 5 on the tail. They range in length from 2 to 3 scales on mid-back and taper on the sides to $1\frac{1}{2}$ to 2 scales. These bands have dorsal centers crossing 10 to 12 scales of orange-rufous, xanthine orange, or apricot orange. This orange becomes longer and more conspicuous as the tail rings are approached, the first 3 of which are with orange, the last 2 without. These orange areas are bordered with black, which is outlined with pale olive-buff or white. On the sides below the orange these bands become chestnut-brown or mummy brown and connect with the dark areas of the belly. Alternating with these xanthine-orange-centered bands are nar-

rower, often broken, black bands (1 to $1\frac{1}{2}$ scales longitudinally) also outlined with pale olive-buff. In the middle third of the body, the dorsal transverse section is usually separated from its lateral extension, while in the rear third, it becomes reduced to a median dorsal spot far removed from its lateral vertical segment. On the forward third of the body, in the illustration of the type specimen, the orange-centered rings seem to extend to the neck, with the regular alternation of narrower solely black bands. In this specimen the first 13 orange-centered bands ahead of the vent have alternating narrow black bands. Ahead of the 13th xanthine orange spot, the arrangement is: 3 narrow black bands followed by a xanthine-orange-centered one. This succession occurs 4 times with a xanthine orange center replaced by black. In the neck region, for about 3 inches, only irregular black specks appear. About $\frac{1}{2}$ inch caudad of the parietals is an indefinite xanthine orange spot. The top and sides of the head are light olive-gray to light mineral gray, with a tea green or grayish olive tint ahead of the eyes where also the plates are heavily spotted with small black specks. There is a U-shaped black patch on the front of the prefrontals, the arms of the U pointing backward. The dorsal head plates have few black spots back of the eyes, and some of the dark centers on the temporal scales are faint. There is a black line from the eye to the angle of the mouth, continuous on one side and somewhat broken on the other. The iris is light mineral gray or light olive-gray with a pupil rim of white. The underside of the head is white with a wash of tea green on the gulars. The ventral surface is white, heavily marked with mummy brown or chestnut-brown. Where the lateral portions of the dorsal bands come onto the venter, the centers of 2 or 3 ventrals are prominently light. Each lateral bar connects with a succeeding one by a band of mummy brown on the venter, thus more or less forming gray saddles. Down the mid-belly is a white irregular line, separating the 2 irregular bands of mummy brown. On the tail, the xanthine orange-centered bands are complete rings, the intervening ventral area having brown only on the median sutures of the subcaudals.

Habitat: In the light of recent records maybe Meyenberg did get his first specimen in much the same locality as *E. subocularis*. The range of each species is being expanded in much the same way. Murray found his specimen in a "horizontal fissure in the face of a mass of igneous rock." Smith (Gen., 1942) and his wife found their specimen "in a crack in a large boulder on the northern side of a barren hill." Mecham and Milstead's specimen "was found DOR on U.S. Highway 290 about midnight on September 17, 1949" in the mesquite-creosote association (see Mecham and Milstead). In the Sierra Vieja Mts., Presidio County, Jameson and Flury found one in the "catclaw-grama association."

Field notes: 1934: In our files we have an envelope with the caption, "*L.*

alterna. Precious Photo. Only photograph of this snake in existence. Only one snake of this kind ever found. Mrs. Ellen Schulz Quillin to A. H. Wright, May 12, 1934." Among the numerous kindnesses Mr. and Mrs. R. D. Quillin have extended to us was the privilege of looking over their pamphlet and reprint collection. One time Mrs. Quillin said to us, "Some time ago I bought a collection of papers here in San Antonio, and you might wish to look them over." Soon we came to a brown-covered reprint entitled "A New Species of *Coluber* from Western Texas" by Arthur Erwin Brown. That meant the library was probably 50 years old. But soon we had the family assembled. "Everybody come! Look at the inside of the back cover." What did it have? Here was a print of the lone live specimen of *L. alterna* in the center of the page with a note above the print "Photographed at the Philadelphia Zoological Gardens by R. D. Carson with whose compliments it is sent to Mr. E. Meyenberg." Below the print occurs: "Meyenberg's Second New Snake. Note—The broader dark rings are black on the edges with red in centers."

This meant Mrs. Quillin must have bought Meyenberg's pamphlets. How did they get from Pecos to San Antonio? Who knows the life of Meyenberg, Brown's collector? We do not know the handwriting of Brown or that of the photographer, R. D. Carson. Doubtless one or the other sent the pamphlet to Meyenberg and made the notation. The article was about *Elaphe subocularis*, but for Meyenberg's pleasure and information the print of *L. alterna* was pasted on the back cover.

When we returned to Ithaca, it began to dawn on us that we had seen the photo before, and when we consulted the original description, we found this print reproduced. Nevertheless for 6 months we traveled on rarefied air, and even yet this special reprint is valuable for historical reasons (A. H. Wright, Journal).

June 17, 1939, letter from Murray: "Dr. and Mrs. Gloyd spent the night with us a week or so ago. He was much interested in the *L. alterna*. His first words were almost the same as my first when I saw it, 'That is not a king snake.' It looks like a *Trimorphodon* but with specimens so rare I can't bring myself to cut into the head to see the teeth. I showed him the pictures."

Authorities:

Brown, A. E. (Tex., 1901-02)

Jameson, D. L., and A. G. Flury (Tex., 1949)

Mecham, J. S., and W. W. Milstead (Tex., 1949)

Smith, H. M. (Gen., 1942; Tex., 1941f)

Murray, L. T. (Tex., 1939)

1902, A. E. Brown: "Type, No. 14,977 Academy Coll. From the Davis Mountains, Jeff Davis County, Texas. Collected by E. Meyenberg. The snake here described was received alive at the Zoological Gardens, on October 22, and came from the same locality and collector as the lately de-

scribed *Coluber subocularis*. . . . The species is perhaps intermediate between *O. zonatus* and *O. leonis* Gunth., the type of which came from Nuevo León, Mexico."

1939, L. T. Murray: "*Lampropeltis alterna* (Brown). B.U.M. 6444, west side of Casa Grande Park, Chisos Mts. As far as I have been able to discover, there is no published record of any other specimen of this species save that of the type specimen, which was collected in the Davis Mountains in 1901. This second specimen is a female, 73.5 cm. in length; tail, 11.3 cm. . . . Since nothing is known of the natural history of this species, our meager notes seem worth reproducing. The snake was captured about 8 A.M. by Rudolph Hikel and Tom Turner. They found it in an horizontal fissure in the face of a mass of igneous rock. This rock mass appears to be a portion of a dike that has weathered out. It now rises 30-50 feet above the surface soil. Boulders and smaller pieces have accumulated about the base of the mother rock. This habitat is one that would seldom be visited by anyone except a collector; and one in which it is usually difficult to take a snake. This snake very likely would have escaped, but she was attempting to swallow a large specimen of *Sceloporus torquatus poinsetti* (B.U.M. 6428). This so hindered her movements that she was taken before she could retreat further into the crack."

1941, H. M. Smith "*Lampropeltis alterna* from Mexico.—A specimen of *Lampropeltis alterna* (H.M.S. Field No. 11505) was found in a crack in a large boulder on the northern side of a barren hill (the old Cruz Verde Mountain) just west of Saltillo, Coahuila, on October 15, 1939."

1949: D. L. Jameson and A. G. Flury, of Blair's party in the Sierra Vieja region of Texas, published the following valuable data on this little-known form: "One female specimen was collected near the mouth of Fox Hollow on the Miller ranch. It was active about 10 P.M. in the catclaw-grama association. According to Schmidt and Davis (1941) only 5 previous specimens have been reported. The specimen agrees in general with Brown's (1901b) description of the species but the variable characters seem worthy of description."

1949, J. S. Mecham and W. W. Milstead: "A recent collecting trip to West Texas by J. A. Herrmann and the writers yielded 1 specimen of *Lampropeltis alterna* from the Stockton Plateau in Pecos County, Texas, approximately 15 miles west of Bakersfield. The specimen was found DOR on U.S. Highway 290 about midnight on September 17, 1949. This record extends the known range of *Lampropeltis alterna* eastward in Trans-Pecos to the Stockton Plateau and indicates a wider distribution for the species than has been previously indicated. The remains of a *Sceloporus undulatus consobrinus* were contained in the stomach of the specimen."

Blair's king snake

Lampropeltis blairi Flury 1950. Fig. 102; Map 31

Range: In s. Terrell Co., trans-Pecos region, Tex. **Elevation**—Approximately 2,200 to 2,800 feet.

Size: 35.4 inches.

Distinctive characteristics: "Dorsal scale rows 25 anteriorly; infralabials 11; subcaudals 63; annuli on body 14, the anteriormost red one about 3 times as wide as the others; gray annuli separated from black ones by narrow bands of white; red annuli in form of saddles completely enclosed ventrally by black; red scales not black tipped. . . . The four-color dorsal pattern, low number of annuli and the enlarged nuchal blotch are distinguishing characters of *Lampropeltis blairi*" (Flury).

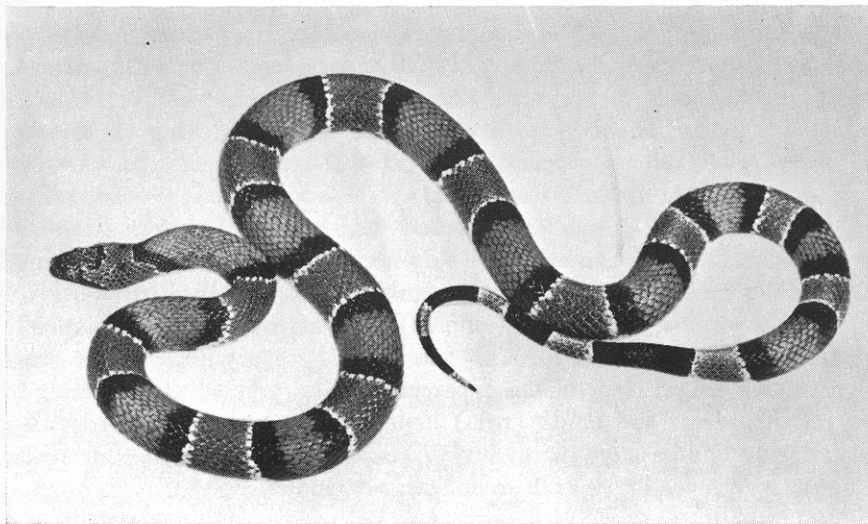


Fig. 102. *Lampropeltis blairi*, Devil's River bridge, 11 miles n.w. of Del Rio, R. W. Ax-tell, photo by D. Darling and J. E. Werler of San Antonio Zoological Society, Tex.

Color and description: "Head distinct from neck; general proportions of *doliatus* (Klauber, 1948) group; total length 885 mm.; tail length 138 mm.; tail divided by total length 0.156. Dorsal scale formula (Clark and Inger, 1942) as follows: 25, . . . 23, . . . 21, . . . 19. . . . Ventrals 229; anal entire; subcaudals 63, in 2 rows. Dorsal scales with 2 apical pits.

"Snout rounded; rostral about twice as wide as high with a low, wide notch below; internasals and prefrontals paired, symmetrical; nasals divided, nares lying equally in each scale; loreal single, small, twice as long

as high; preoculars and supraoculars single; postoculars $\frac{3}{3}$, lower one extending forward to median point of orbit; temporals $\frac{3}{3}$ in 1st row, lower more than twice as large as other 2, $\frac{3}{4}$ in 2nd row and $\frac{4}{5}$ in 3rd; supralabials 8, 3rd and 4th entering orbit, 6th much smaller than 5th or 7th. Eye 4.3 mm. long. Mental small, triangular; infralabials 11, anterior pair meeting on midventral line and separating anterior $\frac{1}{3}$ of 1st pair of chin shields; a very small scale on midventral line between posterior ends of anterior chin shields; 3 scale lengths between posterior end of chin shields and 1st ventral plate; 8 scale rows separate posterior chin shields from infralabials.

"Dorsal pattern of alternating black-bordered red saddles and white-bordered gray saddles. Head shields black, mottled with grays; anterior 4 supralabials white, flecked with gray; a broad black band from eye to angle of mouth; temporals, posterior part of head and sides of neck covered by 1st gray dorsal saddle.

"Dark gray dorsal saddles 14 on body, one above anus and 3 on tail; range (including white border) 6-9 scale lengths (middorsal), average 7. Anterior-most saddle covering posterior part of head (7 scale lengths behind parietals); extending obliquely to 2nd scale row opposite 9th ventral. White borders narrow, irregular, about $\frac{1}{2}$ scale wide middorsally; widening (at expense of black borders) to 2-3 scales on 1st to 3rd scale rows; white usually extending along 1st scale row and lateral edges of ventrals to enclose gray saddles.

"Black bordered red saddles 14 on body and 3 on tail; posteriormost one completely black; next anterior one only flecked with red; average width of red saddles on body 6.7 scale lengths (middorsally), range 4-19 (4-9 aver., 5.8 if anteriormost saddle is discounted); red narrowing laterally, usually reaching 1st scale row for 1-4 scale lengths; red scales with irregular black flecks along edges; color of the apparently typical 7th red saddle seems to agree with Maerz and Paul's (1930) Plate 3, color A-11. Black borders 1-2 scales wide middorsally; narrowing to 1 scale on 1st and 2nd scale rows; uniting with black on ventrals to enclose red saddles.

"Ventral surface with black borders of red saddles uniting laterally and forming a band 4-8 ventrals wide across belly; bands interrupted or mixed with white midventrally on anterior half of body. Irregular blotches of black and white opposite gray saddles; 2nd and 3rd of these blotches with lateral extensions of black invading gray saddles up to 5th scale row; 8th and 9th blotches with similar extensions reaching 1st scale row; blotches restricted to midventral region on tail. White borders of gray saddles usually 1-2 ventrals wide across belly but often mixed with black from irregular blotches" (Flury).

Habitat: In Terrell Co., Tex., there is a considerable area of Austin chalk in thin-to-medium-bedded white chalky limestone flags and ledges. The point of collection for *L. blairi* was 8.8 miles west of Dryden, Terrell Co.,

at an elevation of about 2,400 feet. This point is 67 miles east of Marathon, and about 30 miles east of the eastern edge of the Marathon Basin with its uplift of Pennsylvania, Devonian, and Ordovician rocks. The country rises to 4,000 feet at Marathon. "The old Rio Grande embayment enters Trans-Pecos Texas in southern Terrell Co." (Blair, Ecol., 1950). This is now an arid region within the range of creosote bush. About 6 miles west of the collecting point of this *blairi*, we found *Elaphe subocularis* and *Masticophis f. testaceus* near a rocky knoll, in a land of sotol, brushy oak, and oregon-grape.

Food: "The *blairi* in the photo sent you . . . is now at the Zoo where we keep it under almost constant observation. It feeds on both white mice and lizards, seeming to prefer the latter. The snake has taken *Sceloporus olivaceus*, *Sceloporus v. marmoratus*, and *Holbrookia texana*, seizing the lizards with a sudden forward thrust, much the same as *annulata* when feeding upon *Cnemidophorus*. Most feeding is done at night as it prowls about the cage. During the day it is seldom active, remaining hidden beneath the moss in the cage. A very quiet snake, it seldom resents handling" (letter from J. E. Werler, Aug. 26, 1950).

Shortly after this letter was written, Axtell reported on an additional specimen of *Lampropeltis blairi* from Texas: "This snake was taken about 79 miles southeast of the type locality. During a collecting trip with W. W. Milstead and Glen Fry, the writer found the snake active about 10 P.M. on June 9, 1950, 200 yards east of the Devil's River bridge on U.S. Highway No 90. This individual has been kept alive at the San Antonio Zoo."

Authorities:

Axtell, R. W. (Tex., 1951)

Flury, A. (Tex., 1950)

1950, A. Flury: "*Lampropeltis blairi* apparently belongs in the *Mexicana* subgroup of Smith" (Tex., 1942).

1951, R. W. Axtell: This and the original specimen are some of the most fortunate discoveries in Texas in the last half century.

Yellow-bellied king snake (17—Ditmars 1907), Evans' king snake (12—Yarrow 1882)

Lampropeltis calligaster calligaster (Harlan) 1827. Fig. 104; Map 32

Other common names: Blotched king snake (6); brown king snake (2); Kansas king snake; Kennicott's chain snake (Jordan 1876); king snake; milk snake; prairie king snake (8); (Say's) chain snake.

Range: From w. Indiana to cent. Kentucky, w. Tennessee to Dickson Co. (Sinclair, Tenn., 1951a), Mississippi to Gulf coast in w. Louisiana w. along

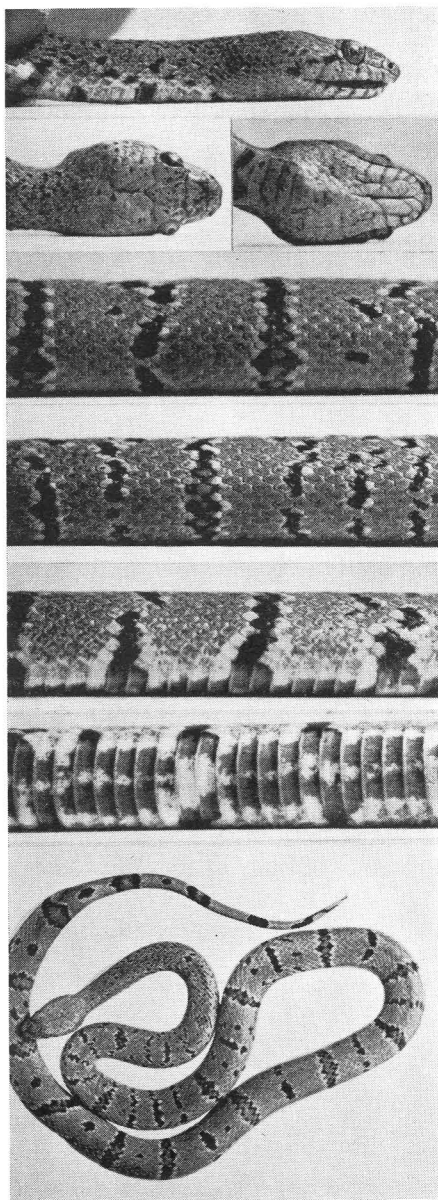


Fig. 103. *Lampropeltis alterna*, Chisos Mts., Tex., L. T. Murray.

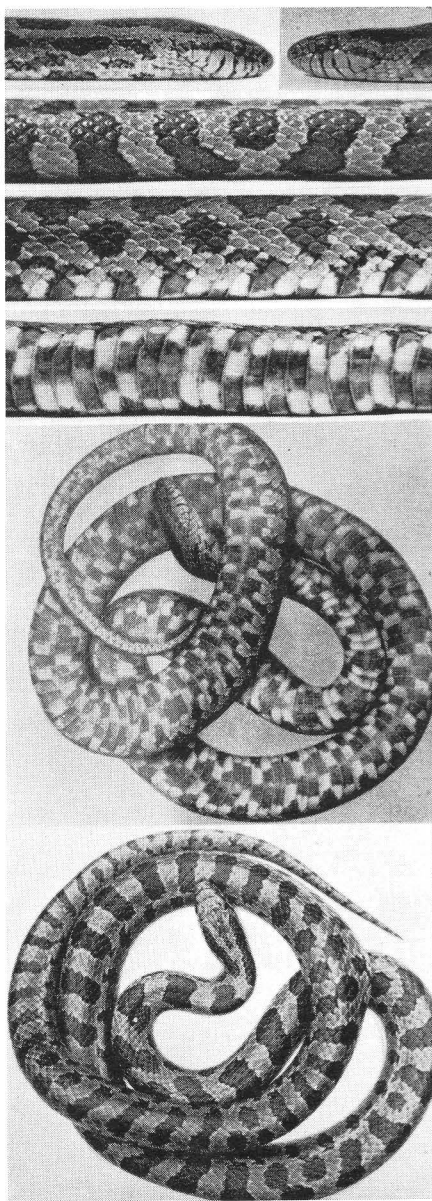


Fig. 104. *Lampropeltis calligaster calligaster*, Washington, D.C., Zoo.

Gulf to Matagorda Bay and w. to Pecos River, Texas, n. into Oklahoma, e. Kansas, and s.e. Nebraska, e. through s. Iowa and cent. Illinois.—Ark.; Ill.; Ia.; Ind.; Kan.; Ky.; La.; Minn.; Miss.; Mo.; Neb.; Okla.; Tex. *Elevation*—500 to 3,000 feet, mostly below 2,000 feet.