

Catalogue of American Amphibians and Reptiles.

BLANEY, RICHARD M. 1973. *Lampropeltis*.

Lampropeltis Fitzinger
Kingsnakes

Lampropeltis Fitzinger, 1843:25. Type species, *Herpetodryas getulus* Schlegel, by original designation.

Sphenophis Fitzinger, 1843:25. Type species, *Coronella coccinea* Schlegel = *Lampropeltis triangulum* (Lacépède), by original designation.

Ophibolus Baird and Girard, 1853:82. Type species, *Herpetodryas getulus* Schlegel, by original designation.

Oseola Baird and Girard, 1853:133. Type species, *Calamaria elapsoidea* Holbrook = *Lampropeltis triangulum* (Lacépède), by original designation.

Bellophis Lockington, 1876:52. Type species, *Coluber zonatus* Blainville.

Oreophis Dugès, 1897:284. Type species, *O. boulengeri* Dugès = *Lampropeltis mexicana* (Garman), by monotypy.

Triaenopholis Werner, 1924:50. Type species, *T. arenarius* Werner = *Lampropeltis getulus* (Linnaeus).

• CONTENT. Nine species are currently recognized, including two fossil species: *calligaster* (2 subspecies), *getulus* (7 subspecies), *intermedius* (fossil), *leonis*, *mexicana* (3 subspecies), *pyromelana* (4 subspecies), *similis* (fossil), *triangulum* (23 subspecies), and *zonata* (7 subspecies). These species fall into two natural groups, the *Getulus* group, comprised of *L. calligaster* and *L. getulus*, and the *Triangulum* group, which includes the remaining species (Blaney, 1971).

• DEFINITION. A genus of colubrid snakes in which the smooth, lanceolate dorsal scales are arranged in 17 to 27 rows, each scale having 2 apical pits. The head is indistinct or only slightly distinct from the neck. The eye is moderate in size with a round pupil. The nasal scale is divided. The ventrals are not angular, the anal plate is entire, and the subcaudals are normally divided. The tail is short. There are 12 to 20 maxillary teeth (none grooved), 12 to 18 dentary teeth, 8 to 14 palatine teeth, and 12 to 23 pterygoid teeth. The hemipenis is asymmetrically clavate or bilobed, calyculate apically, spinose on the lower distal half, naked or with minute spines on the basal half, and it has a single centrifugal sulcus spermaticus.

• DESCRIPTIONS. The only complete account of the genus was that of Blanchard (1921). *L. getulus* was reviewed by Blaney (1971), *L. mexicana* by Webb (1961), Gehlbach and McCoy (1965), Gehlbach (1967), and Tanzer (1970), *L. pyromelana* by Tanner (1953), *L. triangulum* by Williams (1970), and *L. zonata* by Zweifel (1952).

• ILLUSTRATIONS. Colored plates figuring *L. calligaster*, *getulus*, eastern *triangulum*, and *mexicana* appear in Conant (1958), and *L. getulus*, *pyromelana*, western *triangulum*, and *zonata* in Stebbins (1966). Pattern drawings of most species were provided by Blanchard (1921), and Blaney (1971) and Williams (1970) illustrated pattern variation in *getulus* and *triangulum*, respectively. Photographs of *mexicana* have been published by Webb (1961), Gehlbach and McCoy (1965), and Tanzer (1970). Drawings of the hemipenis of *calligaster* appeared in Blanchard (1921) and Dowling and Savage (1960), and Blaney (1971) provided photographs of the hemipenis of *getulus*.

• DISTRIBUTION. North America south of the 48th Parallel (southern Ontario and southwestern Quebec, west to southern Washington) southward to northwestern South America (Colombia, Ecuador, and into the Cordillera de la Costa of Venezuela).

• FOSSIL RECORD. Holman (1968) reported 5 precaudal vertebrae of a *Lampropeltis* (unidentified as to species, but thought to be a member of the *Triangulum* group) from an Upper Pliocene site in Twin Falls County, Idaho. Other records of the genus appear in the Pliocene of Nebraska, Kansas, Oklahoma, and Michoacán, Mexico (Brattstrom, 1955, 1967; Holman, 1964b). *L. intermedius* was described by Brattstrom (1955) from the Upper Pliocene of Morelia, Michoacán, Mexico, and the lower Pleistocene of Cochise County, Arizona.

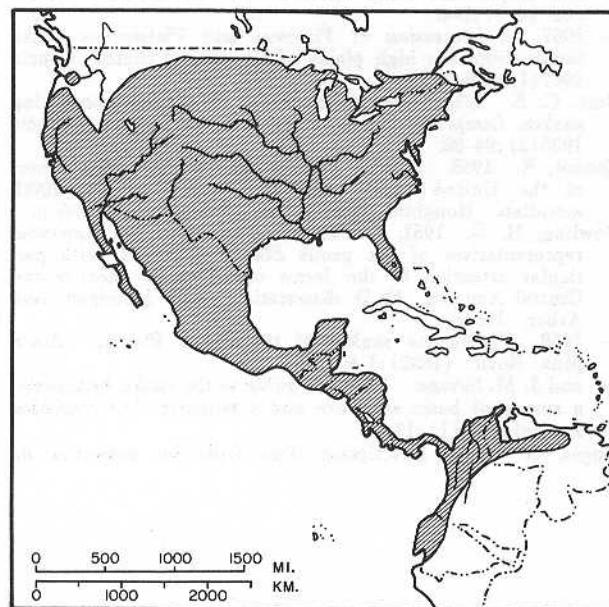
Holman (1964b) described *L. similis* from the Mio-Pliocene of Brown County, Nebraska, and stated that this form may be ancestral to *L. intermedius*; both fossil species are related to the *Triangulum* group of kingsnakes. *L. calligaster* is represented in the Pleistocene of Kansas (Brattstrom, 1967) and possibly in Arkansas (Dowling, 1958). *L. getulus* has been recorded from California (Brattstrom, 1953b, c), Florida (Auffenberg, 1963; Brattstrom, 1953a; Gehlbach, 1965; Holman, 1958), Nebraska (Holman, 1964b), Nevada (Brattstrom, 1954), and Texas (Holman, 1964b). *L. pyromelana* was reported from the Pleistocene of Nevada by Brattstrom (1954). *L. triangulum* has been found in the Pleistocene of Arkansas (Dowling, 1958), Florida (Auffenberg, 1963), Georgia (Holman, 1967), Kansas (Brattstrom, 1967), Missouri (Holman, 1965), Oklahoma (Brattstrom, 1967), Texas (Brattstrom, 1967; Holman, 1963, 1964b, 1966, 1969), and Virginia (Guidry, 1962).

• PERTINENT LITERATURE. Blanchard (1921), Blaney (1971), and Webb (1961) discussed evolution within the genus, and Blanchard (1921), Blaney (1971), Tanner (1953), Webb (1961), Williams (1970), and Zweifel (1952) presented specific and infraspecific phylogenies. Gehlbach (1967) provided a summary of *L. mexicana*. Tanzer (1970) discussed polymorphism in *L. mexicana* and provided evidence that *L. m. blairi* is a polymorphic phase of *L. m. alterna*, suggesting that *L. m. thayeri* also might be the *blairi* phase of *L. m. alterna*. He further suggested that *L. leonis* could be a polymorph of *L. mexicana*. Smith, Lynch, and Browne (1965) presented evidence for the suppression of the name *Coluber doliatus* in favor of *L. triangulum*, and Burt (1936) discussed the nomenclature of *L. zonata* versus *L. multicincta*. The natural history of *L. mexicana* was discussed by Tanzer (1970), that of the genus and individual species by Conant (1958), Stebbins (1966), and Wright and Wright (1957).

• ETYMOLOGY. The name *Lampropeltis* is derived from a combination of the Greek words *lampros*, meaning shiny, and *pelta*, shield.

• REMARKS. *Lampropeltis* is closely allied to the group of colubrine genera that includes *Elaphe*, *Pituophis*, *Cemophora*, and *Arizona* (Blaney, 1971; Dowling, 1951; Underwood, 1967; Williams and Wilson, 1967).

The validity of *Lampropeltis leonis* (Günther), known only from the original description (holotype lost), is highly questionable. It is not possible to distinguish *L. leonis* from *L. mexicana* and Tanzer (1970) has implied that they be considered synonyms, a suggestion with which I concur.



MAP 1. Geographic distribution of the genus *Lampropeltis*.

• KEY TO THE SPECIES OF *LAMPROPELTIS*. Numbers in parentheses after the names indicate the account numbers in this catalogue.

1. Last two maxillary teeth usually not longer and stouter than the preceding ones 2
Last two maxillary teeth usually longer and stouter than the preceding ones 3
2. Dorsal pattern consisting primarily of a dark ground color with light crossbands, longitudinal stripes, or spots on at least the lateral scales; hemipenis moderately or deeply bilobed *getulus* (151)
Dorsal pattern consisting primarily of a light to dark brown ground color with darker dorsal and lateral blotches; hemipenis only slightly and asymmetrically bilobed *calligaster* (152)
3. Dorsal pattern consisting of white-bordered gray bands or blotches alternating with black-bordered reddish orange dorsal markings *mexicana* (55)
Dorsal pattern not as above 4
4. Dorsal pattern of black-red-black triad annuli separated by more than 40 (body + tail) white annuli; top of head black, snout uniformly white *pyromelana*
Dorsal pattern of annuli or dorsal blotches, usually fewer than 40 (body + tail) white annuli, or if more, with snout black 5
5. Dorsal pattern of black and white annuli, white annuli more than 30, sometimes with red dividing black annuli into two; snout black *zonata*
Dorsal pattern of brown, gray, or red dorsal blotches, or red, black, and yellow or white annuli or dorsal bands, white or yellow annuli fewer than 30 *triangulum*

LITERATURE CITED

- Auffenberg, W. 1963. The fossil snakes of Florida. *Tulane Stud. Zool.* 10(3):131-216.
- Baird, S. F., and C. Girard. 1853. Catalogue of North American reptiles in the museum of the Smithsonian Institution. Part 1. Serpentes. *Smithsonian Misc. Coll.* 2(5):1-172.
- Blanchard, F. N. 1921. A revision of the king snakes: genus *Lampropeltis*. *Bull. U. S. Natl. Mus.* (114):1-260.
- Blaney, R. M. 1971. Systematics of the common kingsnake, *Lampropeltis getulus* (Linnaeus). Ph.D. dissertation, Louisiana State University, Baton Rouge. 136 p.
- Brattstrom, B. H. 1953a. Records of Pleistocene reptiles and amphibians from Florida. *Quart. J. Florida Acad. Sci.* 16(4):243-248.
- 1953b. Records of Pleistocene reptiles from California. *Copeia* 1953(3):174-179.
- 1953c. The amphibians and reptiles from Rancho La Brea. *Trans. San Diego Soc. Nat. Hist.* 11(4):365-392.
- 1954. Amphibians and reptiles from Gypsum Cave, Nevada. *Bull. S. California Acad. Sci.* 53(1):8-12.
- 1955. Records of some Pliocene and Pleistocene reptiles and amphibians from Mexico. *Bull. S. California Acad. Sci.* 14(1):1-4.
- 1967. A succession of Pliocene and Pleistocene snake faunas from the high plains of the United States. *Copeia* 1967(1):188-202.
- Burt, C. E. 1936. The nomenclature of western coral king snakes, *Lampropeltis zonata* versus *L. multicincta*. *Copeia* 1936(2):94-98.
- Conant, R. 1958. A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian. Houghton Mifflin Co., Boston. xv + 366 p.
- Dowling, H. G. 1951. A taxonomic study of the American representatives of the genus *Elaphe* Fitzinger, with particular attention to the forms occurring in Mexico and Central America. Ph.D. dissertation, Univ. Michigan, Ann Arbor. 195 p.
- 1958. Pleistocene snakes of the Ozark Plateau. *Amer. Mus. Novit.* (1882):1-9.
- and J. M. Savage. 1960. A guide to the snake hemipenis: a survey of basic structure and systematic characteristics. *Zoologica* 45(1):17-28.
- Dugès, A. 1897. Description d'un Ophidien nouveaux du Mexique (*Oreophis boulengeri*, g. et. sp. nn.). *Proc. Zool. Soc. London* 1897:284-285.
- Fitzinger, L. J. F. J. 1843. *Systema reptilium*. Vienna. 106 p.
- Gehlbach, F. R. 1965. Amphibians and reptiles from the Pliocene and Pleistocene of North America: a chronological summary and selected bibliography. *Texas J. Sci.* 17:56-70.
- 1967. *Lampropeltis mexicana*. *Cat. Amer. Amph. Rept.*: 55.1-55.2.
- and C. J. McCoy. 1965. Additional observations on variation and distribution of the gray-banded kingsnake, *Lampropeltis mexicana* (Garman). *Herpetologica* 21(1): 35-38.
- Guidry, J. E. 1962. The Pleistocene local fauna of the Natural Chimneys, Augusta County, Virginia. *Ann. Carnegie Mus.* 36:87-122.
- Holman, J. A. 1958. The Pleistocene herpetofauna of Sabertooth Cave, Citrus County, Florida. *Copeia* 1958(4):276-280.
- 1963. Late Pleistocene amphibians and reptiles of the Clear Creek and Ben Franklin local faunas of Texas. *J. Grad. Research Center Southern Methodist Univ.* 31(3): 152-167.
- 1964a. Pleistocene amphibians and reptiles from Texas. *Herpetologica* 20(2):73-83.
- 1964b. Fossil snakes from the Valentine formation of Nebraska. *Copeia* 1964(4):631-637.
- 1965. A late Pleistocene herpetofauna from Missouri. *Trans. Illinois Acad. Sci.* 58:190-194.
- 1966. The Pleistocene herpetofauna from Ladds, Georgia. *Bull. Georgia Acad. Sci.* 25:154-166.
- 1968. Upper Pliocene snakes from Idaho. *Copeia* 1968(1): 152-158.
- 1969. The Pleistocene amphibians and reptiles of Texas. *Publ. Mus. Michigan State Univ.* 4:163-192.
- Lockington, W. N. 1876. Description of a new genus and species of colubrine snake. *Proc. California Acad. Sci.* 7:52-53.
- Smith, H. M., J. D. Lynch, and G. P. Browne. 1965. Proposed suppression of the snake name *Coluber doliatus* Linnaeus, 1766. *Herpetologica* 21(1):1-5.
- Stebbins, R. C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Co., Boston. xiv + 279 p.
- Tanner, W. W. 1953. A study of taxonomy and phylogeny of *Lampropeltis pyromelana* Cope. *Great Basin Nat.* 13(1-2):47-66.
- Tanzer, E. C. 1970. Polymorphism in the *mexicana* complex of kingsnakes with notes on their natural history. *Herpetologica* 26(4):419-428.
- Underwood, G. 1967. A contribution to the classification of snakes. *British Mus. (Nat. Hist.)* (653):1-179.
- Webb, R. G. 1961. A new kingsnake from Mexico with remarks on the *mexicana* group of the genus *Lampropeltis*. *Copeia* 1961(3):326-333.
- Werner, F. 1924. Neue oder wenig bekannte Schlangen aus dem Naturhistorischen Staatsmuseum in Wien. *Akademie der Wissenschaften in Wien, Sitzungsberichte* 133:29-56.
- Williams, K. L. 1970. Systematics of the colubrid snake *Lampropeltis triangulum* Lacépède. Ph.D. dissertation, Louisiana State University, Baton Rouge.
- and L. D. Wilson. 1967. A review of the colubrid snake genus *Cemophora* Cope. *Tulane Stud. Zool.* 13(4):103-124.
- Wright, A. H., and A. A. Wright. 1957. Handbook of snakes of the United States and Canada. Comstock Publ. Assoc., Ithaca. Vol. 1. xvii + 564 p.
- Zweifel, R. G. 1952. Pattern variation and evolution of the mountain kingsnake, *Lampropeltis zonata*. *Copeia* 1952(3): 152-168.

R. M. BLANEY, LOUISIANA STATE UNIVERSITY, BATON ROUGE, LOUISIANA 70803

Primary editor for this account, Douglas A. Rossman.

Published 25 October 1973 by the SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES.