

Studies on the Lizard Family Xantusiidae. III. A New Genus for *Xantusia riversiana* Cope, 1883

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(Text-figures 1-3)

IN the course of investigations leading toward a complete revision of the night lizard family Xantusiidae, it has become apparent that *Xantusia riversiana* Cope, 1883, is so different from other members of the group that a new genus is required for its reception. The decision to place *riversiana* in a separate genus is based upon an analysis of the scutellation, body proportions, coloration, life history and habits of all known xantusiids, combined with an extensive study of the osteology of the family. Detailed consideration of these features, characterization of the genera and species of xantusiids and discussion of the evolutionary patterns within the family are reserved for the revisional report. However, it seems advisable to propose the new genus in advance of the appearance of the larger work in order to make the name available to others investigating various aspects of the biology of the Xantusiidae. To increase the usefulness of the present paper an artificial key to the genera of night lizards is appended to the description of the new genus.

There has been considerable confusion in the past concerning the status and relationships of several genera and species of Xantusiidae because of the lack of a standardized terminology for the squamation of these lizards. In order to analyze the scutellational differences and similarities among members of the family it has been necessary to revise completely the existing system employed for the scales on these lizards. A detailed discussion and definition of scutellational terms will be included in my revision of the family, but for the sake of consistency the new system of scale terminology is used throughout the

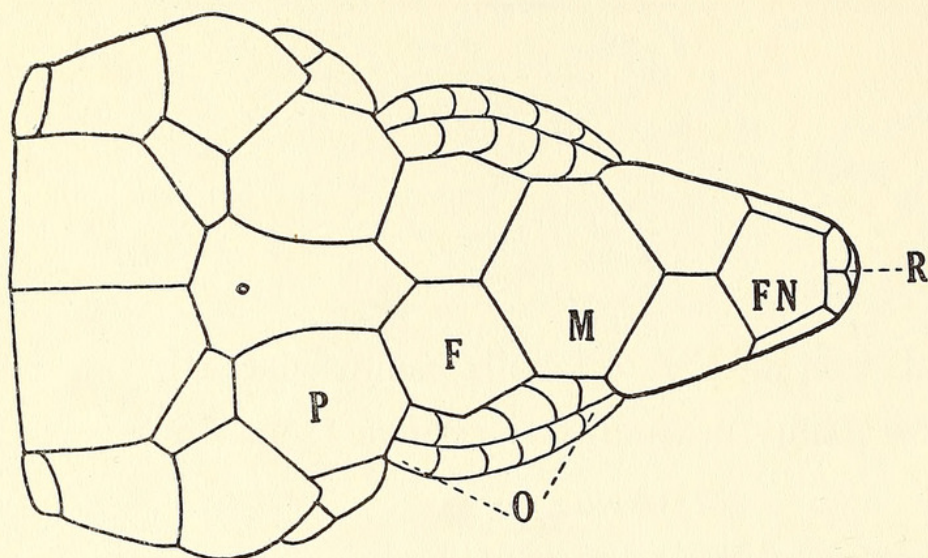
present report. The head shields of *riversiana* are illustrated in Text-figures 1-3. The terms radials and femorals refer to the scales along the anterior surface of the forearm and thigh, respectively. Walker (1955) has utilized my system of scale nomenclature in his descriptions of new *Lepidophyma* from Mexico.

It is a great pleasure to have the opportunity of naming what may well be the last new genus of recent reptiles from western North America in honor of Dr. Laurence M. Klauber of San Diego, who has contributed so magnificently to our understanding of the herpetofauna of this region.

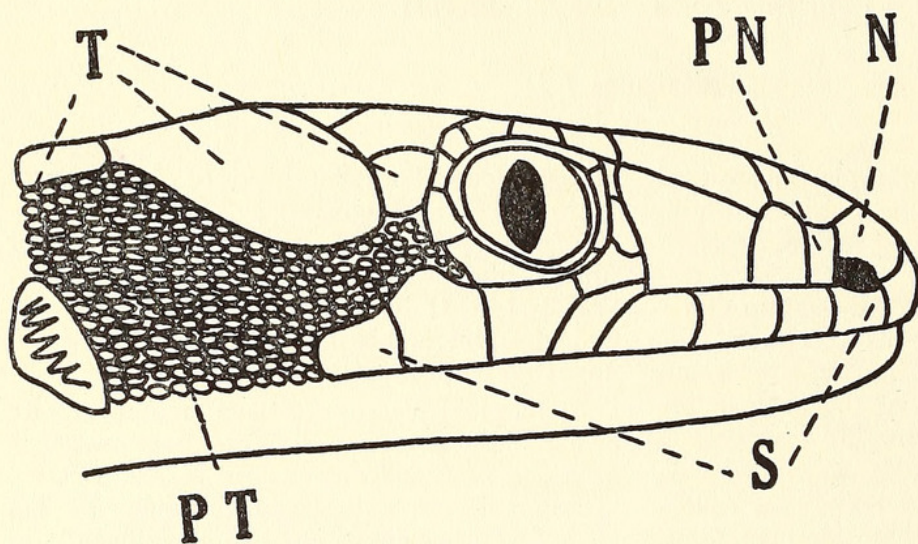
Klauberina, new genus

Type of Genus.—*Xantusia riversiana* Cope, 1883.

Definition.—*External characteristics:* (1) one frontonasal; (2) a large median; (3) two frontals; (4) two parietals; (5) no pretemporals; (6) temporals a series of enlarged plates; (7) two rows of supraoculars; (8) nostrils pierced at juncture between nasal, postnasal, rostral and first supralabial; (9) pretympanics granular; (10) postmentals and infralabials distinct; (11) anterior postmentals paired; (12) anterior pre-gulars granular; (13) gulars enlarged rectangular plates, much larger than pre-gulars; (14) dorsal scales granular; (15) dorsals essentially homogeneous in size and shape; (16) ventrals in 16 longitudinal rows; (17) radials and femorals forming enlarged plates; (18) caudals faintly keeled; (19) all scales in caudal whorls of same size. *Osteological characteristics:* (20) nasals meeting one another for most of their length;



TEXT-FIG. 1. Diagram of dorsal head scutellation of *Klauberina riversiana* (Cope, 1883). R = rostral; FN = frontonasal; M = median; F = frontal; P = parietal; O = supraocular series.



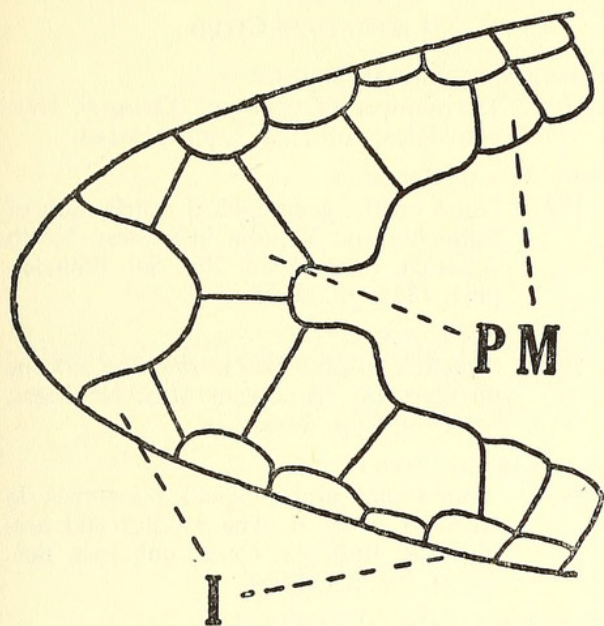
TEXT-FIG. 2. Diagram of lateral head scutellation of *Klauberina riversiana* (Cope, 1883). N = nasal; PN = postnasal; PT = pre-tympanics; S = supralabial series; T = temporals.

(21) premaxillary not reaching to frontals; (22) frontals paired; (23) frontals not roofing over orbits above, outer margins concave; (24) parietals paired; (25) squamosal touching parietal; (26) prefrontal extending onto top of skull, excluding a portion of frontal from orbit; (27) jugal moderately broad; (28) postfronto-orbital not expanded medially, gradually decreasing in width from anterior to posterior; (29) anterior bony palate of paleochoanate type; (30) fenestra vomeronasalis externa bordered by prevomer and maxillary; (31) epipterygoid process from prootic; (32) ectopterygoid and palatine in contact or narrowly separated; (33) basisphenoid and basioccipital distinct; (34) teeth on both jaws strongly triconodont; (35) clavicles perforate; (36) sternum without posterior projection; (37) phalangeal formula of hand 2-3-4-5-3.

Diagnosis.—The new genus may be readily separated from *Cricosaura* Gundlach & Peters, 1863, and *Lepidophyma* Auguste Duméril, 1851 (including *Gaigeia* H. M. Smith, 1939), by the

characters presented in the accompanying key. In addition *Klauberina* is distinct from these genera in a number of the features mentioned in the definition above (from *Cricosaura* in characters 1-5, 8-9, 11-12, 14-16, 18-22, 24-25, 27-32, 34-37, and from *Lepidophyma* in 5, 7, 8, 10-11, 13, 15-17, 23, 26-28, 34), but a complete summary of the differences between the various genera will be given elsewhere.

From its nearest ally, *Xantusia* Baird, 1859, *Klauberina* is distinguished by having (characters for *Xantusia* given in parentheses): *external*: no pretemporal scales (pretemporals present); temporals formed of a series of enlarged plates (temporals formed of small granules); two rows of supraoculars (one row of supraoculars); ventral scales in 16 longitudinal rows (ventrals in 12-14 rows); caudal scales slightly keeled (caudals smooth); *osteological*: jugal moderately broadened (jugal reduced to a narrow sliver); ectopterygoid and palatine in contact or nearly meeting (ectopterygoid and palatine widely



TEXT-FIG. 3. Diagram of squamation on underside of head of *Klauberina riversiana* (Cope, 1883). I = infralabials; PM = postmentals. The preular scales are the small scales lying median and posterior from the postmentals and anterior to the gular fold; the gulars are the scales on the gular fold.

separated); teeth strongly triconodont (teeth simple).

Klauberina riversiana is markedly different from the recently described Eocene fossil xantusiid, *Palaeoxantusia fera* Hecht, 1956, based upon a portion of a lower jaw from Elk Mountain, Wyoming (Bridger Formation), in having strongly triconodont teeth. The fossil genus has simple rounded teeth.

The nominal night lizard genus *Impensodens* erected on the basis of an incomplete lower jaw from Post-Pleistocene deposits in Yucatan, México (Langebartel, 1953), appears to be synonymous with *Lepidophyma* according to Hecht (1956, p. 3). In any event this mandible is distinct from that of *Klauberina* in having weakly triconodont teeth with the secondary cusps located on the inner surface of the teeth and not in the same longitudinal plane as the primary median cusp. *Klauberina* is distinctive within the family in having strongly triconodont teeth with all the cusps on a given tooth located along the same longitudinal plane.

Included Species. — *Klauberina riversiana* (Cope, 1883) of the California Channel Islands, Santa Barbara, San Clemente and San Nicholas, is the unique member of the genus.

Notes on the Family.—In a recent discussion of the position of the Xantusiidae within the suborder Sauria, McDowell & Bogert (1954, pp. 94-98) acknowledge the aid of my unpublished

study on the family as a source for certain of their remarks. Unfortunately the information presented by them cannot be derived from the data provided by me. Corrections therefore seem in order.

McDowell & Bogert state that among other features the family Xantusiidae is characterized by paired parietal bones, absence of a parietal foramen and ovulation involving but two eggs at one time (with rare exceptions). Contrary to these statements, one xantusiid, *Cricosaura typica* Gundlach & Peters, 1863, has the parietal bones fused to form a single element. Neither can the family be characterized as lacking a parietal foramen. Members of the genus *Xantusia* always have this aperture and *Klauberina* also consistently has the foramen (as clearly shown on figure 25 in McDowell & Bogert), although it may be partially or entirely covered by osteoderms on the outer surface of the skull in adult examples. The published studies of Brattstrom (1951) and Shaw (1949) conclusively show that *Klauberina* may produce four to ten ova at one time and my own investigations indicate that *Lepidophyma* usually has about six eggs formed at one period of ovulation. The species of *Xantusia* produce one to three ova but the usual number is two. In addition to these points, it may be noted that postanal bones and sacs are present in males of both *Xantusia arizonae* Klauber, 1931, and *Xantusia vigilis* Baird, 1859, not in *vigilis* alone as stated by McDowell & Bogert.

AN ARTIFICIAL KEY TO THE RECENT GENERA OF NIGHT LIZARDS

- 1a. A single frontal scale; no parietal scales; a single anterior postmental scale; nasal bones completely separated from one another by nasal process of premaxillary; frontal bone single; parietal bone single; phalangeal formula of hand 2-3-4-4-3. . . . *Cricosaura*
- 1b. Two frontal scales; two parietal scales; a pair of anterior postmentals or postmentals fused with infralabials; nasal bones in contact with one another for most of length; two frontals; two parietals; phalangeal formula of hand 2-3-4-5-3.
- 2a. Supraoculars well-developed; postmentals and infralabials distinct; scales on back and sides essentially homogeneous in size and shape; radials and femorals enlarged into plates; orbit not completely roofed over above by frontal bone, outer margin of frontal concave; prefrontal bone extending onto top of skull, separating anterior portion of frontal from orbit;

postfronto-orbital not expanded medially, gradually decreasing in width posteriorly.

- 3a. No pretemporal scales; temporal scales enlarged plates; two rows of supraoculars; ventrals in 16 longitudinal rows; jugal expanded; ectopterygoid and palatine in contact or narrowly separated from one another; teeth triconodont. *Klauberina*
- 3b. Pretemporals present; temporals small, granular; one row of supraoculars; ventrals in 12-14 longitudinal rows; jugal reduced to a narrow sliver; ectopterygoid and palatine widely separated; teeth simple. . . . *Xantusia*
- 2b. Supraoculars reduced to a fleshy flap projecting from side of frontal scale; postmentals and infralabials fused into a single series; scales on back and sides a heterogeneous mixture of granules and enlarged scales; radials and femorals not enlarged, same size as other scales on limbs; orbit completely roofed over above by frontal bone, outer margin of frontal even, not concave; prefrontal bone not extending onto top of skull, not separating anterior portion of frontal from orbit; postfronto-orbital expanded medially, not gradually decreasing in width posteriorly. *Lepidophyma*

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