

## REPTILIA: SQUAMATA: CORYTOPHANIDAE

## LAEMANCTUS SERRATUS

## Catalogue of American Amphibians and Reptiles.

McCranie, J.R. and G. Köhler. 2004. *Laemanctus serratus*.

***Laemanctus serratus* Cope**  
Serrate Casqueheaded Basilisk, Cutete Espinudo

*Laemanctus longipes*: Duméril and Duméril 1851:55. See **Remarks**.

*Laemanctus serratus* Cope 1864:176. Type locality, "Orizaba Valley, Mexico." Holotype, Rijksmuseum van Natuurlijke Historie, Leiden (RMNH) 2845, an adult male, obtained from a Mr. Frank (an animal trader) in 1857 (not examined by authors).

*L. [aemanctus]. serrapis*: Gadow 1930:73. *Lapsus*.

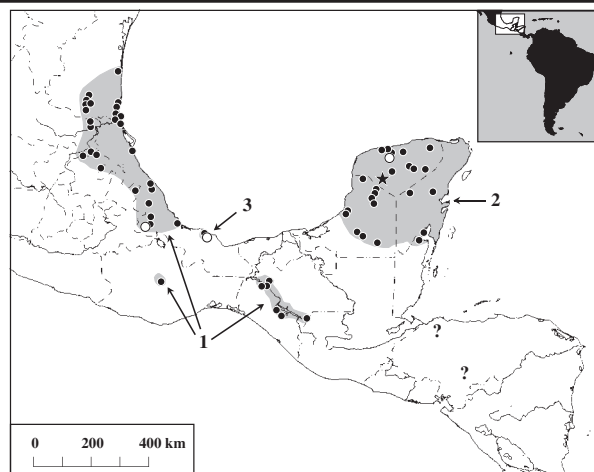
• **CONTENT.** Three subspecies are currently recognized: *L. s. serratus*, *L. s. alticoronatus*, and *L. s. mccoysi* (see **Remarks**).

• **DEFINITION.** *Laemanctus serratus* is a moderately large corytophanine (maximum recorded SVL 150 mm, Boulenger 1885, although most adults are in the 100–125 mm range) with an extremely long tail (3–4 times longer than SVL), a laterally compressed body, and a mostly flat-topped cephalic casque (casque can be slightly elevated medially on posterior portion). Dorsal head scales are strongly rugose to slightly carinate. Anterior dorsal head scales are much larger than the posterior dorsal head scales and are more or less bilaterally symmetrical. An azygous scale is present or absent. The posterior edge of the casque has a fringe of enlarged, flattened, triangular scales. Scales around the posterior edge of the casque (last superciliary to last superciliary) number 14–25 (McCoy 1968, Pérez-Higareda and Vogt 1985). The nasal scale is single, the nostril is located more or less centrally in the scale, and the opening is directed posterolaterally. The gular fold is complete, with about 3–4 rows of small scales contained in the fold. Gular scales are smooth to keeled; those that are keeled have one or two keels. Dorsal body scales are large and keeled, with the middorsal scale row enlarged and forming a serrated dorsal crest. Ventral scales are large, strongly keeled, imbricate, and usually rounded posteriorly. Scales around midbody number 47–65 (McCoy 1968, Pérez-Higareda and Vogt 1985). Subdigital scales have keratinized knobs on the anterior section of each scale. Caudal autotomy is absent. Femoral and preanal pores are absent.

*Laemanctus serratus* usually has a lime green or pale green ground color, but is capable of rapidly changing from green to brown. Five to seven dark brown crossbars on the body are most distinct in the middorsal area and tend to break up laterally. Some specimens also have a rather broad brown or dark green dorso-lateral stripe. A cream to white ventrolateral stripe extends from the level of the axillae to the groin.

• **DIAGNOSIS.** *Laemanctus serratus* can be distinguished from *L. longipes* by having a projecting fringe of enlarged, erect, flattened, triangular scales on the posterior edge of the head casque and a serrated middorsal crest. The species differs from other members of the family Corytophanidae in having a mostly flat-topped head casque (casque can be slightly elevated medially on the posterior portion).

• **DESCRIPTIONS.** Detailed descriptions are in (Duméril et al. 1870–1909, as *L. longipes*), Boulenger (1877), Smith and Laufe (1945), Taylor (1949), Maslin (1963), Duellman (1965), McCoy (1968), Lang (1989a), Lee (1996, 2000), Campbell (1998), and Köhler (1999).



**MAP.** Distribution of *Laemanctus serratus*: circles represent type localities and dots indicate other known localities (some dots denote two or more proximate localities). The star indicates a subfossil record tentatively assigned to this species. The two question marks represent probable localities in Honduras (see **Remarks**). An old literature record exists for this species (Dugès 1896) for the Mexican state of Guanajuato. We have been unable to locate the purported locality on the maps available to us, but *L. serratus* may occur in the extreme eastern portion of that state.



**FIGURE.** Adult *Laemanctus serratus* from an unknown location (photograph by GK).

• **ILLUSTRATIONS.** **Color photographs** are in Alvarez del Toro (1982), Trutnau (1986), Bartlett (1988), Villa et al. (1988), Vogel (1992, back cover), W. Schmidt and Henkel (1995), Lee (1996, 2000), Campbell (1998), Hartdegen (1998), Köhler (1999, 2000, 2003), and Stafford and Meyer (1999). **Black and white photographs** are in Barbour (1926), Ditmars (1928), Schmidt (1928, 1930), Peters (1948), Scortecci (1953), Reyst (1954), Pope (1955), Klingelhöffer and Scherpner (1957), Schmidt and Inger (1957), Alvarez del Toro (1960, 1973), Freiberg (1972), and Vogel (1992). A **drawing** of an adult is in Cope (1870). Other drawings are in Duméril et al. (1870–1909, dorsal surface of head casque, as *L. longipes*), Boulenger (1877, dorsal surface of head casque), Olson et al. (1986, left dentary), Lang (1989a; dorsal and palatal views of skull, lower jaw, and pectoral girdle; Lee (1996, 2000; dorsal, lateral, and ventral views of head and preanal and hind limb regions), and Köhler (1999, dorsal surface of head and casque; 2000, ventral surface of toe and outline of head casque; 2001, ventral surface of toe; 2003, ventral surface of toe, outline of head casque). Etheridge and de Queiroz (1988) presented both a **black and white photograph**

**and drawing of the dorsal surface of the skull.** A scanning electron micrograph of the subdigital scales is in Lang (1989a) and those of a dorsal body scale, a subocular scale, a posterior head scale, and the nasal scale are in Lang (1989b). A photomicrograph of a section of bone tissue of the femur is in Enlow and Brown (1957).

• **DISTRIBUTION.** *Laemanctus serratus* occurs at low and moderate elevations (near sea level to about 1500 m, the upper limits per Johnson 1989) on the Atlantic versant from central Tamaulipas, México to northwestern Honduras (see **Remarks**), including the northern portion of the Yucatán Peninsula. Two nineteenth century records exist for the Pacific versant in central Oaxaca, México (also see **Remarks**).

• **FOSSIL RECORD.** Langebartel (1953) tentatively assigned a subfossil dentary from a cave in Yucatán, México, to *Laemanctus*, suggesting that it belongs to this species.

• **PERTINENT LITERATURE.** References are listed by topic: **literature reviews** (Smith and Smith 1976, 1993), **annotated synonymy** (McCoy 1968), **subdigital scales** (Peterson 1983), **parietal eye** (Gundy and Wurst 1976), **microanatomy of scales** (Lang 1989b), **osteology** (Snyder 1954, Etheridge 1965, de Queiroz 1987, Lang 1989a), **dentition** (Edmund 1969; Olson et al. 1986, 1987), **thyroid morphology** (Lynn et al. 1966), **cloacal and hemipenial musculature** (Arnold 1984), **reproduction** (Peters 1948, Martin 1958, McCoy 1968, Fitch 1970, Greene 1970, Smith et al. 1972, Alvarez del Toro 1982, Pérez-Higareda and Vogt 1985), **stomach contents** (Peters 1948, Martin 1958), **care in captivity** (Schmidt 1930, Reyst 1954, Vogel 1992, Hartdegen 1998, Köhler 1999), **longevity in captivity** (Snider and Bowler 1992), **conservation** (Wilson and McCranie 2004), and **use as a native food source** (Góngora-Arones 1987). The species was also used in a study on **trunk musculature** (Moody 1983).

McCoy (1968) provided a **taxonomic review** and Lang (1989a) a **taxonomic review and phylogenetic analysis**. Comments on **biogeography** are in Martin (1958), Johnson (1989), Flores-Villela (1991), and Wilson and McCranie (1998). The species also is mentioned in various **distribution notes, faunal lists, or keys**: Boulenger (1885), Cope (1885, 1887), Günther (1885), Ferrari Perez (1886), Boettger (1893), Dugès (1896), Barbour and Cole (1906), Shattuck (1933), Gaige (1936), Smith (1938), Peters (1948), Taylor (1949), Smith and Taylor (1950), Alvarez del Toro and Smith (1956), Martin (1958), Booth (1959), Maslin (1963), Duellman (1965), Baker and Webb (1967), McCoy (*in* Peters and Donoso-Barros 1970), Greene (1972), Henderson and Hoervers (1975), Pérez-Higareda (1978), Lee (1980, 1996, 2000), Pérez-Higareda and Navarro L. (1980), Alvarez del Toro (1982), Flores-Villela et al. (1987, 1991, 1995), Pérez-Higareda et al. (1987), Villa et al. (1988), Campbell and Vannini (1989), Johnson (1990), Pelcastre Villafuerte and Flores-Villela (1992), Flores-Villela (1993), Wilson and McCranie (1994, 2002), Padilla García et al. (1996), Vogt et al. (1997), Campbell (1998), Canseco-Marquez and Gutierrez-Mayen (1998), Aranda and Guzman (1999), Köhler (1999, 2000, 2003), Stafford and Meyer (1999), and Wilson et al. (2001).

• **REMARKS.** The “*Laemanctus longipes*” of Duméril and Duméril (1851), Duméril (1856), and Duméril et al. (1870–1909) actually apply to *L. serratus*.

The subspecies of *Laemanctus serratus* are poorly defined, with considerable overlap occurring in the ranges of the numbers of most scales used to define these races. Thus, McCoy (1968) defined the subspecies *L. s. serratus* and *L. s. alticoronatus* based on slightly different mean values for three of the

four scale characters he considered diagnostic. McCoy (1968) also relied heavily on the geographic isolation of the populations in the Yucatán Peninsula to reach his taxonomic proposal of recognizing *L. s. alticoronatus* as a valid subspecies. McCoy (1968) associated the two specimens he examined from Chiapas, Mexico, with *L. s. serratus* “mainly on the basis of geographic proximity.” Pérez-Higareda and Vogt (1985) based their new subspecies, *L. s. mccoyi*, on similar trivial differences in mean values for most characters used by McCoy (1968) to define *L. s. serratus* and *L. s. alticoronatus* (Pérez-Higareda and Vogt apparently did not examine any specimens of *L. serratus* other than their type series of *L. s. mccoyi*). Pérez-Higareda and Vogt’s (1985) data for subdigital scale numbers for *L. s. mccoyi* are lower than the values for *L. s. serratus* and *L. s. alticoronatus* given by McCoy (1968). However, a question exists as to the methods used by McCoy (1968); he did not provide an explanation of the method used to count these scales. McCoy (1968) stated that 41/41 subdigital scales were on the fourth toes of the holotype of *L. longipes waltersi*. Examination of this holotype (FMNH 5213) revealed 29/30 subdigital scales on Phalanges I–V of the fourth toes. To reach a count similar to that given by McCoy (1968), you also have to count the subdigital scales in one row on the metatarsus of the fourth toe of FMNH 5213. Assuming that McCoy (1968) was consistent in his methods of counting subdigital scales in all specimens of *Laemanctus*, then his counts probably included the scales covering the metatarsus of the fourth toe in *L. serratus*. Thus, the lower values for subdigital scales in *L. s. mccoyi* given by Pérez-Higareda and Vogt (1985) may reflect different methods of counting these scales. If so, then all three subspecies of *L. serratus* recognized by McCoy (1968) and Pérez-Higareda and Vogt (1985) are defined largely on trivial average values.

Lang (1989a) included four symbols in northwestern Honduras on his distribution map of *Laemanctus serratus*. Lang (1989a) did not provide a list of specimens examined or locality data for these records. He considered the Honduran specimens to represent *L. s. alticoronatus*, which otherwise occurs in the Yucatán Peninsula, according to Lang (1989a) and McCoy (1968). However, the three Honduran *L. serratus* in the collection of the U.S. National Museum examined by McCranie (USNM 83436, 84026, 84550) have mean values closer to those given for *L. s. serratus* by McCoy (1968) than those for *L. s. alticoronatus*. These Honduran specimens of *L. serratus* lack specific locality data, except for one specimen that was said to be from Tela, Atlántida. These specimens were presented to the National Zoological Park in Washington, D.C. and then deposited in the USNM collection upon their death in 1931. A specimen of *L. longipes* (USNM 83434) from “Honduras” also was presented to the National Zoological Park and then to the USNM upon its death, also in 1931. USNM 83434 clearly belongs to the distinct population of *L. longipes* that is known to occur only in scattered localities in Atlántida and Cortés, Honduras. Thus, the USNM *L. serratus* undoubtedly were collected in Honduras. Given that *L. serratus* occurs in subhumid habitats elsewhere in its range, the Honduran specimens likely were collected in the subhumid Sula Plain of the ríos Chamelecón and Ulúa in the department of Cortés. The species apparently has a wider distribution in Honduras, because one of us (McCranie) saw, but could not collect, a specimen that he feels certain was a *L. serratus* in the subhumid middle portion of the Río Choluteca Valley in south-central Honduras.

Cope (1865) mentioned only one specimen (now USNM 12283) in his description of *L. alticoronatus*, but later (Cope 1866) stated that two specimens of *L. alticoronatus* were in the USNM collection. Cochran (1961) listed both of these as “probable” syntypes. However, McCoy (1968) stated that one of these “was collected later [than the type description] and cannot be

considered a type-specimen of *alticoronatus*.” The second specimen is now USNM 541803.

• **ETYMOLOGY.** The name *serratus* is Latin (toothed like a saw), and refers to the serrated posterior edge of the head casque; *alticoronatus* is from the Latin *alter* (alternate), *corona* (crown), and *-atus* (provided with, having the nature of, pertaining to), and also refers to the serrated posterior edge of the head casque; *mccoyi* is a patronym honoring Clarence J. McCoy, who revised the genus *Laemanctus* in 1968.

• **COMMENT.** We prefer the name Serrate Casqueheaded Basilisk (Campbell 1998) over Serrated Casquehead Iguana (Liner 1994, Frank and Ramus 1995), although neither “common name” would have any meaning to the people living within the geographic range of this species. Aranda and Guzman (1999) provided the colloquialism “lagartija de casco” for this species.

### 1. *Laemanctus serratus serratus* Cope

*Laemanctus serratus* Cope 1864:176. See species synonymy. *Laemactus serratus*: Alvarez del Toro 1960:82. *Lapsus* for generic name.

*Laemanctus serratus serratus*: McCoy 1968:672. First use of trinomial.

*Laemactus serratus serratus*: Alvarez del Toro 1973:167. *Lapsus* for generic name.

• **DEFINITION.** This purported subspecies (see **Remarks**) is characterized by relatively small body scales (51–65,  $\bar{x}$  = 58.8 scales around midbody), relatively high number of scales around the posterior edge of the head casque (19–24,  $\bar{x}$  = 22.3), slightly more numerous fourth toe subdigital scales (70–83,  $\bar{x}$  = 76.0; totals for both toes combined), and an azygous scale usually present (72%; data from McCoy 1968).

### 2. *Laemanctus serratus alticoronatus* Cope

*Laemanctus alticoronatus* Cope 1865:192. Type locality, “Yucatan, near Merida.” Holotype, National Museum of Natural History, Washington (USNM) 12283, a subadult male, collected by A. Schott, possibly about March 1865 (not examined by authors). See **Remarks**.

*Laemanctus alticoronatus*: Shattuck 1933:576. *Lapsus* for generic name.

*Laemanctus serratus alticoronatus*: McCoy 1968:674. First use of trinomial.

• **DEFINITION.** This purported subspecies (see **Remarks**) is characterized by relatively large body scales (49–62,  $\bar{x}$  = 53.4 scales around midbody), relatively low number of scales around the posterior edge of the head casque (18–25,  $\bar{x}$  = 21.0), relatively fewer fourth toe subdigital scales (67–85,  $\bar{x}$  = 73.6; totals for both toes combined), and usually no azygous scale present (76%; data from McCoy 1968).

### 3. *Laemanctus serratus mccoyi* Pérez-Higareda and Vogt

*Laemanctus serratus mccoyi* Pérez-Higareda and Vogt 1985:140. Type locality, “from El Acuyal, municipality of Catemaco, Veracruz, México.” Holotype, Universidad Nacional Autónoma de México, Estación de Biología Tropical “Los Tuxtles” (UNAM-LT) 1326, an adult male, collected by G. Pérez-Higareda, 10 October 1981 (not examined by authors).

• **DEFINITION.** This purported subspecies (see **Remarks**) is characterized by relatively large body scales (47–54,  $\bar{x}$  = 51.3

scales around midbody), relatively low number of scales around the posterior edge of the head casque (14–21,  $\bar{x}$  = 19.5), relatively fewer fourth toe subdigital scales (58–68,  $\bar{x}$  = 66.0; totals for both toes combined), and usually no azygous scale present (75%; data from Pérez-Higareda and Vogt 1985).

• **ACKNOWLEDGMENTS.** S.W. Gotte provided information on the holotype of *Laemanctus s. alticoronatus* and the second specimen in the USNM collection from the Schott Yucatán collection. S.W. Gotte, J.A. Poindexter, and J.C. Lee provided copies of pertinent publications. J.W. Arntzen provided information on the holotype of *L. serratus* in the RMNH collection.

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Primary editor for this account, Andrew H. Price.

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