

Catalogue of American Amphibians and Reptiles.

DUELLMAN, WILLIAM E. 1968. *Smilisca baudinii*.

Smilisca baudinii (Duméril and Bibron)
Mexican *smilisca*

- Hyla baudinii* Duméril and Bibron, 1841:564. Type-locality, "Mexique," restricted to Córdoba, Veracruz, México [elevation 925 meters] by Smith and Taylor (1950:347). Holotype, Musée National d'Histoire Naturelle, Paris, 4798, adult male donated by Mons. Baudin.
- Hyla vanvlietii* Baird, 1854:61. Type-locality, "Brownsville [Cameron County], Texas," elevation 15 meters. Holotype, U. S. Natl. Mus. 3256, juvenile collected by Captain S. Van Vliet.
- Hyla vociferans* Baird, 1859:35. Figures 11-13 on plate 38 are designated as "*Hyla vociferans*, Baird." The name is mentioned in the legends for the plates, but a type-specimen is not designated. Duellman and Trueb (1966:290) erroneously cited the name as a *nomen nudum*.
- Hyla muricolor* Cope, 1862:359. Type-locality, "Mirador, Vera Cruz" [= Hacienda Mirador, elevation 1020 meters, 27 kilometers by road east-northeast of Huatusco, Veracruz, México]. Holotype, U. S. Natl. Mus. 25097, adult collected by Charles Sartorius.
- Smilisca daulinia* Cope, 1865:194. Type-locality unknown. Holotype, "skeleton in private anatomical museum of Hyrtl, Professor of Anatomy in the University of Vienna." The specific name *daulinia* possibly was a lapsus for *H. baudinii* Duméril and Bibron (1841).
- Smilisca daudinii* Cope, 1871:205. Lapsus for *baudinii*.
- Smilisca baudinii*: Cope, 1875:31. First correctly spelled association of *baudinii* with generic name *Smilisca*.
- Hyla pansosana* Brocchi, 1877:125. Type-locality, "Panzós [Alta Verapaz], Guatemala," elevation 36 meters. Holotype, Mus. Natl. Hist. Nat. Paris 6313, subadult male collected by Marie-Firmin Bocourt, 1865.
- Hyla baudinii* [*baudinii* by fiat]: Barbour, 1923:11. Description of *Hyla baudinii dolomedes* from Panamá.
- Hyla baudinii baudinii*: Stejneger and Barbour, 1923:34. First use of trinomial.
- Hyla beltrani* Taylor, 1942:306. Type-locality, "Tapachula, Chiapas," México, elevation 140 meters. Holotype, Univ. Illinois Mus. Nat. Hist. 25046 (formerly Edward H. Taylor-Hobart M. Smith 29563), subadult female collected by A. Magaña, 1 August 1941.
- Smilisca baudini baudini*: H. M. Smith, 1947:408. First use of trinomial with generic combination of *Smilisca*.
- Hyla manisorum* Taylor, 1954:630. Type-locality, "Bataan, Limón Province, Costa Rica," elevation 15 meters. Holotype, Univ. Kansas Mus. Nat. Hist. 34927, adult female collected by Edward H. Taylor, 22 July 1951.

• CONTENT. No subspecies are recognized.

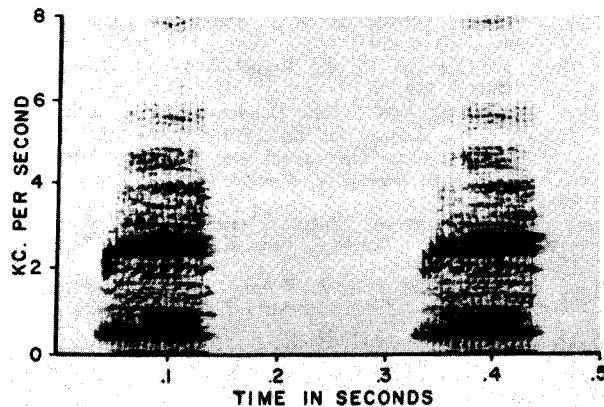
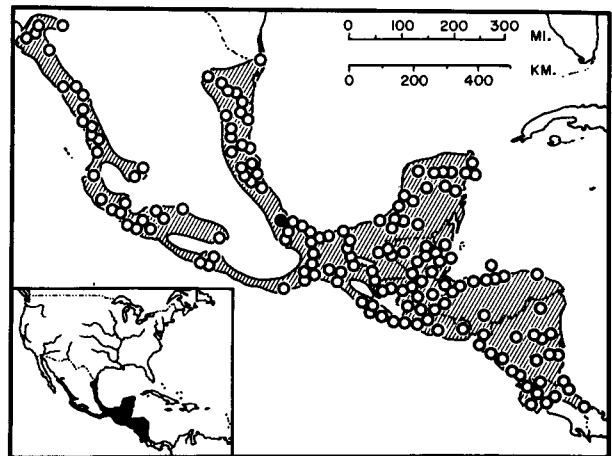


FIGURE. Audiospectrogram (narrow band, 40 cycles per second) of the mating call of *Smilisca baudinii*: Departamento Choluteca, Honduras, 25 July 1961, air 24.5°C. (Univ. Kansas Mus. Nat. Hist. Tape No. 74; specimen No. 64229.)

• DEFINITION AND DIAGNOSIS. A large *Smilisca*—males attain snout-vent lengths of 76 mm, and females reach a maximum snout-vent length of 90 mm. The snout is rather short and truncate in dorsal profile. The hind limbs are relatively short; the tibia length usually is less than 50% of the snout-vent length. The diameter of the tympanum usually is more than two-thirds that of the eye. The tarsal fold is well-developed and extends the full length of the tarsus. The inner metatarsal tubercle is large, high, and elliptical. The fingers are about one-third webbed, and the toes are two-thirds webbed. The skull is noticeably wider than long and has a small frontoparietal fontanelle, which is roofed with bone in large individuals, and long, pointed postorbital processes that curve along the posterior border of the orbit. The squamosal is large and in contact with the maxillary. In life the ground color is pale green to brown dorsally and white to creamy yellow ventrally. The dorsum is variously marked with dark brown or dark olive-green spots or blotches. The loreal region and upper lip are pale green or tan. The lip is boldly marked by vertical brown bars; the broadest just below the eye is followed by a pale green ashy gray or white spot. A dark brown or black mark extends posteriorly from the eye, above the tympanum, to a point above the insertion of the forelimb. The flanks are pale gray to creamy white with dark brown or black mottling. The anterior surfaces of the thighs are creamy white with brown mottling, and the posterior surfaces of the thighs are brown with cream flecks. The dorsal surfaces of the limbs are marked by dark transverse bars. The iris is bronze with black reticulations. In breeding males the throat is gray.

Tadpoles have tails slightly less than twice the length of the body and moderately deep fins. The dorsal fin extends onto the body. The dorsum of the body is dark brown; laterally a cream crescent-shaped mark is present on the posterior border of the body. The caudal musculature is pale tan with a dark brown streak on the middle of the anterior one-third of the tail. The rest of the caudal musculature, all of the dorsal fin, and the posterior two-thirds of the ventral fin are marked by brown blotches and flecks. The mouth is situated anteroventrally. The median part of the upper lip is bare; the rest of the mouth is fringed by two rows of papillae.

The presence of vertical bars on the upper lips, a dark postorbital mark, pale gray to cream flanks mottled with dark brown or black, and a short snout distinguishes *S. baudinii* from other members of the genus. *Smilisca sila* has a short snout, but has blue flecks on the flanks and thighs and lacks the postorbital dark mark. *Smilisca baudinii* can be distinguished readily from *S. cyanosticta* and *phaeota*; these two species have continuous white labial borders and have longer, more pointed snouts. Certain Middle American hylids, especially *Hyla taeniopus* and members of the genus *Phrynohyas*, frequently are confused with *S. baudinii*. The former has uniformly dark brown posterior surfaces of thighs, an elongate anal sheath opening at the lower level of the thighs,



MAP. The solid symbol marks the restricted type-locality; hollow symbols indicate other known localities. The estimated range is outlined.

and a longer snout, which is pointed and protruding in males. *Phrynohyas* differs most noticeably in having thick glandular skin, a broader head, larger feet, and in lacking any green color, vertical bars on the lips, and mottling on the flanks. Recently metamorphosed young *S. baudinii* often are nearly uniform olive gray, but may be identified by the presence of the white suborbital spot, which is more apparent in juveniles than in adults. Faded adult specimens can be identified by probing the lateral edge of the frontoparietal; the large curved postorbital processes are diagnostic of *S. baudinii* (see Duellman and Trueb, 1966, fig. 8).

• **DESCRIPTIONS.** Many references mention characteristics of *S. baudinii*, but the most useful are Kellogg (1932), Wright and Wright (1949), and Conant (1958). Stuart (1948) and Maslin (1963) describe the tadpoles. Duellman and Trueb (1966) gave an account of geographic variation, descriptive and developmental cranial osteology, life history, and breeding call. The breeding call consists of a series of short, explosive notes, "wink-wink-wink." Each note has a duration of 0.09 to 0.13 seconds; 2 to 15 notes make up a call group, which are spaced at intervals from about 15 seconds to several minutes. The notes have 140 to 195 pulses per second and major frequencies of 175 to 495 and 2400 to 2725 cycles per second. For a phonograph recording, refer to Bogert (1958).

• **ILLUSTRATIONS.** Colored illustrations are given in Günther (1901) and Conant (1958); black and white photographs are included in Wright and Wright (1949) and Duellman and Trueb (1966), who also illustrated the hands and feet. The tadpoles were illustrated by Stuart (1948), Maslin (1963), and Duellman and Trueb (1966). The last and Starrett (1960) illustrated the skull.

• **DISTRIBUTION.** *Smilisca baudinii* inhabits lowlands and foothills. In the northern part of its range in México the species occurs in semi-arid regions supporting xerophytic vegetation or savannas, but in the southern part of its range, especially in the Caribbean lowlands of Central America, *S. baudinii* occurs in humid evergreen forest. The species ranges throughout the Pacific and Atlantic lowlands of México from southern Sonora and the Rio Grande embayment of Texas (Cameron County only) southward to Costa Rica, where the range terminates at the southern limits of the arid tropical forest at the vicinity of Esparta, Puntarenas Province. On the Caribbean lowlands the species occurs as far south as Suretka in southeastern Limón Province. Most localities where the species has been found lie at elevations below 1000 meters. The highest known elevation is 1925 meters at 10 kilometers northwest of Comitán, Chiapas, México.

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** The recent review of this species by Duellman and Trueb (1966) includes a summary of important literature pertaining to the taxonomy, variation, life history, and distribution of the species. Pyburn and Kennedy (1960) reported artificial hybridization with *Hyla versicolor*, and Brattstrom (1963) reported body temperatures. Trueb (in press) described the internal cranial anatomy.

• **REMARKS.** Barbour (1923) named *Hyla baudinii dolomedes* from the Río Esnápe, Darién Province, Panamá. Dunn (1931) showed that the name was based on a specimen of *Smilisca phaeota*.

The many specific names applicable to this species that were proposed in the 19th century by Baird, Brocchi, and Cope have been considered as synonyms of *Smilisca baudinii* by the compilers of recent checklists (Schmidt, 1953; Smith and Taylor, 1948; and Stuart, 1963). Duellman and Trueb (1966) showed that *Hyla beltrani* Taylor and *Hyla manisorum* Taylor are synonyms of *Smilisca baudinii*.

• **ETYMOLOGY.** The species was named for Mons. Baudin, a French Commander in México who donated the type specimen to the Musée National d'Histoire Naturelle in Paris.

LITERATURE CITED

- Baird, Spencer F. 1854. Descriptions of new genera and species of North American frogs. Proc. Acad. Nat. Sci. Philadelphia 7:59-62.
- 1859. Reptiles of the boundary, United States and Mexican Boundary Survey. Washington, D. C., 35 pp., 41 pls.
- Barbour, Thomas. 1923. Notes on reptiles and amphibians from Panama. Occas. Pap. Mus. Zool. Univ. Michigan (129):1-16.
- Bogert, Charles M. 1958. Sounds of North American frogs. The biological significance of voice in frogs. Folkways Records album no. Fx6166.
- Brattstrom, Bayard H. 1963. A preliminary review of the thermal requirements of amphibians. Ecology 44(2):238-255.
- Brocchi, Paul. 1877. Note sur quelques batrachiens hylaeformes recueillis au Mexique et au Guatemala. Bull. Soc. Philom. Paris, ser. 7, 1:122-132.
- Conant, Roger. 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.
- Cope, Edward D. 1862. Catalogues of the reptiles obtained during the explorations of the Parana, Paraguay, Vermejo and Uruguay [sic] rivers, by Capt. Thos. J. Page, U.S.N., and of those procured by Lieut. N. Michler, U. S. Top. Eng., Commander of the expedition conducting the survey of the Atrato River. Proc. Acad. Nat. Sci. Philadelphia 14:346-369.
- 1865. Third contribution to the herpetology of tropical America. *Ibid.* 17(4):185-198.
- 1871. Ninth contribution to the herpetology of tropical America. *Ibid.* 23(2):200-224.
- 1875. Check-list of North American Batrachia and Reptilia; with a systematic list of the higher groups, and an essay on geographical distribution. Bull. U. S. Natl. Mus. (1):1-104.
- Duellman, William E. and Linda Trueb. 1966. Neotropical hylid frogs, genus *Smilisca*. Univ. Kansas Publ. Mus. Nat. Hist. 17(7):281-375, pls. 1-12.
- Duméril, A. M. C. and G. Bibron. 1841. *Erpétologie générale ou histoire naturelle complète des reptiles*, vol. 8. Roret, Paris, ii + 792 p.
- Dunn, Emmett R. 1931. The amphibians of Barro Colorado Island. Occas. Pap. Boston Soc. Nat. Hist. 5:403-421.
- Günther, Albert C. L. G. 1885-1902. *Biologia Centrali-Americana. Reptilia and Batrachia*. Dulau and Co., London. xx + 326 p., pls. 1-76.
- Kellogg, Remington. 1932. Mexican tailless amphibians in the United States National Museum. Bull. U. S. Natl. Mus. (160):1-224. pl. 1.
- Maslin, T. Paul. 1963. Notes on some anuran tadpoles from Yucatán, Mexico. *Herpetologia* 19(2):122-128.
- Pyburn, William F., and J. P. Kennedy. 1960. Artificial hybridization of the gray tree frog, *Hyla versicolor* (Hylidae). *Amer. Midland Nat.* 64(1):216-223.
- Schmidt, Karl P. 1953. A check list of North American amphibians and reptiles, 6th ed. Amer. Soc. Ichthyol. Herpetol., Chicago. viii + 280 p.
- Smith, Hobart M. 1947. Notes on Mexican amphibians and reptiles. *J. Washington Acad. Sci.* 37(11):408-412.
- Smith, Hobart M. and Edward H. Taylor. 1948. An annotated checklist and key to the amphibians of Mexico. Bull. U. S. Natl. Mus. (194):1-118.
- 1950. Type localities of Mexican reptiles and amphibians. *Univ. Kansas Sci. Bull.* 33(8):313-380.
- Starrett, Priscilla. 1960. A redefinition of the genus *Smilisca*. *Copeia* 1960(4):300-304.
- Stejneger, Leonard and Thomas Barbour. 1923. A check list of North American amphibians and reptiles. 2nd ed. Harvard Univ. Press, Cambridge. x + 171 p.
- Stuart, Laurence C. 1948. The amphibians and reptiles of Alta Verapaz, Guatemala. *Misc. Publ. Mus. Zool. Univ. Michigan* (69):1-109.
- 1963. A checklist of the herpetofauna of Guatemala. *Ibid.* (122):1-150.
- Taylor, Edward H. 1942. New Caudata and Salientia from México. *Univ. Kansas Sci. Bull.* 28(14):295-323.
- 1954. Additions to the known herpetological fauna of Costa Rica with comments on other species. No. I. *Ibid.* 36(9):597-639.
- Trueb, Linda (in press). Internal cranial anatomy of the hylid frog *Smilisca baudinii*. *Univ. Kansas Publ. Mus. Nat. Hist.* 18(2).
- Wright, Albert H. and Anna A. Wright. 1949. *Handbook of frogs and toads*, 3rd ed. Comstock Publ. Co., Ithaca xii + 640 p.

W. E. DUELLMAN, MUSEUM OF NATURAL HISTORY, UNIVERSITY OF KANSAS, LAWRENCE, KANSAS 66044.

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