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*Hyla albopunctata*

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## Catalogue of American Amphibians and Reptiles.

de Sá, R.O. 1995. *Hyla albopunctata*.

*Hyla albopunctata* Spix, 1824

*Hyla boans* (not of Linnaeus, 1758): Latreille, 1801:184.

*Hyla albopunctata* Spix, 1824: 33, pl. 6, fig 5. Type-locality: unknown; neotype from Belo Horizonte, Minas Gerais, Brasil (Duellman, 1971). Holotype, formerly in the Zoologische Staatssammlung, München (ZSM), now lost; University of Kansas Museum of Natural History (KU) 100000, adult male, collected 9 February 1965 by W.C.A. Bokermann and A.B. Machado, was designated the neotype by Duellman (1971)(examined by author).

*Auletris boans*: Wagler, 1830:201.

*Hypsiboas boans*: Tschudi, 183:72.

*Hyla oxyrhina* Reinhardt and Lütken, 1862:189. Type-locality: "Minas og Lagoa Santa;" type-locality (*vide* Duellman, 1976 [1977]:27), Lagoa Santa, Minas Gerais, Brasil. Syn-types, British Museum, Natural History (BMNH) 1936.12.3.144, NHMW (1 specimen, no number), Natur-Museum Senckenberg (SMF) 4772 (2 specimens), ZMUC 1433-35, all adults, sexes unknown, collected by J. Reinhardt, date of collection unknown (not examined by author).

*Hyla spectrum* Reinhardt and Lütken, 1862:195. Type-locality, not given; *vide* Duellman (1976 [1977]:27), Lagoa Santa, Minas Gerais, Brasil. Holotype, ZMUC 3432, a poorly preserved juvenile, sex unknown, collected by J. Reinhardt, date of collection unknown (not examined by author).

*Hyla (Hypsiboas) oxyrhina*: Cope, 1863:48.

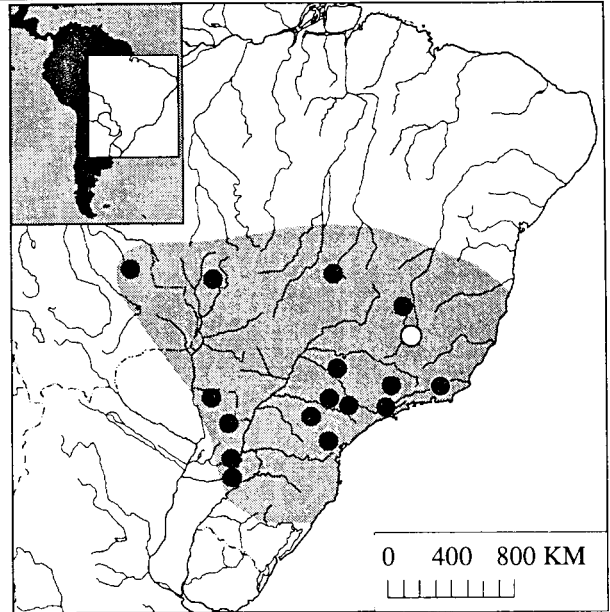
*Hypsiboas albopunctatus*: Cope, 1867:20. *Lapsus* (see Nomenclatural History).

*Hypsiboas spectrum*: Cope, 1867:200.

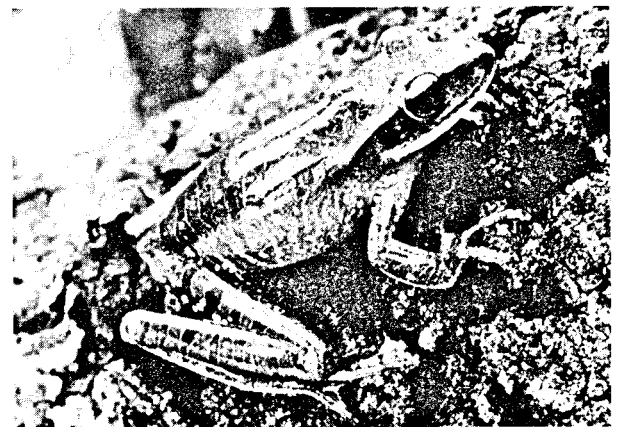
*Hyla albopunctata albopunctata*: Rivero, 1961:105.

• **Content.** No subspecies are recognized.

• **Definition.** *Hyla albopunctata* is a medium-sized species in the *albopunctata* group, adults range in size from 42-52 mm SVL (males average 47 mm and females 49 mm). The head is triangular in outline, always longer than wide. The snout is moderately long and acuminate in dorsal view, whereas in lateral view, it is acuminate and protrudes beyond the mandible to form an angle of 45 degrees over the mandible. The canthus rostralis is rounded and distinct, the loreal region is slightly concave, and the internarial region is slightly convex. The eyes are large, approximately twice the diameter of the tympanum. The tympanum is separated from the eye by a distance approximately one half the diameter of the tympanum. The upper arm is slender; the forearm is slender to slightly robust with a weakly developed dermal fold extending from the elbow to the base of the disc of the 4th finger. The fingers are moderately long, fringed, and have small, round terminal discs. The distal subarticular tubercles are large, single, oval, and subconical, whereas the proximal subarticular tubercles are more rounded and smaller. Small, subconical supernumerary tubercles are present on the proximal portions of the digits. The palmar tubercle is bifid and slightly to moderately developed. The modal webbing formula for the hand is: I—II 2\*—3.5 III 3.0—2.5 IV. The hind limbs are long and slender. A weak tarsal fold extends from the heel to the base of the inner metatarsal tubercle. The inner metatarsal tubercle is large, oval, relatively flat, and visible dorsally. The proximal subarticular tubercles are much smaller than the distal ones. Small supernumerary tubercles are present on the



**Map.** Distribution of *Hyla albopunctata*. The type-locality is unknown, the circle indicates the locality of the neotype *vide* Duellman (1971). Dots mark other records.



**Figure 1.** *Hyla albopunctata* from Santa Rita do Araquaiá, Goiás, Brasil, field number JPC 7535 (photograph by Janalee P Caldwell).

proximal segments of the toes; the tubercles are round and less distinct than those of the hand. The modal webbing formula for the foot is: I 2—2\* II 1.5—2.5 III 2—3\* IV 3—1\* V. The tongue is lanceolate and slightly notched anteriorly.

In preservative, the coloration of the dorsal surfaces of the body and of the fore- and hindlimbs is pale brown. Transverse, darker brown stripes extend across the dorsum of the body, between the eyes, and sometimes even anterior to the eyes. However, these stripes may be fused to one another forming an extensive reticulation, or they may be broken into elongate, transverse, and relatively independent spots. A dark brown canthal stripe begins on the snout, and it continues as a postorbital stripe through the tympanum to a point above the insertion of the forelimbs. The upper and lower lips are pale brown. Dark brown bars also are present on the dorsal surfaces of the thigh and shank. A white supra-anal stripe is accentuated by a dark brown anal region. A creamy white line extends from the heel along the outer edge of the tarsus and fifth toe. Ventral to this white

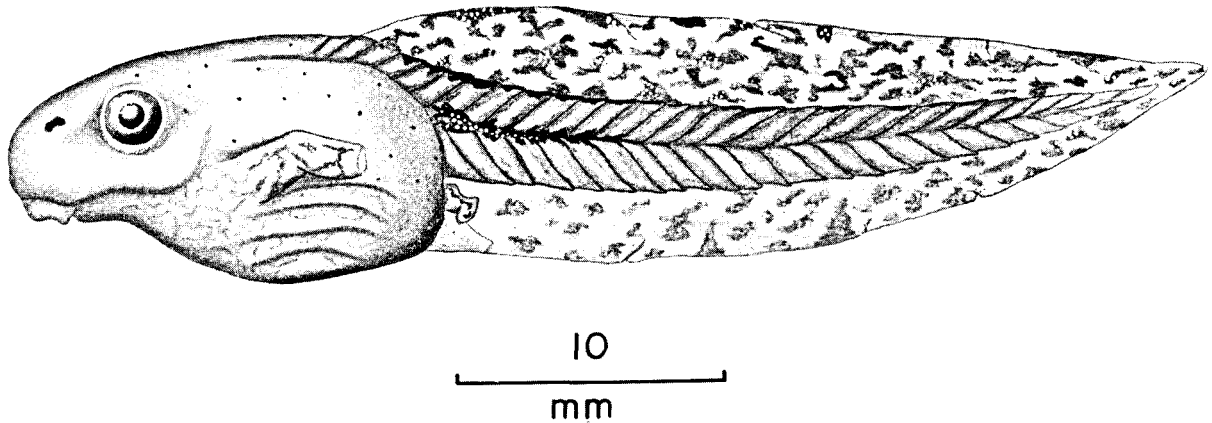


Figure 2. Tadpole of *Hyla albopunctata*, Gosner's stage 36 (KU 146854).

line, the coloration is dark brown. The posterior surface of the thighs is dark brown also, and has creamy white spots (Fig. 1) that range from well-defined (e.g., National Museum of Natural History [USNM] 127282) to a bold reticulate pattern (e.g., USNM 99138). The same pattern of color variation exists on the flanks. The ventral surfaces are uniformly cream with a brownish throat and a few brown spots in the pectoral region of some specimens.

The tadpoles of *Hyla albopunctata* have an elliptical body which is as deep as wide (Fig. 2). The snout is rounded in dorsal and lateral views. The top of the head is slightly convex. In lateral view, the ventral contour of the body is plano-convex. The nostrils are oval, depressed, and dorsal; their apertures are visible in lateral view. The nostrils have a moderately large, medial, triangular dermal flap that partially occludes the aperture. The internarial width is equal to that of the interorbital region and the oral disc. The eyes are dorsolateral and directed laterally. The spiracle is lateral, long, tubelike, and sinistral. The spiracular opening lies in the posterior third of the body, and is raised from the surface of the body. The cloacal tube is moderately long and dextral to the caudal fin, with which it is

fused. The anterior terminus of the dorsal fin is at the base of the tail. The anterior end of the ventral fin also lies at the base of the tail, but its anterior part is hidden by the cloacal tube. The dorsal fin is deeper than the ventral fin. The margin of the ventral fin is subparallel to the axis of the tail, whereas the margin of the dorsal fin is curved uniformly. The longitudinal axis of the tail is straight. The caudal musculature is slender and tapers gradually to the posterior end of the tail. At the midpoint of the tail, the depth of the caudal musculature is equal to the depth of the dorsal fin and greater than that of the ventral fin. The tip of the tail is acute. The mouth is anteroventral and directed ventrally. The mouth has a pair of large ventrolateral folds (Fig. 3). A small, medial portion of the upper lip lacks papillae; elsewhere marginal papillae are present in a single row along the border of the mouth. A few additional submarginal papillae are present in the ventrolateral folds. The upper beak is moderately deep and has blunt serrations; is laterally convex, paramedially concave, and medially convex; and is strongly pigmented. The lower beak is shallow, concave, pigmented, and uniformly serrated. Two upper and three lower rows of denticles are present. The first upper row is continuous and shorter than the second row, which is narrowly interrupted medially. The first and second lower rows are of equal length, and the first row is interrupted medially. The third lower row is continuous and the shortest of the lower rows. In preservative, the snout and dorsal surfaces of body are dark brown, whereas the sides and ventral region are pale brown. The caudal musculature is pale cream and the dorsal edge is dark brown. The dorsal and posterior halves of the ventral fin are strongly pigmented with brown spots; the anterior half is slightly pigmented and almost transparent. Small, dark brown dots are scattered over the dorsal and dorsolateral surfaces.

On the basis of a recording (KU tape 1124) made at Botúcatu, São Paulo, Brasil, at 20:30 hrs at an air temperature of 21°C, the call of *Hyla albopunctata* consists of a single note. The mean call duration is 420 ms (range, 280-681 ms). The mean dominant harmonic is 0.9 kHz (0.7-1 kHz), and energy is visible on the sonogram up to 3.0 kHz (2.3-4.0 kHz). The mean number of pulses is 39.6 (34-45) per call and the mean pulse rate is 100/s (64-125/s)(Fig. 4).

• **Diagnosis.** *Hyla albopunctata* differs from the other members of the *albopunctata* group by the following combination of characters: (1) modal webbing formula of the hand and the foot, (2) snout acuminate, clearly protruding beyond the mandible, (3) upper lip pale brown, (4) anal region dark brown with white supra-anal stripe, (5) flanks and posterior surfaces of thighs

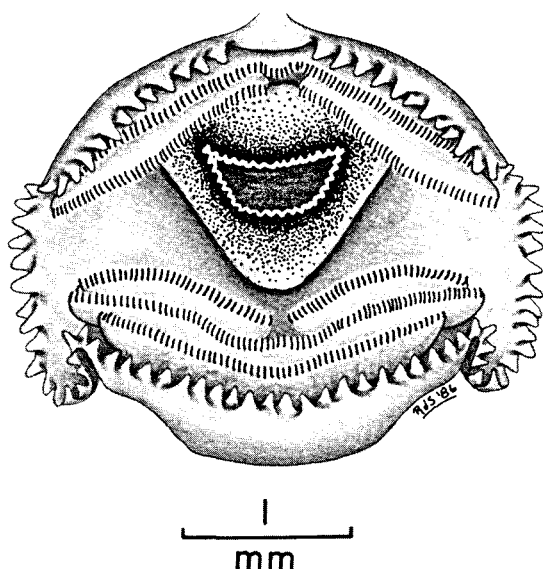


Figure 3. Oral disc of *Hyla albopunctata* tadpole, Gosner's stage 36 (KU 146854).

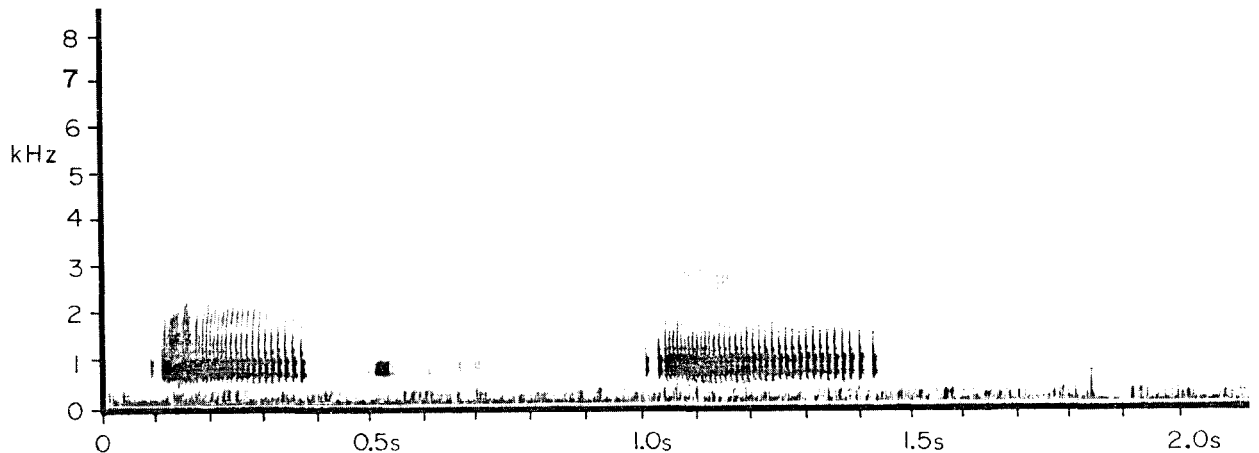


Figure 4. Audiospectrogram of *Hyla albopunctata* from Botúcatu, São Paulo, Brasil (KU tape 1124).

brown with scattered white spots, (6) ventral edge of nasal unnotched, (7) frontoparietals not articulating medially, and (8) otic plate of squamosal slightly overlapping a bony crista parotica.

• **Descriptions.** Descriptions of adult external morphology and osteology are in Cochran (1955), Cei (1980), and Heyer et al. (1990). Lutz (1973) presented descriptions of external morphology, morphological variation, secondary sex characteristics, and coloration. A tadpole in Gosner's stage 27 was described by Heyer et al. (1990).

• **Illustrations.** An illustration accompanies the original description given by Spix (1824); although the illustration is poor, the white dots on the posterior surface of the thighs that characterize the species are clearly visible. Color plates of *H. albopunctata* can be found in Lutz (1973), Cei (1980), and Heyer et al. (1990). Cei (1980) also presented illustrations of the hand, foot, and pectoral girdle. Illustrations of adults also are given by Cochran (1955). Heyer et al. (1990) provided an accurate description of coloration in life and the range of color variation for this species; also they provided an outline illustration of the tadpole.

• **Distribution.** *Hyla albopunctata* occurs primarily in south-eastern Brasil. Its range extends to central Brasil, eastern Paraguay, eastern Bolivia, and northeastern portions of Argentina.

• **Fossil Record.** None.

• **Pertinent Literature.** Lutz (1973) reported the call of *H. albopunctata* to consist of "... two short, separate cracks, sometimes followed by a third one at a lower pitch." This description does not agree with the analysis presented here or with Heyer et al. (1990). Lutz's description may be of the call of another species. Heyer et al. (1990) reported two types of calls for *H. albopunctata* and one of those agrees with the one presented here. The two types of calls may suggest more complex social interactions than previously reported for this species.

Lynch (1979) suggested that *H. albopunctata* originated by vicariance in the Atlantic tropical forests of South America from a common ancestor with *H. lanciformis* and *H. multifasciata*.

Cei (1980) reported that *H. albopunctata* inhabits open spaces of the forest, calling at night from low vegetation at the edge of ponds. Heyer et al. (1990) found the species calling in November.

Additional references to this species (as *Hyla boans*) are included in Duméril and Bibron (1841), Burmeister (1856), Peracca (1904), Baumann (1912), Nieden (1923), Miranda-Ribeiro (1926), Parker (1928), Carvalho (1939), Schubart (1939), Mertens (1940), and Travassos and Freitas (1942); and (as *H. albopunctata*) in Peters (1872), Andersson (1900), Shreve (1935), Cochran (1955), Duellman (1971), and Lutz (1973).

• **Nomenclatural History.** Cope (1863:48) used a new combination *Hyla (Hypsiboas) oxyrhina*, but explicitly mentioned that his specimens are identical to those described as *Hypsiboas raniceps* Cope, 1862. However, whereas *Hyla oxyrhina* Reinhardt and Lütken, 1862, is a synonym of *Hyla albopunctata* and possesses the white spots on the flanks and thighs that characterize *albopunctata*, these white spots are not mentioned in the description of *Hypsiboas raniceps*. Shreve (1935) placed Cope's *Hypsiboas raniceps* in the synonymy of *Hyla albopunctata*; however, Cope's description of *Hypsiboas raniceps* corresponds to *Hyla raniceps*. Reinhardt and Lütken (1862) described *Hyla spectrum* based on juvenile specimens of *H. albopunctata*. Because Cope (1867) did not provide any comments or explanation for his later use of *albopunctatus*, *albipunctatus* most likely is a typographical error instead of a deliberate change. Mertens (1940) indicated that the taxon described as *Hyla albopunctata* Spix was preoccupied by the taxon described as *Hyla boans* Daudin, 1802. However, Andersson (1900) indicated that *H. albopunctata* ought to be retained for the taxon described by Spix (1824) and that the name *Hyla boans* should be replaced with *Hyla maxima* (Laurenti, 1768); that taxon was originally described by Linnaeus (1754) as *Rana lactea* and later changed by Linnaeus (1758) to *Rana boans*. Further details on the nomenclatural history of *Hyla boans* can be found in Duellman (1971). Cochran (1955) included in the synonymy of *Hyla albopunctata* specimens identified as *Hyla boans* Daudin (not *Hyla boans* of Linnaeus) by Crawford (1931), Crawford and Jones (1933), Beebe (1919, 1925), Parker (1935), and Ruthven (1919). However, those specimens are from Guyana and probably correspond to *Hyla multifasciata*. In addition, Cochran (1955) incorrectly included *H. multifasciata* Günther, 1858, in the synonymy of *albopunctata*. Günther's description and illustration (1858:101, pl. 8 Fig. D) correspond to *H. multifasciata*. However, in the appendix of the same paper (Günther 1858:146) listing additional specimens, Günther mistakenly suggested that *H. multifasciata* is a variety of *H. boans* Daud. and indicated that his illustration corresponded to that species (1858:146 under *H. boans*). Cochran also included Boulenger's (1882) description of *H. boans* Daud. in the syn-

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