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A NEW SPECIES OF TORRENT FROG GENUS *HYLODES* (ANURA: LEPTODACTYLIDAE) FROM SOUTHEASTERN BRAZIL

JOSÉ P. POMBAL, JR.[1,4], RENATO N. FEIO[2], AND CÉLIO F. B. HADDAD[3]

[1]*Departamento de Vertebrados, Museu Nacional, Universidade Federal do Rio de Janeiro, Quinta da Boa Vista, 20940-040 Rio de Janeiro, RJ, Brasil*
[2]*Museu de Zoologia "João Moojen de Oliveira," Departamento de Biologia Animal, Universidade Federal de Viçosa, 36571-000 Viçosa, MG, Brasil*
[3]*Departamento de Zoologia, Instituto de Biociências, Universidade Estadual Paulista, CP 199, 13506-900 Rio Claro, SP, Brasil*

ABSTRACT: We describe a new species of *Hylodes* from Parque Estadual do Ibitipoca, Conceição do Ibitipoca, Municipality of Lima Duarte, State of Minas Gerais, southeastern Brazil. The new species is a member of the *Hylodes lateristrigatus* group, and it is characterized by small size, snout rounded in dorsal view and protruding in lateral view, presence of vocal slits and sacs, upper surface of finger discs without well developed scutes, dorsum light brown to gray with dark blotches, and details of the advertisement call. Descriptions of the tadpole, vocalizations, and information on natural history are provided. The tadpole has a ventral depression anterior to the coiled intestine, as in other species of the genus. *Hylodes meridionalis* (Mertens), previously considered a member of the *H. nasus* species group, is transferred to the *H. lateristrigatus* species group.

Key words: Advertisement call; Anura; Hylodinae; Leptodactylidae; New species; Southeastern Brazil; Tadpole

THE LEPTODACTYLID frogs of the subfamily Hylodinae occur from the State of Alagoas (northwestern Brazil) to State of Rio Grande do Sul (southern Brazil) and northern Argentina (Carcerelli and Caramaschi, 1993; Frost, 1985; Nascimento et al., 2001). Three genera are recognized in this subfamily: *Hylodes* Fitzinger 1826, *Crossodactylus* Duméril and Bibron 1841, and *Megaelosia* Miranda–Ribeiro 1923. The species of the genus *Hylodes* are restricted to eastern Brazil, and they are mainly associated with the Atlantic Forest (Haddad and Pombal, 1995; Haddad et al., 1996). Currently, 19 species are known in four species group, as recognized by Heyer (1982): 1 in the *H. mertensi* group, 1 in the *H. glaber* group, 3 in the *H. nasus* group, and 14 in the *H. lateristrigatus* group (Nascimento et al., 2001; Pavan et al., 2001; this study). The *H. lateristrigatus* group has been characterized by species with small to moderate-sized snout–vent length, slender bodies, smooth dorsum, and light dorsolateral stripes (Heyer, 1982; see also Haddad et al., 1996; Pavan et al., 2001). The species presently allocated to the *H. lateristrigatus* group are *H. babax* Heyer, *H. charadranaetes* Heyer and Cocroft, *H. heyeri* Haddad, Pombal, and Bas-

[4] CORRESPONDENCE: e-mail, pombal@acd.ufrj.br

tos, *H. lateristrigatus* (Baumann), *H. magalhaesi* (Bokermann), *H. meridionalis* (Mertens; herein included in the *H. lateristrigatus* group, not in the *H. nasus* group; see remarks), *H. ornatus* (Bokermann), *H. otavioi* Sazima and Bokermann, *H. perplicatus* (Miranda–Ribeiro), *H. phyllodes* Heyer and Cocroft, *H. regius* Gouvêa, *H. sazimai* Haddad and Pombal, *H. uai* Nascimento, Pombal, and Haddad, and *H. vanzolinii* Heyer.

During a survey of the anuran fauna of the Parque Estadual do Ibitipoca, in the Serra da Mantiqueira range at Conceição do Ibitipoca, Municipality of Lima Duarte, State of Minas Gerais, in southeastern Brazil, we collected specimens of a undescribed species of the *H. lateristrigatus* group. Herein, we describe the adult, tadpole, and the vocalizations of this new species.

Materials and Methods

Vocalizations were recorded with a UHER 4000 report tape recorder and UHER M518A microphone at tape speed of 19 cm/s. The tapes were digitized at 22 kHz with 16 bits on a PC microcomputer and analyzed with the software Avisoft–Sonograph Light. The sonograms were made with bandwidth 344 Hz, FFT–length 256, overlap 50%, and window flat top.

Specimens used in the description or examined for comparisons are housed in AL–MN (Adolpho Lutz collection, deposited in Museu Nacional, Rio de Janeiro, RJ Brazil), CFBH (Célio F. B. Haddad collection, deposited in Departamento de Zoologia, Universidade Estadual Paulista, Rio Claro, SP, Brazil), MCNAM (Museu de Ciências Naturais, Pontifícia Universidade Católica de Minas Gerais, Belo Horizonte, MG, Brazil), MNRJ (Museu Nacional, Rio de Janeiro, RJ, Brazil), MZUSP (Museu de Zoologia da Universidade de São Paulo, SP, Brazil), MZUFV (Museu de Zoologia "João Moojen de Oliveira," Universidade Federal de Viçosa, MG, Brazil), WCAB (Werner C. A. Bokermann collection, housed in MZUSP), and ZUEC (Museu de História Natural, Universidade Estadual de Campinas, SP, Brazil). Specimens examined are listed in Appendix I.

Abbreviations used for the measurements of the adults are SVL (snout–vent length), HL (head length), HW (head width), ED (eye diameter), TD (tympanum diameter), END (eye–nostril distance), IOD (interorbital distance), IND (internostril distance), THL (thigh length), TBL (tibia length), and FL (foot length). All measurements are in millimeters. The measurements of the adults followed Cei (1980) and Duellman (1970), except FL was measured from the tip of toe IV to heel. Adult specimens of the new species were fixed in 10% formalin and maintained in 70% ethyl alcohol solution. The tadpoles were preserved in 5% formalin. For measurements of adults, we used an ocular micrometer in a Zeiss stereomicroscope, except for SVL, HL, HW, THL, TBL, and FL, which were measured with a caliper with 0.05 mm of precision. The measured total length, body length, body height, and body width of tadpoles were with calipers, while the remaining measurements were with an ocular micrometer. Drawings of the holotype and tadpole were made using a Zeiss stereomicroscope with a drawing tube. The tooth row formula of the tadpoles follows Altig (1970).

Hylodes ***amnicola*** sp. nov.

Holotype.—MNRJ 24859 (Fig. 1), adult male, collected at the Parque Estadual do Ibitipoca (21° 42′ 44″ S, 43° 53′ 48″ W, altitude near 1400 m), Conceição do Ibitipoca, Lima Duarte Municipality, State of Minas Gerais, Brazil, on 26–29 October 1999 by José P. Pombal, Jr.

Paratopotypes.—CFBH 3719–21, two adult males and one subadult, respectively, collected on 16 July 1987 by R. N. Feio; MNRJ 24846, adult male, 1 November 1987 by R. N. Feio; MNRJ 24847, adult male, 15 October 1987 by R. N. Feio; MNRJ 24860–61, adult female and adult male, respectively, 26–29 October 1999 by J. P. Pombal, Jr., R. N. Feio, L. B. Nascimento, R. R. Carvalho, Jr., P. A. Abrunhosa, and H. Wogel; MNRJ 25650, adult male, 16–19 December 1986 by R. N. Feio; MNRJ 25651, adult male, 20 No-

FIG. 1.—*Hylodes amnicola,* MNRJ 24859 (holotype), adult male SVL 27.3 in dorsal and ventral views.

vember 1986 by R. N. Feio; MNRJ 25652, adult male, 16–20 March 1987 by R. N. Feio; MNRJ 25653, adult female, 6–9 December 1986 by R. N. Feio; MNRJ 25654–55, adult females, collected 25 July 1988 by R. N. Feio; MNRJ 26309, adult male, 15–20 January 2001 by J. P. Pombal, Jr., R. N. Feio, and C. A. G. Cruz; MNRJ 26856–57, MZUFV 4117–18, adult males, 6–10 April 1987 by R. N. Feio; MNRJ 26858, MZUFV 4119, adult males, 4–7 May 1987 by R. N. Feio.

Diagnosis.—A small, slender species (males 25.3–28.1 mm SVL) belonging to the *H. lateristrigatus* group (sensu Heyer, 1982), characterized by snout rounded in dorsal view and protruding in lateral view; presence of vocal slits and vocal sacs; thumb without nuptial asperities or spines; small finger discs; upper surfaces of finger discs with scutes little developed; dorsum light brown to gray with dark blotches; details of the advertisement call (see below).

As a member for the *H. lateristrigatus* species group, the new species differs from *H. babax* by a less rounded snout, smaller discs on fingers and toes, less developed scutes on the upper surfaces of the finger discs, and a lighter belly (belly black with white irregular spots in *H. babax*; see figure 4 in Heyer, 1982). The new species differs from *H. charadranaetes* by its smaller size (males 31.3–34.7 mm SVL in *H. charadranaetes*; Heyer and Cocroft, 1986), canthus rostralis more curved, smaller finger and toe discs, and fewer number of stripes on the legs. From *H. heyeri,* the new species differs by its smaller size (males 36.4–42.6 mm SVL in *H. heyeri;* Haddad et al., 1996), snout proportionally longer, lighter belly, and a light supralabial region (supralabial region black in *H. heyeri*; see figure 1 in Haddad et al., 1996). The new species can be distinguished from *H. lateristrigatus* by its smaller size (males 38.0–39.0 mm SVL in *H. lateristrigatus*; Heyer, 1982), less distinct labial and dorsolateral white stripes, smoother dorsum, smaller finger and toe discs, and less developed scutes on the upper surface of the finger discs. From *H. magalhaesi,* the new species can be distinguished by smaller size (males 28.7–31.5 mm SVL in *H. magalhaesi*), relatively more acuminate snout, smoother dorsum, and uniform gray underparts (underparts gray with pale spots in *H. magalhaesi*; see figure 2 in Bokermann, 1964). From *H. meridionalis*, the new species differs by its smaller size (males 35.8–37.5 mm SVL in *H. meridionalis),* more slender body, less developed scutes on the upper surfaces of the finger discs, and lighter dorsal coloration. The new species can be distinguished from *H. ornatus* by its larger size (males 22.9–25.5 mm SVL in *H. ornatus*) and rel-

atively longer and more acute snout. From *H. otavioi*, the new species can be distinguished by its smaller size (males 30.9–33.3 mm SVL in *H. otavioi*; Sazima and Bokermann, 1982), fingers and toes with less developed fringes, less developed scutes on the upper surfaces of the finger discs, smoother dorsum, and more acuminate snout in lateral view. The new species can be distinguished from *H. perplicatus* by its smaller size (males 38.1–40.6 mm SVL in *H. perplicatus*), presence of a light supralabial region (black supralabial region in *H. perplicatus*), less developed scutes on the upper surfaces of the finger discs, and uniform gray underparts (underparts gray with black stains in *H. perplicatus*). From *H. phyllodes,* the new species differs by the lack of the nuptial thumb spines in males (present in *H. phyllodes*; Heyer and Cocroft, 1986), smaller finger discs, and less developed scutes on the upper surfaces of the finger discs. The new species differs from *H. regius* by its smaller size (males 32.5–35.6 mm SVL in *H. regius*; Gouvêa, 1979), less developed scutes on the upper surfaces of the finger discs, toes with less developed fringes, and absence of red colors on the ventral surfaces of arm, forearm, and leg of live specimens (present in live specimens of *H. regius*; Gouvêa, 1979). From *H. sazimai,* the new species can be distinguished by its smaller finger discs, more slender fingers, irregular marks on the dorsum (uniform pattern without marks on the dorsum of *H. sazimai*; see figure 1 in Haddad and Pombal, 1995), and by details of the advertisement call (see below). From *H. uai,* the new species differs by its smaller size (males 31.2–33.6 mm SVL in *H. uai*; Nascimento et al., 2001), more slender body, less developed scutes on the upper surfaces of the finger discs, fingers and toes with less developed fringes, lighter coloration, and a light supralabial region (black supralabial region in *H. uai;* Nascimento et al., 2001) . From *H. vanzolinii,* the new species differs by its smaller size (males 29 mm SVL in *H. vanzolinii*; Heyer, 1982), more acuminate snout, smaller finger discs, and vocal pouches (absent in *H. vanzolinii*; Heyer, 1982).

Description of holotype.—Body slender (Fig. 1); head longer than wide, snout round in dorsal view and protruding in lateral view (Fig. 2A,B); nostrils not protuberant, directed laterally; canthus rostralis distinct, slightly straight; loreal region concave; tympanum visible, nearly round beneath skin, medium sized, diameter nearly half eye diameter; weak supratympanic fold; lateral fold extending from supratympanic fold to groin; vocal sacs lateral, well developed; vocal slits present; tongue nearly ovoid, large, free posteriorly; vomerine teeth in two small series between choanae; choanae small, nearly round; maxillary teeth present; a row of small tubercles on edge of upper lip. Arms somewhat slender; thumb without nuptial asperities or spines; subarticular tubercles single, round (Fig. 2C); outer metacarpal tubercle round; inner metacarpal tubercle small, elliptical; relative lengths of fingers II < I ≅ IV < III; fingers II—IV bearing lateral fringe, finger I without fringe; discs on fingers small, nearly oval; scutes on upper surfaces of finger discs imperceptible; finger discs slightly smaller than disc toes. Legs somewhat robust; foot with an elongated, almost oval inner metatarsal tubercle (Fig. 2D) and a protruding round outer metatarsal tubercle; subarticular tubercles single, slightly protruding; relative lengths of toes I < II < V < III < IV; toes with extensive lateral fringe; tarsal fold–flap extensive, continuous distally with toe fringe on the inner side of Toe I; toe discs nearly round; disc of Toe V smaller than other disc toes; upper surfaces of toe discs with developed scutes. Skin texture almost smooth on the dorsum and flanks; posterior region of the body slightly rugose; undersurfaces smooth; rugose texture near vent and on ventral surface of thighs.

Measurements of holotype.–SVL 27.3; HL 10.5; HW 8.9; TD 1.7; ED 3.9; IOD 2.5; END 1.5; IND 3.6; THL 13.4; TBL 14.8; FL 21.0.

Color of holotype.–In preservative, dorsum gray with dark gray blotches of an indistinct pattern; interocular bar dark gray; below the interocular bar is located a dark gray triangular blotch, its apex touches the interocular bar; weak whitish line extend-

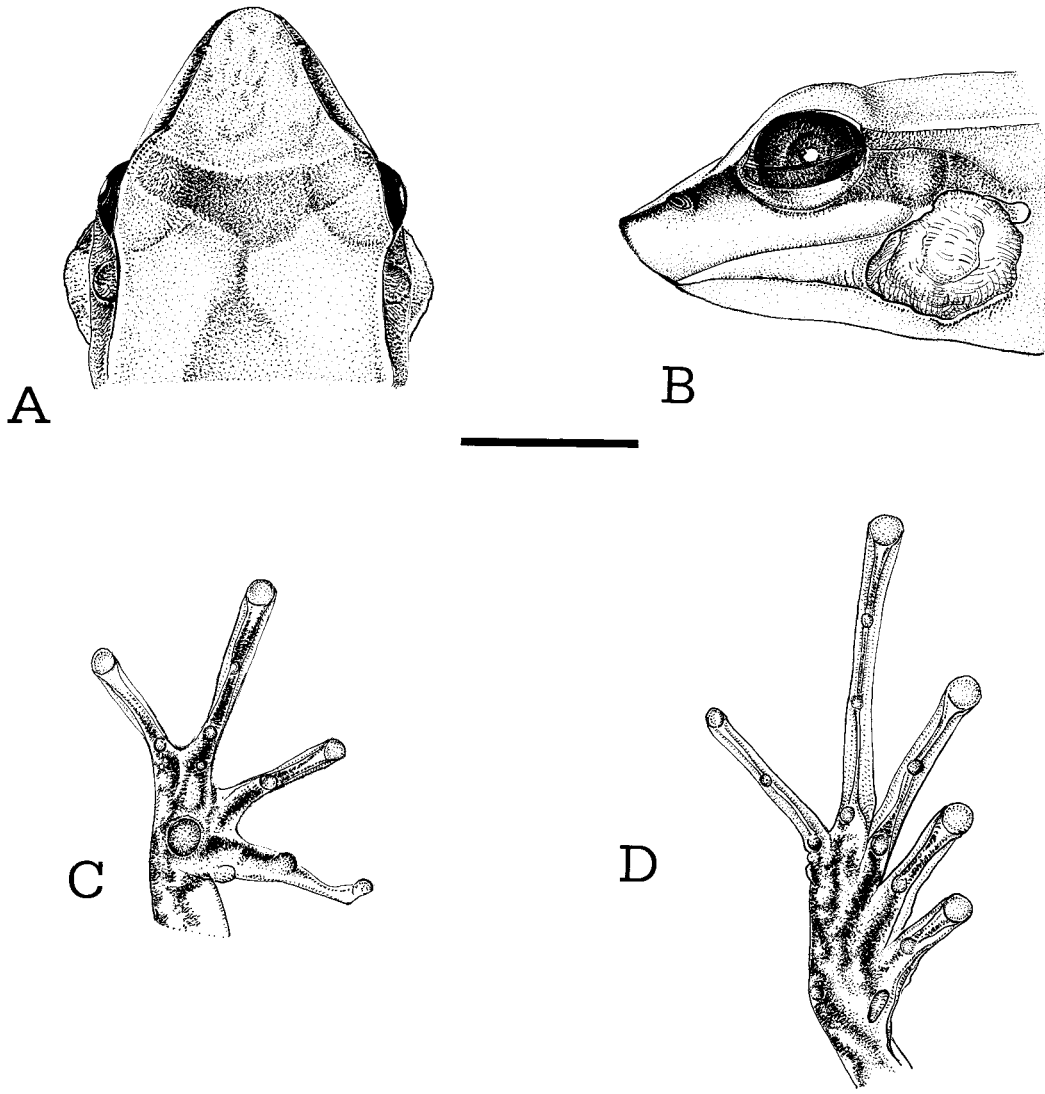

FIG. 2.—*Hylodes amnicola*, MNRJ 24859 (holotype). (A) Dorsal and (B) lateral views of head; ventral views of (C) hand and (D) foot; scale bar represents 5 mm.

ing from the tip of snout to the groin; dark brown lateral stripe extending from the tip of snout, through nostril, eye, and above the tympanum to a level above vocal sac; a whitish lateral stripe below the dark brown stripe extending from tip of snout to insertion of arm; lips gray; upper surfaces of thigh, tibia, tarsus, and foot pale gray; thigh with a gray transverse bar, posterior dorsal surface with gray blotches without apparent pattern; tibia with three gray transverse bars; tarsus and foot with five gray transverse bars; coccygeal region blackish; undersurfaces cream. In life, the colors are more vivid and contrasted; iris copper.

Variation.—Dorsum pale brown to gray; interocular bar and dorsal blotches with variable shapes and contrast, sometimes not visible; one to three transverse bars on the thigh of variable widths; coccygeal region blackish to gray; undersurfaces cream to white, when white also with creamy vermiculations. Some tuber-

TABLE 1.—Measurements in millimeters (mean, SD, and range) of nine males and four females of *Hylodes amnicola.*

	Males			Females		
	$\bar{x}$	SD	Range	$\bar{x}$	SD	Range
SVL	26.7	0.94	25.3–28.1	28.8	2.03	26.3–30.9
HL	10.1	0.29	9.5–10.5	10.3	1.07	8.2–11.2
HW	8.5	0.23	8.2–8.9	8.9	0.58	8.2–9.6
ED	3.35	0.14	3.12–5.51	3.48	0.40	3.12–4.03
TD	1.76	0.07	1.69–1.82	1.79	0.25	1.43–1.95
END	1.78	0.11	1.56–1.95	2.05	0.12	1.95–2.21
IOD	2.53	0.19	2.21–2.86	2.60	0.18	2.47–2.86
IND	3.73	0.16	3.51–4.03	3.90	0.34	3.51–4.29
THL	13.0	0.32	12.6–13.4	14.0	0.90	13.2–15.3
TBL	14.3	0.24	14.0–14.8	15.4	0.75	14.5–16.3
FL	21.1	0.45	20.5–21.9	22.7	0.59	22.1–23.3

cles of the fingers and toes may be slightly more protruding. Measurements ($\bar{x}$, SD, range) of nine males and four females are given in Table 1.

Vocalizations.—Advertisement calls given sporadically; at an air temperature of 18 C, the call duration is 2.82–3.75 s (3.17 ± 0.25, n = 12 calls from three males); 48–65 notes per call (57.33 ± 4.52, n = 12 calls from three males) given at a rate of 16.96–18.63/s (18.09 ± 0.50, n = 12 calls from three males); notes given at intervals of 0.026–0.040 s (0.035 ± 0.003, n = 44 intervals for five vocalizations from two males); the final interval may be of approximately 0.05 s in some advertisement calls; note duration 0.015–0.034 s (0.023 ± 0.004, n = 45 notes of five vocalizations of two males); each note is a rising frequency–modulated whistle with a dominant frequency (= third harmonic) range of 5.1–6.2 kHz; call with harmonic structure where only the third harmonic is apparent (Fig. 3A–D). Territorial calls with 6–8 notes (7 ± 1, n = 7 vocalizations from two males). The territorial calls may be formed only by 6–8 whistle notes or by 5–7 whistles plus a squeaky note; territorial calls composed just of whistles had durations ranging from 0.45–0.74 s (0.57 ± 0.12; n = 4 calls from one male), and territorial calls composed of whistles and squeaky notes had a duration range of 0.74–0.92 s (0.86 ± 0.11; n = 3 calls from one male). The whistle notes of the territorial calls had durations ranging from 0.02–0.04 s (0.03 ± 0.007; n = 13 notes from one male), and the squeaky notes had a durations ranging from 0.22–0.25 s (0.23 + 0.01; n = three notes from two males). The dominant frequency of the first whistle (= third harmonic) ranges from 3.0–4.3 kHz; the dominant frequency of the rest of the whistles (= third harmonic) ranges from 3.8–4.7 kHz. The frequency range of the squeaky notes is 4.0–4.7 kHz.

Hylodes sazimai is the most morphological, similar species to *H. amnicola.* However, the advertisement calls of these species are easily distinguishable. *Hylodes amnicola* has more notes per call (28–35 notes per call in *H. sazimai*), a higher rate of notes/s (14.5/s in *H. sazimai*), a higher–pitched advertisement call (dominant frequency = 4.0–5.5 kHz in *H. sazimai*), and notes with shorter duration (0.04–0.05 s in *H. sazimai*) (a description of advertisement call of *H. sazimai* given in Haddad and Pombal, 1995).

Tadpoles.—The tadpoles were obtained at the type locality on 26–28 October 1999. The following description is based on a tadpole (MNRJ 24999) in developmental Stage 28 (Gosner, 1960). Total length 54.0 mm; body length 19.1 mm; body height 9.3 mm; body width 12.5 mm; internostril distance 4.0 mm; interorbital distance 3.9 mm; eye–nostril distance 1.5 mm; eye diameter 1.8 mm. Body oval in dorsal, ventral, and lateral views, widest posteriorly (Fig. 4A–C); body wider than high; snout rounded in dorsal and lateral views; eyes small, dor-

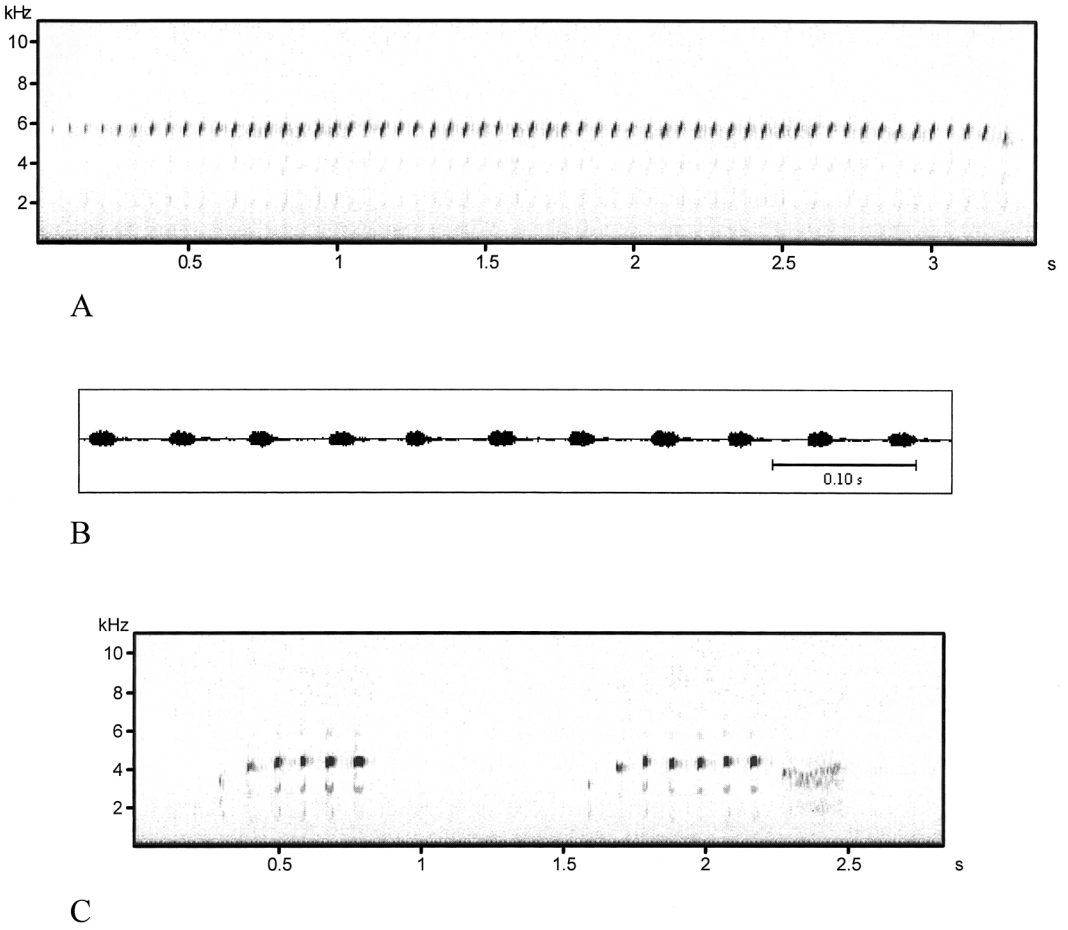

FIG. 3.—Vocalizations of the holotype of *Hylodes amnicola* recorded on 28 October 1999; air temperature 18 C and water temperature 17 C. (A) Sonogram of the advertisement call; (B) wave form of part of the advertisement call; (C) two territorial calls; the first formed by six whistles and the second formed by seven whistles and a squeaky note.

solateral; nostrils dorsolateral, small, rounded, nearly midway between the eyes and the tip of the snout; spiracle sinistral, situated at midbody, opening directed posterodorsally; cloacal tube short, opening dextral, attached to ventral fin; caudal musculature robust, gradually tapering to pointed tip; dorsal fin deeper than ventral. Lateral line system composed of 12 lateral lines, six on each side of the body and tail. Body has a ventral depression anterior to the coiled intestine. Oral disc of the tadpole at Stage 25 is directed ventrally and bordered by one to three rows of small papillae interrupted on the anterior labium (Fig. 4D); tooth row formula 2(2)/3(1); jaw sheaths strongly developed and serrate, posterior jaw sheath V–shaped. The description of oral disc is based on a tadpole in Stage 25 (MNRJ 24862) because the jaw sheaths are missing on the specimen analyzed at Stage 28.

In preservative, dorsum and sides dark brownish gray; ventral surface silver brown, with anterior region silver cream; edge of spiracle whitish; fins cream and translucent, both with dark brown irregular blotches, more concentrated in the anterior region; iris black.

Natural history.—The vegetation of the type locality (Serra de Ibitipoca) is characterized by rocky mountain fields called

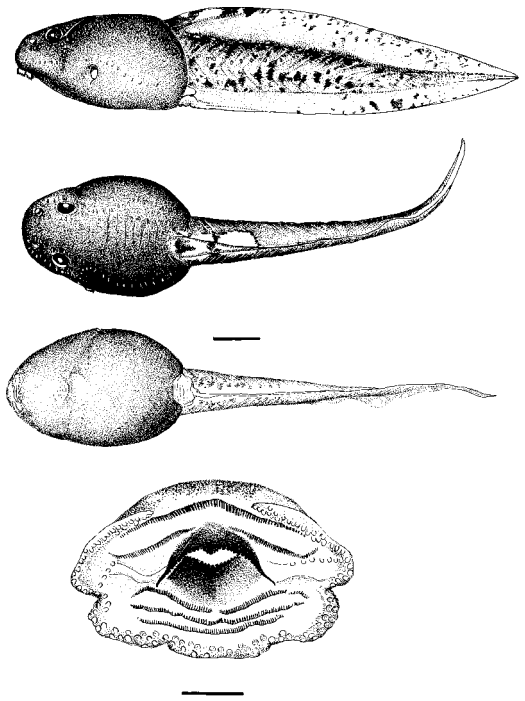

FIG. 4.—Tadpole of *Hylodes amnicola.* MNRJ 24999, Stage 28: (A) lateral, (B) dorsal, and (C) ventral views; scale bar represents 10 mm. MNRJ 24862, Stage 25: (D) oral disc; scale bar represents 1 mm.

"campo rupestre," with small bushes and grasses on a sandy soil and quartzite. Gallery forests may occur along the rivulets. In some streams, the water runs on a rocky bottom, with rivulets and pools; the richness of organic acids gives a dark color to the water. The climate is seasonal; summers are wet and winters dry; the months from June to August are the most dry and from November to January the most wet. The mean annual precipitation is 1395 mm (Lemos and Melo–Franco, 1976).

Males of *H. amnicola* were observed calling throughout the year, between October 1986 and November 1988, during the day, including dusk. They were found calling on the ground, along the rocks, on the edges of rivulets, inside forests, and open areas but not from the edge of the backwaters. Males were also observed at night, jumping among the leaf litter in the forest, but not calling. Males of *H. amnicola* were observed calling and, when disturbed, they hid or ducked into the water; after a few minutes, they returned to the same place and began to call. Tadpoles were observed in the backwaters. On some occasions, males were observed inside a cave ("Gruta do Benedito"); tadpoles also were observed in the backwaters inside this cave (approximately 20 m inside the cave).

Distribution.—Hylodes amnicola is known only from the type locality in the Parque Estadual do Ibitipoca and Municipality of Airuoca, approximately 44° 35′ W, 22° 02 ′ S, 1200 m altitude (MZUFV 3953), State of Minas Gerais, both in the Mantiqueira mountain range, southeastern Brazil.

Etymology.—The name of the new species, *amnicola,* is a Latin substantive masculine that means rivulet inhabitant, in allusion to the habitat of this species.

REMARKS

Haddad and Pombal (1995) suggested that a ventral depression found in tadpoles of *H. sazimai, H. asper,* and *H. otavioi* is a diagnostic character for this genus. Further, the same character was found in tadpoles of *H. uai* (Nascimento et al., 2001) and herein is recorded as *H. amnicola.*

Heyer (1982) included *H. meridionalis* in the *H. nasus* group. This species has light dorsolateral stripes, which characterize the *H. lateristrigatus* group (Heyer, 1982). We therefore propose the transfer of *H. meridionalis* to the *H. lateristrigatus* group. However, because the four species groups for *Hylodes* proposed by Heyer (1982) may not be monophyletic (Heyer and Cocroft, 1986), our recognizing this group is a matter of convenience. Haddad et al. (1996) and Pavan et al. (2001) noted the difficulties in recognizing *H. nasus* and *H. lateristrigatus* groups by external morphology as proposed by Heyer (1982). A general systematic review is necessary to clarify the relationships among species and species groups in the genus *Hylodes.*

The known distribution of species in the genus *Hylodes* is from State of Alagoas (northeastern Brazil) to State of Rio Grande do Sul (southern Brazil) (Duell-

man, 1993; Frost, 1985; E. M. Freire, personal communication). Currently, 20 species are recognized in the genus; nine have a very limited distribution, being known only from one locality (*H. charadranetes, H. glaber, H. magalhaesi, H. mertensi, H. nasus, H. otavioi, H. regius, H. vanzolinii,* and *H. uai*). The other species have moderately sized distributions. The species of this genus are adapted to living in declivous streams restricted to eastern Brazil and associated with the Atlantic Forest, except *H. otavioi,* known from riparian forests in rocky fields ("campo rupestre"), and *H. uai,* known from a transitional area between the Semideciduos Forest (Atlantic Forest, sensu lato) and Cerrado (Sazima and Bokermann, 1982; Nascimento et al., 2001). Ibitipoca is part of the Serra da Mantiqueira mountain range, therefore in the Atlantic Forest domain (sensu Ab'Saber, 1977), but rocky fields characterize this locality and streams may have gallery forests.

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Appendix I

Additional Specimens Examined

Hylodes babax Parque Nacional do Caparaó, Minas Gerais: MZUSP 57949 (holotype); H. *charadranaetes* Alto do Soberbo, Teresópolis, Rio de Janeiro: MZUSP 60648 (holotype), MZUSP 60649–59 (paratopotypes), ZUEC 8091–92, 8094–98, 8326–27 (topotypes); *H. heyeri* Caverna do Diabo, Eldorado, São Paulo: MNRJ 17090 (holotype), MNRJ 17091 (paratopotypes) CFBH 2465–68 (paratopotypes), ZUEC 8238, 8240, 8242–43, 8249–50, 8253–54 (paratopotypes); *H. lateristrigatus* Serra dos Orgãos, Rio de

Janeiro: AL–MN 2364 (topotype), MZUSP 53259–61 (topotypes); *H. magalhaesi* Campos do Jordão, São Paulo: MNRJ 3973, 14219 (paratopotypes), WCAB 34318–19, 34322, 34327, 34334, 37681, 37683–84, 45342, 45345 (topotypes); *H. meridionalis* Floresta Nacional de São Francisco de Paula, São Francisco de Paula, Rio Grande do Sul: CFBH 3053 (topotype), Praia Grande, Santa Catarina CFBH 3086; *H. ornatus* Brejo da Lapa, Parque Nacional do Itatiaia, Itamonte, Minas Gerais CFBH 3569 (topotype), MZUSP 60682–83, 60843–45 (topotypes), ZUEC 737–38, 4087 (topotypes), Serra do Japi, Jundiaí, São Paulo CFBH 693, 717, 723–24, 1245–49, 3711–12; *H. otavioi* Serra do Cipó, Jaboticatubas, Minas Gerais MNRJ 4163 (holotype) ZUEC 3351–53, 5022 (paratopotypes); *H. perplicatus* Humboldt, Joinville, Santa catarina MNRJ 0089 (lectotype), MNRJ 545, 5588–633, 5635–636, 5638, 5641–643, 5646–647, 5649–650, 5652–663 (paralectotypes), Estrada Rio Natal a Corupá, Próximo a Rio Vermelho, Município de São Bento do Sul, Santa Catarina CFBH 3570–74; *H. phyllodes* Boracéia, Salesópolis, São Paulo MZUSP 59934 (holotype), 1716–1721 (paratopotypes), ZUEC 2615, 6365–66, 6411 (topotypes), 6797, 6987–89, 8420, Ilhabela, São Paulo MNRJ 24303–304, Ilha Grande, Angra dos Reis, Rio de Janeiro MNRJ 18809; *H. regius* Parque Nacional do Itatiaia, Itamonte, Rio de Janeiro MNRJ 4110 (holotype), MNRJ 4106, 4108–09, 4111–12 (paratopotypes); *H. sazimai* Observatório de Capricórnio, Joaquim Egídio, Campinas, São Paulo ZUEC 9004 (holotype), MNRJ 15869, MZUSP 69637 (paratopotypes), CFBH 3708–09 (topotypes), Parque Nacional do Itatiaia, Rio de Janeiro CFBH 3710; *H. uai* Parque das Mangabeiras, Município de Belo Horizonte, Minas Gerais MNRJ 23771 (holotype), CFBH 2984–85 (paratopotypes), MNRJ 23772–73, 23774, 23775, 23777 (paratopotypes), MCNAM 1333, 1763 (paratopotypes); *H. vanzolinii* Parque Nacional do Caparaó, Minas Gerais MZUSP 57950 (holotype), MZUSP 52923 (paratopotype).