

## AMPHIBIA: ANURA: LEPTODACTYLIDAE

*Leptodactylus pentadactylus*

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*Leptodactylus pentadactylus*.

***Leptodactylus pentadactylus* (Laurenti)  
Smoky Jungle Frog**

*Rana pentadactyla* Laurenti 1768:32. Type-locality, "Indiis," corrected to Suriname by Müller (1927: 276). Neotype, Nationaal Natuurhistorisch Museum (RMNH) 29559, adult male, collector and date of collection unknown (examined by WRH).

*Rana gigas* Spix 1824:25. Type-locality, "in locis paludosis fluminis Amazonum [Brazil]". Holotype, Zoologisches Sammlung des Bayerischen Staates (ZSM) 89/1921, now destroyed (Hoogmoed and Gruber 1983). See **Nomenclatural History**. Pre-occupied by *Rana gigas* Wallbaum 1784 (= *Rhinella marina* {Linnaeus 1758}).

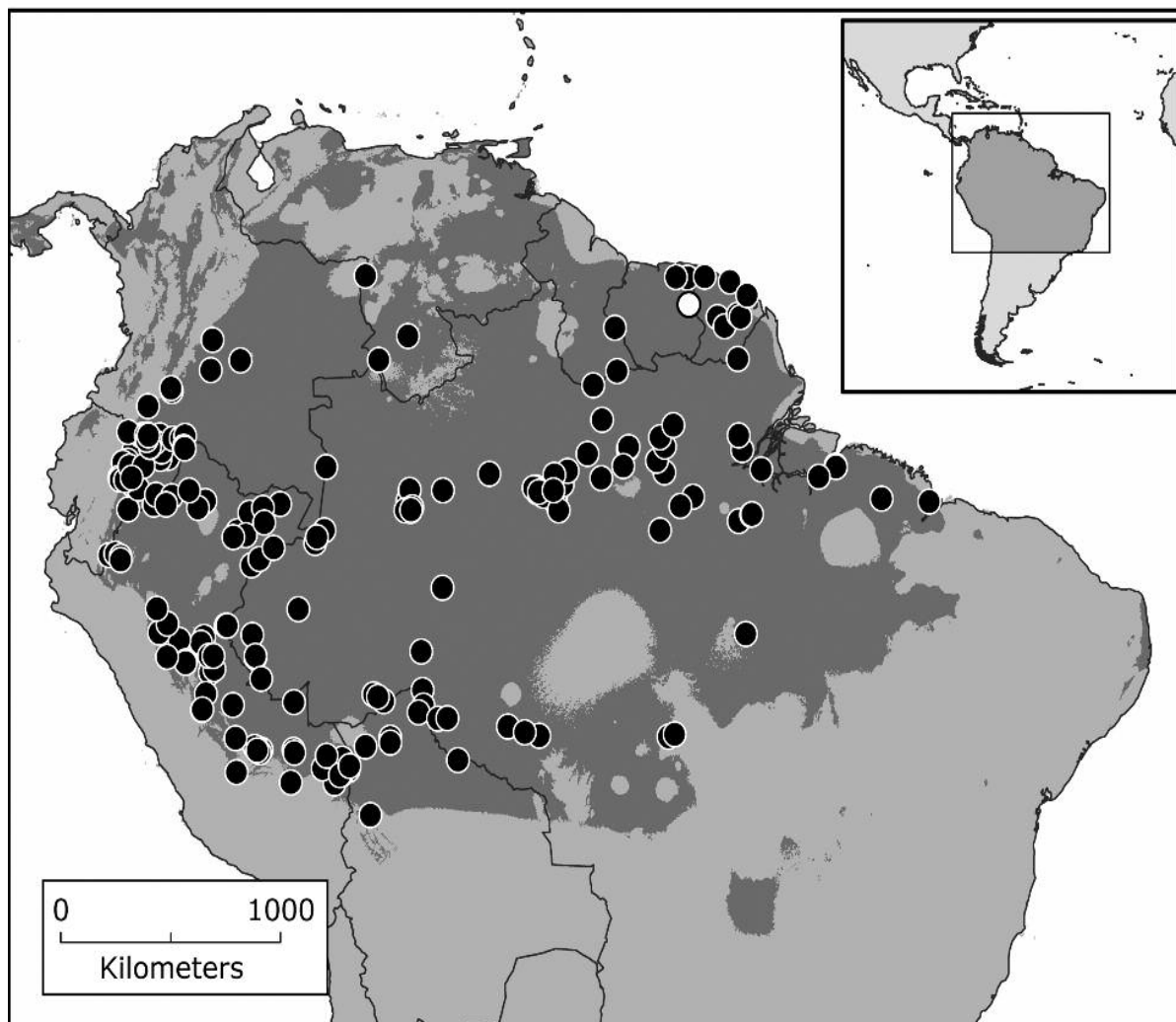
*Rana coriacea* Spix 1824:29. Type-locality: "aquis



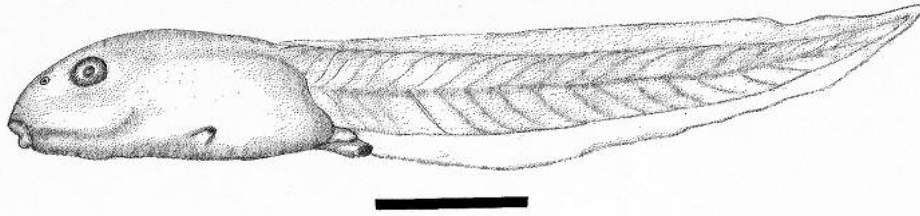
**FIGURE 1.** *Leptodactylus pentadactylus*, Brazil, Pará, Cachoeira Juruá. Photograph courtesy of Laurie J. Vitt.

lacustribus fluvii Amazonum [Brazil]". Holotype, ZSM 2502/0, now destroyed (Hoogmoed and Gruber 1983).

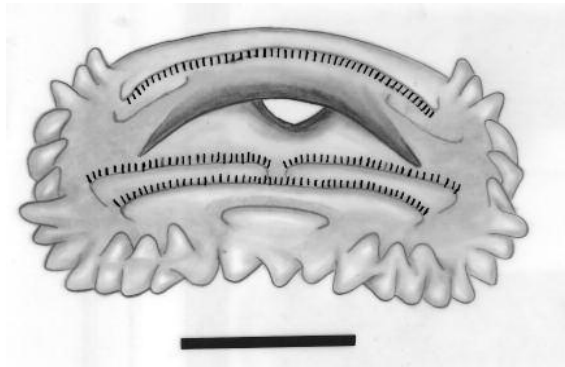
*Rana pachypus bilineata* Mayer 1835:24. Type-local



**MAP.** Distribution of *Leptodactylus pentadactylus*. The locality of the neotype is indicated by an open circle. A dot may represent more than one site. Predicted distribution (dark-shaded) is modified from a BIOCLIM analysis. Published locality data used to generate the map should be considered as secondary sources, as we did not confirm identifications for all specimen localities. The locality coordinate data and sources are available on a spread sheet at <http://learning.richmond.edu/Leptodactylus>.



**FIGURE 2.** Tadpole of *Leptodactylus pentadactylus*, USNM 576263, Brazil, Amazonas, Reserva Ducke. Scale bar = 5 mm.



**FIGURE 3.** Oral disk of tadpole of *Leptodactylus pentadactylus*, USNM 576263, Brazil, Amazonas, Reserva Ducke. Scale bar = 1 mm.

ity unknown. Holotype not stated, presumed lost.

Named as a synonym of *Rana gigas* Spix 1824.

*Doryphoros gigas*: Mayer 1835:28 and plate III, figure 8.

*Doryphorus*: Temminck and Schlegel 1838:106, footnote 4. *Lapsus*.

*Doryphorus*: Tschudi 1838:38. *Lapsus*.

*Gnathophysa gigas*: Cope 1866:73.

*Cystignathus pentadactylus*: Peters 1872:198.

*Leptodactylus goliath* Jiménez de la Espada 1875:57.

Type-locality, "Archidona (Oriente del Ecuador), [00°55'S, 77°48'W]". Lectotype, Museo Nacional de Ciencias Naturales (MNCN) 1691, adult female, collector and date of collection unknown (examined by WRH).

*Leptodactylus pentadactylus*: Boulenger 1882:241.

*Cystignathus pentadactylus*: Kappler 1885:858. *Lapsus*.

*Leptodactylus pentadactyles*: Deckert 1915:14. *Lapsus*.

*Leptodactylus macroblepharus*: Miranda-Ribeiro 1926:141. *Lapsus*.

*Leptodactylus macroblepharus* Miranda-Ribeiro 1926:144. Type-locality, "Manáos – Amazonas [Brazil, 03°04'S, 60°00'W]". Lectotype, Museu de Zoologia da Universidade de São Paulo (MZUSP) 377, adult male, collector and date of collection unknown (examined by WRH).

*Leptodactylus pentadactylus pentadactylus*: Müller 1927:276.

*Leptodactylus (Pachypus) pentadactylus*: Lutz 1930a:2.

*Leptodactylus pentadactylus dengleri* Melin 1941:51.

Type-locality, "Roque, Peru [06°24'S, 76°48'W]."

Lectotype, Naturhistoriska Riksmuseet (NHMG) 497, age, sex, collector and date of collection unknown (not examined by authors).

*Leptodactylus pentadactylus rubidoides* Andersson 1945:47. Type-locality, "Rio Pastaza [Ecuador]."

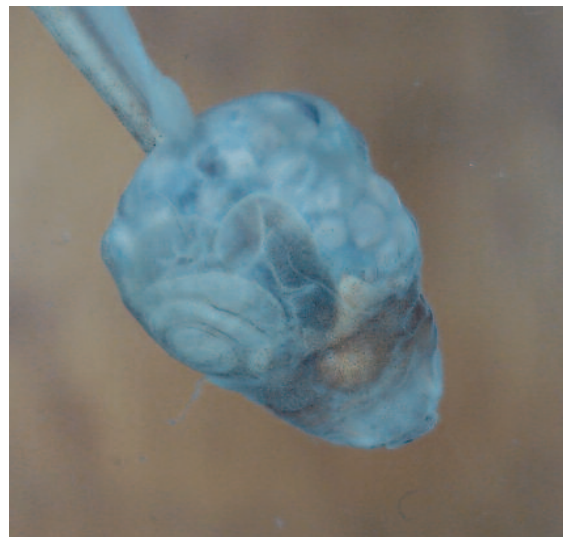
Holotype, Naturhistoriska Riksmuseet (NHMG) 1928, juvenile female, collector and date of collection unknown (examined by WRH).

*Rana giga*: Heyer 1974:42. *Lapsus*.

*Leptodactylus pentadactylus*: Pasquali, Lima, and Bastos 2003:6. *Lapsus*.

• **CONTENT.** The species is monotypic.

• **DEFINITION.** Adult *Leptodactylus pentadactylus* (Figure 1) are large, the head is about as wide as long, and the hind limbs are moderately long (Table 1; Heyer and Thompson [2000] provided definitions of adult size and leg length categories for *Leptodactylus*). Male vocal sacs are not visible externally or are moderately expanded as a single sac. Sexually active males usually do not have hypertrophied forearms (the largest male examined, 195 mm SVL, has very weakly hypertrophied forearms), only the largest males have a single small to moderate size black spine on each thumb. No males have chest spines.



**FIGURE 4.** Ventral view of tadpole of *Leptodactylus pentadactylus*, MNRJ 7843, illustrating intact eggs in digestive tract.

**Table 1.** Summary measurement data for *Leptodactylus pentadactylus* (means are in parentheses).

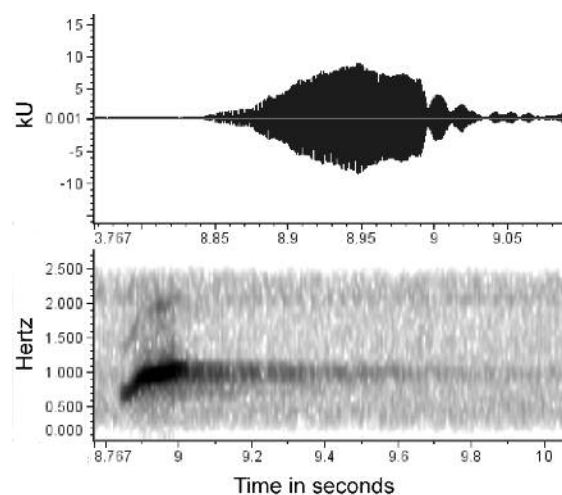
	Males (N=26)	Females (N=26)
SVL (mm)	100–195 (140.3)	134–174 (153.2)
Head length/SVL (%)	34–42 (37)	33–40 (36)
Head width/SVL (%)	34–46 (37)	36–42 (39)
Thigh length/SVL (%)	37–50 (44)	38–48 (44)
Shank length/SVL (%)	39–54 (46)	41–50 (46)
Foot length/SVL (%)	42–55 (46)	42–50 (45)

Dorsolateral folds are usually entire from the eye to at least the sacrum. Flank folds (diverging from the supratympanic fold at the uppermost portion of the tympanum) are variable, either continuous or interrupted, often extending from the tympanum to the lower flank, or only to the shoulder. The toe tips are rounded, just wider than the adjacent phalanges. The toes have prominent lateral ridges. A trace of basal webbing occurs among all toes, or toes I–II–III–IV or II–III–IV. The upper shank and outer tarsal surfaces are smooth, shagreened, or have several white or black tubercles. The sole of the foot texture is usually smooth, a few individuals have no more than a few black or white tubercles.

The upper lip lacks a distinct dark or light stripe; most individuals have dark inverted triangular markings on the upper lip, one of which often extends to the eye. The most frequent dorsal pattern is uniform light with one or two well defined, narrow transverse bands; the dorsal pattern often consists of irregular quadrangular or rectangular markings, of equal or alternating lighter/darker intensity, confluent laterally or not; the dorsal pattern is rarely uniform light or dark, or with a series of regularly or irregularly placed small, dark spots. The supratympanic fold is dark brown. The dorsolateral folds are outlined with dark brown. Middorsal stripes are absent. The most frequent belly pattern is dark with small light vermiculations; the belly is often dark with large light vermiculations, rarely mottled or uniform dark or light with dark reticulations or dark with small discrete light spots or dark with large light discrete spots.

Allig and Johnston (1986) included the larvae as benthic/lentic, guild 2, based on the description provided by Kenny (1969a). However, *L. pentadactylus* does not occur in Trinidad and it is likely that description corresponds to the larvae of *L. insularum* or “*macrosternum*.” The body is overall ovoid, but dorsoventrally depressed with body length about 2.3 times the body height (Figure 2). The lateral line system is not visible. The mouth is terminal and the oral disk is directed anteriorly (Figure 3). The spiracle is short, sinistral, positioned almost ventrally and directed posterodorsally; the spiracular tube is attached to the body wall. The cloacal tube and opening are median. The dorsal fin ends at the body and does not extend onto it. The tail musculature is visible but not strongly marked. The tail fins are low, about half of the height of the tail musculature and lack any pigmentation. Hero (1990, Table 1) reported the larvae of *L. pentadactylus* to be non-feeding and completing their

development in a nest in a burrow (reproductive mode 22 of Duellman and Trueb 1986). Also in Plate 30, Hero (1990) reported “Eggs terrestrial in foam nest; tadpole in terrestrial burrow”. In addition, he indicated that the larvae have a “body with scattered white chromatophores and a silver abdomen; tail muscle light grey, fins transparent.” The specimen illustrated in Hero (1990, stage 39, LTRF 1 / 2 (1)) is deposited at the Museo Nacional, Rio de Janeiro with catalog number MNRJ 7843. Photos of this specimen (provided by Dr. J. Pombal, Jr.) clearly show a belly full of eggs (Figure 4), indicating that these larvae actually feed on eggs. Furthermore, the specimen has scattered brownish spotting over the caudal musculature as well as on the dorsal surfaces of the body. The only other available larvae we know of are deposited at the National Museum of Natural History, Smithsonian Institution with lot number USNM 57722 (n = 3) and the Instituto Nacional de Pesquisas da Amazonia (INPA) (Menin et al. 2010). The USNM specimens are at development stage 30; one of them was used for the illustrations provided in this account (Figures 3 and 4). All USNM specimens lack any coloration or pattern on the body, caudal musculature, or fins; they exhibit an overall white color. Given that coloration was previously reported at stage 39 and verified by us, the complete lack of pigmentation in the USNM specimens is the result of “bleaching” due to preservation. None of these specimens had eggs in their belly; however, the intestines are clearly visible and are filled with a whitish cream material that likely corresponds to vitelline reserves usually found in all early tadpoles and is likely to be more prevalent in larvae that develop in terrestrial burrows as reported for this species. The average measurements (in mm) of the USNM larvae are (ranges in parentheses): total length 30.6 (29.8–31.0), body length 11.1 (10.3–11.6), eye diameter 1.2 (1.1–1.2), width of the oral

**FIGURE 5.** Wave form and audiospectrogram display of the advertisement call of *Leptodactylus pentadactylus*, USNM recording 254, cut 3. Recording by Claude Gascon, Barro Vermelho, Rio Juruá, Amazonas, Brazil, 24 October 1991, 19:00 h, 78° F (no specimen voucher).

disk 2.1 (2.0–2.2). The illustrated specimen (Figures 2 and 3) has a total length of 30.9, body length 11.3, eye diameter 1.2, eye diameter 10.4% of body length, width of oral disk 2.2, width of oral disk 19.3 % of the body length. The oral disk is anteroventrally positioned, entire (not emarginate), with a wide anterior gap lacking marginal papillae. A single row of marginal papillae is found on the upper labium on either side of the anterior gap, continuing laterally and onto the ventral labium. The ventral labium has an incomplete (i.e., with wide medial gap) second row of papillae. Although the papillae are short, they appear robust by having a broad base with a blunt, rounded, distal tip. No submarginal papillae are present. The tooth row formula is 2(2)/3(1). A-2 and P-1 are medially divided (A-1 wide gap). P-3 is very short. A-2 and P-3 are only represented by transverse ridges that support the larval teeth forming the bases of the tooth rows. All other tooth rows have poorly developed teeth. This differs from the other reports for the species. It is likely that Hero (1990) and Menin et al. (2010) did not report A-2 and P-3 as present due to the lack of teeth. Menin et al. (2010) found several excavated basins not associated with a water body; they did not observe females subsequently providing trophic eggs to the larvae as occurs in *L. fallax* (Gibson and Buley 2004). Menin et al. (2010) suggested that *L. pentadactylus* females “probably release all their eggs during amplexus, but most of them probably do not develop and are used as food by tadpoles that developed from viable eggs as observed in *L. labyrinthicus* (Silva and Giaretta 2008).”

The advertisement call consists of a single note per call, given at a rate of 4–37/min. Call duration ranges from 0.18–0.40 s. Calls have 12–18 pulses/call, with mean rates among individuals of 26–38 pulses/s. The call is a frequency modulated rising whoop, starting lower (mean initial frequency among individuals about 340–860 Hz) and rising through about the first 2/3 of the call. The mean dominant frequency ranges from 680–1030 Hz. (Figure 5).

• **DIAGNOSIS.** Adult specimens of *Leptodactylus pentadactylus* are large (> 100mm SVL). The toes have distinct lateral ridges, but the ridges are not vertically flexible. A single pair of distinct dorsolateral folds is present, and the head is relatively broad. These features are shared with (at least some individuals of) *L. fallax*, *L. flavopictus*, *L. knudseni*, *L. labyrinthicus*, *L. laticeps*, *L. myersi*, *L. paraensis*, *L. peritoaktites*, *L. rhodomerus*, *L. savagei*, *L. stenodema*, *L. turimiquensis*, and *L. vastus*. *Leptodactylus flavopictus* has a distinct light stripe on the upper lip, whereas *L. pentadactylus* lacks a lip stripe. *Leptodactylus laticeps* has a distinct tile-like dorsal pattern of black squares and triangles with whitish areas within and between the black markings (in life the black squares and rectangles each have a red center and are separated from one another by a yellow background); *L. pentadactylus* lacks such a tile-like dorsal pattern. The dorsolateral folds of *L. pentadactylus* originate just behind the eye whereas those of *L. stenodema* originate behind the tympanum. In *L.*

*pentadactylus* a continuous dark-outlined (usually) flank fold extends from the tympanum to the side of the body, a dark-outlined (usually) continuous dorso-lateral fold extends from the eye to at least the sacrum, males do not have chest spines, and the single black spine on each thumb is absent, small, or very rarely moderate in size; *L. fallax*, *L. knudseni*, *L. labyrinthicus*, *L. myersi*, *L. paraensis*, *L. savagei*, *L. turimiquensis*, and *L. vastus* do not share from one to three of these character states. *Leptodactylus pentadactylus* is morphologically very similar to *L. peritoaktites* and *L. rhodomerus*. *Leptodactylus pentadactylus* has an Amazonian distribution, whereas *L. peritoaktites* and *L. rhodomerus* occur in Colombia and Ecuador in the Pacific lowlands west of the Andes. The posterior thighs of *L. pentadactylus* are not red in life whereas *L. peritoaktites* and *L. rhodomerus* have obvious red markings on the posterior thighs.

• **DESCRIPTIONS.** Heyer’s (2005) analysis of the species group included comprehensive descriptions of both female and male adult morphology. Other descriptions were provided in Andersson (1945, as *L. p. rubidoides*), Caldwell and Araújo (2005), Jiménez de la Espada (1875, as *L. goliath*), Laurenti (1768, as *Rana pentadactyla*), Lescure and Marty (2000), Lima et al. (2006), Melin (1941, as *L. pentadactylus dengleri*), Miranda-Ribeiro (1926, p. 144; 1927, p. 124, both as *L. macroblepharus*), Müller (1927, as *L. pentadactylus pentadactylus*), Peters (1872, as *Rana gigas*), Seba (1734, characterized as *Rana maxima*, *Virginiana*, *eximia*, *rara*, *foemina*), and Spix (1824, caption for Plate I, as *Rana gigas*, caption for Plate V, fig. 2, as *Rana coriacea*). Larvae are described in Hero (1990) and Menin et al. (2010). Advertisement call characteristics are in Heyer (2005) and Zimmerman and Bogart (1984). Amaro-Ghilardi et al. (2004) provided a karyotype description.

• **ILLUSTRATIONS.** Photographs of *Leptodactylus pentadactylus* adults are in Andersson (1945, as *Lep-todactylus pentadactylus rubidoides*), Ávila-Pires et al. (2010), Bartlett (2000), Both (2000, as *L. knudseni*), Bustamante (2006), Caldwell and Araújo (2005), Cardwell (1998), Castner (2000), Cocroft et al. (2001), Coloma and Ron (2001, photos numbered 49 as *L. sp.* and 54), Dahl et al. (2009), Duellman (1978, Figure 71, upper photograph; 2005), Felix and Sahdew (2006), González-Fernández (2006, as *L. goliath*), Knell et al. (2004), Krintler (1996), Lehr (2002), Lescure and Marty (2000), Lima et al. (2006, p. 18, photo B), Luling (1962), Mattison (2007), Miranda-Ribeiro (1926, p. 144 as *L. macroblepharus*; 1927, second unnumbered photo as *L. macroblepharus*), Petzold (1977), Read (2000), Rodrigues et al. (2010), Rodríguez-Bayona and Duellman (1994), Schlüter (1987b), Souza and Cardoso (2002), Switak (2006), von May et al. (2007), and Zimmermann (1979). Illustrations of adults are provided by Crump (2002, *L. knudseni* illustration on p. 275 is probably *L. pentadactylus*, whereas the *L. pentadactylus* illustration on p. 275 is probably *L. savagei*), Daudin (1803a, as *Rana ocellata*), Schlüter (1984), Seba (1734, as

*Rana maxima*), Shaw (1802, the illustration of *Rana ocellata*, #34, is redrawn from Seba's 1734 picture of *Rana maxima* (= *L. pentadactylus*), Spix (1824, Plate V, fig. 2, as *Rana coriacea*, Plate I, as *Rana gigas*), and Zweifel (1998). Morphological illustrations are in Lima et al. (2006, photograph of belly pattern) and Melin (1941, lateral view of head and vomerine teeth, as *L. pentadactylus dengleri*). Juveniles are pictured in Lima et al. (2006) and Menin et al. (2010). Hero (1990) and Menin et al. (2010) illustrated the tadpole mouth, as well as dorsal, lateral, and/or ventral views. Menin et al. (2010) included photos of a stage 39 tadpole and a nest in their description. De-fensive posture is pictured in Lima et al. (2006), and a habitat schematic in Schlüter (1984). Audiospectrograms of the advertisement call are pictured in Duellman (2005), Hero and Galatti (1990), Heyer (2005), Lescure and Marty (2000), Schlüter (1980, 1984), and Zimmerman and Bogart (1984). Schlüter (1980, 1984) offered audiospectrograms of the distress call, while Toledo and Haddad (2009) pictured an audiospectrogram and an oscillogram of the frog's defensive vocalization. The karyotype is pictured in Amaro-Ghilardi et al. (2004), and compact disc recordings of the advertisement call may be heard in Cocroft et al. (2001) and Marty and Gaucher (2000).

• **DISTRIBUTION.** *Leptodactylus pentadactylus* inhabits the wet forests of the Amazon. Barrio Amorós (2004) labeled its natural bioregion as Amazon and Guayana and Heyer (2005) provided a map of its distribution.

References to distribution, localities, and elevations (where provided) follow; the symbol (M) denotes that the species is mentioned and (S) is a secondary source: **Bolivia** (Aparicio Effen 1992, 1993; Cadle and Guerrero 2003; Cadle et al. 2003; Dahl et al. 2009; De la Riva et al. 2000; Heyer 2005; Köhler 2000; Köhler and Lötters 1999 [S]; Moravec and Aparicio Effen 2006; Pérez B. et al. 2002; Reichle 2004, 2006; Reitz Montambault 2002 [M]), **Brazil** (Allmon 1991; Amaro-Ghilardi et al. 2004; Ávila-Pires et al. 2010; Bernarde et al. 1999; Bernarde and Macedo 2008; Bernarde and Santos 2009; Bernardi et al. 1999; Bokermann 1966 [p. 72 as *L. macroblepharus*, p. 88 as *Rana coriacea*, p. 89 as *R. gigas*]; Caldwell and Araújo 2005; Campos and Araujo 2007; Carmo and Silva 2008; Cei 1948 (S) [as *L. gigas*]; Crump 1971; Domenico 2008; Estupiñán and Galatti 2000; Estupiñán et al. 2002; Ferreira et al. 2007; Galatti 1992, 1999; Galatti and Hero 1987; Gardner et al. 2007; Gascon and Pereira 1993; Gordo 2003; Gutsche et al. 2007; Hero 1990; Hero and Galatti 1990; Heyer 2005; Höfer et al. 1996; Ilha and Dixo 2010; Knispel and Barros 2009; Lima 2008; Lima et al. 2006; Magnusson and Hero 1991; Martins 1994; Martins and Oliveira 1999; Menin 2005; Menin et al. 2007, 2008, 2010; Miranda-Ribeiro 1926 [as *L. macroblepharus*, p. 144], 1927 [as *L. macroblepharus*, p. 125]; Moreira et al. 1997; Müller 1927 [as *L. pentadactylus pentadactylus*]; Neckel-Oliveira and Gordo 2004; Oliveira 1996; Peters 1872 [as *Rana gigas*]; Pough et al. 1992; Ribeiro Júnior et al. 2008; Rojas-

Ahumada and Menin 2010; São Pedro et al. 2009; Sebben et al. 2007; Sena 2009; Silva and Silva 2008; Soares Filho and Silva 2008; Souza and Cardoso 2002; Souza et al. 2008; Suárez 2009; Tocher 1998; Tocher et al. 1997, 2001; Turci and Bernarde 2008, 2009; Vanzolini 1981, 2004 [both as *Rana coriacea* and *Rana gigas*]; Vogt and Bernhard 2003; Zimmerman and Bogart 1984), **Colombia** (Ardila-Robayo and Ruiz-Carranza 1997; Goin and Layne 1958; Heyer 2005; Lescure and Gasc 1986; Lynch 2005, 2006 [S]; Suárez-Mayorga 2000), **Ecuador** (Almendáriz 1987; Bass et al. 2010; Bustamante 2006; Cisneros-Heredia 2003, 2006; Heyer 1972, 2005; Heyer and Bellin 1973; Izquierdo et al. 2000; Jiménez de la Espada 1875 [as *L. goliath*]; McCracken et al. 2009; Ormaza and Bajaña 2008; Peters 1955 [as *L. goliath* and *L. pentadactylus rubidooides*]; Read 2000; Vigle 2008; Yáñez-Muñoz and Chimbo 2007; Yáñez-Muñoz and Venagas 2008c), **French Guiana** (Born 1996; Born and Gaucher 2001a,b; Breuil 1997; Bringsøe 2007; Cadenas M. 2004 [S] [Born and Gaucher 2001 citation]; Heyer 2005; Kok 2000a; Krintler 1996; Lescure 1986a, 1994; Lescure and Marty 2000; Lescure et al. 1995; Marty and Gaucher 2000), **Guyana** (Beebe 1919; Blanc and Dewynter 2004; Dewynter et al. 2008; Duellman and Hoogmoed 1992; Grimes et al. 2008; McAllister et al. 2010b; Tammesar et al. 2004), **Peru** (Aichinger 1987, 1991, 1992; Bustamante and Catenazzi 2007; Cadle et al. 2002; Cocroft et al. 2001; Córdova et al. 1996; Duellman 1995, 2005; Duellman and Mendelson 1995; Duellman and Salas 1991; Duellman and Thomas 1996; Franklin 2001; Graham 2002; Henle 1992; Heyer 2005; Icochea and Mitchell 1997a,b; Icochea et al. 1999, 1998, 2001; Knell et al. 2004, 2006; Lamar 1998b; Lehr 2002; Lescure and Gasc 1986; Lüling 1962; Melin 1941 [as *L. pentadactylus dengleri*]; Morales 1995, 1997; Morales and McDiarmid 1996; Pérez et al. 2004; Reynolds et al. 1997a,b; Rivera et al. 2003; Rodríguez-Bayona 1987, 1992, 1994; Rodríguez-Bayona and Cadle 1990; Rodríguez-Bayona and Duellman 1994; Rodríguez-Bayona and Emmons 1994; Rodríguez-Bayona and Knell 2003, 2004a,b; Rodríguez-Bayona et al. 1993, 2001; Rodríguez Gamarra et al. 2003; Salas et al. 1998; Schleser and Roberts 1998; Schlüter 1980, 1984, 1987a,b,c; Schlüter et al. 2004; Schlüter and Salas 1991; Souza and Rivera Gonzáles 2006b; Switak 2006; von May et al. 2007, 2009; Yáñez-Muñoz and Venagas 2008c), **Suriname** (De Bruin 1991, 1993; De Dijn et al. 2007; Gassó Miracle et al. 2007 [as *Rana pentadactyla*]; Heyer 2005; Kappler 1885(M), 1887(M) [both as *Cystignatus {sic} pentadactylus*]; Ouboter et al. 2007; Watling and Ngadino 2007), **Venezuela** (Barrio Amorós 1998, 2004 [*Cystignatus {sic} pentadactylus*]; Gorzula and Señaris 1999; La Marca 1992 [except for distribution statement on p. 61]; Péfaur 1992; Péfaur and Rivero 2000; Péfaur and Sierra 1995).

• **FOSSIL RECORD.** None.

• **CONSERVATION STATUS.** Least concern (Heyer et al. 2008a).

• **PERTINENT LITERATURE.** The most comprehensive account of the species was published by Heyer (2005). The ensuing literature is arranged by subject; the symbol **(M)** denotes that the species is mentioned and **(S)** indicates a secondary source: **bibliographic information and lists** (Cochran 1940 [Kellogg citation]; Heyer et al. 2009a,b; Liner 1992 [citation of *L. pentadactylus rubidoides* in Proceedings 84, p. 167–168]; Morales 1995; Péfaur 1992; Walley 2000 [except for Crump 1971 citation]), **biogeography** (Dahl et al. 2009; de Sá and Heyer 2005; Fouquet 2008; Lamotte 1986 **(M)**; Leistikow 2001 **(M)** [Peruvian *L. pentadactylus*]; Lynch 1988 [Amazon Peru sample]; Müller 1973 [as *L. macroblepharus* and *L. pentadactylus pentadactylus*, 1981), **book review** (Caldwell 2007), **call and call parameters** (Barrio 1964 **(M)**; Kwet and Schlüter 2002; Lamar 1998a; Lescure 1979a [p. 765–767]; Lima et al. 2006; Lynch and Myers 1983 **(M)**; Marty and Gaucher 2000; Schlüter 1980; Toledo 2007 [Lima et al. 2006 citation]; Toledo and Haddad 2009; Vitt and Caldwell 2009 **(M)(S)**; Zimmerman and Bogart 1988; Zug et al. 2001), **captive husbandry** (Both 2000; Sicchar Valdez et al. 1995), **checklists** (Barrio Amorós 2004; De Bruin 1991, 1993; Graham 2002; Miyata 1982; Morales 1995; Péfaur 1992; Péfaur and Rivero 2000; Señaris and MacCulloch 2005), **conservation** (Alverson et al. 2008; Bass et al. 2010; De Dijn et al. 2007; de Sá 2005; Gardner et al. 2007; Grimes et al. 2008; Lovejoy et al. 1984; Reichle 2006; Señaris et al. 2002; Tammesar et al. 2004; Tocher 1998; Tocher et al. 1997, 2001; von May et al. 2009; Watling and Ngadino 2007; Yáñez-Muñoz and Venegas 2008a,b,c), **development** (Fong et al. 2010 **(M)(S)**; Galatti 1992; Menin et al. 2010; Silva 2003 **(S)**), **dictionaries and encyclopedias** (Ananjeva et al. 1988; Arak 1986; Daubenton 1788 [as *Rana pentadactyla*]; Jacobs 1978; Zweifel 1998), **distribution** (Cei 1953 **(M)**, 1954 **(M)** [both as *L. gigas*], 1965 **(M)**; Duellman and Thomas 1996; Harding 1983 [for South American nations in text]; Harvey 1998a,b; Heyer 1988; Heyer and Maxson 1982a; Jim 1980; Lutz 1972 [as *L. pentadactylus pentadactylus*]; Parker 1935 [p. 528, as *L. pentadactylus pentadactylus*]), **ecology, natural history, reproduction** (Allmon 1991; Almendáriz 1987; Ardila-Robayo and Ruiz-Carranza 1997; Ávila-Pires et al. 2010; Caldwell and Araújo 2005; Camargo et al. 2009 **(S)**; De la Riva 1993 **(M)**; Dubois et al. 2010 **(S)** [Magnusson and Hero 1991 citation]; Duellman 2005 [except for ambiguous information on p. 93 and 384]; Duellman and Lizana 1994 **(M)**; Eterovick and Sazima 2000 [p. 348 discussion]; Galatti 1992; Galatti and Hero 1987; Gunzburger and Travis 2005 [Magnusson and Hero 1991 citations, p. 561, 562, 564]; Hayek and Heyer 2005; Heatwole 1982 **(S)**; Hero 1990; Hero and Galatti 1990 [new information]; Heyer 2005; Heyer and Bellin 1973; Hödl 1993; Höfer et al. 1996 **(S)**; Jiménez de la Espada 1875 [as *L. goliath*]; Lehr 2002; Lescure 1986a; Lescure and Marty 2000; Lescure et al. 1980; Lima et al. 2006; Magnusson and Hero 1991; Magnusson et al. 1999; Martins 1994; Martins and Oliveira 1999; Menin 2005; Menin

et al. 2007, 2008, 2010; Ponssa and Barrionuevo 2008; Pough et al. 1992; Prado et al. 2005 **(M)(S)** [p. 279 first paragraph]; Ramirez et al. 1998; Reichle 2006; Rodríguez-Bayona 1992; Rodríguez-Bayona and Cadle 1990; Rodríguez-Bayona and Duellman 1994; Rojas-Ahumada and Menin 2010; Rossa-Feres et al. 1999 **(S)**; Salas 1995 **(M)**; Schlüter 1987b; Se-ñaris et al. 2002; Silva 2003 **(S)** [Hero 1990 and Hero and Galatti 1990 citations]; Silva and Giaretta 2009; Silva et al. 2005 [Galatti 1992 and Hero and Galatti 1990 citations]; Souza and Rivera González 2006a; Toledo 2007 [Magnusson and Hero 1991 citation]; Toledo et al. 2005 [p. 30, column 2, paragraph 2]; von May et al. 2009; Wells 2007 **(S)** [p. 688]; Yáñez-Muñoz and Venegas 2008a,b,d); **evolution** (Heyer et al. 2005b; Silva and Giaretta 2009), **faunal lists** (Beebe 1919; Ormaza and Bajaña 2009), **field guides** (Crump 2002 [as Smoky Jungle Frog]; Felix and Sahdew 2006; Lima et al. 2006; Rodríguez-Bayona and Duellman 1994), **genome size** (Camper et al. 1993), **habitat** (Aichinger 1987, 1991; Allmon 1991; Almendáriz 1987; Ávila-Pires et al. 2010; Bernarde et al. 1999; Bernarde and Macedo 2008; Bernardi et al. 1999; Bustamante and Catenazzi 2007; Cadenas M. 2004; Cadle et al. 2002; Caldwell and Araújo 2005; Duellman 2005; Duellman and Mendelson 1995; Duellman and Salas 1991; Estupiñán and Galatti 2000; Franklin 2001; Galatti 1992, 1999; Gardner et al. 2007; Goin and Layne 1958; Gordo 2003; Graham 2002; Heyer 1972, 2005; Jim 1980; Knell et al. 2006; Kok 2000a; Lamar 1998a; Lescure 1986a; Lescure and Marty 2000; Lescure et al. 1995; Lima et al. 2006; Menin et al. 2007, 2008, 2010; Müller 1981; Neckel-Oliveira and Gordo 2004; Pérez B. et al. 2002; Rodríguez-Bayona 1992, 1994; Rodríguez-Bayona and Cadle 1990; Rodríguez-Bayona and Emmons 1994; Rodríguez-Bayona and Knell 2003, 2004a,b; Rodríguez-Bayona et al. 2001; Schleser and Roberts 1998; Schlüter 1984, 1987b,c; Schlüter et al. 2004; Sena 2009; Souza and Rivera González 2006b; Suárez-Mayorga 2000; Tocher 1998; Tocher et al. 1997, 2001; Watling and Ngadino 2007; Yáñez-Muñoz and Chimbo 2007; Yáñez-Muñoz and Venegas 2008c), **historical papers** (de la Riva 2000; González-Fernández 2006 [as *L. goliath*]; González-Fernández et al. 2010 [except MNCN 17783 = *L. savagei*]; Gutsche et al. 2007; Hallermann 2006 [as *Rana pentadactyla*]), **identifications** (Hoogmoed 1967; Oliveira 1996; Rodríguez-Bayona and Duellman 1994), **inventories** (Almendáriz 1997; Aparicio Effen 1992; Ardila-Robayo and Ruiz-Carranza 1997; Bernarde and Macedo 2008; Blanc and Dewynter 2004; Born and Gaucher 2001b; Bustamante and Catenazzi 2007; Carmo and Silva 2008; De Dijn et al. 2007; Estupiñán et al. 2002; Galatti 1999; Gordo 2003; Ilha and Dixo 2010; Knispel and Barros 2009; Kok 2000a; Lima 2008; Morales 1997; Morales and McDiarmid 1996; Moravec and Aparicio Effen 2006; Moreira et al. 1997; Ouboter et al. 2007; Rivera et al. 2003; Rodríguez-Bayona and Emmons 1994; Rodríguez-Bayona and Knell 2003, 2004b; Rodríguez-Bayona et al. 2001; Salas et al. 1998; São Pedro et al. 2009;

Silva and Silva 2008; Soares Filho and Silva 2008; Souza and Cardoso 2002; Souza and Rivera Gonzáles 2006b; Turci and Bernarde 2008, 2009; Watling and Ngadino 2007; Yáñez-Muñoz and Chimbo 2007; Yáñez-Muñoz and Venegas 2008c), **karyotypes** (Amaro-Ghilardi et al. 1999, 2004, 2006, 2008; Córdova et al. 1996), **keys** (Duellman 2005; Hero 1990; Heyer 1972; Miranda-Ribeiro 1926 [p. 141, as *L. macroblepharus*], 1927 [p. 115, as *L. macroblepharus*]), **lists of specimens in collections** (Breuil 1997; Gassó Miracle et al. 2007 [as *Rana pentadactyla*]; Glaw and Franzen 2006 [as *Rana coriacea* and *Rana pentadactyla*]; González-Fernández 2006 [as *L. goliath*]; González-Fernández et al. 2010 [except MNCN 17783 = *L. savagei*]; Gutsche et al. 2007; Hoogmoed and Gruber 1983; Miranda-Ribeiro 1955 [as *L. macroblepharus*]), **miscellaneous** (Berg 1896; Brehm 1878 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Ceï and Erspamer 1965 [as *L. pentadactylus pentadactylus*]; Gallopín 1962 [as *L. pentadactylus pentadactylus*]; Gosse 1851 [as *Rana gigas*]; Hoogmoed and Ávila-Pires 1991; Limeses et al. 1972 [p. 634, as *L. pentadactylus pentadactylus*]; Lutz 1967 [as *L. pentadactylus pentadactylus*], 1969 [p. 277]; Mertens 1933; Müller 1926; Oken 1816 [as *Rana pentadactyla*]; Schwartz 1978; Shaw 1802 [as *Rana pentadactyla*]; Zamore 2000), **morphology** (Aichinger 1992; Deckert 1915 (M) [as *L. pentadactyles*]; Duellman and Mendelson 1995; Goin and Layne 1958; Hayek and Heyer 2005; Hero and Galatti 1990; Miranda and Ferreira 2008 (M)(S) [p. 226, Hero 1990 citation]; Ponssa 2008; Ponssa et al. 2010; Rodríguez-Bayona 1992; Sebber et al. 2005, 2007; Vitt and Caldwell 2009 (S); Zug et al. 2001), **nomenclature and taxonomy** (Acosta-Galvis et al. 2006; Betta 1876 [as *Rana pentadactyla*]; Brocchi 1882 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Ceï 1950 [p. 396], 1965 (M); Cloquet 1821 [as *Rana pentadactyla*]; Cuvier 1829, 1836 [both as *Rana coriacea* and *R. gigas*]; Cuvier et al. 1831 [as *Rana coriacea* and *R. gigas*]; Daudin 1803a,b [both as *Rana pentadactyla*]; De la Riva 2000; Dubois and Ohler 1994 [as *Rana gigas*]; Duméril and Bibron 1841 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Fitzinger 1833 [as *Rana gigas* and *Rana coriacea*]; Gallardo 1964a; González-Fernández 2006 [as *L. goliath*]; Gravenhorst 1829 [as *Rana pentadactyla*]; Guichenot 1855 [as *Rana coriacea* and *R. gigas*]; Günther 1858 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Hallermann 2006 [as *Rana pentadactyla*]; Harlan 1826, 1827, 1835a,b [all as *Rana pentadactyla*]; Heyer 1974 [p. 42–45, as *Leptodactylus goliath*, *L. macroblepharus*, *L. pentadactylus rubidoides*, *Rana giga*, *R. pentadactyla*], 2000, 2005; Heyer and Heyer 2006; Heyer and Peters 1971 [p. 167 and 168]; Kaiser 1994; Kellogg 1932 [as *Rana pentadactyla*]; Kok 2000b; La Cépède 1788, 1802 [both as *Rana pentadactyla*]; Lescure 1979a [p. 758]; Lima et al. 2006; Lutz 1930a [as *L. pentadactylus pentadactylus* and *L. macroblepharus*]; Mayer 1835 [as both *Doryphoros gigas* and *Rana pachypus bilineata*]; Merrem 1820 [as *Rana pentadactyla*]; Müller 1865 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Müller 1927; Murphy 1997 [as *L. pentadactylus pentadactylus*], Nieden 1923 [as *Gnathophysa gigas*, *Leptodactylus goliath*, and *Rana pentadactyla*]; Oken 1816 [as *Rana pentadactyla*]; Peters 1872 [as *Cystignathus pentadactylus*, *Rana coriacea*, and *R. gigas*]; Rivero 1968 [p. 146]; Schmidt and Inger 1951 [as *L. pentadactylus pentadactylus*]; Sherborn 1902 [as *Rana pentadactyla*], 1925 [as *Rana coriacea*], 1926 [as *Rana gigas*], 1933 [as *Rana coriacea* and *Rana gigas*]; Smith et al. 1977; Temminck and Schlegel 1838 [as *Doryphoros*, *Rana coriacea*, and *R. gigas*]; Tschudi 1838 [as *Doryphoros*, *Rana coriacea*, and *R. gigas*]; Ulber 1996; Vanzolini 1981; Wagler 1830 [as *Rana coriacea* and *R. gigas*]), **non-technical literature** (Bartlett 2000; Behler and Behler 2005 [p. 19 and 62]; Blankenship 1990 (M); Cardwell 1998; d'Audretsch 1961 [12 cm specimen of *L. caliginosus* re-identified as *L. pentadactylus* by Hoogmoed 1967]; Hödl 1993; Pasquali et al. 2003 [as *L. pentadactylus*]), **parasites and diseases** (Bass et al. 2010 (S); Bursey et al. 2001; Cabrera-Guzman et al. 2007 [p. 100]; Goldberg et al. 2007 (S) [p. 328], 2009a (S) [Bursey et al. 2001 citations p. 260, 261, 262]; Ferreira et al. 2007; González and Hamann 2006 (S); McAllister et al. 2010a (S) [except Fahel 1952 citation], b (S) [Bursey et al. 2001 citations p. 189 and 190]; McCracken et al. 2009), **relationships and systematics** (Barbour 1930 (M), 1935 (M), 1937 (M); Brooks 1982 (M); Crother 1999 (M); de Sá and Heyer 2003; Fouquet 2008; Fouquet et al. 2007 [samples AY947867, AY947868, and EU201134]; Heyer 2005; Heyer and Cisneros-Heredia 2008 (M)(S); Heyer et al. 2005a [non-molecular data, *contra* statement on p. 85], 2008b (M)(S); Maxson and Heyer 1988 [Peru sample]; Ponssa 2008; Ponssa and Barrionuevo 2008; Ponssa et al. 2010), **species accounts** (Almendáriz 1987; Caldwell and Araújo 2005; Duellman 2005 [reproduction, male characteristics, food and tadpole sections do not refer to *Leptodactylus pentadactylus*]; Heyer 2005; Jiménez de la Espada 1875 [as *L. goliath*]; Miranda-Ribeiro 1926 [p. 144, as *L. macroblepharus*], 1927 [p. 124, as *L. macroblepharus*]), **species comparisons** (Anderson 1911 (M); Barrio 1964 (M); Bokermann 1957 [p. 496 and first full paragraph on p. 500]; Caldwell and Araújo 2005; Ceï 1948 [as *L. gigas*]; Duellman 2005; Galatti 1992; Galatti and Hero 1987; Hero and Galatti 1990; Heyer 1972, 2005; Heyer and Heyer 2006; Heyer et al. 2010; Jiménez de la Espada 1875 [as *L. goliath*]; Kaiser 1994; Köhler and Böhme 1996; Lescure 1979b, 1986b [p. 443]; Lescure and Marty 2000; Lima et al. 2006; Menin et al. 2010; Mertens 1927 (M); Müller 1923a,b; Péfaur and Sierra 1995; Pyburn and Heyer 1975; Reig and Ceï 1963; Rodrigues et al. 2007, 2010; Rodríguez-Bayona and Duellman 1994; Skuk et al. 2007), **species or taxonomic lists** (Cadenas M. 2004; Dahl et al. 2009 [p. 4 of supporting materials]; De Dijn et al. 2007; Dewynter et al. 2008; Domenico 2008; Duellman 2003b; Franklin 2001; Frost 1985 [except distribution statement]; Glaw et al. 2000; Gmelin 1789 [as *R. pentadactyla*]; Gorham 1963, 1966 [as *L. pentadactylus pentadactylus* and *L. pentadactylus rubidoides*], 1974 [as *L. pentadactylus*

*pentadactylus* and *L. pentadactylus rubidoides*]; Gorzula and Señaris 1999; Gray 1831 [as *Rana coriacea*, *R. gigas*, and *R. pentadactyla*]; Hoff and Daszkiewicz 2001; La Marca 1995, 1997; Lehr 2002; Lescure 1986a; Lescure and Gasc 1986; Lescure and Marty 2000; Lima 2008; Ouboter et al. 2007; Rodríguez-Bayona 1987, 1992; Rodríguez-Bayona et al. 1993; Rodríguez-Gamarra et al. 2003; Rojas-Ahumada and Menin 2010; Salas et al. 1998; São Pedro et al. 2009; Schlüter 1987a; Schlüter and Salas 1991; Schlüter et al. 2004; Tocher 1998; Tocher et al. 1997, 2001; Vanzolini 1981, 1986, 2004; Vagle 2008; von May et al. 2009; Watling and Ngadino 2007; Yáñez-Muñoz and Venegas 2008c,d), **techniques** (Fouquet et al. 2009; Ribeiro Júnior et al. 2008; Rueda-Almonacid et al. 2006).

*Leptodactylus pentadactylus* citations were omitted from two previously published CAAR *Leptodactylus* accounts (*L. fallax* Kaiser 1994 and *L. knudseni* Heyer and Heyer 2006). The following references citing *L. pentadactylus* actually correspond to *L. fallax*: Anonymous 1888:304; Boettger 1891:250; Boulenger 1891:354; Garman 1888b:14; Grant 1931:62, 1932:163; Mattison 1987:142; May 1930:4; McClelland 1931:5; Schmidt 1928:23; Sclater 1883:626, 1896:652; Valmont-Bomare 1800:278; Verrill 1892:350. The following references citing *L. pentadactylus* actually correspond to *L. knudseni*: Cerda et al. 1979 Table 1, Rivero 1964 citation; Duellman 1997:25; Gorzula and Cerda 1979:l-7; Hardy 1982:69 (Trinidad only); Heatwole et al. 1965:360; Hellmich 1939:392; Hoogmoed 1980:31; Mole and Urich 1894:89; Nishikawa and Wassersug 1989:17; Parker 1933:7, 1934:123; Rivero 1964a:298; Schneider 1984:60-62; Warren 1973:86; Werner 1904:159. The following reference citing *L. ocellatus* corresponds to *L. knudseni*: Taylor 1864:162.

Many citations of *Leptodactylus pentadactylus* in the literature pertain to other valid species and will be addressed in subsequent *Leptodactylus* CAAR accounts. The following citations of *L. pentadactylus* cannot be associated with any single species and should not be used for any purposes where the species identification is important: Acosta-Galvis 2000 (a combination of information for *L. pentadactylus*, *L. rhodomerus*, and *L. savagei*); Adesiyun 1998, 1999; Ahl 1930; Albuja et al. 1980 (p. 126, data combined for *L. pentadactylus* and *L. peritoaktites*); Alcalde 2005; Alevén and Bouwmeester 1958 (not *L. pentadactylus*, likely *L. knudseni*, *L. labyrinthicus*, or *L. vastus*); Almeida 1934 (most likely *L. labyrinthicus*); Almendáriz 1991 (a combination of information for *L. pentadactylus*, *L. peritoaktites*, and *L. rhodomerus*); Altig 1979 (information based on a combination of *L. knudseni*, *L. savagei*, and perhaps *L. pentadactylus*); Altig and McDiarmid 1999 (probably *L. savagei*); Amaro 1964 (either *L. flavopictus* or *L. vastus*), 1969a,b; Amaro and Sena 1968 (*L. labyrinthicus?*); Anastasi et al. 1970; Andersson 1906 (*L. mystacinus*); Anonymous 1963, 1976, 1977, 1978, 1982, 1986, 1987, 1988, 1989, 1990, 1991, 1993, 1994, 1997, 1998; Arcay de Peraza and Tengler de McLure 1971 (*L. labyrinthicus?*); Arêa Leão et al. 1947; Báez and Gas-

parini 1977; Baker 1987; Baker and Vaucher 1988; Ballesteros Márquez 1945 (citations on p. 168); Barlow 1998 (Daly and Witkop 1971 citation on p. 745 is either *L. labyrinthicus* or *L. vastus*); Barnett et al. 2001; Bartlett and Bartlett 2003 (a combination of information for both *L. knudseni* and *L. pentadactylus*); Bastos 2007; Bateman 1897; Baumann 1912, 1917; Beddard 1907 (*L. hexadactylus* probably a lapsus for *L. pentadactylus* = *L. ?*, p. 337); Beebe 1946 (either *L. knudseni* or *L. turimiquensis*); Behler and Behler 2005 (color photo, p. 104); Beltrán 1941; Benninghoff 1921a,b; Ben Slimane and Durette-Desset 1996a,b; Bernarde 2007; Bernardi and Bernardi 1990; Bhaduri 1946, 1953 (information on p. 35-36 is for *L. savagei*, other citations of *L. pentadactylus* are ambiguous); Biegler 1966; Boettger 1894, 1895, 1897 (all probably *L. knudseni*); Bogart 1974 (data combined for *L. flavopictus* and presumably *L. pentadactylus*, pers. comm. J. Bogart); Bokermann 1956 (not *L. pentadactylus*, *L. ?*); Boldt 1911; Bolívar-García and Restrepo-Toro 2004; Born 1996 (reproductive mode information inferred from literature involving *L. knudseni* and/or *L. savagei*); Born and Gaucher 2001a (reproductive mode information inferred from literature involving *L. knudseni* and/or *L. savagei*), 2001b (*L. pentadactylus* breeding habitat and reproductive system information not based on original data/observations but inferred (incorrectly) from literature, probably based on *L. knudseni* or *L. savagei*); Boulenger 1882, 1887; Bourlière 1946; Bowler 1977; Braus 1919; Brazil and Vellard 1926; Breen 1974; Brodie et al. 1974; Brooks 1976 (probably *L. labyrinthicus*, possibly *L. flavopictus*); Brown 1988; Brum-Zorrilla and Saez 1968 (*L. knudseni* and/or *L. pentadactylus*); Brumpt 1949; Brygoo and Destombes 1976; Bursey et al. 2007 (*L. vastus* in part); Busack 1974; Caldwell and Vitt 1999 (most likely *L. knudseni*, but could include *L. pentadactylus*); Cannatella 1999; Carini 1909 (*L. flavopictus* and/or *L. labyrinthicus*), 1910, 1929a,b, 1930a,b, (all probably *L. labyrinthicus*), 1938, 1939 (probably *L. labyrinthicus*), 1943, 1945; Carrión 1950 (probably *L. labyrinthicus*); Carroll et al. 1999; Carvahlo [sic] et al. 2001; Carvalho et al. 1978 (probably *L. vastus*); Cei 1948, 1950 (p. 397 and 407 probably *L. labyrinthicus*), 1956, 1972, 1980; Cei and Erspamer 1965 (citations on p. 4, 6, 7), 1966; Cei et al. 1967; Cerda et al. 1979 (Table 1, Rivero 1961 citation); Champy and Coujard 1939; Chapuis 2003; Cihar 1987; Claessen 1991a,b; Coborn 1992; Cochran 1955 (*L. savagei* and probably *L. knudseni*, p. 322), 1961 (color photo p. 26, combination of *L. knudseni*, *L. pentadactylus*, and *L. savagei* on p. 62); Cochran and Goin 1970 (combination of *L. knudseni*, *L. pentadactylus*, and *L. rhodomerus*), Cole 1971; Coloma 1991 (combination of *L. pentadactylus* and *L. peritoaktites*); Comfort 1956; Conant and Hudson 1949; Conlon 2008; Conlon et al. 2006, 2009; Cooke 1989; Cope 1866, 1885 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*, p. 330), 1889, 1896; Corbett 1943; Cordeiro-Sousa et al. 2002, 2007a,b; Cortadas and Pavon 1982; Costa et al. 1973; Cox 1984 (a combination of *L. knudseni* and *L. savagei*); Crawford 1931; Crawford and Jones 1933



(probably *L. knudseni*); Crim and Vigna 1983; Crump 1974 (combination of *L. knudseni* and *L. pentadactylus*), 2000, 2001 (*L. knudseni* or *L. savagei* at least in part); Daló and Larson 1991; Daltry 2002; Daly and Spande 1986; Daly and Witkop 1966, 1971; Darzins 1950, 1952a,b (all either *L. labyrinthicus* or *L. vastus*); Davis 1936; Davis et al. 2000 (*L. knudseni* and/or *L. savagei*); Day et al. 2003 (*Leptodactylus* photos on p. 1276, 1279, and 1282 are *L. knudseni*, *L. peritoaktites*, *L. savagei*, *L. rhodomerus*, or *L. pentadactylus*); Defler et al. 1999; de Lang 1970; Díaz Ungria 1960; Di Persia and Neiff 1986; Doan and Arizabal Arriaga 2002 (composite of *L. knudseni* and *L. pentadactylus* fide Duellman 2005:287); Dobbin, Jr. 1957; Donnelly and Crump 1998 (combination of *L. pentadactylus* and *L. savagei*); Doria et al. 2001 (combination of *L. flavopictus*, *L. labyrinthicus*, and either *L. knudseni* or *L. pentadactylus*); Dourado et al. 2007; Dubois 1938, 1970 (both probably *L. labyrinthicus*); Duellman 1978 (text information combination of *L. knudseni* and *L. pentadactylus*), 1989, 1990 (both composite of *L. pentadactylus* and *L. savagei*), 1999 (composite of *L. pentadactylus*, *L. peritoaktites*, *L. rhodomerus*, and *L. savagei*), 2001 (composite of *L. pentadactylus*, *L. rhodomerus*, and *L. savagei*), 2003a, 2005 (information on p. 14, 73, 93, 106, 167, 176, 384, and the male characteristics, food, reproduction, and tadpole sections on p. 286–287); Duellman and Trueb 1986; Dunn 1944 (composite of *L. pentadactylus*, *L. rhodomerus*, and *L. savagei*); Duplaix 2001; Du Preez et al. 2007; Dyer 1985, 1986, 1990; Dyer and Altig 1977a, b; Earl 1969 (not *L. pentadactylus*, perhaps *L. flavopictus*, more likely *L. labyrinthicus* or *L. vastus*); Eggermont 1988; Elkan 1968, 1976; Elkan and Philpot 1973; Elter 1981; Emerson 1979; Engler 1929; Ernst et al. 2007 (a combination of *L. pentadactylus* and *L. savagei*); Erspamer and Cei 1970; Erspamer 1954, 1958, 1971, 1994; Erspamer and Erspamer 1965; Erspamer and Vialli 1952; Erspamer et al. 1963, 1964a, b, 1986; Ettlign 1990; Evangelista et al. 2002a,b; Fabio and Izecksohn 2001; Fabrezi 2001; Fahel 1952; Fernández and Fernández 1921 (probably *L. labyrinthicus*); Finkers 1986; Flower 1925, 1936; Fontenele-Berto et al. 2007a,b; Frazer 1973 (probably *L. savagei*); Freed 1993a,b; Freiberg 1972 (photo is of *L. labyrinthicus*, text is combination of *L. pentadactylus* and *L. labyrinthicus*), 1975; C. Freitas 2003 (Fig. 3); J. Freitas 1955, 1956, 1959, 1960, 1963; Freitas and Lent 1942 (probably *L. labyrinthicus*); Freitas and Silva 2006 (*L. labyrinthicus* and/or *L. vastus*); Frost 1985 (composite species distribution statement); Furness et al. 2010; Gallardo 1964b, 1965, 1974 (p. 25, probably either *L. knudseni* or *L. labyrinthicus*); Gallopín 1962 (except *L. pentadactylus pentadactylus*, p. 164); Gardon et al. 2001; Garman 1888a; Gatzky 1975; Gavetti and Andreone 1993; Gibson and Buley 2004 (citation on p. 128 not *L. pentadactylus*, probably *L. savagei* and *L. turimiquensis*); Ginés 1959 (probably a combination of *L. knudseni*, *L. pentadactylus*, and *L. turimiquensis*); Gistel 1848; Goin and Goin 1962, 1971; Goin et al. 1978 (citations on p. 107 and 248); Goldberg et al. 2005, 2009b; González and Hamann 2008; Gopee et al. 2000; Gray 1993; Green 2001; Green and Harshbarger 2001; Green and Sessions 2007; Greene 1988; Grenand 1980; Griffiths 1954; Grillitsch et al. 2004 (probably *L. knudseni*); Guimarães et al. 1976 (either *L. labyrinthicus* or *L. vastus*); Günther 1858 (*L. fuscus* specimens on p. 28 a composite of *L. fallax*, *L. vastus*, *L. knudseni*, and *L. pentadactylus*); Günther and Boulenger 1888; Haas 1995, 1996; Haas and Richards 1998; Habermehl 1969, 1974, 1981; Habermehl and Preusser 1970; Hailman 1977; Hailman and Jaeger 1974; Halliday and Crombie 2001 (a combination of *L. knudseni* and *L. savagei*); Hansen et al. 2000 (color illustration not *L. pentadactylus* but most probably *L. savagei*, the text refers to *L. knudseni* and/or *L. savagei*); Hardy 1982 (except for *L. pentadactylus* Trinidad citation, p. 69), 1984; Harshbarger 1979; Hellmich 1932; Herrmann 2001; Herter 1955 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*); Heusser 1974a,b; Heyer 1968 (composite of *L. fallax*, *L. vastus*, *L. knudseni*, and *L. pentadactylus*), 1974 (composite of *L. savagei* and skeletons of unknown provenance, p. 4), 1979 (composite of *L. pentadactylus*, *L. peritoaktites*, *L. rhodomerus*, and *L. savagei*), 1994; Heyer and Diment 1974; Heyer and Maxson 1982a (relationship information a combination of *L. pentadactylus* and *L. savagei*), 1982b (composite of *L. pentadactylus*, *L. peritoaktites*, *L. rhodomerus*, and *L. savagei*); Heyer and Peters 1971 (information on p. 165); Hicklenton et al. 1996 (combination of *L. knudseni* and *L. pentadactylus*); Hiltzheimer and Haempel 1912 (not *L. pentadactylus*, probably *L. knudseni* and/or *L. savagei*); Hinsche 1928; Hödl 1977, 1986, 1997; Hödl and Gollmann 1986; Hoff et al. 1999 (*L. knudseni* or *L. savagei*); Honório-Júnior et al. 2007; Hoogmoed 1979 (composite of *L. knudseni*, *L. pentadactylus*, and *L. turimiquensis*); Hoogmoed and Gorzula 1979 (probably *L. knudseni*); Howes 1887; Howes and Ridewood 1888; Howland 1992 (not *L. pentadactylus*, probably *L. knudseni*); Hoyos 2003; Hvass 1964, 1975 (both probably *L. knudseni*); Ihering 1934, 1940 (composite of *L. labyrinthicus*, *L. pentadactylus*, and *L. vastus*); Jackson 2006 (a combination of *L. peritoaktites*, *L. rhodomerus*, *L. pentadactylus*, and *L. savagei*); Jaeger and Hailman 1973, 1976; Jim 1995 (probably *L. labyrinthicus* or *L. vastus*); Johnston 1975 (p. 532, probably *L. labyrinthicus*); Jones 1967; Kaiser and Michl 1958; Kauri 1962 (not *L. pentadactylus*, either *L. knudseni*, *L. labyrinthicus*, *L. savagei*, or *L. vastus*); Kenny 1969a,b; Kicliter and Goytia 1995; M. King 1990; J.D. King et al. 2005, 2008; Klingelhöffer and Scherpner 1956 (a combination of information for *L. knudseni*, *L. labyrinthicus*, *L. pentadactylus*, *L. savagei*, and *L. vastus*, with most information and photo of either *L. labyrinthicus* or *L. vastus*, p. 137–138); Kloss 1974; Kluge and Farris 1969; Kohn and Santos 1989; Kohn et al. 1978; Kraus 2009; Kricher 1989, 1997; Kurabayashi and Sumida 2009; Kuramoto 1990; Lacey 1979 (probably *L. knudseni*); La Marca 1992 (distributional statement, p. 61, a combination of *L. pentadactylus* and *L. savagei*); Lamotte and Lescure 1977; Laurent 1986; Laurin et al. 2004; Leite et al. 2010; Lent et al. 1946; Leroy 1977; Lescure 1973, 1976 (combination of *L.*

*knudseni* and *L. pentadactylus*), 1977a,b, 1979a (information on p. 762, 765 first paragraph, and 771 is a combination of *L. knudseni* and *L. pentadactylus*), 1986b (p. 441, *L. knudseni* or *L. savagei*), 1986c, 1987 (combination of *L. pentadactylus* and *L. savagei*), 1994 (citation on p. 141 probably *L. knudseni*); Lescure and Letellier 1983 (*L. knudseni* and/or *L. savagei*); LeVering 1999 (citation 32 on p. 61); Levine and Nye 1977; Libério et al. 2011; Lidth de Jeude 1898; Limeses 1964, 1965a,b, 1969 (probably all *L. labyrinthicus*); Liner 1994; Liu 1935a,b; Lourenço and Cuellar 1995 (*L. knudseni* and/or *L. pentadactylus*); Love 1998 (photo is of a ranid); Lutz 1924, 1926a-d, 1927, 1928, 1929 (probably *L. labyrinthicus* or *L. vastus*), 1930b (probably *L. labyrinthicus* or *L. vastus*), 1933, 1948; Lutz and Kloss 1952 (either *L. knudseni* or *L. pentadactylus*); Lydekker 1906, 1913; Lynch 1966, 1971 (all specimens examined, p. 227, are from Costa Rica and Panama {e-mail message from J. Simmons, 5 viii 2003}, hence = *L. savagei*, fossil occurrences p. 192–194 either *L. labyrinthicus*, *L. pentadactylus*, or possibly *L. flavopictus*), 1979 (composite of *L. flavopictus*, *L. knudseni*, *L. pentadactylus*, *L. peritoaktites*, *L. rhodomerus*, and *L. savagei*), 1998; Lynch and Suárez-Mayoraga 2004 (= *L. savagei* and *L. rhodomerus*); Mañé-Garzón and González 1978; Martins and Haddad 1988; Mata-López et al. 2005; Mattison 2007 (text, p. 109); Mauro and Campos 2000; Maxson and Daugherty 1980; Mayer 1835 (all names except *Rana pachypus bilineata*); McCranie et al. 1980; Mello Leitão 1937, 1947; Menéndez-Guerrero 2001 (probably *L. savagei*); Metcalf 1940; Meyer 1960; Michl and Kaiser 1963; Miranda-Ribeiro 1922 (*L. labyrinthicus* and *L. vastus*); Mok and Carvalho 1984, 1985; Mok et al. 1983 (Table 2), 1987; Molin 1858 (*Cystignathus gigas* = *L. pentadactylus* = *L. ?*); Morescalchi 1970a,b; Morescalchi et al. 1968; Moussatché 1945; F. Müller 1892; L. Müller 1912; M. Müller 2003; P. Müller 1971 (p. 26), 1974 (p. 11), 1980 (p. 27); Nace et al. 1971; Nakajima 1981; Nascimento 2007; Nascimento et al. 2007; Nasir and Diaz 1970; Naya et al. 2008; Negroni 1991; Negroni and Farina 1993; Nicéforo María 1930 (probably *L. knudseni*); Nicholls 1916; Nichols 1979; Nieden 1923 (p. 473 composite of at least *L. fallax*, *L. knudseni*, and *L. savagei*); Nietzke 1969, 1980; Noble 1922, 1923, 1931; Nomura 1998; Obst et al. 1984 (combination of *L. pentadactylus* and *L. savagei*), 1988; Odening 1960; Odlaug 1937; Oltmanns 1952; O'Shea and Halliday 2002; Ozorio de Almeida et al. 1940, 1943 (both probably *L. labyrinthicus*), 1944 (probably either *L. flavopictus* or *L. labyrinthicus*); Padial et al. 2006; Páez et al. 2002 (*L. rhodomerus* or *L. savagei*); Parsons and Williams 1962; Patzelt 1989; Pawley 1971; Pearson 1959; Pearson and Davin 1921; Peracca 1904 (*L. knudseni* and/or *L. pentadactylus*); Pereira et al. 1973 (probably *L. labyrinthicus*); Pessôa 1970; Pessôa and Cunha Neto 1967 (*L. labyrinthicus* or *L. vastus*); Petzold 1974, 1977 (text), 1982, 1983; Pinto 1925; Pinto and Noronha 1972 (probably *L. labyrinthicus*); Pocai 1941; Poisson 1953 (*L. flavopictus* and/or *L. labyrinthicus*); Poll 2009; Porter 1972; Pough 1989; Pough et al. 1998, 2004 (both probably *L. savagei*); Prado et al. 2002 (combination of *L. pentadactylus* and *L. savagei*); Preusser et al. 1975, 1976; Procter 1921, 1923; Prudhoe and Bray 1982; Purgue 1995; Rabello 1970 (Brum-Zorilla and Saez 1968 citation, p. 47); Rada de Martínez 1976 (*L. flavopictus* and *L. pentadactylus* data combined); Raillet 1916 (*Cystignathus gigas* = *L. pentadactylus* = *L. ?*); Ramus 1999 (either *L. knudseni* or *L. savagei*); Rand 1983 (p. 412); Rastogi et al. 2005; Rau and Gatenby 1923; Razo-Mendivil and León-Règagnon 2001 (p. 690 Sullivan 1977 citation a combination of *L. labyrinthicus* and *L. vastus*); Règo 1962, 1973; Reichenbach-Klinke 1961 (probably either *L. labyrinthicus* or *L. vastus*); Reichenbach-Klinke and Elkan 1965, 1972 (both probably either *L. labyrinthicus* or *L. vastus*); Reig 1972; Renjifo 1997; Rettig et al. 2003; Richter 2000 (probably *L. knudseni*); Ritter 1965; Rivero 1961 (*L. pentadactylus* and/or *L. knudseni*), 1964b (probably *L. knudseni*), 1968 (p. 145), 1969 (probably *L. knudseni*), 1971, 1994; Rivero-Blanco and Dixon 1979 (probably not *L. pentadactylus*, certainly *L. turimiquensis* and perhaps *L. knudseni*); Rocha and Magnusson 1985 (probably *L. knudseni*); Rocha et al. 1984 (probably *L. knudseni*); Rodrigues et al. 1978, 1982 (both not *L. pentadactylus*, either *L. labyrinthicus* or *L. flavopictus*); Roseghini et al. 1986; Rowlatt and Roe 1966; Rueda-Almonacid 1994; Ruiz-Carranza et al. 1996 (composite of *L. pentadactylus*, *L. rhodomerus*, and *L. savagei*); Ruiz Pérez and Buitrago Vannini 2003; Rundquist 1994 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*); Salthe and Mecham 1974; Sanchiz 1998; Santana and Menin 1997; Santos 1942, 1994; Satel and Wassersug 1981 (probably *L. savagei*); Scharf 1971; Schenberg 1956; Schlüter 2005 (probably a combination of *L. knudseni* and *L. pentadactylus*); Schmidt 1984; Schneider et al. 1988; Schreiber and Melucci 1949; Schulte 1984; Schwartz et al. 2007; Scorza and Dagert Boyer 1956 (probably *L. labyrinthicus*); Sebben et al. 1993; Secor 2005a,b; Segura-Solís and Bolaños 2009; Senfft 1935; Shea 2002; Shepard and Caldwell 2005; Shine 1979; Simon 1975; Simon and Toft 1991 (probably a combination of *L. knudseni* and *L. pentadactylus*); Simons 2008; Skrijabin and Antipin 1962 (probably *L. labyrinthicus*); Slavens 1976, 1980, 1984, 1989; Slavens and Slavens 1993, 1994; Smales 2007; Smith 1929; Snider and Bowler 1992; Sousa et al. 2009 (citation on left column, p. 24); Souza 1998 (*L. pentadactylus* and/or *L. knudseni*); Souza et al. 1991; Spieler 1999a,b; Stadie 1962; Stuart et al. 2008 (combination of *L. pentadactylus*, *L. peritoaktites*, *L. rhodomerus*, and *L. savagei*); Stultifer 1970 (combination of *L. pentadactylus* and *L. savagei*); B. Sullivan 1974 (probably *L. labyrinthicus*); J. Sullivan 1977 (*L. vastus* and perhaps *L. labyrinthicus*); Suriano 1968 (probably *L. labyrinthicus* and/or *L. vastus*), 1970 (p. 221, 231 citations); Sustare 1977; Svava and Chaparro 2002 (combination of *L. knudseni* and *L. pentadactylus*); Switak 2006; Taylor 2001; Taylor et al. 2001; Teixeira and Vrcibradic 2003; Telford 1984 (probably *L. labyrinthicus*); Terent'ev 1961, 1965; Thatcher 1993 (citations on p. 188 and 191); Thorpe 1963; Toft and Duellman 1979 (probably *L. knudseni*

and *L. pentadactylus*); Tokita and Iwai 2010; Toledo and Jared 1989 (probably *L. labyrinthicus*); Trader and Frieden 1966 (probably *L. labyrinthicus*); Travassos 1927 (*L. labyrinthicus* at least in part), 1928, 1929, 1947 (*L. flavopictus* or *L. labyrinthicus*); Travassos and Freitas 1942 (probably *L. labyrinthicus*); Travassos et al. 1969; Trombeta 2008; Trueb 1973 (*L. knudseni* or *L. savagei*); Turner 1962; Une et al. 2008; Urdaneta-Morales and McLure 1972 (probably *L. insularum*); van Rekum 1960; van Santen 2006 (probably *L. savagei*); Vanderstraeten 1986; Vaz 1933 (*L. flavopictus* and/or *L. labyrinthicus*), Vaz-Ferreira and Gehrau 1975; Vellard 1947; Vera Candioti 2007; Vera Candioti and Altig 2010; Vialli 1966, 1967; Vicente and Jardim 1980; Vicente et al. 1991 (citations on p. 579, 607, 613; citation on p. 596 is *L. ocellatus*); Vidal 1999; Vieira 1980 (*L. labyrinthicus*?); Vieira et al. 2007 (combination of *L. pentadactylus* and *L. savagei*); Viertel and Richter 1999; Vigle 2000; Villa 1980 (combination of *L. pentadactylus* and *L. savagei*); Villa et al. 1982; Vitt and Caldwell 2001 (probably *L. knudseni*); Vizotto 1964, 1979, 1984 (p. 43); Vogel 1961 (*L. knudseni* or *L. savagei*), 1966 (*L. knudseni* and/or *L. pentadactylus*); Vogel and Vevers 1964; D. Vogt and Wermuth 1972; R. Vogt 2004 (combination of *L. pentadactylus* and *L. savagei*); Volkert 2002; Wagler 1830 (*Rana pachypus* Spix, p. 203); Walton 1933, 1935, 1938a–c, 1940, 1946, 1953a,b, 1962, 1964a,b); Warkentin 2000 (probably *L. knudseni*); Watermolen 1995; Weldon et al. 1993; Wells 2007 (p. 717, photograph D); Wenyon 1926 (probably *L. labyrinthicus*); Werner 1907 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*), 1908 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*), 1910 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*), 1912 (not *L. pentadactylus*, probably *L. savagei*), 1920, 1922 (not *L. pentadactylus*, probably either *L. knudseni* or *L. savagei*), 1930; Whitaker 2001; Whitaker and Wright 2001; Witenberg and Gerichter 1944; Wright 2001a (p. 10), b,c,d, 2006; Wright and Whitaker 2001a,b; Wrobel 2004; Yamaguti 1958, 1961, 1971 (p. 346 citation); Young et al. 2004; Zimmerman 1983, 1991; Zimmerman and Bierregaard 1986; Zimmerman and Rodrigues 1990 (combination of *L. knudseni* and *L. pentadactylus*); Zimmerman and Simberloff 1996; Zimmermann 2000; Zwinenberg 1978 (not *L. pentadactylus*, probably either *L. labyrinthicus* or *L. vastus*).

• **NOMENCLATURE HISTORY.** Laurenti (1768) based the name *Rana pentadactyla* on at least two specimens. One specimen was figured in Seba (1734, plate 75, figure 1), with the locality given as “Virginia.” The second specimen was from “Indiis.” Over time, the herpetological community applied the names *Rana pentadactyla*, *Cystignathus pentadactylus*, and *Leptodactylus pentadactylus* to the following currently recognized valid taxa: *L. fallax*, *L. flavopictus*, *L. knudseni*, *L. labyrinthicus*, *L. myersi*, *L. paransis*, *L. peritoaktites*, *L. peritomermus*, *L. savagei*, *L. stenodema*, *L. turimiquensis*, and *L. vastus*. Several of these taxa are morphologi-

cally similar to each other and are best identified from tadpole or advertisement call data. Heyer (2005) wished to designate the specimen Seba illustrated as the lectotype of *Rana pentadactyla* Laurenti, 1768. Heyer (2005) contacted all museum collections known to have Seba specimens. The only Seba specimen still extant in the Academy of Sciences, St. Petersburg, Russia, is ZIL 274, which WRH examined and found to be *L. knudseni*; the Seba figure clearly indicates a complete dorsolateral fold from the eye to the groin, thus ZIL 274 could not be the specimen Seba illustrated. Heyer (2005) therefore designated as neotype for *Rana pentadactyla* Laurenti, 1768, specimen RMNH 29559, an adult male, from Suriname, the likely origin of Seba’s figured specimen (Bauer 2002:9; Heyer 1979:13). Boldt (1911:83) used the name *Leptodactylus pachypus* gigas. It is unclear to what current species this name applies – *L. pachypus* is usually a synonym of *L. ocellatus* and *L. gigas* is a synonym of *L. pentadactylus*. Frost (2009) included *Doryphoros gigas* Mayer, 1835 in the synonymy of *Leptodactylus pentadactylus*. It is impossible to associate the individual figures of Mayer’s plate 3 with currently recognized species of *Leptodactylus*. Plate 3, figure 1 (identified as *Rana Pachypus Gigas*) cannot be *Leptodactylus pentadactylus*, as the figure clearly illustrates a hypertrophied arm that is much bulkier than the arms of male *L. pentadactylus*. Plate 3, figure 2 illustrates the skeleton of the hand of *Pachypus gigas*; the figure could be one of several species of *Leptodactylus*. Plate 3, figure 8 of *Doryphoros gigas* illustrates the anatomy of the hyoid, larynx, and lungs of a male; the figure can not be positively associated with any species of *Leptodactylus*.

• **REMARKS.** The proposed English name for *Leptodactylus pentadactylus* is Smoky Jungle Frog, the proposed Portuguese name is Rã-Defumada-da-Selva, and the proposed Spanish name is Rana Ahumada de la Jungla (see <http://learning.richmond.edu/Leptodactylus>). Published common names include Apel-Lapli (Lescure and Marty 2000), Amazonian Bullfrog (Bartlett 2000), Femfingerpadda (Loman 1976), Fünffingeriger Pfeiffrosch (Ananjeva et al. 1988), Fünfzehnpfeiffrosch (Krintler, 1996), Grenouille-Flûte (Ananjeva et al. 1988), Grenouille Taur-eau (Ananjeva et al. 1988), Gualag Frog (Coloma and Ron 2001), Hatun-Hambato (Jiménez de la Espada 1875), Hua (Schlüter 1980), Hualo (Schlüter 1984; Sichhar Valdez et al. 1995; Souza and Rivera Gonzáles 2006a), Jojo (Yáñez-Muñoz and Venegas 2008a,b), Jungle-chicken Frog (Rosenberg 1987 as *L. pentadactylus dengleri*), Krapo-Lapli (Lescure and Marty 2000), La Grenouille Géante (Spix 1824), Lep-todactyle Géant (Lescure and Marty 2000), Mawa (Lescure and Marty 2000), Mountain Chicken (Felix and Sahdew 2006; Tammesar et al. 2004), Mulu (Lescure et al. 1980; Lescure and Marty 2000), Muru (Lescure and Marty 2000), Ooti (Rojas Zolezzi 2002), Rã-Caçote (Souza and Cardoso 2002), Rã-pimenta (São Pedro et al. 2009), Rain Frog (Krintler 1996), Rana Gualag (Coloma and Ron 2001), Rã-Que-

Chama-Chuva (Souza and Cardoso 2002), Riesen-Pfeiffrosch (Schlüter 1984), Reuzen Fluitkikker (Felix and Sahdew 2006), Sapo-Toro Común (Barrio Amarós 1998; Heyer et al. 2008a), Slender-fingered Bladder Frog (Ananjeva et al. 1988), Smoky Jungle Frog (Ananjeva et al. 1988; Bartlett 2000; Behler and Behler 2005; Cochran 1940; Heyer 2005; McAllister et al. 2010a,b; Rosenberg 1987; Wright 2001a), South American Bullfrog (Ananjeva et al. 1988; Arak 1986; Behler and Behler 2005; Blankenship 1990; Bursley et al. 2001; Frank and Ramus 1995; McAllister et al. 2010a,b; Rosenberg 1987), Südamerikanischer Ochsenfrosche (Ananjeva et al. 1988; Schlüter 1984; Switak 2006), Todo (Felix and Sahdew (2006), Whooping Frog (Castner 2000), Yai Jojó (Ormaza and Bajaña 2008).

• **ETYMOLOGY.** The specific name *pentadactyla* is Latin, meaning five-digit. Seba's (1734) Figure 1 on Plate 75 clearly shows five fingers on each hand. As there are no extant frogs known to have five fingers, the illustrator apparently exercised some artistic license in its execution.

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### LITERATURE CITED

- Acosta-Galvis, A.R. 2000. Ranas, Salamandras y Caecilia (Tetrapoda: Amphibia) de Colombia. *Biota Colombiana* 1:289–319.
- , C. Huertas-Salgado, and M. Rada. 2006. Aproximación al conocimiento de los anfibios en una localidad del Magdalena medio (Departamento de Caldas, Colombia). *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 30:291–303.
- Adesiyun, A.A. 1998. Prevalence of *Salmonella* and *Campylobacter* species in animals at Emperor Valley Zoo, Trinidad. *Journal of Zoo and Wildlife Medicine* 29:237–239.
- . 1999. Absence of *Escherichia coli* 0157 in a survey of wildlife from Trinidad and Tobago. *Journal of Wildlife Diseases* 35:115–120.
- Ahl, E. 1930. Amphibia (Lurche). *Tabulae Biologicae* 6:598–624.
- Aichinger, M. 1987. Annual activity patterns of anurans in a seasonal neotropical environment. *Oecologia* 71:583–592.
- . 1991. Faunal deficit of anurans in a tropical farmland of Amazonian Peru. *Alytes* 9:23–32.
- . 1992. Fedundity [sic] and breeding sites of an anuran community in a seasonal tropical environment. *Studies on Neotropical Fauna and Environment* 27:9–18.
- Albuja, L., M. Ibarra, J. Urgilés, and R. Barriga. 1980. Estudio Preliminar de los Vertebrados Ecuatorianos. Escuela Politécnica Nacional, Departamento de Ciencias Biológicas, Quito.
- Alcalde, L. 2005. Descripción de la musculatura craneana en larvas de anuros de las familias Hylidae y Leptodactylidae. *Revista del Museo de La Plata, Zoología* 16:1–12.
- Aleven, I.M. and H.H. Bouwmeester. 1958. Artis verrijkt met een speciale zaal voor amhibiën! *Lacerta* 16:80–81.
- Allmon, W.D. 1991. A plot study of forest floor litter frogs, Central Amazon, Brazil. *Journal of Tropical Ecology* 7:503–522.
- Almeida, F. 1934. Considerações em torno de um cogumelo encontrado por Carini no pulmão do sapo. (*Leptodactylus pentadactylus*). [Abstract]. *Revista de Biologia e Hygiene, São Paulo* 5:51.
- Almendáriz, A. 1987. Contribución al conocimiento de la herpetofauna centrorientada ecuatoriana. *Politécnica* 12:77–133.
- . 1991. Anfíbios y reptiles. *Politécnica* 16:89–162.
- . 1997. Appendix 10. Amphibian and reptile species recorded in the northern and western Cordillera del Cóndor, p. 199–201. *In* T.S. Schulenberg and K. Awbrey (eds.), *The Cordillera del Cóndor region of Ecuador and Peru: A biological assessment. Rapid Assessment Program Working Papers* (7).
- Altig, R. 1979. Toads are Nice People. Gates House/MANCO, Inc., Columbia, Missouri.
- and G.F. Johnston. 1986. Major characteristics of free-living anuran tadpoles. *Smithsonian Herpetological Information Service* (67):1–75.
- and R.W. McDiarmid. 1999. Diversity. Familial and generic characterizations, p. 295–337. *In* R.W. McDiarmid and R. Altig (eds.), *Tadpoles: The Biology of Anuran Larvae*. The University of Chicago Press, Chicago.
- Alverson, W.S., C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. 2008. Conservation in Cuyabeno-Güepí, p. 175–185. *In* W.S. Alverson, C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. (eds.), *Ecuador, Perú: Cuyabeno-Güepí. Rapid Biological and Social Inventories* (20).
- Amaro, A. 1964. Sobre *Zelleriella ovonucleata* Metcalf, 1940, entozoário de anuros (Sarcostomastigophora, Opalinata). *Atas da Sociedade de Biologia do Rio de Janeiro* 8:4–6.
- . 1969a. Sinopse dos opalinídeos brasileiros (Sarcostomastigophora, Opalinata). IIIa Nota (Ia Parte): Gênero: *Zelleriella* Metcalf, 1920. *Atas da Sociedade de Biologia do Rio de Janeiro* 12:237–243.
- . 1969b. Sinopse dos opalinídeos brasileiros (Sarcostomastigophora, Opalinata). IIIa Nota (IIa Parte): Gênero *Zelleriella* Metcalf, 1920. *Atas da Sociedade de Biologia do Rio de Janeiro* 12:307–314.
- and S. Sena. 1968. Sinopse das espécies brasileiras do gênero *Nyctotheroides* Grassé, 1928 (Ciliata, Heterotrichida). IIa Nota (Ia Parte): Sub-

- gênero *N. (Nyctotheroides)* Grassé, 1928. Atas da Sociedade de Biologia do Rio de Janeiro 12: 37–42.
- Amaro-Ghilardi, R.C., R.P. Oliveira, and Y. Yonenaga-Yassuda. 1999. Padrões de distribuição de seqüências teloméricas (TTAGGG)n em espécies de *Bufo*, *Leptodactylus* e *Hyla* (Amphibia-Anura) [Abstract]. Genetics and Molecular Biology 22: 64–65.
- , M.T. Rodrigues, and Y. Yonenaga-Yassuda. 2004. Chromosomal studies after differential staining and fluorescence in situ hybridization using telomeric probe in three *Leptodactylus* species (Leptodactylidae, Anura). Caryologia 57:53–65.
- , M.J.J. Silva, M.T. Rodrigues, and Y. Yonenaga-Yassuda. 2008. Chromosomal studies in four species of genus *Chaunus* (Bufonidae, Anura): Localization of telomeric and ribosomal sequences after fluorescence in situ hybridization (FISH). Genetica 134:159–168.
- , G.O. Skuk, R.O. de Sá, M.T. Rodrigues, and Y. Yonenaga-Yassuda. 2006. Karyotypes of eight species of *Leptodactylus* (Anura, Leptodactylidae) with a description of a new karyotype for the genus. Phyllomedusa 5:119–133.
- Ananjeva, N., L.J. Borkin, I.S. Darevsky, and N.L. Orlov. 1988. Dictionary of Animal Names in Five Languages. Amphibians and Reptiles. Latin, Russian, English, German, French. 12126 Names. Russky Yazyk, Moscow.
- Anastasi, A., G. Bertaccini, J.M. Cei, G. De Caro, V. Erspamer, M. Impicciatore, and M. Roseghini. 1970. Presence of caerulein in extracts of the skin of *Leptodactylus pentadactylus labyrinthicus* and of *Xenopus laevis*. British Journal of Pharmacology 38:221–228.
- Andersson, L.G. 1906. On batrachians from Bolivia, Argentina, and Peru, collected by Erland Norden-skiöld 1901–1902 and Nils Holmgren 1904–1905. Arkiv för Zoologi 3:1–19 + 1 plate.
- . 1911. A new *Leptodactylus* and a new *Nototrema* from Brazil. Arkiv för Zoologi 7:1–6 + 2 plates.
- . 1945. Batrachians from East Ecuador collected 1937, 1938 by Wm. Clarke-Macintyre and Rolf Blomberg. Arkiv för Zoologi 37 A:1–88.
- Anonymous. 1888. Notes. Nature 38:301–304.
- . 1963. Viaje de estudio a Bolivia y Perú. Boletín de la Asociación Latino Americana de Ictiólogos y Herpetólogos 3:3.
- . 1976. Species of wild animals bred in captivity during 1974 and multiple generation captive births. International Zoo Yearbook 16:333–410.
- . 1977. Species of wild animals bred in captivity during 1975 and multiple generation captive births. International Zoo Yearbook 17:253–334.
- . 1978. Species of wild animals bred in captivity during 1976 and multiple generation captive births. International Zoo Yearbook 18:319–404.
- . 1982. Species of wild animals bred in captivity during 1980 and multiple generation captive births. International Zoo Yearbook 22:363–438.
- . 1986. Species of wild animals bred in captivity during 1982/1983 and multiple generation captive births. International Zoo Yearbook 24/25:421–564.
- . 1987. Species of wild animals bred in captivity during 1984 and multiple generation captive births. International Zoo Yearbook 26:411–506.
- . 1988. Species of wild animals bred in captivity during 1985 and multiple generation captive births. International Zoo Yearbook 27:341–435.
- . 1989. Species of wild animals bred in captivity during 1986 and multiple generation captive births. International Zoo Yearbook 28:384–487.
- . 1990. Species of wild animals bred in captivity during 1987 and multiple generation captive births. International Zoo Yearbook 29:243–348.
- . 1991. Species of wild animals bred in captivity during 1988/1989 and multiple generation captive births. International Zoo Yearbook 30:311–489.
- . 1993. Species of wild animals bred in captivity during 1991 and multiple generation captive births. International Zoo Yearbook 32:363–471.
- . 1994. Species of wild animals bred in captivity during 1992 and multiple generation captive births. International Zoo Yearbook 33:297–407.
- . 1997. Species of wild animals bred in captivity during 1994 and multiple generation captive births. International Zoo Yearbook 35:345–462.
- . 1998. Species of wild animals bred in captivity during 1995/1996 and multiple generation captive births. International Zoo Yearbook 36:363–551.
- Aparicio Effen, J.K. 1992. Herpetofauna, p. 113–119. In H. Salm and M. Marconi (eds.), Reserva Nacional Amazónica Manuripi-Heath: Programa de Reestructuración (Fase II). LIDEMA, Cordopando, La Paz, Bolivia.
- . 1993. Primera evaluación de la herpetofauna de la Amazonia boliviana. Departamento de Pando-Bolivia [Abstract], p. 35. In III Congreso Latino-Americano de Herpetología. Instituto de Biología da Universidade Estadual de Campinas, Campinas.
- Arak, A. 1986. The 20 families of frogs and toads, p. 52–55. In T.R. Halliday and K. Adler (eds.), The Encyclopedia of Reptiles and Amphibians. Facts on File Publications, New York.
- Arcay de Peraza, L. and M. Tengler de McLure. 1971. The "paranuclear corpuscles" in poikilothermal vertebrates. II. Description of a new species of *Toddia* in *Electrophorus electricus* (electric eel), with an expansion of the key to the species of the genus *Toddia* in poikilothermal vertebrates. Acta Biologica Venezuelica 7:201–209.
- Ardila-Robayo, M.C. and P.M. Ruiz-Carranza. 1997. Herpetología (Anfibios/Reptiles), p. 255–264. In Anonymous (ed.), Zonificación Ambiental para El Plan Modelo Colombo-Brasileiro (Eje Apaporis-Tabatinga: PAT). Instituto Geográfico Agustín Codazzi, Santafé de Bogotá.
- Arêa Leão, A.E., M.T. Mello, and A. Cury. 1947. Cromoblastomicose experimental. Revista Brasileira de Biologia 7:5–24.
- Ávila-Pires, T.C.S., M.S. Hoogmoed, and W.A. Rocha. 2010. Notes on the vertebrates of northern Pará, Brazil: A forgotten part of the Guianan Re-

- gion, I. Herpetofauna. Notas sobre os vertebrados do norte do Pará, Brasil: Uma parte esquecida da Região das Guianas, I. Herpetofauna. Bo-letim do Museu Paraense Emílio Goeldi, Ciências Naturais 5:13–112.
- Báez, A.M. and Z.B. Gasparini. 1977. Orígenes y evolución de los anfibios y reptiles del cenozoico de América del Sur. *Acta Geológica Lilloana* 14: 149–232.
- Baker, M.R. 1987. Synopsis of the Nematoda parasitic in amphibians and reptiles. Memorial University of Newfoundland, Occasional Papers in Biology (11):1–325.
- and C. Vaucher. 1988. Parasitic helminths from Paraguay XV: Atractidae (Nematoda: Cosmocercoidea) from frogs. *Revue Suisse de Zoologie* 95: 421–431.
- Ballesteros Márquez, A. 1945. Revisión de la Familia Cosmocercoidea Travassos, 1925. *Revista Ibérica de Parasitología* 5:150–180.
- Barbour, T. 1930. A list of Antillean reptiles and amphibians. *Zoologica* 11:61–116.
- . 1935. A second list of Antillean reptiles and amphibians. *Zoologica* 19:77–141.
- . 1937. Third list of Antillean reptiles and amphibians. *Bulletin of the Museum of Comparative Zoology at Harvard College* 82:77–166.
- Barlow, L.A. 1998. The biology of amphibian taste, p. 743–782. *In* H. Heatwole and E.M. Dawley (eds), *Amphibian Biology*, Volume 3, Sensory Perception. Surrey Beatty & Sons, Chipping Norton, Australia.
- Barnett, S.L., J.F. Cover, Jr., and K.M. Wright. 2001. Amphibian husbandry and housing, p. 35–61. *In* K.M. Wright and B.R. Whitaker (eds.), *Amphibian Medicine and Captive Husbandry*. Krieger Publ., Malabar, Florida.
- Barrio, A. 1964. Importancia, significación y análisis del canto de batracios anuros. Publicación Conmemorativa del Cincuentenario del Museo Provincial de Ciencias Naturales "Florentino Ameghino," Santa Fe:51–79.
- Barrio Amorós, C.L. 1998. Sistemática y biogeografía de los anfibios (Amphibia) de Venezuela. Systematics and biogeography of the amphibians (Amphibia) of Venezuela. *Acta Biologica Venezuelica* 18:1–93.
- . 2004. Amphibians of Venezuela systematic list, distribution and references, an update. *Revista de Ecología Latinoamericana* 9:1–48.
- Bartlett, R.D. 2000. A wondrous world of water: Parched on the Peruvian Amazon. *Reptiles Magazine* 8:18, 20, 22, 24.
- and P.P. Bartlett. 2003. Reptiles and Amphibians of the Amazon. *An Ecotourist's Guide*. University Press of Florida, Gainesville.
- Bass, M.S., M. Finer, C.N. Jenkins, H. Kreft, D.F. Cisneros-Heredia, S.F. McCracken, N.C.A. Pitman, P.H. English, K. Swing, G. Villa, A. Di Fiore, C.C. Voigt, and T.H. Kunz. 2010. Global conservation significance of Ecuador's Yasuni National Park. *PLoS One* 5(e8767):1–22.
- Bastos, R.P. 2007. Anfíbios do Cerrado, p. 87–100. *In* L.B. Nascimento and M.E. Oliveira (eds.), *Herpetologia no Brasil II*. Sociedade Brasileira de Herpetologia, Belo Horizonte.
- Bateman, G.C. 1897. *The Vivarium, Being a Practical Guide to the Construction, Arrangement, and Management of Vivaria, Containing Information as to all Reptiles Suitable as Pets, How and Where to Obtain them, and How to Keep Them in Health*. L. Upcott Gill, London.
- Bauer, A.M. 2002. [Review of] Albertus Seba, cabinet of natural curiosities. The complete plates in colour, 1734–1756. 2001. Taschen, Köln. 587 pp., 6 fold-out plates. ISBN 3–8228–1600–0. US \$150. *Newsletter and Bulletin of the International Society for the History and Bibliography of Herpetology* 3:8–15.
- Baumann, F. 1912. Brasilianische Batrachier des Berner Naturhistorischen Museums nebst Untersuchungen über die geographische Verbreitung der Batrachier in Brasilien. *Zoologische Jahrbücher, Abteilung für Systematik, Ökologie und Geographie der Tiere, Jena* 33:87–172 + 5 maps + 3 plates.
- . 1917. Batrachier aus Süd-Amerika Gesammelt von Dr. Bluntschli und Dr. Peyer. *Revue Suisse de Zoologie* 25:131–144.
- Beddard, F.E. 1907. Notes upon the anatomy of a species of frog of the genus *Megalophrys*, with references to other genera of Batrachia. *Proceedings of the Zoological Society of London* 1907:324–352.
- Beebe, W. 1919. The higher vertebrates of British Guiana with special reference to the fauna of Bartica District. No. 7. List of Amphibia, Reptilia and Mammalia. *Zoologica* 2:205–227.
- . 1946. Field notes on the snakes of Kartabo, British Guiana, and Caripito, Venezuela. *Zoologica* 31: 11–52 + plates I–XIII.
- Behler, J.L. and D.A. Behler. 2005. *Frogs: A Chorus of Colors*. Sterling Publishing Co., Inc., New York.
- Beltrán, E. 1941. Opalinidos parásitos en anfibios mexicanos. *Revista de la Sociedad Mexicana de Historia Natural* 2:127–136 + plate 3.
- Benninghoff, A. 1921a. Beiträge zur vergleichenden Anatomie und Entwicklungsgeschichte des Amphibienherzens. *Gegenbaurs Morphologisches Jahrbuch* 51:355–412.
- . 1921b. Zur vergleichenden Anatomie und Entwicklungsgeschichte des Amphibienherzens und zur Phylogenie des Reizleitungssystems. *Sitzungsberichte der Gesellschaft zur Förderung der gesamten Naturwissenschaften* 1920:107–117.
- Ben Slimane, B. and M.-C. Durette-Desset. 1996a. Four new species of *Oswaldocruzia* (Nematoda: Trichostrongylina, Molineoidea) parasitizing amphibians and lizards from Ecuador. *Memorias do Instituto Oswaldo Cruz* 91:317–327.
- and –. 1996b. New *Oswaldocruzia* (Nematoda, Trichostrongylina, Molineoidea) parasites of amphibians from French Guyana and Ecuador. *Miscelânea Zoológica* 19:55–66.
- Berg, C. 1896. Batracios argentinos. Enumeración sistemática, sinonímica y bibliográfica de los ba-

- tracios de la República Argentina (con un cuadro sinóptico de clasificación). *Anales del Museo Nacional de Buenos Aires* 5:147–226.
- Bernarde, P.S. 2007. Ambientes e temporada de vocalização da anurofauna no Município de Espigão do Oeste, Rondônia, sudoeste da Amazônia-Brasil (Amphibia: Anura). *Biota Neotropica* 7:1–6.
- , M.N.C. Kokubum, R.A. Machado, and L. Anjos. 1999. Uso de habitats naturais e antrópicos pelos anuros em uma localidade no estado de Rondônia, Brasil (Amphibia: Anura). *Acta Amazonica* 29: 555–562.
- and L.C. Macedo. 2008. Impacto do desmatamento e formação de pastagens sobre a anurofauna de serapilheira em Rondônia. *Iheringia, Série Zoologia* 98:454–459.
- and R.A. Santos. 2009. Utilização medicinal da secreção (“vacina-do-sapo”) do anfíbio kambô (*Phyllomedusa bicolor*) (Anura: Hylidae) por população não-indígena em Espigão do Oeste, Rondônia, Brasil. *Biotemas* 22:213–220.
- Bernardi, G. and G. Bernardi. 1990. Compositional patterns in the nuclear genome of cold-blooded vertebrates. *Journal of Molecular Evolution* 31: 265–281.
- Bernardi, J.A.R., R.A. Estupiñán, and U. Galatti. 1999. New anuran records from the Floresta Nacional de Caxiuanã, eastern Amazon, Brazil. *Herpetological Review* 30:176–177.
- Betta, E. 1876. Sul *Cystignathus ocellatus* (L.) Wagl. (*Rana ocellata* Schneider) dell’ America Meridionale. Instituto Veneto di Scienze, Lettere et Arti. *Atti Venice Series* 5, Volume 2:695–703.
- Bhaduri, J.L. 1946. Occlusion of the oviduct in the cloaca after spawning in some Salientia. *Nature* 158:749–750.
- . 1953. A study of the urinogenital system of Salientia. *Proceedings of the Zoological Society of Bengal* 6:1–111.
- Biegler, R. 1966. A survey of recent longevity records for reptiles and amphibians in zoos. *The International Zoo Yearbook* 6:487–493.
- Blanc, M. and M. Dewynter. 2004. Réserve naturelle de la Trinité. Inventaire herpétologique, Ileme mission, 17 au 26 mai 2004. Unité de suivi no 1, DZ Aimara. Rapport de Mission, Direction Régionale de l’Environnement Guyane, Office National des Forêts.
- Blankenship, J.R. 1990. The Wildlife of Montserrat: Including an Annotated Bird List for the Island. Montserrat National Trust, Montserrat, West Indies.
- Boettger, O. 1891 [1889]. Bericht über die Liestungen in der Herpetologie während des Jahres 1888. *Archiv für Naturgeschichte* 55:163–272.
- . 1894. Geschenke und Erwerbungen. Juni 1893 bis Juni 1894. I. Naturalien. A. Geschenke. 4. Für die Reptilien- und Batrachiersammlung. Bericht über die Senckenbergische Naturforschende Gesellschaft in Frankfurt am Main 1894:XXVII–XXXIII.
- . 1895. Geschenke und Erwerbungen. I. Naturalien. A. Geschenke. 4. Für die Reptilien- und Batrachiersammlung. Bericht über die Senckenbergische Naturforschende Gesellschaft in Frankfurt am Main 1895:xxxii–xxxvii + xlvi.
- . 1897. Geschenke und Erwerbungen. Juni 1896 bis Juni 1897. I. Naturalien. A. Geschenke. 4. Für die Reptilien- und Batrachiersammlung. Bericht über die Senckenbergischen Naturforschenden Gesellschaft in Frankfurt am Main 1897:LII–LV.
- Bogart, J.P. 1974. A karyosystematic study of frogs in the genus *Leptodactylus* (Anura: Leptodactylidae). *Copeia* 1974:728–737.
- Bokermann, W.C.A. 1956. Sobre uma nova espécie de *Hyla* do estado de Minas Gerais, Brasil (Amphibia Salientia-Hylidae). *Papéis Avulsos de Zoologia* 12:357–362.
- . 1957. Notas sobre a biologia de *Leptodactylus flavopictus* Lutz, 1926. *Revista Brasileira de Biologia* 17:495–500.
- . 1966. Lista Anotada das Localidades Tipo de Anfíbios Brasileiros. Serviço de Documentação-RUSP, São Paulo.
- Boldt, M. 1911. Die Hornhöcher an den vorderen Extremitäten von *Leptodactylus ocellatus* (L.). *Archiv für Naturgeschichte* 77:80–86.
- Bolívar-García, W. and J.H. Restrepo-Toro. 2004. Clave para la identificación de los anfibios amenazados de Colombia, p. 77–98. *In* J.V. Rueda-Almonacid, J.D. Lynch, and A. Amézquita (eds.), *Libro Rojo de Anfíbios de Colombia*. Conservación Internacional Colombia, Instituto de Ciencias Naturales-Universidad Nacional de Colombia, Ministerio del Medio Ambiente, Bogotá.
- Born, M. 1996. Species diversity in a neotropical rainforest: Amphibians of Nouragues, a nature reserve in French Guiana. *BOS NiEuWSLETTER* 15:25–33.
- and P. Gaucher. 2001a. Distribution and life histories of amphibians and reptiles, p. 167–184. *In* F. Bongers, P. Charles-Dominique, P.-M. Forget, and M. Théry (eds.), *Nouragues: Dynamics and Plant-Animal Interactions in a Neotropical Rainforest*, Vol. 80. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- and –. 2001b. Appendix 5. Amphibian and reptile species at the Nouragues Nature Reserve, p. 371–379. *In* F. Bongers, P. Charles-Dominique, P.-M. Forget, and M. Théry (eds.), *Nouragues: Dynamics and Plant-Animal Interactions in a Neotropical Rainforest*, Vol. 80. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Both, A.R. 2000. Herp mail. Smoky jungle frogs, pine snake breeding. *Reptile & Amphibian Hobbyist* 6: 88–89.
- Boulenger, G.A. 1882. Catalogue of the Batrachia Salientia s. Ecaudata in the Collection of the British Museum. Second ed. Trustees of the British Museum, London.
- . 1887. On a new geckoid lizard from British Guiana. *Proceedings of the Zoological Society of London* 1887:153–154.
- . 1891. On reptiles, batrachians, and fishes from the Lesser West Indies. *Proceedings of the Zoological Society of London* 1891:351–357.
- Bourlière, F. 1946. Longévité moyenne et longévité

- maximum chez les vertébrés. L'Année Biologique 50, 3me série:249–270.
- Bowler, J.K. 1977. Longevity of reptiles and amphibians in North American collections as of 1 November, 1975. Society for the Study of Amphibians and Reptiles, Herpetological Circular (6):iv + 32 p.
- Braus, H. 1919. Der Brustschulterapparat der Froschlurche. Sitzungsberichte der Heidelberger Akademie der Wissenschaften, Stiftung Heinrich Lanz, Mathematisch-naturwissenschaftliche Klasse, Abteilung B. Biologische Wissenschaften 15:1–50 + 4 Tafeln.
- Brazil, V. and J. Vellard. 1926. Contribuição ao estudo dos batrachios. Memorias do Instituto Butantan 3:7–70 + plates 1–9.
- Breen, J.F. 1974. Encyclopedia of Reptiles and Amphibians. T.F.H. Publications, Inc., Neptune City, New Jersey.
- Brehm, A.E. 1878. Brehms Thierleben. Allgemeine Kunde des Thierreichs. Die Kriechthiere und Lurche. Third Edition. Kriechtiere, Lurche und Fische, Erster Band. Verlag des Bibliographischen Instituts, Leipzig.
- Breuil, M. 1997. Les Collections Herpetologiques et Chiropterologiques du Musée Père Pinchon. Muséum National d'Histoire naturelle, Paris.
- Bringsøe, H. 2007. Mine oplevelser med uanselige vandlevende øgler i Fransk Guyana, Kina, Malaysia og Costa Rica. Nordisk Herpetologisk Forening 50:98–114.
- Brocchi, P.-L.-A. 1882. Étude des Batraciens de l'Amérique Centrale. Imprimerie Nationale, Paris.
- Brodie, E.D., Jr., J.L. Hensel, Jr., and J.A. Johnson. 1974. Toxicity of the urodele amphibians *Taricha*, *Notophthalmus*, *Cynops* and *Paramesotriton* (Salamandridae). Copeia 1974:506–511.
- Brooks, D.R. 1976. Five species of platyhelminths from *Bufo marinus* L. (Anura: Bufonidae) in Colombia with descriptions of *Creptotrema lynchi* sp. n. (Digenea: Allocreadiidae) and *Glyphelmis robustus* sp. n. (Digenea: Macroderoididae). Journal of Parasitology 62:429–433.
- Brooks, G.R., Jr. 1982. An analysis of prey consumed by the anuran, *Leptodactylus fallax*, from Dominica, West Indies. Biotropica 14:301–309.
- Brown, P. 1988. Seventh annual live exhibit report. Southwestern Herpetologists Society Newsletter (407):3–8.
- Brum-Zorrilla, N. and F.A. Saez. 1968. Chromosomes of Leptodactylidae (Amphibia Anura). Experientia 24:969.
- Brumpt, É. 1949. Précis de Parasitologie. 6 ed. Masson et Cie, Paris.
- Brygoo, E.R. and P. Destombes. 1976. Épidémiologie de la chromoblastomycose humaine. Bulletin de l'Institut Pasteur 74:219–243.
- Burse, C.R., S.R. Goldberg, and J.R. Parmelee. 2001. Gastrointestinal helminths of 51 species of anurans from Reserva Cuzco Amazónico, Peru. Comparative Parasitology 68:21–35.
- , –, and S.R. Telford, Jr. 2007. Gastrointestinal helminths of 14 species of lizards from Panama with descriptions of five new species. Comparative Parasitology 74:108–140.
- Busack, S.D. 1974. Amphibians and reptiles imported into the United States. United States Department of the Interior, Fish and Wildlife Service, Wildlife Leaflet (506):1–36.
- Bustamante, M.R. 2006. Ranas de la Amazonía Ecuatoriana, pp. 1–4. Rapid Color Guide. Environmental & Conservation Programs, The Field Museum, Chicago.
- and A. Catenazzi. 2007. Apéndice/Appendix 4. Anfíbios y reptiles/Amphibians and reptiles, p. 206–213. In C. Vriesendorp, J.A. Álvarez, N. Barbagelata, W.S. Alverson, and D.K. Moskovits (eds.), Perú: Nanay-Mazán-Arabela. Rapid Biological Inventories (18).
- Cabrera-Guzmán, E., V. León-Régagnon, and L. García-Prieto. 2007. Helminth parasites of the leopard frog *Rana cf. forreri* (Amphibia: Ranidae) in Acapulco, Guerrero, Mexico. Comparative Parasitology 74:96–107.
- Cadenas M., D.A. 2004. Comparación de la estructura gremial entre comunidades de anuros de selvas lluviosas de baja elevación. Licenciado en Biología Thesis, Universidad de Los Andes, Mérida, Venezuela.
- Cadle, J.E., L. González A., and M. Guerrero. 2003. Apéndice/Appendix 2: Anfíbios y reptiles/Amphibians and reptiles, p. 122–124. In W.S. Alverson, D.K. Moskovits, and I.C. Halm (eds.), Bolivia: Pando, Federico Román. Rapid Biological Inventories (6).
- and M. Guerrero. 2003. Apéndice 2/Appendix 2: Anfíbios y reptiles/Amphibians and reptiles, p. 93–94. In W.S. Alverson (ed.), Bolivia: Pando, Madre de Dios. Rapid Biological Inventories (5).
- , J. Icochea, J. Pérez Zúñiga, A. Portilla, and C. Rivera. 2002. Anexo 3. Listado de especies registradas para el Santuario Nacional Pampas del Heath, p. 101–104. In J. Reitz Montambault (ed.), Informes de las Evaluaciones Biológicas Pampas del Heath, Perú; Alto Madidi, Bolivia y Pando, Bolivia. RAP (Rapid Assessment Program) Bulletin of Biological Assessment (24).
- Caldwell, J.P. 2007. [Review of] A.P. Lima, W.E. Magnusson, M. Menin, L.K. Erdtmann, D.J. Rodrigues, C. Keller, and W. Hödl. 2006. Guide to the Frogs of Reserva Adolpho Ducke-Guia de Sapos da Reserva Adolpho Ducke: 1–168, color photographs 269. Attema Design Editorial, Manaus. Phyllomedusa 6:73–76.
- and M.C. Araújo. 2005. Amphibian faunas of two eastern Amazonian rainforest sites in Pará, Brazil. Sam Noble Oklahoma Museum of Natural History, Occasional Papers (16):1–41.
- and L.J. Vitt. 1999. Dietary asymmetry in leaf litter frogs and lizards in a transitional northern Amazonian rain forest. Oikos 84:383–397.
- Camargo, A., W.R. Heyer, and R.O. de Sá. 2009. Phylogeography of the frog *Leptodactylus validus* (Amphibia: Anura): Patterns and timing of colonization events in the Lesser Antilles. Molecular Phylogenetics and Evolution 53:571–579.
- Camper, J.D., L.A. Ruedas, J.W. Bickham, and J.R.



- Dixon. 1993. The relationship of genome size with developmental rates and reproductive strategies in five families of neotropical bufonoid frogs. *Life Science Advances-Genetics* 12:79–88.
- Campos, C.E. and A.S. Araujo. 2007. Diversidade e uso de hábitat de anfíbios anuros da área de proteção ambiental do Rio Curiaú, Amapá, Brasil. [Abstract]. Terceiro Congresso Brasileiro de Herpetologia, Belém, Pará. 15 a 20 de Julho de 2007. CD.
- Cannatella, D.C. 1999. Architecture. Cranial and axial musculoskeleton, p. 52–91. *In* R.W. McDiarmid and R. Altig (eds.), *Tadpoles: The Biology of Anuran Larvae*. The University of Chicago Press, Chicago.
- Cardwell, M. 1998. Floating a jungle river: Adventure on the Río Gálvez. *Fauna* 1:36–51.
- Carini, A. 1909. Sur une hémogrégarine du *Leptodactylus pentadactylus* Laur. *Bulletin de la Société de Pathologie Exotique et de ses Filiales* 2:469–471.
- . 1910. Sur une moisissure qui cause une maladie spontanée du *Leptodactylus pentadactylus*. *Annales de l'Institut Pasteur* 24:157–160 + plate III.
- . 1929a. Presença nas hemácias do *Leptodactylus pentadactylus* de corpusculos de natureza provavelmente parasitaria (*Bertarellia leptodactyli*). *Revista de Biologia e Higiene, São Paulo* 2:146.
- . 1929b. O numero dos corpusculos endoglobulares do *Leptodactylus pentadactylus* aumenta após esplenectomia. *Revista de Biologia e Higiene, São Paulo* 2:146.
- . 1930a. Augmentation après splénectomie du nombre des corpuscles endoglobulaires chez *Leptodactylus pentadactylus*. *Comptes Rendus des Séances de la Société de Biologie et de ses Filiales et Associées* 103:1314–1315.
- . 1930b. Présence de corpuscules de nature parasitaire probable (*Bertarellia leptodactyli*) dans les hématies du *Leptodactylus pentadactylus*. *Comptes Rendus des Séances de la Société de Biologie et de ses Filiales et Associées* 103:1312–1313.
- . 1938. Contribuição ao conhecimento das "Opaliniidae" dos batráquios do Brasil. II-Nota: Gênero *Zelleriella*. *Boletim Biológico (São Paulo)* 3 (Nova Série):147–156.
- . 1939. Contribuição ao estudo dos nictóteros dos batráquios do Brasil. IV nota. Nictóteros encontrados em rãs do genero *Leptodactylus*. *Arquivos de Biologia (São Paulo)* 23:256–259.
- . 1943. Novas observações, em batráquios e ofídios, de zelleriellas hiperparasitadas por entamebas. *Arquivos de Biología* 27:64–68.
- . 1945. Lista dos parasitas novos ou ainda pouco conhecidos descritos pelo Dr. Carini, com a respectiva indicação bibliográfica. *Arquivos de Biologia (São Paulo)* 29:108–113.
- Carmo, P.R.C. and M.O. Silva. 2008. Anfíbios anuros em um fragmento de buritizal na cidade de Ji-Paraná, Rondônia [Abstract]. *Ciência & Consciência* 1:1 unnumbered.
- Carrión, A.L. 1950. Chromoblastomycosis. *Annals of the New York Academy of Sciences* 50:1255–1282.
- Carroll, R.L., A. Kuntz, and K. Albright. 1999. Vertebral development and amphibian evolution. *Evolution and Development* 1:36–48.
- Carvahlo [sic], G.A., M.T. Ueta, and C.F.S. Andrade. 2001. Estudios morfométricos y biológicos de xifidiocercarias (Trematoda) provenientes de la infección natural de *Lymnaea columella* Say, 1817 (Basommatophora, Lymnaeidae) y *Biomphalaria tenagophila* Orbigny, 1835 (Basommatophora, Planorbidae) recolectados en Miracatu, Estado São Paulo, Brasil. *Boletín Chileno de Parasitología* 56:59–65.
- Carvalho, K.M., M.O. Moraes Filho, and M.C. Fonteles. 1978. Colinesterase plasmática em *Bufo paracnemis* e *Leptodactylus pentadactylus*. *Revista Brasileira de Biologia* 38:187–189.
- Castner, J.L. 2000. Explorama's Amazon. A Journey through the Rainforest of Peru. Feline Press, Gainesville, Florida.
- Cei, J.M. 1948. El ritmo estacional en los fenómenos cíclicos endocrino-sexuales de la rana criolloa (*Leptodactylus ocellatus* (L.)) del norte Argentino. *Acta Zoológica Lilloana* 6:283–331 + 16 plates.
- . 1950. *Leptodactylus chaquensis* n. sp. y el valor sistemático real de la especie linneana *Leptodactylus ocellatus* en la Argentina. *Acta Zoológica Lilloana* 9:395–423 + 3 plates.
- . 1953. Recenti ricerche e anticipazioni sulla biologia degli anfibi dell'Argentina. *Archivio Zoologico Italiano (Torino)* 38:507–534 + 3 plates.
- . 1954 [1953]. Recenti ricerche e anticipazioni sulla biologia degli anfibi dell'Argentina. *Archivio Zoologico Italiano (Napoli)* 38:507–534 + 3 plates.
- . 1956. Nueva lista sistemática de los batracios de Argentina y breves notas sobre su biología y ecología. *Investigaciones Zoológicas Chilenas* 3:35–68 + 9 plates.
- . 1965. Observaciones preliminares sobre las formas alto-amazonicas de *Leptodactylus* del grupo *rubido-vilarsi*. *Investigaciones Zoológicas Chilenas Special*:1–7.
- . 1972. Correlación evolutiva de caracteres bioquímicos en un anuro alto-amazónico: *Leptodactylus vilarsi* Melin. *Acta Zoológica Lilloana* 29:261–269.
- . 1980. Amphibians of Argentina. *Monitore Zoologico Italiano (N.S.)*, Monografia (2):xii + 609 p.
- and V. Erspamer. 1965. Relaciones taxonómicas y evolución bioquímica de las aminas biógenas en el género *Leptodactylus*. *Investigaciones Zoológicas Chilenas Special*:1–8.
- and –. 1966. Biochemical taxonomy of South American amphibians by means of skin amines and polypeptides. *Copeia* 1966:74–78.
- , –, and M. Roseghini. 1967. Taxonomic and evolutionary significance of biogenic amines and polypeptides occurring in amphibian skin. I. Neotropical leptodactylid frogs. *Systematic Zoology* 16: 328–342.
- Cerda, J., S.J. Gorzula, P. Schwartz, and R. Rivero. 1979. Distribución preliminar de la fauna Silvestre del Territorio Federal Amazonas. Serie Informes Científicos. Caracas, CODESUR – División de

- Fauna D.G.I.I.A.
- Champy, C. and R. Coujard. 1939. Observations cytologiques et biologiques sur la spermatogénèse de quelques batraciens et les caractères sexuels secondaires. *Archives de Zoologie Expérimentale et Générale* 81:78–100.
- Chapuis, J. 2003. Le sens de l'histoire chez les Indiens wayana de Guyane. Une géographie historique du processus de "civilisation". *Journal de la Société des Américanistes* 89:1–24.
- Cihar, J. 1987. Obozřivelníci a Plazi: Katalog k Expozici Zoologického Oddělení Národního Muzea v Praze. Národní Muzeum v Praze, Praha.
- Cisneros-Heredia, D.F. 2003. Herpetofauna de la Estación de Biodiversidad Tiputini, Amazonía Ecuatoriana: Ecología de una comunidad taxonómicamente diversa, con comentarios sobre metodologías de inventario, p. 1–21. *In* S. De la Torre and G. Reck (eds.), *Ecología y Ambiente en el Ecuador: Memorias del I Congreso de Ecología y Ambiente, Ecuador País Megadiverso*, Compact Disc:1–21.
- . 2006. La Herpetofauna de la Estación de Biodiversidad Tiputini, Ecuador. *Diversidad y Ecología de los Anfibios & Reptiles de una Comunidad Taxonómicamente Diversa*. B.S. Thesis, Universidad San Francisco de Quito, Quito, Ecuador.
- Claessen, H. 1991a. Frans Guyana 3. *Terra (Belgium)* 27:98–107.
- . 1991b. Frans Guyana 4. *Terra (Belgium)* 27:114–120.
- Cloquet, H.C. 1821. La Grenouille ocellée: *Rana ocellata*, Linnaeus; *Rana pentadactyla*, Gmelin, p. 414. *In* F.G. Levrault (ed.), *Dictionnaire des Sciences Naturelles: Dans Lequel on Traite Méthodiquement des Différens Êtres de la Nature, Considérés Soit en Eux-Mêmes, d'Après l'État Actuel de nos Connoissances, Soit Relativement à l'Utilité qu'en Peuvent Retirer la Médecine, l'Agriculture, le Commerce et les Arts. Suivi d'une Biographie des plus Célèbres Naturalistes*. Tome Dix-Neuvième. GLA-GRZ, Vol. 19. Le Normant, Paris.
- Coborn, J. 1992. *The Proper Care of Amphibians*. T.F.H. Publications, Inc., Neptune City, New Jersey.
- Cochran, D.M. 1940. Amphibians, p. 289–292. *In* B. Altschuler (ed.), *Natural History Index-Guide. An Index to 3,365 Books and Periodicals in Libraries. A Guide to Things Natural in the Field. Where and How to Find the most Important Objects of Natural Interest in all Countries as Described in the Leading Publications by the Popular Authors and Well-known Scientists and Explorers of Various Nationalities*, Second edition. H.W. Wilson Company, New York.
- . 1955 [1954]. Frogs of Southeastern Brazil. *Bulletin of the United States National Museum* (206):xvi + 423 p.
- . 1961. *Living Amphibians of the World*. Doubleday and Company, Inc., Garden City, New York.
- and C.J. Goin. 1970. Frogs of Colombia. *United States National Museum Bulletin* (288):xii + 655 p.
- Cocroft, R.B., V.R. Morales, and R.W. McDiarmid. 2001. Frogs of Tambopata, Peru. Macaulay Library of Natural Sounds, Cornell Laboratory of Ornithology, Ithaca, New York.
- Cole, C.J. 1971. Chromosomes of the rhinophrynid frog, *Rhinophrynus dorsalis* Dumeril and Bibron. *Herpetological Review* 3:37–38.
- Coloma, L.A. 1991. Anfibios del Ecuador: Lista de especies, ubicación altitudinal y referencias bibliográficas. *EcoCiencia, Reportes Técnicos* 2:1–46 + errata.
- and S.R. Ron. 2001. Ecuador megadiverso. *Megadiverse Ecuador. Anfibios, reptiles, aves, mamíferos*. Amphibians, reptiles, birds and mammals. Museo de Zoología, Pontificia Universidad Católica del Ecuador, Serie de Divulgación (1):1–139.
- Comfort, A. 1956. *The Biology of Senescence*. Rinehart and Company, Inc., New York.
- Conant, R. and R.G. Hudson. 1949. Longevity records for reptiles and amphibians in the Philadelphia Zoological Garden. *Herpetologica* 5:1–8.
- Conlon, J.M. 2008. A proposed nomenclature for antimicrobial peptides from frogs of the genus *Leptodactylus*. *Peptides* 29:1631–1632.
- , Y.H.A. Abdel-Wahab, P.R. Flatt, J. Leprince, H. Vaudry, T. Jouenne, and E. Condamine. 2009. A glycine-leucine-rich peptide structurally related to the plasticins from skin secretions of the frog *Leptodactylus laticeps* (Leptodactylidae). *Peptides* 30:888–892.
- , N. Al-Ghaferi, B. Abraham, A. Sonnevend, J.D. King, and P.F. Nielsen. 2006. Purification and properties of laticeptin, an antimicrobial peptide from skin secretions of the South American frog *Leptodactylus laticeps*. *Protein and Peptide Letters* 13:411–415.
- Cooke, R.G. 1989. Anurans as human food in tropical America: Ethnographic, ethnohistoric and archaeological evidence. *ArchaeoZoologia* 3:123–141.
- Cope, E.D. 1866. On the structures and distribution of the genera of the arciferous Anura. *Journal of the Academy of Natural Sciences, Philadelphia, Second Series*, 6:67–112 + plate 25.
- . 1885. Batrachia, p. 303–344. *In* J.S. Kingsley (ed.), *The Standard Natural History. Lower Vertebrates*, Vol. III. S.E. Cassino and Company, Boston.
- . 1889. The Batrachia of North America. *United States National Museum Bulletin* (34):1–525.
- . 1896. *The Primary Factors of Organic Evolution*. The Open Court Publishing Company, Chicago.
- Corbett, C.E. 1943. Sobre o método da rã na padronização da digitalis. *Archivos Brasileiros de Medicina* 33:29–31.
- Cordeiro-Sousa, J., B.A. Cardi, and K.M. Carvalho. 2002. An edematogenic peptide isolated from *Leptodactylus pentadactylus* skin secretion. [Abstract]. VII Simpósio de Sociedade Brasileira de Toxinologia: Vencendo as Fronteiras da Biodiversidade Molecular, Pirenópolis. 16 a 20 de Setembro de 2002:210.
- , R.F. Fontenele-Berto, R.G.S. Oliveira, J.P. Rebouças, Jr., J.E.R. Honório-Júnior, A.C.C. Olinda, I.F. Carvalho, P. Aded da Silva, B.A. Cardi, N.C. Fon-

- tenele-Cardi, A. Cordeiro, D.C. Pimenta, M.F.G. Rocha, and K.M. Carvalho. 2007a. Antifungal activity of new peptides from skin secretion of the South American frog *Leptodactylus pentadactylus*. [Abstract]. *Journal of Venomous Animals and Toxins including Tropical Diseases* 13:201.
- , –, –, –, –, –, –, N.C. Fontenele-Cardi, D.C. Pimenta, A. Cardi, and K.M. Carvalho. 2007b. Purification and primary structure of two antimicrobial peptides from skin secretion of *Leptodactylus pentadactylus* (Amphibian: Anura). [Abstract]. *Journal of Venomous Animals and Toxins including Tropical Diseases* 13:202.
- Córdova, J.H., M. Monteghirfo, and G. Ybazeta. 1996. Diversidad genética en anfibios y reptiles de Pakitza, Manu, Perú, p. 523–554. *In* D.E. Wilson and A. Sandoval (eds.), *Manu. The Biodiversity of Southeastern Peru. La Biodiversidad del Sureste del Perú*. Office of Biodiversity Programs, National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- Cortadas, J. and M.C. Pavon. 1982. The organization of ribosomal genes in vertebrates. *EMBO Journal* 1:1075–1080.
- Costa, S.C.G., S.B. Pessôa, N.M. Pereira, and T. Colombo. 1973. The life history of *Hepatozoon leptodactyli* (Lesage, 1908) Pessoa, 1970—a parasite of the common laboratory animal—the frog of the genus *Leptodactylus*. *Memorias do Instituto Oswaldo Cruz* 71:1–8 + 5 plates.
- Cox, B. 1984. Amphibians—the first land vertebrates, p. 460–485. *In* P. Whitfield and J. Johnson (eds.), *Longman Illustrated Animal Encyclopedia*. Longman Group Limited, Harlow, United Kingdom.
- Crawford, S.C. 1931. II. Field keys to the lizards and amphibians of British Guiana. *Annals of the Carnegie Museum* 21:11–42.
- and E.P. Jones. 1933. Field notes on some amphibians from British Guiana. *Copeia* 1933:88–92.
- Crim, J.W. and S.R. Vigna. 1983. Brain, gut and skin peptide hormones in lower vertebrates. *American Zoologist* 23:621–638.
- Crother, B.I. 1999. Evolutionary relationships, p. 269–334. *In* B.I. Crother (ed.), *Caribbean Amphibians and Reptiles*. Academic Press, San Diego.
- Crump, M.L. 1971. Quantitative analysis of the ecological distribution of a tropical herpetofauna. *Museum of Natural History, University of Kansas, Occasional Papers* (3):1–62.
- . 1974. Reproductive strategies in a tropical anuran community. *University of Kansas Museum of Natural History, Miscellaneous Publication* (61):1–68.
- . 2000. *In Search of the Golden Frog*. The University of Chicago Press, Chicago.
- . 2001. Amphibians, p. 53–71, 262–279. *In* D.L. Pearson and L. Beletsky (eds.), *Perú: The Eco-travellers' Wildlife Guide*. Academic Press, San Diego.
- . 2002. Amphibians, p. 79–96, 272–291. *In* D.L. Pearson and L. Beletsky (eds.), *Brazil: Amazon and Pantanal*. Natural World, Academic Press, San Diego.
- Cuvier, G. 1829. *Le Règne Animal*. Distribué d'après son Organisation, pour Servir de Base à l'Histoire Naturelle des Animaux et d'Introduction à l'Anatomie Comparée. Nouvelle Édition, Revue et Augmentée. 2 ed. Chez Déterville and Chez Crochard, Paris.
- . 1836. *Le Règne Animal*. Distribué d'après son Organisation pour Servir de Base à l'Histoire Naturelle des Animaux et d'Introduction à l'Anatomie Comparée. Troisième Edition. 3 ed. Louis Hauman et Comp<sup>e</sup>, Bruxelles.
- , E. Griffith, and E. Pidgeon. 1831. *The Class Reptilia Arranged by the Baron Cuvier, with Specific Descriptions by Edward Griffith and Edward Pidgeon*. Volume 9 of Edward Griffith and Others, *The Animal Kingdom Arranged in Conformity with its Organization, by the Baron Cuvier with Additional Descriptions of All the Species Hitherto Named, and of Many not before Noticed*. Whitaker, Treacher, and Co., London.
- Dahl, C., V. Novotny, J. Moravec, and S.J. Richards. 2009. Beta diversity of frogs in the forests of New Guinea, Amazonia and Europe: Contrasting tropical and temperate communities. *Journal of Biogeography* 36:896–904 + 4 pages of supplementary materials.
- Daló, N.L. and A.A. Larson. 1991. Spinal seizures evoked by sudden cooling of amphibian isolated spinal cords: Involvement of excitatory amino acids. *Cryobiology* 28:255–267.
- Daltry, J.C. 2002. *Mountain chicken monitoring manual*. First draft. Fauna & Flora International, Cambridge, and the Forestry and Wildlife Division, Dominica.
- Daly, J.W. and T.F. Spande. 1986. Amphibian alkaloids: Chemistry, pharmacology, and biology, p. 1–273. *In* S.W. Pelletier (ed.), *Alkaloids: Chemical and Biological Perspectives*, Volume 4. John Wiley and Sons, New York.
- and B. Witkop. 1966. The venoms of amphibians. *Memorias do Instituto Butantan* 33:425–431.
- and –. 1971. Chemistry and pharmacology of frog venoms, p. 497–519. *In* W. Bücherl and E.F. Buckley (eds.), *Venomous Animals and Their Venoms*. Volume II. *Venomous Vertebrates*. Academic Press, New York.
- Darzins, E. 1950. Tuberculose das gias (*Leptodactylus pentadactylus*). *Arquivos Instituto Brasileiro para Investigação da Tuberculose* (9):29–37.
- . 1952a. The epizootic of tuberculosis among the gias in Bahia. *Acta Tuberculosea Scandinavica* 26:170–174.
- . 1952b. The epizootic of tuberculosis among the gias in Bahia. [Abstract]. *Veterinary Bulletin* 22:444–445.
- Daubenton, L.-J.-M. 1788. *Encyclopedia Méthodique. Histoire Naturelle de los Animaux*. Vol. II. *Histoire Naturelle de las Aves: Ornithologie, F-Z. Animaux Quadrupèdes Ovipares y Serpientes*. Don Antonio de Sancha, Madrid.
- Daudin, F.M. 1803a. *Histoire Naturelle des Rainettes, des Grenouilles et des Crapauds*. Chez Levrault, Paris.

- . 1803b. Histoire Naturelle, Générale et Particulière des Reptiles; Ouvrage Faisant Suite aux Oeuvres de Leclerc de Buffon, et Partie du Cours Complet d'Histoire Naturelle Rédigé par C.S. Sonnini, Membre de Plusieurs Sociétés Savantes. F. Dufart, Paris.
- d'Audretsch, I.F.C. 1961. Aantekeningen over amfibieën en reptielen in Suriname (II). *Lacerta* 19:78–80.
- Davis, D.D. 1936. The distribution of Bidder's Organ in the Bufonidae. *Field Museum of Natural History, Zoological Series* 20:115–125.
- Davis, S.L., R.B. Davis, A. James, and B.C.P. Talyn. 2000. Reproductive behavior and larval development of *Leptodactylus fallax* in Dominica, West Indies. *Herpetological Review* 31:217–220.
- Day, J.J., M. Lannoo, C. Mattison, and J. Pimenta. 2003. Reptiles and Amphibians. Volume 9. Sunbeam Snakes–Tropical Frogs. Marshall Cavendish, New York.
- De Bruin, J. 1991. Checklist van de amfibieën van Suriname. *Terra (Belgium)* 27:58–63.
- . 1993. Checklist van de amfibieën [sic] van Suriname. *Terra (Belgium)* 29:66–71.
- Deckert, R. 1915. Review of two series of amphibians. *Zoologica* 2:1–34.
- De Dijn, B.P.E., I.E. Molgo, C. Marty, M. Luger, M. Ringler, S. Crothers, IV, B. Noonan, and K. Fitzgerald. 2007. Appendix 20. Reptiles and amphibians recorded from Brownsberg, p. 270–274. *In* L.E. Alonso and J.H. Mol (eds.), *A Rapid Biological Assessment of the Lely and Nassau Plateaus, Suriname (with additional information on the Brownsberg Plateau)*. RAP (Rapid Assessment Program) Bulletin of Biological Assessment (43).
- Defler, T.R., C. Yucuna, and S. Bennett. 1999. Zoonimia vernácular en Yucuna. *Caldasia* 21:219–234.
- de Lang, R. 1970. Sterkte en structuur van enkele amfibieëngiffen. *Lacerta* 28:51–52.
- De la Riva, I.J. 1993. Ecología de una comunidad neotropical de anfibios durante la estación lluviosa. Doctoral Dissertation, Universidad Complutense de Madrid, Madrid.
- . 2000. La obra herpetológica de Jiménez de la Espada: Su relevancia y validez después de un siglo, p. 76–90. *In* L. López-Ocón and C. Pérez-Montes (eds.), *Marcos Jiménez de la Espada (1831–1898)*. *Tras la Senda de un Explorador*. CSIC, Madrid.
- , J. Köhler, S. Lötters, and S. Reichle. 2000. Ten years of research on Bolivian amphibians: Updated checklist, distribution, taxonomic problems, literature and iconography. *Revista Española de Herpetología* 14:19–164.
- de Sá, R.O. 2005. Crisis global de biodiversidad: Importancia de la diversidad genética y la extinción de anfibios. *Agrociencia* 9:513–522.
- and W.R. Heyer. 2003. Amazonian *Leptodactylus*: Diversity beyond morphology? [Abstract]. 2003 Joint Meeting of Ichthyologists and Herpetologists, Manaus, Amazonas, Brazil. June 26–July 1, 2003. Compact disk.
- and –. 2005. Biogeography of the large species of *Leptodactylus pentadactylus* group (Leptodactylidae, Anura). [Abstract]. VII Congreso Latinoamericano de Herpetología, Cuernavaca, Morelos. 1:21.
- Dewynter, M., C. Marty, M. Blanc, P. Gaucher, N. Vidal, T. Frétey, J-C. de Massary, and A. Fouquet. 2008. Liste des Amphibiens et des Reptiles de Guyane, p. 1–28. Online download only. <http://91.188.60.30/index.php?q=1O7Y14BX3ZLGAF0791V09K56MR7NJU11AZ4113G20XXOE7XJ0PWg wVUgjPIUFJTc7MidvXl1NJm9QL0IGlg1eKjY0Vm4oPkhFWF4iTkxpJH18DyR6TH5LaE0APmkBYn5mf3N0CARNVCVETJSV0PgoJbjEGTHJKADd4JWViDn0BCQoHYQNGKEU%252F>
- Díaz Ungría, C. 1960. Parasitología Venezolana. Volumen I. Fundación La Salle de Ciencias Naturales Monografía (6):1–657.
- Di Persia, D.H. and J.J. Neiff. 1986. The Uruguay River system, p. 599–621. *In* B.R. Davies and K.F. Walker (eds.), *The Ecology of River Systems*, Vol. 60. Dr. W. Junk, Dordrecht, The Netherlands.
- Doan, T.M. and W. Arizábal Arriaga. 2002. Microgeographic variation in species composition of the herpetofaunal communities of Tambopata Region, Peru. *Biotropica* 34:101–117.
- Dobbin, J.E., Jr. 1957. Notas sobre as espécies de *Haematoloechus* Looss, 1899 que ocorrem na America do Sul. *Memorias do Instituto Oswaldo Cruz* 55:167–189.
- Domenico, E.A. 2008. Herpetofauna do mosaico de unidades de conservação do Jacupiranga (SP). Mestre em Ciências, Universidade de São Paulo, São Paulo.
- Donnelly, M.A. and M.L. Crump. 1998. Potential effects of climate change on two neotropical amphibian assemblages. *Climatic Change* 39:541–561.
- Doria, G., S. Salvidio, and M.L. Tavano. 2001. Catalogo degli anfibii del Museo Civico di Storia Naturale "G. Doria" di Genova. *Annali del Museo Civico di Storia Naturale "G. Doria"* 94:21–247.
- Dourado, F.S., J.R.S.A. Leite, L.P. Silva, J.A.T. Melo, C. Bloch Júnior, and E.N.F. Schwartz. 2007. Antimicrobial peptide from the skin secretion of the frog *Leptodactylus syphax*. *Toxicon* 50:572–580.
- Dubois, A., S. Grosjean, and J-C. Paicheler. 2010. Strange tadpoles from the lower Miocene of Turkey: Is paedogenesis possible in anurans? *Acta Palaeontologica Polonica* 55:43–55.
- and A. Ohler. 1994. Frogs of the subgenus *Pelophylax* (Amphibia, Anura, genus *Rana*): A catalogue of available and valid scientific names, with comments on name-bearing types, complete synonymies, proposed common names, and maps showing all type localities. *Zoologica Poloniae* 39: 139–204.
- Dubois, G. 1938. Monographie des Strigeida (Trematoda). *Mémoires de la Société Neuchateloise des Sciences Naturelles* (6):1–535.
- . 1970. Les Strigeata (Trematoda) de la collection A. Lutz. 1970. *Memórias do Instituto Oswaldo Cruz* 68:169–196.
- Duellman, W.E. 1978. The biology of an equatorial

- herpetofauna in Amazonian Ecuador. University of Kansas Museum of Natural History, Miscellaneous Publication (65):1–352 + 4 plates.
- . 1989. Tropical herpetofaunal communities: Patterns of community structure in neotropical rainforests, p. 61–88. *In* M.L. Harmelin-Vivien and F. Bourlière (eds.), *Vertebrates in Complex Tropical Systems*, Vol. 69. Springer-Verlag, New York.
  - . 1990. Herpetofaunas in neotropical rainforests: Comparative composition, history, and resource use, p. 455–505. *In* A.H. Gentry (ed.), *Four Neotropical Rainforests*. Yale University Press, New Haven, Connecticut.
  - . 1995. Temporal fluctuations in abundances of anuran amphibians in a seasonal Amazonian rainforest. *Journal of Herpetology* 29:13–21.
  - . 1997. Amphibians of La Escalera region, southeastern Venezuela: Taxonomy, ecology, and biogeography. *Scientific Papers, Natural History Museum, The University of Kansas* (2):1–52.
  - . 1999. Distribution patterns of amphibians in South America, p. 255–328. *In* W.E. Duellman (ed.), *Patterns of Distribution of Amphibians. A Global Perspective*. The Johns Hopkins University Press, Baltimore.
  - . 2001. The Hylid Frogs of Middle America. Volume 2. Society for the Study of Amphibians and Reptiles, Contributions to Herpetology (18):x + 695–1159 + 92 plates.
  - . 2003a. Leptodactylid frogs (Leptodactylidae), p. 155–171. *In* M. Hutchins, W.E. Duellman, and N. Schlager (eds.), *Grzimek's Animal Life Encyclopedia*. Second Edition. Volume 6, Amphibians. Gale Group, Farmington Hills, Michigan.
  - (compiler). 2003b. Amphibians species list, p. 456–489. *In* M. Hutchins, W.E. Duellman, and N. Schlager (eds.), *Grzimek's Animal Life Encyclopedia*. Second Edition. Volume 6, Amphibians. Gale Group, Farmington Hills, Michigan.
  - . 2005. Cusco Amazónico. The Lives of Amphibians and Reptiles in an Amazonian Rainforest. Comstock Publishing Associates, Cornell University Press, Ithaca, New York.
  - and M.S. Hoogmoed. 1992. Some hylid frogs from the Guiana Highlands, northeastern South America: New species, distributional records, and a generic reallocation. *Museum of Natural History, University of Kansas, Occasional Papers* (147):1–21.
  - and M. Lizana. 1994. Biology of a sit-and-wait predator, the leptodactylid frog *Ceratophrys cornuta*. *Herpetologica* 50:51–64.
  - and J.R. Mendelson, III. 1995. Amphibians and reptiles from northern Departamento Loreto, Peru: Taxonomy and biogeography. *The University of Kansas Science Bulletin* 55:329–376.
  - and A.W. Salas. 1991. Annotated checklist of the amphibians and reptiles of Cuzco Amazónico, Peru. University of Kansas Museum of Natural History, Occasional Papers (143):1–13.
  - and R. Thomas. 1996. Anuran amphibians from a seasonally dry forest in southeastern Peru and comparisons of the anurans among sites in the upper Amazon basin. University of Kansas Museum of Natural History, Occasional Papers (180):1–34.
  - and L. Trueb. 1986. *Biology of Amphibians*. McGraw-Hill Book Company, New York.
  - Duméril, A.M.C. and G. Bibron. 1841. *Erpétologie Générale ou Histoire Naturelle Complète des Reptiles*. Tome Huitième. Librairie Encyclopédique de Roret, Paris.
  - Dunn, E.R. 1944. Los generos de anfibios y reptiles de Colombia. Primera parte: Anfibios. *Caldasia* 2: 497–529.
  - Duplaix, N. 2001. Evaluation of the Animal and Plant Trade in the Guianas, Preliminary Findings. World Wildlife Foundation – Guianas Report #GFCEP06:x + 76.
  - Du Preez, L.H., O. Verneau, and T.S. Gross. 2007. *Polystoma floridana* n. sp. (Monogenea: Polystomatidae) a parasite in the Green Tree Frog, *Hyla cinerea* (Schneider), of North America. *Zootaxa* (1663):33–45.
  - Dyer, W.G. 1985. *Riojatrema ecuadorensis* n. sp. (Trematoda: Polystomatidae) from the urinary bladder of *Bufo typhonius* (Linnaeus, 1758). *Journal of Parasitology* 71:215–217.
  - . 1986. Trematodes of some Ecuadorian amphibians. *Transactions of the Illinois State Academy of Science* 79:137–140.
  - . 1990. *Schrankiana schranki* (Travassos, 1925) Strand, 1942 (Nematoda: Atractidae) in *Leptodactylus mystaceus* (Spix, 1824) from Santa Cecilia, Napo Province, Ecuador. *Transactions of the Illinois State Academy of Science* 83:101–103.
  - and R. Altig. 1977a. Helminths of some Ecuadorian anurans. *Herpetologica* 33:293–296.
  - and –. 1977b. *Ophiotaenia olseni* sp. n. (Cestoda: Proteocephalidae) from *Hyla geographica* Spix 1824 in Ecuador. *Journal of Parasitology* 63:790–792.
  - Earl, P.R. 1969. Rudimentary opalinid protozoan dimensions. *Revista Brasileira de Biologia* 29:255–264.
  - Eggermont, J.J. 1988. Mechanisms of sound localization in anurans, p. 307–336. *In* B. Frittsch, M.J. Ryan, W. Wilczynski, T.E. Hetherington, and W. Walkowiak (eds.), *The Evolution of the Amphibian Auditory System*. John Wiley and Sons, New York.
  - Elkan, E. 1968. Mucopolysaccharides in the anuran defence against desiccation. *Journal of Zoology, London* 155:19–53.
  - . 1976. Ground substance: An anuran defense against desiccation, p. 101–110. *In* B. Lofts (ed.), *Physiology of the Amphibia*. Volume III. Academic Press, Inc., New York.
  - and C.M. Philpot. 1973. Mycotic infections in frogs due to a *Phialophora*-like fungus. *Sabouraudia* 11:99–105 + 4 plates.
  - Elter, O. 1981. La collezione erpetologica del Museo di Zoologia dell'Università di Torino. Museo Regionale di Scienze Naturali, Torino, Cataloghi (5): 1–116.
  - Emerson, S.B. 1979. The ilio-sacral articulation in

- frogs: Form and function. *Biological Journal of the Linnean Society* 11:153–168.
- Engler, E. 1929. Untersuchungen zur Anatomie und Entwicklungsgeschichte des Brustschulterapparates der Urodelen. *Acta Zoologica (Stockholm)* 10:143–229.
- Ernst, R., T. Konrad, K.E. Linsenmair, and M.-O. Rödel. 2007. The impacts of selective logging on three sympatric species of *Leptodactylus* in a central Guyana rainforest. *Amphibia-Reptilia* 28: 51–64.
- Erspamer, G.F. and J.M. Cei. 1970. Biogenic amines and active polypeptides in the skin of *Leptodactylus vilarsi* Melin. *Biochemical Pharmacology* 19: 321–325.
- Erspamer, V. 1954. Pharmacology of indolealkylamines. *Pharmacological Reviews* 6:425–487.
- . 1958. Isolamento della leptodactylina (m-idrossifenil-etil-trimetilammonio) dagli estratti di pelle di *Leptodactylus*. *La Ricerca Scientifica* 28:2065–2069.
- . 1971. Biogenic amines and active polypeptides of the amphibian skin. *Annual Review of Pharmacology* 11:327–350.
- . 1994. Bioactive secretions of the amphibian integument, p. 178–350. *In* H.F. Heatwole and G.T. Barthalmus (eds.), *Amphibian Biology. Volume 1. The Integument*. Surrey Beatty and Sons PTY Limited, Chipping Norton, Australia.
- , J.M. Cei, and M. Roseghini. 1963. Occurrence of candicine (p-hydroxyphenylethyltrimethylammonium) in extracts of the skin of *Leptodactylus pentadactylus pentadactylus*. *Life Sciences* (11):825–827.
- and G.F. Erspamer. 1965. Biogenic amines and active polypeptides in the amphibian skin. *Rivista di Biologia (Perugia)* 58:259–270.
- , –, and J.M. Cei. 1986. Active peptides in the skins of two hundred and thirty American amphibian species. *Comparative Biochemistry and Physiology* 85C:125–137.
- , M. Roseghini, and J.M. Cei. 1964. Indole-, imidazole-, and phenyl-alkylamines in the skin of thirteen *Leptodactylus* species. *Biochemical Pharmacology* 13:1083–1093.
- and M. Vialli. 1952. Ricerche preliminari sulle indolalchilamine e sulle fenilalchilamine degli estratti di pelle di anfibio. *La Ricerca Scientifica* 22:1420–1425.
- , T. Vitali, and M. Roseghini. 1964. The identification of new histamine derivatives in the skin of *Leptodactylus*. *Archives of Biochemistry and Biophysics* 105:620–629.
- Estupiñán, R.A., J.A.R. Bernardi, and U. Galatti. 2002. Fauna anura, p. 541–553. *In* P.L.B.o. Lisboa (ed.), *Caxiuanã. Populações Tradicionais, Meio Físico e Diversidade Biológica*. Museu Paraense Emílio Goeldi, Belém.
- and U. Galatti. 2000 [1999]. La fauna anura en áreas con diferentes grados de intervención antrópica de la Amazonia Oriental Brasileña. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 23:275–286.
- Eterovick, P.C. and I. Sazima. 2000. Description of the tadpole of *Leptodactylus syphax*, with a comparison of morphological and ecological characters of tadpoles and adults of the species in the *L. pentadactylus* group (Leptodactylidae, Anura). *Amphibia-Reptilia* 21:341–350.
- Ettling, J. 1990. An overview of amphibian and reptile reproduction at the St. Louis Zoological Park, p. 96–105. *In* A.W. Zulich (ed.), *14th International Herpetological Symposium on Captive Propagation and Husbandry*, Dallas-Ft. Worth, Texas. June 20–23, 1990. International Herpetological Symposium, Inc.
- Evangelista, J.S.M., J.E.R. Honório-Júnior, N.R. Falcão, R.G.S. Oliveira, B.A. Cardi, and K.M. Carvalho. 2002a. Isolation of a new toxic protein from the *Leptodactylus pentadactylus* (Amphibia, Anura) skin secretion. [Abstract]. XXIV Congresso Brasileiro de Farmacologia e Terapêutica Experimental, Águas de Lindóia. 28 a 31 de Outubro de 2002:191.
- , –, –, –, –, and –. 2002b. Isolation of a new toxic protein from the *Leptodactylus pentadactylus* (Amphibia, Anura) skin secretion. [Abstract]. VII Simpósio da Sociedade Brasileira de Toxinologia, Pirenópolis, 12 a 20 de Setembro de 2002:211.
- Fabio, S.P. and E. Izecksohn. 2001. Ocorrência de *Falcaustra mascula* (Rudolphi, 1819)–(Nematoda: Kathlaniidae) em girino de *Hyla ruschii* Weigoldt [sic] & Peixoto, 1987 (Anura: Hylidae). *Contribuições Avulsas Sobre a História Natural do Brasil, Série Zoologia* (40):1–6.
- Fabrezi, M. 2001. A survey of prepollex and prehallux variation in anuran limbs. *Zoological Journal of the Linnean Society* 131:227–248.
- Fahel, J. 1952. Fauna helmintológica das "gjas" de Salvador (*Leptodactylus pentadactylus* (Laur.)). *Anais da Academia Brasileira de Ciências* 24: 389–436.
- Felix, M.-L. and S. Sahdew. 2006 [2002]. *Wildlife of the Guianas. Species Identification. A Pocketbook for Wildlife Trade Monitoring and Enforcement Officers*. Guianas. World Wildlife Fund, Inc.
- Fernández, K. and M. Fernández. 1921. Sobre la biología y reproducción de algunos batracios argentinos. I. Cystignathidae. *Anales de la Sociedad Científica Argentina* 91:97–140 + 3 plates.
- Ferreira, R.C., M. Campaner, L.B. Viola, C.S.A. Takata, G.F. Takeda, and M.M.G. Teixeira. 2007. Morphological and molecular diversity and phylogenetic relationships among anuran trypanosomes from the Amazonia, Atlantic Forest and Pantanal biomes in Brazil. *Parasitology* 134:1623–1638.
- Finkers, J. 1986. Los Yanomami y su sistema alimenticio (Yanomami Nii Pë). *Vicariato Apostólico de Puerto Ayacucho, Monografía* (2):1–262.
- Fitzinger, L.J. 1833. *Cystignathus pachypus*, text for Plate XXI. Figs. 1, 2. *In* J. Wagler (ed.), *Descriptions et Icones Amphibiorum. Tres partes cum XXXVI tabulis*. J.G. Cotta, Monachii.
- Flower, S.S. 1925. Contributions to our knowledge of the duration of life in vertebrate animals.–II. Batrachians. *Proceedings of the Zoological So-*

- ciety of London 1925:269–289.
- . 1936. Further notes on the duration of life in animals.–II. Amphibians. Proceedings of the Zoological Society of London 1936:369–394.
- Fong G., A., J.-M. Hero, R. Viña, and I. Bignotte-Giró. 2010. Population ecology of the riparian frog *Eleutherodactylus cuneatus* in Cuba. *Biotropica* 42:348–354.
- Fontenele-Berto, R.F., J. Cordeiro-Sousa, R.G.S. Oliveira, J.P. Rebouças, Jr., J.E.R. Honório-Júnior, A.C.C. Olinda, I.F. Carvalho, P. Aded da Silva, N.C. Fontenele-Cardi, D.C. Pimenta, B.A. Cardi, and K.M. Carvalho. 2007a. Induction of antimicrobial peptide synthesis in *Leptodactylus pentadactylus* (Anura, Amphibia) skin, by mechanical, chemical, and microbial stimulus. [Abstract]. *Journal of Venomous Animals and Toxins including Tropical Diseases* 13:207.
- , –, –, –, –, –, –, –, –, –, and –. 2007b. A new glycine-rich antimicrobial peptide from skin secretion of the outh [sic] American frog *Leptodactylus pentadactylus*. [Abstract]. *Journal of Venomous Animals and Toxins including Tropical Diseases* 13:208.
- Fouquet, A. 2008. Diversity and Phylogeography of Eastern Guiana Shield Frogs. Doctor of Philosophy in Biology, University of Canterbury, Canterbury, United Kingdom.
- , V. Dubut, R.A. Hataway, C. Scotti-Saintagne, I. Scotti, and B.P. Noonan. 2009. Isolation and characterisation of 19 microsatellite loci from the Amazonian frog *Adenomera andreae* (Amphibia: Anura: Leptodactylidae). *Conservation Genetics Resources* 1:217–220.
- , A. Gilles, M. Vences, C. Marty, M. Blanc, and N.J. Gemmell. 2007. Underestimation of species richness in neotropical frogs revealed by mtDNA analyses. *PLoS (Public Library of Science) ONE* 2:e1109 (p. 1–10) + supplementary materials.
- Frank, N. and E. Ramus. 1995. *A Complete Guide to Scientific and Common Names of Reptiles and Amphibians of the World*. N G Publishing Inc., Pottsville, Pennsylvania.
- Franklin, C.J. 2001. Checklist of the amphibians and reptiles of the Madre Selva II Biological Reserve of Loreto, Peru. *Bulletin of the Chicago Herpetological Society* 36:137–143.
- Frazer, J.F.D. 1973. *Amphibians*. Wykeham Publications Ltd., London.
- Freed, P. 1993a. Herpetofauna, p. 31–32. *In* T.A. Parker III and A.B. Forsyth (eds.), *A Biological Assessment of the Kanuku Mountain Region of Southwestern Guyana*. Rapid Assessment Working Papers (5).
- . 1993b. Appendix 4. Amphibians and reptiles, p. 67–69. *In* T.A. Parker III and A.B. Forsyth (eds.), *A Biological Assessment of the Kanuku Mountain Region of Southwestern Guyana*. Rapid Assessment Working Papers (5).
- Freiberg, M.A. 1972. Los Anfíbios (Amphibia), p. 333–446. *In* L. Cendrero (ed.), *Zoología Hispanoamericana*. Vertebrados. Editorial Porrúa, S.A., Mexico City.
- . 1975. *Los Anfíbios: La Rana y su Crianza*. Editorial Albatros, Buenos Aires.
- Freitas, C.I.A. 2003. *Estudo Sobre a Atividade Antimicrobiana de Substâncias Extraídas e Purificadas de Secreções da Pele de Anfíbios*. Doutorado, Universidade Federal do Ceará, Fortaleza, Ceará.
- Freitas, J.F.T. 1955. Nota sôbre a fauna helmintológica de répteis brasileiros. *Revista Brasileira de Biologia* 15:279–284.
- . 1956. Observações sôbre as espécies sul-americanas do gênero *Oswaldocruzia* Travassos, 1917 (Nematoda, Strongyloidea). *Revista Brasileira de Biologia* 16:309–315.
- . 1959. Estudos sôbre Schrankianidae fam. nov. (Nematoda, Subuluroidea). *Arquivos do Museu Nacional, Rio de Janeiro* 49:9–29, 64–65.
- . 1960. Rápidas informações sôbre hospedeiros e distribuição geográfica de alguns trematódeos parasitos de batráquios. *Atas da Sociedade de Biologia do Rio de Janeiro* 4:29–32.
- . 1963. Revisão da Família Mesocoeliidae Dollfus, 1933 (Trematoda). *Memórias do Instituto Oswaldo Cruz* 61:177–311 + 30 plates.
- and H. Lent. 1942. Primeira espécie de *Capillaria* parasita de batráquio sul-americano (Nematoda, Trichuroidea). *Revista Brasileira de Biologia* 2:325–330.
- Freitas, M.A. and T.F.S. Silva. 2006. *Guia Ilustrado-Animais Venenosos e Peçonhentos no Brasil*. União Sul-Americana de Estudos da Biodiversidade, Pelotas, Rio Grande do Sul.
- Frost, D.R. (ed.) 1985. *Amphibian Species of the World: A Taxonomic and Geographical Reference*. Allen Press, Inc. and The Association of Systematics Collections, Lawrence.
- Frost, D.R. 2009. Amphibian species of the world: An online reference. Version 5.3 (12 February 2009). Database accessible at <http://research.amnh.org/herpetology/amphibia/American Museum of Natural History, New York>.
- Furness, A.I., R.W. McDiarmid, W.R. Heyer, and G.R. Zug. 2010. Oviduct modifications in foam-nesting frogs, with emphasis on the genus *Leptodactylus* (Amphibia, Leptodactylidae). *South American Journal of Herpetology* 5:13–29.
- Galatti, U. 1992. Population biology of the frog *Leptodactylus pentadactylus* in a central amazonian rainforest. *Journal of Herpetology* 26:23–31.
- . 1999. Avaliação Ecológica Rápida Reserva Biológica Estadual Rio Ouro Preto, Guajará-Mirim RO. Inventário da Herpetofauna da Reserva Biológica Rio Ouro Preto, Rondônia. Programa das Nações Unidas para o Desenvolvimento-PNUD, Plano Agropecuário e Florestal de Rondônia – PLANA-FLORO:1–12.
- and J.-M. Hero. 1987. The morphologic, acoustic and ecological separation of *Leptodactylus pentadactylus* and *Leptodactylus knudseni*. [Abstract]. Joint Annual Meeting Herpetologists' League and Society for the Study of Amphibians and Reptiles, Veracruz, México. 9–15 August, 1987:78.
- Gallardo, J.M. 1964a. Consideraciones sobre *Lepto-*

- dactylus ocellatus* (L.) (Amphibia, Anura) y especies aliadas. *Physis* 24:373–384.
- . 1964b. *Leptodactylus prognathus* Boul. y *L. mystacinus* (Burm.) con sus respectivas especies aliadas ("Amphibia, Leptodactylidae" del grupo "*Caecicola*"). *Revista del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Ciencias Zoológicas* 9:91–121 + 2 plates.
- . 1965. A propósito de los Leptodactylidae (Amphibia Anura). *Papeís Avulsos de Zoología* 17:77–87.
- . 1974. Anfibios de los Alrededores de Buenos Aires. Editorial Universitaria de Buenos Aires, Buenos Aires.
- Gallopin, G.C. 1962. El grupo *Pachypus* del género *Leptodactylus* considerado a la luz de las características electroforéticas de sus seroproteínas. *Physis* 23:163–167.
- Gardner, T.A., M.A. Ribeiro-Júnior, J. Barlow, T.C.S. Ávila-Pires, M.S. Hoogmoed, and C.A. Peres. 2007. The value of primary, secondary, and plantation forests for a neotropical herpetofauna. *Conservation Biology* 21:775–787 + appendix.
- Gardon, J., J.-M. Héraud, S. Laventure, A. Ladam, P. Capot, E. Fouquet, J. Favre, S. Weber, D. Hommel, A. Hulin, Y. Couratte, and A. Talarmin. 2001. Suburban transmission of Q Fever in French Guiana: Evidence of a wild reservoir. *The Journal of Infectious Diseases* 184:278–284.
- Garman, S.W. 1888a. The Batrachia of Kalm's "En Resa til Norra America". *Bulletin of the Essex Institute* 20:1–11.
- . 1888b [1887]. West Indian Batrachia in the Museum of Comparative Zoology. *Bulletin of the Essex Institute* 19:13–16.
- Gascon, C. and O.S. Pereira. 1993. Preliminary checklist of the herpetofauna of the upper Rio Urucu, Amazonas, Brazil. *Revista Brasileira de Zoologia* 10:179–183.
- Gassó Miracle, M.E., L.W. Van den Hoek Ostende, and J.W. Arntzen. 2007. Type specimens of amphibians in the National Museum of Natural History, Leiden, The Netherlands. *Zootaxa* (1482): 25–68.
- Gatzy, J.T. 1975. Ion transport across the excised bullfrog lung. *American Journal of Physiology* 228:1162–1171.
- Gavetti, E. and F. Andreone. 1993. Revised catalogue of the herpetological collection in Turin University. I. Amphibia. *Museo Regionale di Scienze Naturali Cataloghi* 10:1–185.
- Gibson, R.C. and K.R. Buley. 2004. Maternal care and obligatory oophagy in *Leptodactylus fallax*: A new reproductive mode in frogs. *Copeia* 2004: 128–135.
- Ginés, H. 1959. Familias y géneros de anfibios-Amphibia-de Venezuela. *Memoria de la Sociedad de Ciencias Naturales La Salle, Caracas* 19:85–146.
- Gistel, J. 1848. *Naturgeschichte des Thierreichs für höhere Schulen*. Hoffman'sche Verlags-Buchhandlung, Stuttgart.
- Glaw, F. and M. Franzen. 2006. Type catalogue of amphibians in the Zoologische Staatssammlung München. *Spixiana* 29:153–192.
- , J. Köhler, R. Hofrichter, and A. Dubois. 2000. Amphibian systematics: List of recent families, genera, and species, p. 252–258. *In* R. Hofrichter (ed.), *Amphibians: The World of Frogs, Toads, Salamanders and Newts*. Firefly Books, Buffalo, New York.
- Gmelin, J.F. 1789. *Caroli a Linné, Systema Naturae*. 13th Edition. Tom. 1 Pars III. Amphibia, Pisces. 13 ed. G.E. Beer, Lipsiae.
- Goin, C.J. and O.B. Goin. 1962. *Introduction to Herpetology*. First Edition. W.H. Freeman and Company, San Francisco.
- and –. 1971. *Introduction to Herpetology*. Second Edition. W.H. Freeman and Company, San Francisco.
- , –, and G.R. Zug. 1978. *Introduction to Herpetology*. Third Edition. W.H. Freeman and Company, San Francisco.
- and J.N. Layne. 1958. Notes on a collection of frogs from Leticia, Colombia. *Publications of the Research Division, Ross Allen's Reptile Institute* 1: 97–114.
- Goldberg, S.R., C.R. Bursey, J.P. Caldwell, L.J. Vitt, and G.C. Costa. 2007. Gastrointestinal helminths from six species of frogs and three species of lizards, sympatric in Pará State, Brazil. *Comparative Parasitology* 74:327–342.
- , –, and D.B. Shepard. 2009a. Gastrointestinal helminths of six sympatric species of *Leptodactylus* from Tocantins State, Brazil. *Comparative Parasitology* 76:258–266.
- , –, and F. Kraus. 2009b. Endoparasites in 12 species of *Sphenomorphus* (Squamata: Scincidae) from Papua New Guinea. *Comparative Parasitology* 76:58–83.
- , –, and S.R. Telford, Jr. 2005. Metazoan endoparasites of four species of lizards, *Gehyra mutilata*, *Hemidactylus frenatus* (Gekkonidae), *Mabuya cumingi*, *Mabuya meulifasciata* (Scincidae), and one species of snake, *Ramphotyphlops braminus* (Typhlopidae), from the Philippine Islands. *Comparative Parasitology* 72:88–101.
- González, C.E. and M.I. Hamann. 2006. Nematodes parásitos de *Chaunus granulatus major* (Müller & Hellmich, 1936) (Anura: Bufonidae) en Corrientes, Argentina. *Cuadernos de Herpetología* 20: 41–48.
- and –. 2008. Nematode parasites of two anuran species *Rhinella schneideri* (Bufonidae) and *Scinax acuminatus* (Hylidae) from Corrientes, Argentina. *International Journal of Tropical Biology* 56: 2147–2161.
- González-Fernández, J.E. 2006. Anfibios colectados por la Comisión Científica del Pacífico (entre 1862 y 1865) conservados en el Museo Nacional de Ciencias Naturales de Madrid. *Graellsia* 62: 111–158.
- , T. García-Díez, L.S. Segundo, and C. Santos. 2010 [2009]. Catálogo de la colección de anfibios americanos conservados en el Museo Nacional de Ciencias Naturales (CSIC) de Madrid. *Revista Española de Herpetología* 23:5–97.
- Gopee, N.V., A.A. Adesiyun, and K. Caesar. 2000. A



- longitudinal study of *Escherichia coli* strains isolated from captive mammals, birds, and reptiles in Trinidad. *Journal of Zoo and Wildlife Medicine* 31: 353–360.
- Gordo, M. 2003. Os anfíbios anuros do baixo Rio Purus/Solimões, p. 65–73. *In* C.P. Deus, R.D. Silveira, and L.H.R. Py-Daniel (eds.), Piagaçu-Purus: Bases Científicas para Criação de Uma Reserva de Desenvolvimento Sustentável. Instituto de Desenvolvimento Sustentável Mamirauá, Manaus.
- Gorham, S.W. 1963. The comparative number of species of amphibians in Canada and other countries. III. Summary of species of anurans. *The Canadian Field-Naturalist* 77:13–48.
- . 1966. Liste der rezenten Amphibien und Reptilien: Ascaphidae, Leiopelmatidea [sic], Pipidae, Discoglossidae, Pelobatidae, Leptodactylidae, Rhinophrynidae. *Das Tierreich* (85):xvi + 222 p.
- . 1974. Checklist of World Amphibians up to January 1, 1970. Liste des Amphibiens du Monde d'après l'État du 1er Janvier 1970. *The New Brunswick Museum, Saint John*.
- Gorzula, S.J. and J. Cerda. 1979. La herpetofauna del Territorio Federal Amazonas, p. 1–1 + 1–20. *In* J. Cerda, S.J. Gorzula, P. Schwartz, and R. Rivero (eds.), Serie Informes Científicos, Ministerio del Ambiente y de los Recursos Naturales Renovables, CODESUR-División de Fauna, Vol. DGIIA/IC/03/79.
- and J.C. Señaris. 1999 [1998]. Contribution to the herpetofauna of the Venezuelan Guayana I. A data base. *Scientia Guianae* 8:xviii + 268 p. + 129 color photographs + 4 annex maps.
- Gosse, P.H. 1851. *A Naturalist's Sojourn in Jamaica*. Longman, Brown, Green, and Longmans, London.
- Graham, D.L. 2002. Annotated list of reptiles and amphibians of the Project Amazonas Forest Reserves on the Río Orosa and Río Apayacu, Department of Loreto, Perú. Project Amazonas, Inc., Ft. Lauderdale, Florida.
- Grant, C. 1931. Notes on *Bufo marinus* (Linnaeus). *Copeia* 1931:62.
- . 1932. Herpetological notes from the Puerto Rico area. *Journal of the Department of Agriculture of Puerto Rico* 16:161–165.
- Gravenhorst, J.L.C. 1829. *Deliciae Musei Zoologici Vratslaviensis. Fasciculus Primus, Continens Chelonios et Batrachia. Sumpribus Leopoldi Vossii, Lipsiae*.
- Gray, J.E. 1831. A Synopsis of the Species of the Class Reptilia. Appendix in E.Griffith and E. Pidgeon, *The Animal Kingdom arranged in Conformity with its Organization, by the Baron Cuvier*, Vol. 9. Whittaker, Treacher, and Co., London.
- Gray, M.E. 1993. *Wetapolystoma almae* n. gen., n. sp. (Monogenea: Polystomatidae) parasite of *Bufo typhonius* (Linnaeus, 1758) (Amphibia: Bufonidae) from tropical Peru. *Transactions of the Kansas Academy of Science* 96:181–185.
- Green, D.E. 2001. Pathology of Amphibia, p. 401–485. *In* K.M. Wright and B.R. Whitaker (eds.), *Amphibian Medicine and Captive Husbandry*. Krieger Publ., Malabar, Florida.
- and J.C. Harshbarger. 2001. Spontaneous neoplasia in Amphibia, p. 335–400. *In* K.M. Wright and B.R. Whitaker (eds.), *Amphibian Medicine and Captive Husbandry*. Krieger Publ., Malabar, Florida.
- Green, D.M. and S.K. Sessions. 2007. Karyology and cytogenetics, p. 2757–2842. *In* H.F. Heatwole and M.J. Tyler (eds.), *Amphibian Biology. Volume 7. Systematics*. Surrey Beatty & Sons PTY Limited, Chipping Norton, NSW, Australia.
- Greene, H.W. 1988. Antipredator mechanisms in reptiles, p. 1–152. *In* C. Gans and R.B. Huey (eds.), *Biology of the Reptilia. Volume 16, Ecology B. Defense and Life History*. Alan R. Liss, Inc., New York.
- Grenand, P. 1980. Introduction à l'Étude de l'Univers Wayãpi. Ethnoécologie des Indiens du Haut-Oyapock (Guyane française). SELAF, Paris.
- Griffiths, I. 1954. On the "otic element" in Amphibia Saliencia. *Proceedings of the Zoological Society of London* 124:35–50 + plates 1–4.
- Grillitsch, H., E. Schleiffer, and F. Tiedemann. 2004. Katalog der Flüssigkeitspräparate der Herpetologischen Sammlung: Entwicklungsstadien, Entwicklungsreihen, allgemeine und spezielle anatomische Präparate, Anomalien, Skelette und Skelletteile. Stand 31. Dezember 2002 (Amphibia, Reptilia). *Kataloge der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien, Vertebrata* 18:1–103.
- Grimes, A., D. Fraser, and M. Zweede. 2008. FAA 118/119 biodiversity and tropical forest assessment Guyana. USAID/Guyana.
- Guichenot, A. 1855. *Animaux Nouveaux ou Rares Recueillis Pendant l'Expédition dans les Parties Centrales de l'Amérique du Sud, de Rio de Janeiro a Lima, et de Lima au Para; Exécutée par Ordre du Gouvernement Français Pendant les Années 1843 a 1847, sous la Direction du Comte Francis de Castelnau. Reptiles*. P. Bertrand, Libraire-Éditeur, Paris.
- Guimarães, J.F., R. Cristófar, and H.O. Rodrigues. 1976. Alguns nematódeos de anfíbios de Salvador, Bahia. *Atas da Sociedade de Biologia do Rio de Janeiro* 18:71–74.
- Günther, A.C.L.G. 1858. *Catalogue of the Batrachia Saliencia in the Collection of the British Museum*. Trustees of the British Museum, London.
- and G.A. Boulenger. 1888. *Guide to the Galleries of Reptiles and Fishes in the Department of Zoology of the British Museum (Natural History)*. Second Edition. Trustees of the British Museum, London.
- Gunzburger, M.S. and J. Travis. 2005. Critical literature review of the evidence for unpalatability of amphibian eggs and larvae. *Journal of Herpetology* 39:547–571.
- Gutsche, A., A. Kwet, C. Kucharzewski, R. Lingnau, and R. Günther. 2007. Wilhelm Ehrhardt and an evaluation of his amphibians and reptiles held in the herpetological collection of the Museum für Naturkunde, Berlin. *Mitteilungen aus dem Mu-*

- seum für Naturkunde in Berlin-Zoologische Reihe 83:80–93.
- Haas, A. 1995. Cranial features of dendrobatid larvae (Amphibia: Anura: Dendrobatidae). *Journal of Morphology* 224:241–264.
- . 1996. Das larvale Cranium von *Gastrotheca riobambae* und seine Metamorphose (Amphibia, Anura, Hylidae). *Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg (NF)* 36:33–162.
- and S.J. Richards. 1998. Correlations of cranial morphology, ecology, and evolution in Australian suctorial tadpoles of the genera *Litoria* and *Nyctimystes* (Amphibia: Anura: Hylidae: Pelodyadinae). *Journal of Morphology* 238:109–141.
- Habermehl, G.G. 1969. Chemie und Biochemie von Amphibiengiften. *Die Naturwissenschaften* 56: 615–622.
- . 1974. Venoms of Amphibia, p. 161–183. *In* M. Florin and B.T. Scheer (eds.), *Amphibia and Reptilia*, Vol. IX. Academic Press, Inc., New York.
- . 1981. *Venomous Animals and their Toxins*. Translation of the second German edition, 1977. Springer-Verlag, Berlin.
- and H.-J. Preusser. 1970. Antimikrobielle Aktivität von Amphibien-Hautdrüsensekreteten II. Substanzen aus *Leptodactylus pentadactylus*. *Zeitschrift für Naturforschung* 25B:1451–1452.
- Hailman, J.P. 1977. *Optical Signals. Animal Communication and Light*. Indiana University Press, Bloomington.
- and R.G. Jaeger. 1974. Phototactic responses to spectrally dominant stimuli and use of colour vision by adult anuran amphibians: A comparative survey. *Animal Behaviour* 22:757–795.
- Hallermann, J. 2006. Die von Lacepède (1756–1825) in die Herpetologie eingeführten Taxa und ihr Schicksal. *Sekretär* 6:26–29.
- Halliday, T.R. and R.I. Crombie. 2001. Amphibians, p. 430–457. *In* D. Burnie and D.E. Wilson (eds.), *Animal*. Dorling Kindersley, London.
- Hansen, R., F.W. King, D. Rodrigue, A.D. Walde, and J. Wilkinson. 2000. *Discovery Channel Reptiles and Amphibians: An Explore your World Handbook*. Discovery Books, New York.
- Harding, K.A. 1983. *Catalogue of New World Amphibians*. Pergamon Press, Oxford.
- Hardy, J.D., Jr. 1982. Biogeography of Tobago, West Indies, with special reference to amphibians and reptiles: A review. *Bulletin of the Maryland Herpetological Society* 18:37–142.
- . 1984. Herpetology of Tobago: Additions, deletions, and taxonomic changes. *Bulletin of the Maryland Herpetological Society* 20:12–19.
- Harlan, R. 1826. Descriptions of several new species of batracian reptiles, with observations on the larvae of frogs. *American Journal of Science and Arts* 10:53–65.
- . 1827. Genera of North American Reptilia, and a synopsis of the species. *Journal of the Academy of Natural Sciences, Philadelphia* 5:317–372.
- . 1835a. Genera of North American Reptilia, and a synopsis of the species, p. 84–163. *In* R. Harlan (ed.), *Medical and Physical Researches: Or Original Memoirs in Medicine, Surgery, Physiology, Geology, Zoology, and Comparative Anatomy*. Lydia R. Bailey, Philadelphia.
- . 1835b. Descriptions of several new species of batracian reptiles, with observations on the larvae of frogs, p. 214–228. *In* R. Harlan (ed.), *Medical and Physical Researches: Or Original Memoirs in Medicine, Surgery, Physiology, Geology, Zoology, and Comparative Anatomy*. Lydia R. Bailey, Philadelphia.
- Harshbarger, J.C. 1979. Activities report. Registry of tumors in lower animals: 1978 supplement. National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- Harvey, M.B. 1998a. Reptiles and amphibians of Parque Nacional Noel Kempff Mercado, p. 144–153. *In* T.J. Killeen and T.S. Schulenberg (eds.), *A Biological Assessment of Parque Nacional Noel Kempff Mercado, Bolivia. Rapid Assessment Program Working Papers* (10).
- . 1998b. Reptiles y anfibios del Parque Nacional Noel Kempff Mercado: Diversidad, biogeografía, y conservación, p. 154–166. *In* T.J. Killeen and T.S. Schulenberg (eds.), *A Biological Assessment of Parque Nacional Noel Kempff Mercado, Bolivia. Rapid Assessment Program Working Papers* (10).
- Hayek, L.-A.C. and W.R. Heyer. 2005. Determining sexual dimorphism in frog measurement data: Integration of statistical significance, measurement error, effect size and biological significance. *Anais da Academia Brasileira de Ciências* 77:45–76.
- Heatwole, H.F. 1982. A review of structuring in herpetofaunal assemblages, p. 1–19. *In* N.J. Scott, Jr. (ed.), *Herpetological Communities. A Symposium of the Society for the Study of Amphibians and Reptiles and the Herpetologists' League*, August 1977. United States Department of the Interior, Fish and Wildlife Service, Wildlife Research Report (13).
- , H. Solano, and A. Heatwole. 1965. Notes on amphibians from the Venezuelan guyanas with description of two new forms. *Acta Biológica Venezuelica* 4:349–364.
- Hellmich, W. 1932. Zur Analyse des Farbkleides von *Pleurodema bibroni* Tschudi. (Beiträge zur Kenntnis der Herpetofauna Chiles V.). *Biologischen Zentralblatt* 52:513–522.
- . 1939. Herpetologische Studienreise in Kolumbien. V. (In den Llanos). *Blätter für Aquarien- und Terrarienkunde* 36:391–393.
- Henle, K. 1992. Zur Amphibienfauna Perus nebst Beschreibung eines neuen *Eleutherodactylus* (Leptodactylidae). *Bonner Zoologische Beiträge* 43: 79–129.
- Hero, J.-M. 1990. An illustrated key to tadpoles occurring in the central Amazon rainforest, Manaus, Amazonas, Brasil. *Amazoniana* 11:201–262.
- and U. Galatti. 1990. Characteristics distinguishing *Leptodactylus pentadactylus* and *L. knudseni* in the central Amazon rainforest. *Journal of Herpe-*

- tology 24:226–228.
- Herrmann, H.-J. 2001. Terrarien Atlas. Band 1. Kulturgeschichte, Biologie und Terrarienhaltung von Amphibien, Schleichenlurche, Schwanzlurche, Froschlurche (erster Teil). Mergus Verlag GmbH, Melle, Germany.
- Herter, K. 1955. Lurche. Das Tierreich in der Sammlung Göschen 7:1–143.
- Heusser, H.R. 1974a. Frogs and toads, p. 357–383. In G.E. Freytag, B. Grzimek, O. Kuhn, and E. Thenius (eds.), Grzimek's Animal Life Encyclopedia. Volume 5. Fishes II/Amphibians. Van Nostrand Reinhold Co., New York.
- . 1974b. Higher anurans, p. 397–456. In G.E. Freytag, B. Grzimek, O. Kuhn, and E. Thenius (eds.), Grzimek's Animal Life Encyclopedia. Volume 5. Fishes II/Amphibians. Van Nostrand Reinhold Co., New York.
- Heyer, M.H., W.R. Heyer, and R.O. de Sá. 2009. Bibliography of the frogs of the *Leptodactylus* clade – *Adenomera*, *Hydrolaetare*, *Leptodactylus*, *Lithodytes* (Amphibia, Anura, Leptodactylidae). Volume 1. References. Smithsonian Herpetological Information Service Special Publication (1):1–677.
- , –, and –. 2009. Bibliography of the frogs of the *Leptodactylus* clade – *Adenomera*, *Hydrolaetare*, *Leptodactylus*, *Lithodytes* (Amphibia, Anura, Leptodactylidae). Volume 2. Indices. Smithsonian Herpetological Information Service Special Publication (2):1–167.
- Heyer, W.R. 1968. The proper name for the type-species of the genus *Leptodactylus*. *Copeia* 1968: 160–162.
- . 1972. The status of *Leptodactylus pumilio* Boulenger (Amphibia, Leptodactylidae) and the description of a new species of *Leptodactylus* from Ecuador. Natural History Museum of Los Angeles County, Contributions in Science (231):1–8.
- . 1974. Relationships of the *marmoratus* species group (Amphibia, Leptodactylidae) within the subfamily Leptodactylinae. Natural History Museum of Los Angeles County, Contributions in Science (253):1–46.
- . 1979. Systematics of the *pentadactylus* species group of the frog genus *Leptodactylus* (Amphibia: Leptodactylidae). Smithsonian Contributions to Zoology (301):iii + 43 p.
- . 1988. On frog distribution patterns east of the Andes, p. 245–273. In P.E. Vanzolini and W.R. Heyer (eds.), Proceedings of a Workshop on Neotropical Distribution Patterns Held 12–16 January 1987. Academia Brasileira de Ciências, Rio de Janeiro.
- . 1994. Variation within the *Leptodactylus podicipinus-wagneri* complex of frogs (Amphibia: Leptodactylidae). Smithsonian Contributions to Zoology (546):iv + 124 p.
- . 2000. The lectotype of *Cystignathus hylodes* Reinhardt and Lütken, 1862. *Journal of Herpetology* 34:150–153.
- . 2005. Variation and taxonomic clarification of the large species of the *Leptodactylus pentadactylus* species group (Amphibia: Leptodactylidae) from Middle America, northern South America, and Amazonia. *Arquivos de Zoologia* 37:269–348.
- , C. Azevedo-Ramos, L.A. Coloma, and S.R. Ron. 2008a. *Leptodactylus pentadactylus*. In IUCN 2010, IUCN Red List of threatened species. Version 2010.2 <www.iucnredlist.org>.
- and M.S. Bellin. 1973. Ecological notes on five sympatric *Leptodactylus* (Amphibia, Leptodactylidae) from Ecuador. *Herpetologica* 29:66–72.
- and D.F. Cisneros-Heredia. 2008. *Leptodactylus peritoaktites*. In IUCN 2010, IUCN Red List of threatened species. Version 2010.3 <www.iucnredlist.org> Accessed on 7 September 2010.
- , R.O. de Sá, and S. Muller. 2005a. On the enigmatic distribution of the Honduran endemic *Leptodactylus silvanimbus* (Amphibia: Anura: Leptodactylidae), p. 81–101. In M.A. Donnelly, B.I. Crother, C. Guyer, M.H. Wake, and M.E. White (eds.), Ecology and Evolution in the Tropics. A Herpetological Perspective. The University of Chicago Press, Chicago.
- , –, and A. Rettig. 2005b. Sibling species, advertisement calls, and reproductive isolation in frogs of the *Leptodactylus pentadactylus* species cluster (Amphibia, Leptodactylidae). In N. Ananjeva and O. Tsinenko (eds.), *Herpetologia Petropolitana*. Russian Journal of Herpetology 12:35–39.
- and M.J. Diment. 1974. The karyotype of *Vanzolinus discodactylus* and comments on usefulness of karyotypes in determining relationships in the *Leptodactylus*-complex (Amphibia, Leptodactylidae). *Proceedings of the Biological Society of Washington* 87:327–336.
- and M.M. Heyer. 2006. *Leptodactylus knudseni*. *Catalogue of American Amphibians and Reptiles* (807):1–12.
- , –, and R.O. de Sá. 2010. *Leptodactylus savagei*. *Catalogue of American Amphibians and Reptiles* (867):1–19.
- and L.R. Maxson. 1982a. Distributions, relationships, and zoogeography of lowland frogs: The *Leptodactylus* complex in South America, with special reference to Amazonia, p. 375–388. In G.T. Prance (ed.), *Biological Diversification in the Tropics*. Columbia University Press, New York.
- and –. 1982b. Neotropical frog biogeography: Paradigms and problems. *American Zoologist* 22: 397–410.
- and J.A. Peters. 1971. The frog genus *Leptodactylus* in Ecuador. *Proceedings of the Biological Society of Washington* 84:163–170.
- , F.A. Solís, R. Ibáñez D., G. Chaves, F. Bolaños, and L.D. Wilson. 2008b. *Leptodactylus savagei*. In IUCN 2010, IUCN Red List of threatened species. Version 2010.3 <www.iucnredlist.org>.
- and A.S. Thompson. 2000. *Leptodactylus rugosus*. *Catalogue of American Amphibians and Reptiles* (708):1–5.
- Hicklenton, D., K. Hambler, and K. Morgan. 1996. The Mammals, Reptiles and Amphibians of the Tambopata Reserved Zone, Madre de Dios, Peru. A Field Checklist. First ed. Tambopata Reserve Society-TReeS, London.

- Hilzheimer, M. and O. Haempel. 1912. Handbuch der Biologie der Wirbeltiere. 1. Hälfte. Fische. – Amphibien. – Reptilien. Verlag von Ferdinand Enke, Stuttgart.
- Hinsche, G. 1928. Kampfreaktionen bei einheimischen Anuren. Biologisches Zentralblatt (Leipzig) 48:577–617.
- Hödl, W. 1977. Distress calls in central Amazonian frogs. [Abstract]. Herpetological Review 8:10.
- . 1986. Foam nest construction in South American leptodactylid frogs, p. 565–570. *In* Z. Rocek (ed.), Studies in Herpetology, Proceedings of the European Herpetological Meeting (3rd Ordinary General Meeting of the Societas Europaea Herpetologica) Prague 1985. Charles University, Prague.
- . 1993. Amazonien aus der Froschperspektive. Kataloge des OÖ. Landesmuseums, Neue Folge 61: 499–546.
- . 1997. 25 Jahre tropenbiologische Forschung und Lehre in Lateinamerika, p. 23–32, Internationales Symposium für Vivaristik-Dokumentationen 1996. Verband für Freizeit und Kultur, Wiener Volksbildungswerk, Fachgruppe Wissenschaften, Wien.
- and G. Gollmann. 1986. Distress calls in neotropical frogs. *Amphibia-Reptilia* 7:11–21.
- Höfer, H., E. Wollscheid, and T. Gasnier. 1996. The relative abundance of *Brotheas amazonicus* (Chactidae, Scorpiones) in different habitat types of a central Amazon rainforest. *The Journal of Arachnology* 24:34–38.
- Hoff, K.S., A.R. Blaustein, R.W. McDiarmid, and R. Altig. 1999. Behavior. Interactions and their consequences, p. 215–239. *In* R.W. McDiarmid and R. Altig (eds.), Tadpoles: The Biology of Anuran Larvae. The University of Chicago Press, Chicago.
- Hoff, M. and P. Daszkiewicz. 2001. Index faunistique de Guyane française. I: Les vertébrés. *Patrimones Naturels* 35:1–66 + 2 unnumbered.
- Honório-Júnior, J.E.R., J.A. Souza Neto, R. Fontenele-Berto, J. Cordeiro-Sousa, R.G.S. Oliveira, K.M. Carvalho, and B.A. Cardi. 2007. Evaluation of the glandular distribution of a highly toxic proteic fraction from *Leptodactylus pentadactylus* skin secretion, in the granular cutaneous glands of Anura. [Abstract]. *Journal of Venomous Animals and Toxins including Tropical Diseases* 13:200.
- Hoogmoed, M.S. 1967. Enkele opmerkingen naar aanleiding van eerder verschenen afleveringen van artikelen van Ir.F.C. d'Audretsch. *Lacerta* 25: 82.
- . 1979. The herpetofauna of the Guianan region, p. 241–279. *In* W.E. Duellman (ed.), The South American Herpetofauna: Its Origin, Evolution, and Dispersal. Museum of Natural History, University of Kansas, Monograph (7).
- . 1980. Revision of the genus *Atractus* in Surinam, with the resurrection of two species (Colubridae, Reptilia). Notes on the herpetofauna of Surinam VII. *Zoologische Verhandelingen* (175):1–47 + 6 plates.
- and T.C.S. Ávila-Pires. 1991. Annotated checklist of the herpetofauna of Petit Saut, Sinnamary River, French Guiana. *Zoologische Mededelingen* 65: 53–88.
- and S.J. Gorzula. 1979. Checklist of the savanna inhabiting frogs of the El Manteco region with notes on their ecology and the description of a new species of treefrog (Hylidae, Anura). *Zoologische Mededelingen* 54:183–216 + 3 plates.
- and U. Gruber. 1983. Spix and Wagler type specimens of reptiles and amphibians in the Natural History Museum in Munich (Germany) and Leiden (The Netherlands). *Spixiana Supplement* 9:319–415.
- Howes, G.B. 1887. On a hitherto unrecognized feature in the larynx of the anurous Amphibia. *Proceedings of the Zoological Society of London* 1887:491–501.
- and W. Ridewood. 1888. On the carpus and tarsus of the Anura. *Proceedings of the Zoological Society of London* 1888:3 plates + 141–182.
- Howland, J.M. 1992. The herpetofauna of the lower Rio Xingu in Amazonian Brazil. *Sonoran Herpetologist* 5:2–8.
- Hoyos, J.M. 2003. Additions to our knowledge of anuran sesamoids. *Herpetological Review* 34:112–116.
- Hvass, H. 1964. Reptiles and Amphibians of the World. Methuen and Company, Limited, London.
- . 1975. Reptiles and Amphibians of the World. Eyre Methuen, London.
- Icochea, J. and J. Mitchell. 1997a. Amphibians and reptiles II: Biodiversity assessment in the lower Urubamba region, p. 223–229. *In* F. Dallmeier and A. Alonso (eds.), Biodiversity Assessment and Monitoring of the Lower Urubamba Region, Peru: San Martin-3 and Cashiriari-2 Well Sites. Smithsonian Institution Monitoring and Assessment of Biodiversity Program Series (1).
- and –. 1997b. Amphibians and reptiles II: Biodiversity assessment in the lower Urubamba region, p. 263–269. *In* F. Dallmeier and A. Alonso (eds.), Biodiversity Assessment and Long-term Monitoring. Lower Urubamba Region, San Martin-3 and Cashiriari-2 well sites. Phase II. Smithsonian Institution Institute for Conservation Biology Contribution Series (2).
- , A. Portilla, E. Quispitupac, C. Aguilar, E. Ponce, and R. Fernandez. 1999. Amphibians and reptiles: Biodiversity assessment at the Pagoreni Well Site, p. 99–115. *In* A. Alonso and F. Dallmeier (eds.), Biodiversity Assessment and Monitoring of the Lower Urubamba Region, Peru. Pagoreni Well Site: Assessment and Training, Smithsonian Institution Monitoring and Assessment of Biodiversity Program Series (3).
- , E. Quispitupac, and A. Portilla. 1998. Amphibians and reptiles: Biodiversity assessment in the lower Urubamba region, p. 125–142. *In* A. Alonso and F. Dallmeier (eds.), Biodiversity Assessment and Monitoring of the Lower Urubamba Region, Peru. Cashiriari-3 Well Site and the Camisea and Urubamba Rivers. Smithsonian Institution Monitoring and Assessment of Biodiversity Program Series,

- (2).
- , –, and E. Ponce. 2001. Assessment of amphibians and reptiles of the lower Urubamba region, Peru, p. 129–142. *In* A. Alonso, F. Dallmeier, and P. Campbell (eds.), *Urubamba: the Biodiversity of a Peruvian Rainforest*. Smithsonian Institution Monitoring and Assessment of Biodiversity Program Series (7).
- Ihering, R. 1934. *Da Vida dos Nossos Animais. Fauna do Brasil*. Rotermund and Co., São Leopoldo.
- . 1940. *Dicionário dos Animais do Brasil*. Secretaria da Agricultura, Indústria e Comércio do Estado de São Paulo, Diretoria de Publicidade Agrícola, São Paulo.
- Ilha, P. and M. Dixo. 2010. Anurans and lizards, Rio Preto da Eva, Amazonas, Brazil. *Check List* 6:17–21.
- Izquierdo, J., F. Nogales, and A.P. Yáñez. 2000. Análisis herpetofaunístico de un bosque húmedo tropical en la amazonía ecuatoriana. *Herpetofaunistic analysis in a tropical rain forest from Ecuadorean Amazon region*. *Ecotropicos* 13:29–42.
- Jackson, T. 2006. *The New Encyclopedia of American Animals*. Hermes House, London.
- Jacobs, G.J. 1978. *English-Russian: Russian-English Dictionary of Vertebrate Zoology (Emphasizing Anatomy, Amphibians, and Reptiles)*. Smithsonian Institution Press, Washington, D.C.
- Jaeger, R.G. and J.P. Hailman. 1973. Effects of intensity on the phototactic responses of adult anuran amphibians: A comparative survey. *Zeitschrift für Tierpsychologie* 33:352–407.
- and –. 1976. Ontogenetic shift of spectral phototactic preferences in anuran tadpoles. *Journal of Comparative and Physiological Psychology* 90: 930–945.
- Jim, J. 1980. *Aspectos Ecológicos dos Anfíbios Registrados na Região de Botucatu, São Paulo (Amphibia, Anura)*. Doutor em Ciências, Universidade de São Paulo, São Paulo.
- . 1995. *Ecologia das rãs. Technofrog '95*. First International Meeting on Frog Research and Technology & VIII Encontro Nacional de Ranicultura, Viçosa, Minas Gerais. *Anais* (2):167–190.
- Jiménez de la Espada, M. 1875. *Vertebrados del Viaje al Pacífico Verificado de 1862 a 1865 por una Comisión de Naturalistas Enviada por el Gobierno Español*. *Batracios*. Miguel Ginesta, Madrid.
- Johnston, M.R.L. 1975. Distribution of *Pirhemocytos* Chatton & Blanc and other, possibly related, infections of poikilotherms. *Journal of Protozoology* 22:529–535.
- Jones, D.A. 1967. *Green Pigmentation in Neotropical Frogs*. Doctor of Philosophy Dissertation, University of Florida, Gainesville.
- Kaiser, E. and H. Michl. 1958. *Die Biochemie der Tierischen Gifte*. Franz Deuticke, Wien.
- Kaiser, H. 1994. *Leptodactylus fallax*. *Catalogue of American Amphibians and Reptiles* (583):1–3.
- Kappler, A. 1885. *Die Tierwelt im holländischen Guiana*. *Das Ausland* 58:857–859.
- . 1887. *Surinam, sein Land, seine Natur, Bevölkerung und seine Kultur-Verhältnisse mit Bezug auf Kolonisation*. J.G. Cotta'sche Verlagsbuchhandlung, Stuttgart.
- Kauri, H. 1962. *Djurens Värld. En Populärvetenskaplig Framställning av Djurens Liv*. Band 7. *Grodoch Kräldjur*. Förlagshuset Norden AB, Malmö, Sweden.
- Kellogg, R. 1932. *Mexican tailless amphibians in the United States National Museum*. *United States National Museum Bulletin* (160):1 plate + iv + 224 p.
- Kenny, J.S. 1969a. *The Amphibia of Trinidad. Studies on the Fauna of Curaçao and other Caribbean Islands*, 29:1–78 + 15 plates.
- . 1969b. Pharyngeal mucous secreting epithelia of anuran larvae. *Acta Zoologica (Stockholm)* 50: 143–153.
- Kicliter, E. and E.J. Goytia. 1995. A comparison of spectral response functions of positive and negative phototaxis in two anuran amphibians, *Rana pipiens* and *Leptodactylus pentadactylus*. *Neuroscience Letters* 185:144–146.
- King, J.D., N. Al-Ghaferi, B. Abraham, A. Sonnevend, J. Leprince, P.F. Nielsen, and J.M. Conlon. 2005. Pentadactylin: An antimicrobial peptide from the skin secretions of the South American bullfrog *Leptodactylus pentadactylus*. *Comparative Biochemistry and Physiology* 141C:393–397.
- , J. Leprince, H. Vaudry, L. Coquet, T. Jouenne, and J.M. Conlon. 2008. Purification and characterization of antimicrobial peptides from the Caribbean frog, *Leptodactylus validus* (Anura: Leptodactylidae). *Peptides* 29:1287–1292.
- King, M. 1990. *Amphibia*. Gebrüder Borntraeger, Berlin.
- Klingelhöffer, W. and C. Scherpner. 1956. *Lurche, Zweiter Teil, Zweite Auflage*. Second Edition. Alfred Kernen Verlag, Stuttgart.
- Kloss, G.R. 1974. *Rhabdias* (Nematoda, Rhabditoidea) from the *marinus* group of *Bufo*. A study of sibling species. *Arquivos de Zoologia* 25:61–120.
- Kluge, A.G. and J.S. Farris. 1969. Quantitative phyletics and the evolution of anurans. *Systematic Zoology* 18:1–32.
- Knell, G., R. von May, L. Rodriguez, and A. Catenazzi. 2004. *Ranas communes de Tambopata, Peru. Common frogs of Tambopata*. *Rapid Color Guide* (165):1–2
- , Rivera González, and M. Gordo. 2006. Apéndice/ Appendix 4. *Anfibios y reptiles/Amphibians and reptiles*, p. 296–303. *In* C. Vriesendorp, N. Pitman, J.I. Rojas Moscoso, B.A. Pawlak, L. Rivera Chávez, L. Calixto Méndez, M. Vela Collantes, and P. Fasabi Rimachi (eds.), *Perú: Matsés. Rapid Biological Inventories* (16).
- Knispel, S.R. and F.B. Barros. 2009. *Anfibios anuros de região urbana de Altamira (Amazônia Oriental), Pará, Brasil*. *Biotemas* 22:191–194.
- Köhler, J. 2000. *Amphibian diversity in Bolivia: A study with special reference to montane forest regions*. *Bonner Zoologische Monographien* (48):1–243 p. + plates I–VII.

- and W. Böhme. 1996. Anuran amphibians from the region of Pre-Cambrian rock outcrops (inselbergs) in northeastern Bolivia, with a note on the gender of *Scinax* Wagler, 1830 (Hylidae). *Revue Française d'Aquariologie* 23:133–140.
- and S. Lötters. 1999. Annotated list of amphibian records from the Departamento Pando, Bolivia, with description of some advertisement calls. *Bonner Zoologische Beiträge* 48:259–273.
- Kohn, A., C. Combes, and D.C. Gomes. 1978. Représentants du genre *Polystoma* Zeder (Monogenea) au Brésil. *Bulletin du Muséum National d'Histoire naturelle*, 3e série, Zoologie 353:227–229.
- and C.P. Santos. 1989. Brazilian Monogenea – list of species, hosts and geographical distribution. *Revista Brasileira de Biologia* 49:809–815.
- Kok, P.J.R. 2000a. A survey of the anuran fauna of Montagne Belvédère, County of Saül, French Guiana: Field list with comments on taxonomy and ecology. *British Herpetological Society Bulletin* 71:6–26.
- . 2000b. Addenda to "A survey of the anuran fauna of Montagne Belvédère, County of Saül, French Guiana". *British Herpetological Society Bulletin* (73):1.
- Kraus, F. 2009. *Alien Reptiles and Amphibians. A Scientific Compendium and Analysis*. Springer, London.
- Kricher, J.C. 1989. *A Neotropical Companion: An Introduction to the Animals, Plants, and Ecosystems of the New World Tropics*. Princeton University Press, Princeton.
- . 1997. *A Neotropical Companion. An Introduction to the Animals, Plants, and Ecosystems of the New World Tropics*. Second, Revised and Expanded ed. Princeton University Press, Princeton.
- Krintler, K. 1996. Biotope der Färberfrösche *Dendrobates tinctorius* in Französisch Guayana. *Sauria* 18:29–34.
- Kurabayashi, A. and M. Sumida. 2009. PCR primers for the neobatrachian mitochondrial genome. *Current Herpetology* 28:1–11.
- Kuramoto, M. 1990. A list of chromosome numbers of anuran amphibians. *Bulletin of Fukuoka University of Education* 39:83–127.
- Kwet, A. and A. Schlüter. 2002. Frösche und Co. Froschlurche – Leben zwischen Land und Wasser. *Stuttgarter Beiträge zur Naturkunde, Serie C – Wissen für alle* (51):1–102 p. + 1 unnumbered.
- La Cépède, B.G.É.L. 1788. *Histoire Naturelle des Quadrupèdes Ovipares et des Serpens*. Académie Royale des Sciences, Paris.
- . 1802. *The Natural History of Oviparous Quadrupeds and Serpens*. Arranged and Published from the Papers and Collections of the Count de Buffon. Volume II. T. Cadel, Jun. and W. Davies, London; and W. Creech, Edinburgh.
- Lacey, L.A. 1979. Predação em girinos por uma vespa e outras associações de insetos com ninhos de duas espécies de rãs da Amazônia. *Acta Amazonica* 9:755–762.
- Lamar, W.W. 1998a. Peter Pan. An excerpt from the field journals of William W. Lamar. *Fauna* 1:58–65.
- . 1998b. Checklist of the amphibians inhabiting the Iquitos region, Loreto, Peru. 6 unnumbered pages. [http://www.greentracks.com/Amphibian\\_List.html](http://www.greentracks.com/Amphibian_List.html)
- La Marca, E. 1992. Catálogo taxonómico, biogeográfico y bibliográfico de las ranas de Venezuela. *Cuadernos Geográficos*, Universidad de Los Andes, Mérida (9):1–197.
- . 1995. Crisis de biodiversidad en anfibios de Venezuela: Estudio de casos, p. 47–70. *In* M.E. Alonso (ed.), *La Biodiversidad Neotropical y la Amenaza de las Extinciones*. Cuadernos de Química Ecológica (4).
- . 1997. Lista actualizada de los anfibios de Venezuela, p. 103–120. *In* E. La Marca (ed.), *Vertebrados Actuales y Fósiles de Venezuela*, Vol. 1. Museo de Ciencia y Tecnología de Mérida, Venezuela, Mérida.
- Lamotte, M. 1986. Radiations adaptatives chez les amphibiens anoures actuels. *Bollettino di Zoologia (Torino)* 53:315–324.
- and J. Lescure. 1977. Tendances adaptatives a l'affranchissement du milieu aquatique chez les amphibiens anoures. *Terre et la Vie* 31:225–311.
- Laurent, R.F. 1986. Sous Classe des lissamphibiens (Lissamphibia). *Systématique*, p. 594–797. *In* P.-P. Grassé and M. Delsol (eds.), *Traité de Zoologie. Anatomie, Systématique, Biologie*. Tome XIV. Batraciens. Appareil Uro-génital (suite)-Embryogenèse-Éthologie-Origin, Évolution, Systématique. Fascicule IB, Vol. 14. Masson, Paris.
- Laurenti, J.N. 1768. *Specimen Medicum, exhibens Synopsis Reptilium emendatam cum Experimentis circa Venena et Antidota Reptilium Austriacorum*. Typ. Joan. Thom. Nob. De Trattner, Vienna.
- Laurin, M., M. Girondot, and M.-M. Loth. 2004. The evolution of long bone microstructure and lifestyle in lissamphibians. *Paleobiology* 30:589–613.
- Lehr, E. 2002. Amphibien und Reptilien in Peru. *Die Herpetofauna entlang des 10. Breitengrades von Peru: Arterfassung, Taxonomie, ökologische Bemerkungen und biogeographische Beziehungen*. Natur und Tier-Verlag GmbH, Münster.
- Leite, J.M.A., Jr., L.P. Silva, R.R. Silva-Leite, A.S. Ferrari, S.E. Noronha, H.R. Silva, C. Bloch, Jr., and J.R.S.A. Leite. 2010. *Leptodactylus ocellatus* (Amphibia): Mechanism of defense in the skin and molecular phylogenetic relationships. *Journal of Experimental Zoology* 313A:1–8.
- Leistikow, A. 2001. Phylogeny and biogeography of South American *Chrinocheta*, traditionally placed in the family "Philosciidae" (Crustacea: Isopoda: Oniscidea). *Organisms Diversity and Evolution* 1: 1–85.
- Lent, H., J.F.T. Freitas, and M.C. Proença. 1946. Alguns helmintos de batráquios colecionados no Paraguai. *Memórias do Instituto Oswaldo Cruz* 44:195–214.
- Leroy, Y. 1977. Critères acoustiques et systematique des amphibiens anoures. *In* Y. Leroy (ed.), *Etho-*

- écologie des Communications chez les Amphi-biens. Bulletin de la Société Zoologique de France Supplement 2:221–258.
- Lescure, J. 1973 [1972]. Contribution à l'étude des amphibiens de Guyane Française II. *Leptodactylus fuscus* (Schneider). Observations écologiques et éthologiques. Annales Muséum d'Histoire naturelle de Nice 1:91–100.
- . 1976. Contribution à l'étude des amphibiens de Guyane Française. VI. Liste préliminaire des Anoures. Bulletin du Muséum National d'Histoire naturelle, 3e série, Zoologie 377:475–525.
- . 1977a. La biogéographie des amphibiens de Guyane Française. Biogeografica (The Hague) 8:85–99.
- . 1977b. Le comportement de défense chez les amphibiens. In Y. Leroy (ed.), Étho-écologie des Communications chez les Amphibiens. Bulletin de la Société Zoologique de France Supplément 2: 27–36.
- . 1979a. Étude taxinomique et éco-éthologique d'un amphibien des Petites Antilles: *Leptodactylus fallax* Müller, 1926 (Leptodactylidae). Bulletin du Muséum National d'Histoire naturelle, 4e série, section A, Zoologie 1:757–774.
- . 1979b [1978]. Singularité et fragilité de la faune en vertébrés des Petites Antilles. Compte-Rendu des Séances de la Société de Biogéographie 482:93–109.
- . 1986a. Les amphibiens anoures de la forêt Guyanaise (région de Trois Sauts, Guyane Française). Mémoires du Muséum National d'Histoire Naturelle, Nouvelle Série, Série A, Zoologie 132:43–52.
- . 1986b. Modes particuliers de reproduction, p. 429–456. In P.-P. Grassé and M. Delsol (eds.), Traité de Zoologie. Anatomie, Systématique, Biologie. Tome XIV. Batraciens. Appareil Uro-génital (suite) -Embryogenèse-Éthologie-Origin, Évolution, Systématique. Fascicule IB, Vol. 14. Masson, Paris.
- . 1986c. La vie sociale de l'adulte, p. 525–537. In P.-P. Grassé and M. Delsol (eds.), Traité de Zoologie. Anatomie, Systématique, Biologie. Tome XIV. Batraciens. Appareil Uro-génital (suite)-Embryogenèse-Éthologie-Origin, Évolution, Systématique. Fascicule IB, Vol. 14. Masson, Paris.
- . 1987. Le peuplement en reptiles et amphibiens des Petites Antilles. Bulletin de la Société Zoologique de France 112:327–342.
- . 1994. Batraciens et architecture de la forêt en Guyane, p. 139–144. In H.L. Raymond (ed.), Forêt Guyanaise. Gestion de l'Écosystème Forestier et Aménagement de l'Espace Régional. Actes du 11ème Congrès Régional de l'Environnement, Vol. Collection "Nature guyanaise". SEPANGUY (Société pour l'Etude, la Protection et l'Aménagement de la Nature en Guyane, Cayenne).
- and J.-P. Gasc. 1986. Partage de l'espace forestier par les amphibiens et les reptiles en Amazonie du nord-ouest. Calsasia 15:707–723.
- , F. Grenand, and P. Grenand. 1980. Les amphibiens dans l'univers Wayàpi. Journal d'Agriculture Traditionnelle et de Botanique Appliquée 27:247–261.
- and F. Letellier. 1983. Reproduction en captivité de *Leptodactylus fallax* Müller, 1926 (Amphibia, Leptodactylidae). Revue Française d'Aquariologie 10: 61–64.
- and C. Marty. 2000. Atlas des amphibiens de Guyane. Patrimoines Naturels (45):1–388.
- , V. Marty, C. Marty, F. Starace, M. Auber-Thomay, and F. Letellier. 1995. Contribution à l'étude des amphibiens de Guyane Française. X. Les *Phyllo-medusa* (Anura, Hylidae). Revue Française d'Aquariologie 22:35–50.
- LeVering, K.R. 1999. Why Frogs Scream: An Investigation of the Function of Distress Calling in *Leptodactylus pentadactylus*. Doctor of Philosophy Dissertation, University of Texas at Austin, Austin.
- Levine, N.D. and R.R. Nye. 1977. A survey of blood and other tissue parasites of leopard frogs *Rana pipiens* in the United States. Journal of Wildlife Diseases 13:17–23.
- Libério, M.S., G.A. Joanitti, R.B. Azevedo, E.M. Cilli, L.C. Zanotta, A.C. Nascimento, M.V. Sousa, O.R. Pires Júnior, W. Fontes, and M.S. Castro. 2011. Anti-proliferative and cytotoxic activity of pentadactylin isolated from *Leptodactylus labyrinthicus* on melanoma cells. Amino Acids 40:51–59.
- Lidth de Jeude, T.W. 1898. Amphibies, p. 1 unnumbered + 1–11. In T.W. Lidth de Jeude, Catalogue Ostéologique des Poissons, Reptiles et Amphibies, Vol. X<sup>2</sup>, Seconde Partie. Muséum d'Histoire Naturelle des Pays-Bas, E.J. Brill printer, Leiden.
- Lima, A.P., W.E. Magnusson, M. Menin, L.K. Erdtmann, D.J. Rodrigues, C. Keller, and W. Hödl. 2006. Guia de Sapos da Reserva Adolpho Ducke, Amazônia Central – Guide to the Frogs of Reserva Adolpho Ducke, Central Amazonia. Áttema Design Editorial, Manaus.
- Lima, J.D. 2008. A herpetofauna do Parque Nacional do Montanhas do Tumucumaque, Amapá, Brasil, Expedições I a V. The herpetofauna of the Tumucumaque Mountains National Park, Amapá, Brazil, Expeditions I to V, p. 38–50. In E. Bernard (ed.), Inventários Biológicos Rápidos no Parque Nacional Montanhas do Tumucumaque, Amapá, Brasil. Rapid Biological Inventories in the Tumucumaque Mountains National Park, Amapá, Brazil. RAP (Rapid Assessment Program) Bulletin of Biological Assessment (48).
- Limeses, C.E. 1964. La musculatura del muslo en los ceratofrínidos y formas afines. Con un análisis crítico sobre la significación de los caracteres miológicos en la sistemática de los Anuros superiores. Universidad de Buenos Aires Facultad de Ciencias Exactas y Naturales Contribuciones Científicas, Serie Zoología 1:3 unnumbered + 193–245.
- . 1965a. Musculatura del muslo de los ceratofrínidos, p. 249–260, Anais do Segundo Congresso Latino-Americano de Zoologia, Realizado em São Paulo, de 16 a 21 de Julho de 1962, Volume II, Vol. 2, São Paulo.
- . 1965b. La musculatura mandibular en los ceratofrínidos y formas afines (Anura, Ceratophryn-

- idae). *Physis* 25:41–58.
- . 1969. Las especies argentinas del género *Leptodactylus* (Anura, Leptodactylidae). Algunos aspectos anatómicos de posible significación taxonómica. Parte I. *Physis* 28:457–470.
- , I. Vignes, and M. Tio. 1972. Las especies argentinas del género *Leptodactylus* (Anura, Leptodactylidae). Algunos aspectos anatómicos de posible significación taxonómica. Parte II. *Physis* 31:631–652.
- Liner, E.A. 1992. Bibliography and scientific name index to amphibians and reptiles in the publications of the Biological Society of Washington Bulletin 1–8, 1918–1988 and Proceedings 1–100, 1882–1987. *Smithsonian Herpetological Information Service* (92):1–68.
- . 1994. Bibliography and scientific name index to amphibians and reptiles published in the Caribbean Journal of Science Volumes 1–25, 1961–1989. *Smithsonian Herpetological Information Service* (99):1–30.
- Liu, C.C. 1935a. "The linea masculina," a new secondary sex character in Salientia. *Journal of Morphology* 57:131–145.
- . 1935b. Types of vocal sac in the Salientia. *Proceedings of the Boston Society of Natural History* 41:19–40 + plates 4–8.
- Loman, J. 1976. Svenska namn på groddjur och kråldjur. *Snoken* 6:196–214.
- Lourenço, W.R. and O. Cuellar. 1995. Neotropical frog *Leptodactylus pentadactylus* eats scorpions. *Alytes* 12:191–192.
- Love, B. 1998. Relative terminology. *Reptiles Magazine* 6:28.
- Lovejoy, T.E., J.M. Rankin, R.O. Bierregaard, Jr., K.S. Brown, Jr., L.H. Emmons, and M.E. Van der Voort. 1984. Ecosystem decay of Amazon forest remnants, p. 295–325. *In* M. Nitecki (ed.), *Extinctions*. University of Chicago Press, Chicago.
- Lüling, K.H. 1962. Fang eines Riesen-Pfeiffrosches am Rio Pacaya. *Aquarien und Terrarien* 9:320–321.
- Lutz, A. 1924. Sur les *Leptodactylus* du Brésil. *Comptes Rendus des Séances de la Société de Biologie et de ses Filiales et Associées* 90:235–236.
- . 1926a. Trématodes et oligochètes observés dans les canaux excréteurs du rein des batraciens de l'Amérique méridionale. *Comptes Rendus des Séances de la Société de Biologie et de ses Filiales et Associées* 95:1503–1504.
- . 1926b. Communication sur les trématodes et oligochètes, observés dans les canaux excréteurs du rein de batraciens de l'Amérique méridionale. *Memórias do Instituto Oswaldo Cruz* 19:237–238.
- . 1926c. Nota previa sobre especies novas de batrachios brasileiros. New species of brasilian batrachians. Preliminary note. *Publicação do Instituto Oswaldo Cruz*:1–9 (Portuguese), 10–16 (English).
- . 1926d. Observações sobre batrachios brasileiros. Parte I: O genero *Leptodactylus* Fitzinger. Observations on brazilian batrachians. Part I: The genus *Leptodactylus*. *Memórias do Instituto Oswaldo Cruz* 19:139–157 Portuguese + plates 30–37 + 159–174 (English).
- . 1927. Notas sobre batrachios da Venezuela e da Ilha de Trinidad. Notes on Batrachians from Venezuela and Trinidad. *Memórias do Instituto Oswaldo Cruz* 20:35–50 (Portuguese) + plates 8–15 + 51–65 (English).
- . 1928. Notas sobre los batracios de Venezuela y de la isla de Trinidad, p. 85–100 + plates 16–23, *Estudios de Zoología y Parasitología Venezolanas*. Privately printed, Rio de Janeiro.
- . 1929. Nova contribuição para o conhecimento do ciclo evolutivo das holostomídeas ou strigeidas. *Memórias do Instituto Oswaldo Cruz Suplemento* (8):128–131.
- . 1930a. Segunda memória sobre espécies brasileiras do género *Leptodactylus*, incluindo outras aliadas. Second paper on brasilian and some closely related species of the genus *Leptodactylus*. *Memórias do Instituto Oswaldo Cruz* 23:1–20 (Portuguese), 21–34 (English) + plates 1–5.
- . 1930b. Observações sobre batrachios brasileiros. Taxonomia e biologia das elosíinas. Contribution to the knowledge of brazilian batrachians. Taxonomy and biology of the Elosiinae. *Memórias do Instituto Oswaldo Cruz* 24:195–222 (Portuguese), 223–249 (English) + plates 64–67.
- . 1933. Considerações sobre o *Distomum tetracystis* Gastaldi e formas semelhantes, erroneamente chamadas Agamodistomos. Zur Kenntnis des *Distoma tetracystis* Gastaldi und aehnlicher Formen, die faelschlich als Agamodistomum bezeichnet werden. *Memórias do Instituto Oswaldo Cruz* 27:33–49 (Portuguese), 50–60 (German) + estampas I–V.
- Lutz, B. 1948. Ontogenetic evolution in frogs. *Evolution* 2:29–39.
- . 1967. Fauna anura Argentina-Brasilica. *Acta Zoológica Lilloana* 23:147–152.
- . 1969. Adaptações, especializações e linhagens nos anuros neotropicais. *Acta Zoológica Lilloana* 24:267–291.
- . 1972. Geographical and ecological notes on Cisandine to Platine frogs. *Journal of Herpetology* 6: 83–100.
- and G.R. Kloss. 1952. Anfíbios anuros do alto Solimões e Rio Negro. Apontamentos sobre algumas formas e suas vicariantes. Short notes on some frogs from the upper Amazons and a few vicariant forms. *Memórias do Instituto Oswaldo Cruz* 50: 625–678.
- Lydekker, R. 1906. Guide to the Gallery of Reptilia and Amphibia in the Department of Zoology of the British Museum (Natural History). Trustees of the British Museum, London.
- . 1913. Guide to the Gallery of Reptilia and Amphibia in the Department of Zoology of the British Museum (Natural History). Second ed. Trustees of the British Museum, London.
- Lynch, J.D. 1966. The status of the tree frog, *Hyla barbudensis* Auffenberg, from Barbuda, British West Indies. *Copeia* 1966:524–530.
- . 1971. Evolutionary relationships, osteology, and



- zoogeography of leptodactyloid frogs. University of Kansas Museum of Natural History, Miscellaneous Publication (53):1–238.
- . 1979. The amphibians of the lowland tropical forests. In W.E. Duellman (ed.), *The South American Herpetofauna: Its Origin, Evolution, and Dispersal*. Museum of Natural History, University of Kansas, Monograph (7):189–215.
- . 1988. Refugia, p. 311–342. In A.A. Myers and P.S. Giller (eds.), *Analytical Biogeography. An Integrated Approach to the Study of Animal and Plant Distributions*. Chapman and Hall, London.
- . 1998. La riqueza de la fauna anfibia de los Andes colombianos. *Innovación y Ciencia (Colombia)* 7: 46–51.
- . 2005. Discovery of the richest frog fauna in the world – an exploration of the forests to the north of Leticia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 29:581–588.
- . 2006. The amphibian fauna in the Villavicencio region of eastern Colombia. La fauna anfibia en la región de Villavicencio en el este de Colombia. *Caldasia* 28:135–155.
- and C.W. Myers. 1983. Frogs of the *fitzingeri* group of *Eleutherodactylus* in eastern Panama and choacoan South America (Leptodactylidae). *Bulletin of the American Museum of Natural History* 175: 481–568.
- and Á.M. Suárez-Mayorga. 2004. Anfibios en el Chocó biogeográfico, p. 633–667. In J.O. Rangel-Ch. (ed.), *Colombia Diversidad Biótica IV. El Chocó Biogeográfico / Costa Pacífica*, Vol. 4. Universidad Nacional de Colombia, Unibiblos, Bogotá.
- Magnusson, W.E. and J.-M. Hero. 1991. Predation and the evolution of complex oviposition behaviour in Amazon rainforest frogs. *Oecologia* 86: 310–318.
- , A.P. Lima, J.-M. Hero, and M.C. Araújo. 1999. The rise and fall of a population of *Hyla boans*: Reproduction in a neotropical gladiator frog. *Journal of Herpetology* 33:647–656.
- Mañé-Garzón, F. and L.E. González. 1978. Dos especies del género *Gorgoderina* (*Gorgoderimma*) de la vejiga urinaria de *Leptodactylus ocellatus* (L.) del Uruguay. *Revista de Biología del Uruguay* 6:45–50.
- Martins, M. 1994. História natural e ecologia de uma taxocenose de serpentes de mata na região de Manaus, Amazônia Central, Brasil. Doutor em Ciências Biológicas (Ecologia), Universidade Estadual de Campinas, Campinas, São Paulo.
- and C.F.B. Haddad. 1988. Vocalizations and reproductive behaviour in the Smith Frog, *Hyla faber* Wied (Amphibia: Hylidae). *Amphibia-Reptilia* 9: 49–60.
- and M.E. Oliveira. 1999 [1998]. Natural history of snakes in forests of the Manaus region, central Amazonia, Brazil. *Herpetological Natural History* 6:78–150 + 113 plates.
- Marty, C. and P. Gaucher. 2000. *Sound Guide to The Tailless Amphibians of French Guiana*. Centre de Bioacoustique Alpin, Paris.
- Mata-López, R., V. León-Règagnon, and D.R. Brooks. 2005. Species of *Gorgoderina* (Digenea: Gorgoderidae) in *Rana vaillanti* and *Rana cf. forneri* (Anura: Ranidae) from Guanacaste, Costa Rica, including a description of a new species. *Journal of Parasitology* 91:403–410.
- Mattison, C. 1987. *Frogs and Toads of the World*. Blandford Press, Poole.
- . 2007. *Frogs. A Visual Reference to Frogs and Toads from Around the World*. Firefly Books, Buffalo, New York.
- Mauro, R. and Z.M. Campos. 2000. Fauna, p. 133–152. In J.S.V. Silva (org.), *Zoneamento Ambiental – Borda Oeste do Pantanal Maciço do Urucum e Adjacências*. Embrapa Informação Tecnológica, Brasília.
- Maxson, L.R. and C.H. Daugherty. 1980. Evolutionary relationships of the monotypic toad family Rhinophrynidae: A biochemical perspective. *Herpetologica* 36:275–280.
- and W.R. Heyer. 1988. Molecular systematics of the frog genus *Leptodactylus* (Amphibia: Leptodactylidae). *Fieldiana, Zoology, New Series* (41):iii + 13 p.
- May, D.W. 1930. Report of the Director, p. 1–11. In Report of the Porto Rico Agricultural Experiment Station, 1929. Porto Rico Agricultural Experiment Station, Mayaguez, Porto Rico.
- Mayer, A.F.J.C. 1835. *Analecten für Vergleichende Anatomie*. Eduard Weber, Bonn.
- McAllister, C.T., C.R. Bursey, and P.S. Freed. 2010a. Helminth parasites of selected amphibians and reptiles from the Republic of Ecuador. *Comparative Parasitology* 77:52–66.
- , –, and –. 2010b. Helminth parasites of herpetofauna from the Rupunini District, southwestern Guyana. *Comparative Parasitology* 77:184–201.
- McClelland, T.B. 1931. Report of the Director, p. 1–10. In Report of the Porto Rico Agricultural Experiment Station, 1930. Porto Rico Agricultural Experiment Station, Mayaguez, Porto Rico.
- McCracken, S., J.P. Gaertner, M.R.J. Forstner, and D. Hahn. 2009. Detection of *Batrachochytrium dendrobatidis* in amphibians from the forest floor to the upper canopy of an Ecuadorian Amazon lowland rainforest. *Herpetological Review* 40: 190–194.
- McCranie, J.R., L.D. Wilson, and L. Porras. 1980. A new species of *Leptodactylus* from the cloud forests of Honduras. *Journal of Herpetology* 14:361–367.
- Melin, D. 1941. Contributions to the knowledge of the Amphibia of South America. Göteborgs Kungliga Vetenskaps-och Vitterhets-Samhälles Handlingar Sjätte Följden, Series B 1:1–71.
- Mello Leitão, C. 1937. *Zoo-geografia do Brasil*. Companhia Editora Nacional, São Paulo.
- . 1947. *Zoogeografia do Brasil*. 2a Edição. Companhia Editora Nacional, São Paulo.
- Menéndez-Guerrero, P.A. 2001. *Ecología Trófica de la Comunidad de Anuros del Parque Nacional Yasuní en la Amazonía Ecuatoriana*. Licenciado en Ciencias Biológicas, Pontificia Universidad

Católica del Ecuador, Quito.

- Menin, M. 2005. Padrões de Distribuição e Abundância de Anuros em 64 km<sup>2</sup> de Floresta de Terra-firme na Amazônia Central. Doctor of Philosophy Dissertation, Instituto Nacional de Pesquisas da Amazônia/Universidade Federal do Amazonas, Manaus.
- , A.P. Lima, W.E. Magnusson, and F. Waldez. 2007. Topographic and edaphic effects on the distribution of terrestrially reproducing anurans in central Amazonia: Mesoscale spatial patterns. *Journal of Tropical Ecology* 23:539–547.
- , –, and D.J. Rodrigues. 2010. The tadpole of *Leptodactylus pentadactylus* (Anura: Leptodactylidae) from Central Amazonia. *Zootaxa* (2508):65–68.
- , F. Waldez, and A.P. Lima. 2008. Temporal variation in the abundance and number of species of frogs in 10,000 ha of a forest in central Amazonia, Brazil. *South American Journal of Herpetology* 3:68–81.
- Merrem, B. 1820. Versuch eines Systems der Amphibien. Johann Christian Krieger, Marburg.
- Mertens, R. 1927. Über einige neu eingeführte Amphibien und Reptilien. *Blätter für Aquarien- und Terrarienkunde* 38:302–309.
- . 1933. Zwerg- und Riesenformen unter Amphibien. *Senckenbergiana* 15:1–4.
- Metcalf, M.M. 1940. Further studies on the opalinid ciliate infusorians and their hosts. *Proceedings of the United States National Museum* 87:465–634.
- Meyer, R.M. 1960. Nieuws over en door de importdienst verkregen dieren. *Lacerta* 18:39.
- Michl, H. and E. Kaiser. 1963. Chemie und Biochemie der Amphibiengifte. *Toxicon* 1:175–228.
- Miranda, N.E.O. and A. Ferreira. 2008. Morfologia bucal interna dos girinos de *Leptodactylus labyrinthicus* Spix, 1824 (Amphibia: Anura: Leptodactylidae). *Biota Neotropica* 8:225–230.
- Miranda-Ribeiro, A. 1922. Fauna do Brazil, p. 190–210. *In* Dicionário do Instituto Histórico e Geográfico. Instituto Histórico e Geográfico.
- . 1926. Notas para servirem ao estudo dos Gymnobatrachios (Anura) Brasileiros. Tomo primeiro. *Archivos do Museu Nacional* 27:1–227 + 22 plates.
- . 1927. Os Leptodactylidae do Museu Paulista. *Revista do Museu Paulista* 15:113–134 + 3 plates.
- Miranda-Ribeiro, P. 1955. Tipos das espécies e subespécies do Prof. Alipio de Miranda Ribeiro depositados no Museu Nacional (com uma relação dos gêneros, espécies e subespécies descritos). *Arquivos do Museu Nacional, Rio de Janeiro* 42: 389–417.
- Miyata, K. 1982. A check list of the amphibians and reptiles of Ecuador with a bibliography of Ecuadorian herpetology. *Smithsonian Herpetological Information Service* (54):1–70.
- Mok, W.Y. and C.M. Carvalho. 1984. Occurrence and experimental infection of toads (*Bufo marinus* and *B. granulosus*) with *Mycobacterium chelonae* subsp. *abscessus*. *The Journal of Medical Microbiology* 18:327–333.
- and –. 1985. Association of anurans with pathogenic fungi. *Mycopathologia* 92:37–43.
- , –, L.C. Ferreira, and J.W.S. Meirelles. 1983. Natural mycotic infections in Amazonian anurans, p. 59–65. *In* C. Vago and G. Matz (eds.), *Comptes Rendus du Premier Colloque International de Pathologie des Reptiles et des Amphibiens. Proceedings of the First International Colloquium [sic] on Pathology of Reptiles and Amphibians*. 29–9 – 2–10 1982, Angers (France). Centre National de la Recherche Scientifique, Presses de l'Université d'Angers, Angers.
- , –, and M.S.B. Silva. 1987. Host-parasite relationship between Amazonian anurans and atypical mycobacteria (*Mycobacterium chelonae* and *M. fortuitum*). *Biotropica* 19:274–277.
- Mole, R.R. and F.W. Urich. 1894. A preliminary list of the reptiles and batrachians of the Island of Trinidad with descriptions of two new species. *Journal of the Trinidad Field Naturalist's Club* 2:77–90.
- Molin, R. 1858. Versuch einer Monographie der Filarien. *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche*, Wien 28:365–461.
- Morales, V.R. 1995. Checklist and taxonomic bibliography of the amphibians from Perú. *Smithsonian Herpetological Information Service* (107):1–20.
- . 1997. Apéndice VI. Listado de las especies de herpetofauna evaluadas en la Región del Río Camisea. List of the herpetofauna evaluated in the Camisea River Region, p. 167–168. *In* S. Udvardy and A. Sandoval (eds.), *Actas del Taller Sobre Diversidad Biológica y Cultural del Bajo Urubamba, Perú, 2–4 Septiembre de 1996*. *Proceedings from the Workshop on Biological and Cultural Diversity of the Lower Urubamba, Peru, 2–4 September 1996*. Biodiversity Programs, National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- and R.W. McDiarmid. 1996. Annotated checklist of the amphibians and reptiles of Pakitza, Manu National Park Reserve Zone, with comments on the herpetofauna of Madre de Dios, Peru, p. 503–522. *In* D.E. Wilson and A. Sandoval (eds.), *Manu. The Biodiversity of Southeastern Peru. La Biodiversidad del Sureste del Perú*. Office of Biodiversity Programs, National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- Moravec, J. and J.K. Aparicio Effen. 2006. First record of *Atractus latifrons* (Günther, 1868) from Bolivia (Serpentes: Colubridae). *Casopis Národního muzea, Rada Prírodovedná* 175:13–16.
- Moreira, G., M. Gordo, M. Martins, U. Galatti, and W. Oda. 1997. Projeto de zoneamento sócio-econômico-ecológico do estado de Rondônia: Segmento de estudos da herpetofauna [Report]. 18 unnumbered pages.
- Morescalchi, A. 1970a. Observations on the chromosomes of some Leptodactylidae. *Actas IV Congreso Latinoamericano de Zoología* (1968) 1: 145–158.
- . 1970b. Some trends of karyological evolution in the Anura. *Actas IV Congreso Latinoamericano de Zoología* (1968) 1:159–166.
- , G. Gargiulo, and E. Olmo. 1968. Note citotasso

- nomiche sui Leptodactylidae (Amphibia Salientia). [Abstract]. *Bollettino di Zoologia (Torino)* 35: 333–334.
- Moussatché, H. 1945. Sensibilidade do músculo reto abdominal de alguns batráquios aos ésteres da colina. Ação da temperatura. *Revista Brasileira de Biologia* 5:445–452.
- Müller, F. 1892. Siebenter Nachtrag zum Katalog der herpetologischen Sammlung des Basler Museums. *Verhandlungen der Naturforschenden Gesellschaft in Basel* 10:195–215 + 2 plates.
- Müller, J.W. 1865. *Reisen in den Vereinigten Staaten, Canada und Mexico*. F.A. Brockhaus, Leipzig.
- Müller, L. 1912. Zoologische Ergebnisse einer Reise in das Mündungsgebiet des Amazonas. I. Allgemeine Bemerkungen über Fauna und Flora des bereisten Gebietes. *Abhandlungen der Königlich Bayerischen Akademie der Wissenschaften Mathematisch-physikalische Klasse, München* 26:1–42 + 3 plates.
- . 1923a. Neue oder seltene Reptilien und Batrachier der Zoologischen Sammlung des bayr. Staates. *Zoologischer Anzeiger, Leipzig* 57:38–42.
- . 1923b. Neue oder seltene Reptilien und Batrachier der Zoologischen Sammlung des bayr. Staates. *Zoologischer Anzeiger, Leipzig* 57:49–61.
- . 1926. Neue Reptilien und Batrachier der Zoologischen Sammlung des bayrischen Staates. *Zoologischer Anzeiger, Leipzig* 65:193–200.
- . 1927. Amphibien und Reptilien der Ausbeute Prof. Bresslau's in Brasilien 1913–1914. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 40:259–304.
- Müller, M.M. 2003. Evaluation of the herpetofauna near the River Piedras in southeast Peru. *Biosphere Expeditions, Suffolk*.
- Müller, P. 1971. *Herpetologische Reiseindrücke aus Brasilien*. *Salamandra* 7:9–30.
- . 1973. The Dispersal Centres of Terrestrial Vertebrates in the Neotropical Realm. A Study in the Evolution of the Neotropical Biota and its Native Landscapes. Dr. W. Junk B. V., The Hague.
- . 1974. *Aspects of Zoogeography*. Dr. W. Junk B.V., The Hague.
- . 1980. *Biogeographie*. Verlag Eugen Ulmer, Stuttgart.
- . 1981. *Arealsysteme und Biogeographie*. Verlag Eugen Ullmer, Stuttgart.
- Murphy, J.C. 1997. *Amphibians and Reptiles of Trinidad and Tobago*. Krieger Publishing Company, Malabar, Florida.
- Nace, G.W., J.K. Waage, and C.M. Richards. 1971. Sources of amphibians for research. *BioScience* 21:768–773.
- Nakajima, T. 1981. Active peptides in amphibian skin. *Trends in Pharmacological Science* 2:202–205.
- Nascimento, A.C.C.C. 2007. *Avaliação Biológica da Secreção Cutânea da Rã *Leptodactylus ocellatus*: Peptídios Citolíticos e Proteases*. Tese de Doutorado, Universidade de Brasília, Brasília.
- , A. Chapeaurouge, J. Perales, A. Sebben, M.V. Sousa, W. Fontes, and M.S. Castro. 2007. Purification, characterization and homology analysis of ocellatin 4, a cytolytic peptide from the skin secretion of the frog *Leptodactylus ocellatus*. *Toxicon* 50:1095–1104.
- Nasir, P. and M.T. Diaz. 1970. A redescription of *Glyptelminis linguatula* (Rudolphi, 1819) Travassos, 1924 and *G. vesicalis* (Ruiz and Leão, 1942) Yamaguti, 1958 with a key to the valid species. *Rivista di Parassitologia* 31:261–274.
- Naya, D.E., F. Bozinovic, and P. Sabat. 2008. Ecología nutricional y flexibilidad digestiva en anfibios, p. 427–451. *In* M.A. Vidal Maldonado and A. Labra Lillo (eds.), *Herpetología de Chile*. Science Verlag, Santiago de Chile.
- Neckel-Oliveira, S. and M. Gordo. 2004. Anfíbios, lagartos e serpentes do Parque Nacional do Jaú, p. 161–176. *In* S.H. Borges, S. Iwanaga, C.C. Durigan, and M.R. Pinheiro (eds.), *Janelas para a Biodiversidade no Parque Nacional do Jaú: Uma Estratégia para o Estudo da Biodiversidade na Amazônia*. Fundação Vitória Amazônica, Manaus.
- Negróni, G. 1991. La mappa dell rane alleviate nel mondo. *Informatore Zootecnico* (24):51–52.
- and L. Farina. 1993. L'élevage de grenouilles. *Cahiers Agricultures* 2:48–55.
- Nicéforo María, H. 1930. Los reptiles de Villavicencio en el Museo de La Salle. *Revista de la Sociedad Colombiana de Ciencias Naturales* 19(4):40–54.
- Nicholls, G.E. 1916. The structure of the vertebral column in the Anura *Phaneroglossa* and its importance as a basis of classification. *Proceedings of the Linnean Society of London* 1916:80–92.
- Nichols, G. 1979. Venomous amphibians [sic]. *Journal of the Northern Ohio Association of Herpetologists* 5:32–43.
- Nieden, F. 1923. *Amphibia. Anura I. Subordo Aglossa und Phaneroglossa, Sectio 1 Arcifera. Das Tierreich* (46):xxxii + 584 p.
- Nietzke, G. 1969. *Die Terrarientiere. Bau, technische Einrichtung und Bepflanzung der Terrarien. Haltung, Fütterung und Pflege der Terrarientiere in zwei Bänden. Erster Band. Terrarien-Technik, Futter und Fütterung, Krankheiten der Amphibien und Reptilien. Terrarientiere I: Schwanzlurche, Froschlurche, Schildkröten*. Eugen Ulmer, Stuttgart.
- . 1980. *Die Terrarientiere 1. Bau, technische Einrichtung und Bepflanzung der Terrarien. Haltung, Fütterung und Pflege der Terrarientiere in zwei Bänden. Band 1. Terrarien-Technik, Futter und Fütterung, Krankheiten der Amphibien und Reptilien. Schwanzlurche, Froschlurche, Schildkröten. Second Edition*. Eugen Ulmer GmbH & Co., Stuttgart.
- Nishikawa, K.C. and R.J. Wassersug. 1989. Evolution of spinal nerve number in anuran larvae. *Brain, Behavior and Evolution* 33:15–24.
- Noble, G.K. 1922. The phylogeny of the Salientia I. – The osteology and the thigh musculature; their bearing on classification and phylogeny. *Bulletin of the American Museum of Natural History* 46:1–87 + 23 plates.
- . 1923. New batrachians from the Tropical Research

- Station, British Guiana. Zoologica 3:Map + 289–299.
- . 1931. The Biology of the Amphibia. McGraw-Hill Book Company, Inc., New York.
- Nomura, H. 1998. História da Zoologia no Brasil: Século XVIII. Museu Bocage, Publicações Avulsas, 2a. Série (4):1–315.
- Obst, F.J., K. Richter, U. Jacob, W.-E. Engelmann, K. Eulenberger, H. Köhler, G. Peters, and H.-G. Petzold. 1984. Lexikon der Terraristik und Herpetologie. Landbuch-Verlag, Hannover.
- , –, –, –, –, –, and –. 1988. The Completely Illustrated Atlas of Reptiles and Amphibians for the Terrarium. T.F.H. Publ., Inc., Neptune City, New Jersey.
- Odening, K. 1960. Trematoda, Digenea, Plagiorchiidae III (Haematoloechinae) und Omphalometridae. Das Tierreich (75):1 unnumbered + 1–77.
- Odling, T.O. 1937. Notes on the development of *Gorgoderia amplicava* in the final host. Biological Bulletin 72:80–87.
- Oken, L. 1816. Oken's Lehrbuch der Naturgeschichte. Dritter Theil, Zoologie. Zweite Abteilung, Fleischtiere. August Schmid und Comp., Jena.
- Oliveira, J.J. 1996. Manual de Identificação de Rãs Nativas Brasileiras e Rã-touro Gigante. Instituto Brasileiro de Meio Ambiente e dos Recursos Naturais Renováveis, Brasília.
- Oltmanns, E. 1952. Zur Morphologie der Zähne rezenter Amphibien. Anatomischer Anzeiger 98: 369–389.
- Ormaza, P. and F. Bajaña. 2008. Territorios A'i Cofan, Siekóya Páí, Siona, Shuar y Kichwa zona baja de la Reserva de Producción Faunística Cuyabeno, Sucumbíos y Orellana, Ecuador. Informe del proyecto "Discusiones sobre áreas comunitarias para la conservación." IUCN. 78 p.
- O'Shea, M. and T.R. Halliday. 2002. Reptiles and Amphibians. Second Edition. Dorling Kindersley, Inc., New York.
- Ouboter, P.E., R. Jairam, and K.W.T. You. 2007. Additional records of amphibians and reptiles from Nassau Mountain, Suriname, p. 126–129. In L.E. Alonso and J.H. Mol (eds.), A Rapid Biodiversity Assessment of the Lely and Nassau Plateaus, Suriname (with additional information on the Brownsberg Plateau). RAP (Rapid Assessment Program) Bulletin of Biological Assessment (43).
- Ozorio de Almeida, M., H. Moussatché, and M. Viana Dias. 1940. Observações sobre o ataque epiléptico produzido pelo resfriamento brusco da medulla feitas nas rãs de região de Bello Horizonte. Brasil-Médico 54:315–316.
- , –, and –. 1943. Recherches sur l'attaque épileptiforme produite par le refroidissement brusque de la moelle épinière (cryoépilepsie). Mémoire cinquième-Étude des différentes formes de l'attaque chez les grenouilles de différents pays. Influence de l'espèce, du climat et des conditions ambiantes. Revista Brasileira de Biologia 3:49–66.
- , –, and –. 1944. Sur l'attaque de cryoépilepsie produite chez la grenouille entière. Revista Brasileira de Biologia 4:313–317.
- Padial, J.M., R.O. de Sá, and I.J. De la Riva. 2006. The distress calls of *Leptodactylus chaquensis* Ceí, 1950 and *Leptodactylus elenae* Heyer, 1978 (Anura: Leptodactylidae). Salamandra 42:57–60.
- Páez, V.P., B.C. Bock, J.J. Estrada, A.M. Ortega, J.M. Daza, and P.D. Gutiérrez-C. 2002. Guía de Campo de Algunas Especies de Anfibios y Reptiles de Antioquia. Multimpresos Ltda., Medellín.
- Parker, H.W. 1933. A list of the frogs and toads of Trinidad. Tropical Agriculture (Trinidad) 10:8–12.
- . 1934. Some frogs and toads of Trinidad. Tropical Agriculture (Trinidad) 11:123.
- . 1935. The frogs, lizards, and snakes of British Guiana. Proceedings of the Zoological Society of London 1935:505–530.
- Parsons, T.S. and E.E. Williams. 1962. The teeth of Amphibia and their relation to amphibian phylogeny. Journal of Morphology 110:375–389.
- Pasquali, M.S., L.P. Lima, and R.P. Bastos. 2003. Sapos, Rãs e Pererecas: Desvendando os Segredos dos Anfíbios. Stylo Gráfica e Editora, Goiânia.
- Patzelt, E. 1989. Fauna del Ecuador. Banco Central del Ecuador, Quito.
- Pawley, R. 1971. Annual inventory...reptile house, 1970, Chicago Zoological Park. Bulletin of the Chicago Herpetological Society 6:37–41.
- Pearson, J.C. 1959. Observations on the morphology and life cycle of *Strigea elegans* Chandler & Rausch, 1947 (Trematoda: Strigeidae). The Journal of Parasitology 45:155–174.
- Pearson, K. and A.G. Davin. 1921. On the sesamoids of the knee-joint: Part II. Evolution of the sesamoids. Biometrika 13:350–400 + plates XIX–XXXVII.
- Péfaur, J.E. 1992. Checklist and bibliography (1960–85) of the Venezuelan herpetofauna. Smithsonian Herpetological Information Service (89):1–54.
- and J.A. Rivero. 2000. Distribution, species richness, endemism, and conservation of Venezuelan amphibians and reptiles. Amphibian and Reptile Conservation 2:42–70.
- and N.M. Sierra. 1995. Status of *Leptodactylus labyrinthicus* (Calf Frog, Rana Ternero) in Venezuela. Herpetological Review 26:124–127.
- Peracca, M.G. 1904. Viaggio del Dr. Enrico Festa nell'Ecuador e regioni vicine. Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino 19:1–41.
- Pereira, N.M., S.C.G. Costa, and M.A. Sousa. 1973. *Toddia* sp., "corpúsculo paranuclear" no sangue de *Leptodactylus* e *Bufo* do Brasil – desenvolvimento e citoquímica. Memórias do Instituto Oswaldo Cruz 71:19–31 + 5 plates + 1 figure.
- Pérez B., M.E., J.M. Pérez, J.F. Guerra S., and C. Cortez. 2002. Herpetofauna del Parque Nacional Madidi, Bolivia, p. 58–65. In J. Reitz Montambault (ed.), Informes de las Evaluaciones Biológicas Pampas del Heath, Perú, Alto Madidi, Bolivia y Pando, Bolivia. RAP (Rapid Assessment Program) Bulletin of Biological Assessment (24).
- Pérez, P.E., R.E. Bodmer, and P.E. Puertas. 2004. Anuros y saurios del interfluvio Yavarí – Tahuayo

- y su comparación con las áreas naturales protegidas en la región Loreto, Perú. VI Congreso Internacional sobre Manejo de Fauna Silvestre en la Amazonia y Latinoamérica. Memorias: Manejo de fauna Silvestre en Amazonia y Latinoamérica:1–15.
- Pessôa, S.B. 1970. Formas evolutivas do *Hepatozoon leptodactyli* (Le Sage, 1908) na sanguessuga *Haementeria lutzi* Pinto, 1920. *Revista Goiana de Medicina* 16:35–39.
- and A.G. Cunha Neto. 1967. Notas sôbre hemoparasitas de rãs de Goiânia. *Revista Goiana de Medicina* 13:101–116.
- Peters, J.A. 1955 [1954–1955]. Herpetological type localities in Ecuador. *Revista Ecuatoriana de Entomología y Parasitología* 2:335–352.
- Peters, W.C.H. 1872. Über die von Spix in Brasilien gesammelten Batrachier des Königl. Naturalienkabinetts zu München. *Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin* 1872:196–227.
- Petzold, H.-G. 1974. Im Tierpark Berlin 1971 erstmalig gehaltene Tierformen. *Milu* 3:511–529.
- . 1977. *Leptodactylus pentadactylus* Laurenti, 1768, Riesenpfeiffrosch oder Südamerikanischer Ochsenfrosch (Familie: Leptodactylidae, Pfeiffrösche). *Aquarien Terrarien* 24:(no page number).
- . 1982. Aufgaben und Probleme der Tiergärtnerei bei der Erforschung der Lebensäußerungen der Niederen Amnioten (Reptilien). *Milu* 5:485–786.
- . 1983. Die Anakondas, Gattung *Eunectes*. Die Neue Brehm-Bücheri, A. Ziemsen Verlag, Wittenberg.
- Pinto, C.F. 1925. Protozoários observados no Brasil. *Memorias do Instituto Oswaldo Cruz* 18:211–302 + plates 16–28.
- Pinto, R.M. and D. Noronha. 1972. Contribuição ao conhecimento da fauna helmintológica do município de Alfenas, estado de Minas Gerais. *Memorias do Instituto Oswaldo Cruz* 70:391–407 + 4 plates.
- Pocai, E. 1941. *Memória Histórica do Instituto de Butantan, São Paulo*.
- Poisson, R. 1953. Protistes parasites, intra- ou extracellulaires, d'affinités incertaines, p. 976–1005. *In* P.-P. Grassé (ed.), *Protozoaires: Rhizopodes, Actinopodes, Sporozoaires, Cnidosporidies. Traité de Zoologie. Anatomie, Systématique, Biologie. Fascicule II, Vol. I. Masson et Cie Éditeurs, Paris*.
- Poll, C.P. 2009. Wound management in amphibians: Etiology and treatment of cutaneous lesions. *Journal of Exotic Pet Medicine* 18:20–35.
- Ponssa, M.L. 2008. Cladistic analysis and osteological descriptions of the frog species in the *Leptodactylus fuscus* species group (Anura, Leptodactylidae). *Journal of Zoological Systematics and Evolutionary Research* 46:249–266.
- and J.S. Barrionuevo. 2008. Foam-generating behavior in tadpoles of *Leptodactylus latinasus* (Amphibia, Leptodactylidae): Significance in systematics. *Zootaxa* (1884):51–59.
- , M.J. Jowers, and R.O. de Sá. 2010. Osteology, natural history notes, and phylogenetic relationships of the poorly known Caribbean frog *Leptodactylus nesiotus* (Anura, Leptodactylidae). *Zootaxa* (2646):1–25.
- Porter, K.R. 1972. *Herpetology*. W.B. Saunders Company, Philadelphia.
- Pough, F.H. 1989. Amphibians: A rich source of biological diversity, p. 245–277. *In* A.D. Woodhead and K. Vivirito (eds.), *Nonmammalian Animal Models for Biomedical Research*. CRC Press, Inc., Boca Raton.
- , R.M. Andrews, J.E. Cadle, M.L. Crump, A.H. Savitzky, and K.D. Wells. 1998. *Herpetology*. Prentice Hall Inc., Upper Saddle River, New Jersey.
- , –, –, –, and –. 2004. *Herpetology*. Third Edition. Pearson Prentice Hall, Upper Saddle River, New Jersey.
- , W.E. Magnusson, M.J. Ryan, K.D. Wells, and T.L. Taigen. 1992. Behavioral energetics, p. 395–436. *In* M.E. Feder and W.W. Burggren (eds.), *Environmental Physiology of the Amphibians*. The University of Chicago Press, Chicago.
- Prado, C.P.A., L.F. Toledo, J. Zina, and C.F.B. Haddad. 2005. Trophic eggs in the foam nests of *Leptodactylus labyrinthicus* (Anura, Leptodactylidae): An experimental approach. *Herpetological Journal* 15:279–284.
- , M. Uetanabaro, and C.F.B. Haddad. 2002. Description of a new reproductive mode in *Leptodactylus* (Anura, Leptodactylidae), with a review of the reproductive specialization toward terrestriality in the genus. *Copeia* 2002:1128–1133.
- Preusser, H.-J., G.G. Habermehl, M. Sablofski, and D. Schmall-Haury. 1975. Antimicrobial activity of alkaloids from amphibian venoms and effects on the ultrastructure of yeast cells. *Toxicon* 13:285–289 + 3 plates.
- , –, –, and –. 1976. Antimicrobial activity of alkaloids from amphibian venoms and effects on the ultrastructure of yeast cells, p. 273–286. *In* A. Ohsaka, K. Hayashi, Y. Sawai, R. Murata, M. Funatsu, and N. Tamiya (eds.), *Animal, Plant, and Microbial Toxins. Volume 1 – Biochemistry*. Plenum Press, New York.
- Procter, J.B. 1921. On the variation of the scapula in the batrachian groups Aglossa and Arcifera. *Proceedings of the Zoological Society of London* 1921:197–214.
- . 1923. On new and rare reptiles from South America. *Proceedings of the Zoological Society of London* 1923:1061–1067.
- Prudhoe, S. and R.A. Bray. 1982. *Platyhelminth Parasites of the Amphibia*. British Museum (Natural History) and Oxford University Press, London.
- Purgue, A.P. 1995. The Sound Broadcasting System of the Bullfrog (*Rana catesbeiana*). Doctor of Philosophy Dissertation, Department of Biology, The University of Utah.
- Pyburn, W.F. and W.R. Heyer. 1975. Identity and call of the frog, *Leptodactylus stenodema*. *Copeia* 1975:585–587.
- Rabello, M.N. 1970. Chromosomal studies in Brazilian anurans. *Caryologia* 23:45–59.

- Rada de Martínez, D. 1976. Cariotipo de *Colostethus trinitatis* (Amphibia: Dendrobatidae). *Acta Biologica Venezuelica* 9:213–220.
- Railliet, A. 1916. Sur les filaires de batraciens. *Bulletin de la Société de Pathologie Exotique* 9:137–140.
- Ramirez, J., R.C. Vogt, and J.-L. Villarreal Benítez. 1998. Population biology of a Neotropical frog (*Rana vaillanti*). *Journal of Herpetology* 32:338–344.
- Ramus, E. 1999. What's new at the Detroit Zoo? *Reptile & Amphibian Hobbyist* 5:65–69.
- Rand, A.S. 1983. *Physalaemus pustulosus* (Rana, Sapito Túngara, Foam Toad, Mud-puddle Frog), p. 412–415. In D.H. Janzen (ed.), *Costa Rican Natural History*. University of Chicago Press, Chicago.
- Rastogi, R.K., L. Iela, M. di Meglio, M.M. Di Fiore, B. D'Aniello, C. Pinelli, and M. Fiorentino. 2005. Hormonal regulation of reproductive cycles in amphibians, p. 2045–2177. In H.F. Heatwole (ed.), *Amphibian Biology*. Volume 6. Endocrinology. Surrey Beatty & Sons PTY Limited, Chipping Norton, Australia.
- Rau, A.S. and J.B. Gatenby. 1923. Notes on the distribution, morphology and cytology of the Organ of Bidder. *Journal of the Royal Microscopical Society* 1923:19–36 + 2 plates.
- Razo-Mendivil, U.J. and V. León-Règagnon. 2001. *Glypthelmins poncedeleoni* n. sp. (Trematoda: Macroderoididae) of amphibians from the neotropical region of México. *Journal of Parasitology* 87:686–691.
- Read, M. 2000. *Frogs of the Ecuadorian Amazon: A Guide to Their Calls*. Morley Read Productions, Readymoney Cove, Fowey.
- Rêgo, A.A. 1962. Ocorrência de *Ophiotaenia bonariensis* Szidat & Soria, 1954 em anfíbios anuros (Cestoda, Proteocephalidea). *Revista Brasileira de Biologia* 22:377–380.
- . 1973. Contribuição ao conhecimento dos cestóides do Brasil I – cestóides de peixes, anfíbios e répteis. *Atas da Sociedade de Biologia do Rio de Janeiro* 16:97–129.
- Reichenbach-Klinke, H. 1961. *Krankheiten der Amphibien*. Gustav Fischer Verlag, Stuttgart.
- and E. Elkan. 1965. *The Principal Diseases of Lower Vertebrates*. Academic Press, London.
- and –. 1972. *The Principal Diseases of Lower Vertebrates*. Book II. Diseases of Amphibians. T.F.H. Publications, Inc., Ltd., Hong Kong.
- Reichle, S. 2004. Annex 2. List of amphibians present in Bolivia, p. 575–577. In P.L. Ibsch and G. Mérida (eds.), *Biodiversity: The Richness of Bolivia*. State of Knowledge and Conservation, English edition. Ministry of Sustainable Development. Editorial FAN, Santa Cruz de la Sierra.
- . 2006. *Distribution, Diversity and Conservation Status of Bolivian Amphibians*. Doctorate, Rheinischen Friedrichs-Wilhelms-Universität Bonn, Germany.
- Reig, O.A. 1972. *Macrogenioglottus* and the South American bufonid toads, p. 14–36. In W.F. Blair (ed.), *Evolution in the Genus Bufo*. University of Texas Press, Austin.
- and J.M. Cei. 1963. Elucidación morfológico-estadística de las entidades del género *Lepidobatrachus* Budgett (Anura, Ceratophrynidae), con consideraciones sobre la extensión del distrito chaqueño del dominio zoogeográfico subtropical. *Physis* 24:181–204.
- Reitz Montambault, J. 2002. Resume Ejecutivo/Executive Summary (inglés). In J. Reitz Montambault (ed.), *Informes de las Evaluaciones Biológicas Pampas del Heath, Perú, Alto Madidi, Bolivia y Pando, Bolivia*. RAP (Rapid Assessment Program) Bulletin of Biological Assessment (24):19–28, 33–41.
- Renjifo, J.M. 1997. *Ranas y Sapos de Colombia*. Editorial Colina, Bogotá.
- Rettig, A., R.O. de Sá, and W.R. Heyer. 2003. Genetic diversity in populations of *Leptodactylus pentadactylus*. [Abstract]. Joint Meeting of Ichthyologists and Herpetologists, Manaus, Amazonas, Brazil. June 26–July 1, 2003. Compact disk.
- Reynolds, R.P., T. Fritts, S. Gotte, J. Icochea, and G. Tello. 1997a. Amphibians and reptiles I: Biodiversity assessment in the lower Urubamba region, p. 213–221. In F. Dallmeier and A. Alonso (eds.), *Biodiversity Assessment and Monitoring of the Lower Urubamba Region, Peru*. Smithsonian Institution Monitoring & Assessment of Biodiversity Program Series (1).
- , –, –, –, and –. 1997b. Amphibians and reptiles I: Biodiversity assessment in the lower Urubamba region, p. 255–261. In F. Dallmeier and A. Alonso (eds.), *Biodiversity Assessment and Long-term Monitoring*. Lower Urubamba Region. San Martin-3 and Cashiriari-2 well sites. Phase II. Smithsonian Institution Institute for Conservation Biology, Contribution Series (2).
- Ribeiro Júnior, M.A., T.A. Gardner, and C.S. Àvila-Pires. 2008. Evaluating the effectiveness of herpetological sampling techniques across a gradient of habitat change in a tropical forest landscape. *Journal of Herpetology* 42:733–749.
- Richter, M.R. 2000. Social wasp (Hymenoptera: Vespidae) foraging behavior. *Annual Review of Entomology* 45:121–150.
- Ritter, M.M. 1965. Sous-Classe des Secernentea (= Phasmodia auct.). Ordre des Rhabditides (= Rhabditida-Chitwood, 1933), p. 732–1200. In P.-P. Grassé (ed.), *Némathelminthes (Nématodes, Gordiacés), Rotifères, Gastrotriches, Kinorhynques*. *Traité de Zoologie. Anatomie, Systématique, Biologie*. Troisième Fascicule, Vol. IV. Masson et Cie Éditeurs, Paris.
- Rivera, C., R. von May, C. Aguilar, I. Arista, A. Curo, and R. Schulte. 2003. Una evaluación preliminar de la herpetofauna en la Zona Reservada Allpahuayo – Mishana, Loreto, Perú. *Folia Amazonica* 14:139–148.
- Rivero-Blanco, C. and J.R. Dixon. 1979. Origin and distribution of the herpetofauna of the dry lowland regions of northern South America. In W.E. Duellman (ed.), *The South American Herpetofauna: Its*

- Origin, Evolution, and Dispersal. Museum of Natural History, University of Kansas, Monograph (7):281–298.
- Rivero, J.A. 1961. Saliencia de Venezuela. Bulletin of the Museum of Comparative Zoology at Harvard College 126:1–207.
- . 1964a. Saliencia (Amphibia) en la colección de La Sociedad de Ciencias Naturales La Salle de Venezuela. Caribbean Journal of Science 4:297–305.
- . 1964b. The distribution of Venezuelan frogs. V. The Venezuelan Guayana. Caribbean Journal of Science 4:411–420.
- . 1968. El problema de *Leptodactylus rhodomystax* Boulenger (Amphibia, Saliencia). Memoria de la Sociedad de Ciencias Naturales La Salle, Caracas 28:145–149 + 1 plate.
- . 1969. Sobre la *Hyla rubra* Laurenti y la *Hyla x-signata* Spix (Amphibia, Saliencia). Memoria de la Sociedad de Ciencias Naturales La Salle, Caracas 29:109–116 + 2 plates.
- . 1971. Tres nuevos records y una nueva especie de anfibios de Venezuela. Caribbean Journal of Science 11:1–9.
- . 1994. El Coquí Dorado de Puerto Rico y otras Ranas de Hábitos Reproductivos Peculiares. Universidad de Puerto Rico, Cuadernos de Artes y Ciencias, Mayaguez.
- Rocha, C.F.D. and W.E. Magnusson. 1985. Sobrevivência de seis species de girinos de floresta Amazônica na ausência de água livre. [Abstract]. XII Congresso Brasileiro de Zoologia, Campinas, SP. 27 de Janeiro a 1 de Fevereiro de 1985. Editora da UNICAMP, Campinas.
- , –, and A.P. Lima. 1984. Palatability of tadpoles of Amazonian forest frogs. [Abstract]. Combined Meetings of the American Society of Ichthyologists and Herpetologists, Herpetologists' League and Society for the Study of Amphibians and Reptiles. 28 July–3 August 1984. University of Oklahoma, Norman.
- Rodrigues, D.J., M. Menin, and A.P. Lima. 2007. Redescription of the tadpole of *Leptodactylus rhodomystax* (Anura: Leptodactylidae) with natural history notes. Zootaxa (1509):61–67.
- , M.M. Lima, C.L. Velásquez, and T. Mott. 2010. Amphibia, Anura, Leptodactylidae, *Leptodactylus paraensis* Heyer, 2005: Distribution extension, new state record, and geographic distribution map. Check List 6:467–469.
- Rodrigues, H.O., S.S. Rodrigues, and R. Cristóforo. 1978. Subsídios ao estudo dos trematódeos parasitos de anfíbios de Barra do Pirai, Estado do Rio de Janeiro. Atas da Sociedade de Biologia do Rio de Janeiro 19:25–29.
- , –, and –. 1982. Contribuição ao conhecimento da fauna helmintológica de anfíbios de Barra do Pirai, Estado do Rio de Janeiro. Atas da Sociedade de Biologia do Rio de Janeiro 23:5–8.
- Rodríguez-Bayona, L.O. 1987. Parque Nacional del Manu: Lista preliminar de los batracios anuros de Cocha Cashu. Boletín de Lima (53):88–90.
- . 1992. Structure et organisation du peuplement d'anoures de Cocha Cashu, Parc National Manu, Amazonie Péruvienne. Revue d'Écologie (Terre & Vie) 47:151–197.
- . 1994. Herpetofauna of the Ccolpa de Guacamayos, p. 50–51. In J.L. Carr and K. Awbrey (eds.), The Tambopata-Candamo Reserved Zone of Southeastern Perú: A Biological Assessment. Rapid Assessment Program Working Papers (6).
- and J.E. Cadle. 1990. A preliminary overview of the herpetofauna of Cocha Cashu, Manu National Park, Peru, p. 410–425. In A.H. Gentry (ed.), Four Neotropical Rainforests. Yale University Press, New Haven, Connecticut.
- , J.H. Córdova, and J. Icochea. 1993. Lista preliminar de los anfibios del Perú. Publicaciones del Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Serie A, Zoología (45):1–22.
- and W.E. Duellman. 1994. Guide to the frogs of the Iquitos region, Amazonian Peru. University of Kansas Natural History Museum, Special Publication (22):vi + 80 p. + 12 plates + 1 map.
- and L.H. Emmons. 1994. Appendix 8. Amphibians and reptiles in the Tambopata-Candamo Reserved Zone, p. 150–153. In R.B. Foster, J.L. Carr, and A.B. Forsyth (eds.), The Tambopata-Candamo Reserved Zone of Southeastern Perú: A Biological Assessment. Rapid Assessment Program Working Papers (6).
- and G. Knell. 2003. Apéndice/Appendix 4: Anfibios y reptiles/Amphibians and reptiles, p. 244–253. In N. Pitman, C. Vriesendorp, and D.K. Moskovits (eds.), Perú: Yavarí. Rapid Biological Inventories (11).
- and –. 2004a. Amphibians and reptiles, p. 67–70, 152–155. In N. Pitman, R.C. Smith, C. Vriesendorp, D.K. Moskovits, R. Piana, G. Knell, and T. Wachter (eds.), Perú: Ampiyacu, Apayacu, Yaguas, Medio Putumayo. Rapid Biological Inventories (12).
- and –. 2004b. Apéndice/Appendix 4. Anfibios y reptiles. Amphibians and Reptiles, p. 234–241. In N. Pitman, R.C. Smith, C. Vriesendorp, D.K. Moskovits, R. Piana, G. Knell, and T. Wachter (eds.), Perú: Ampiyacu, Apayacu, Yaguas, Medio Putumayo. Rapid Biological Inventories (12).
- , J. Pérez Zúñiga, and H.B. Shaffer. 2001. Apéndice/Appendix 4: Anfibios y reptiles/Amphibians and reptiles, p. 202–205. In W.S. Alverson, L.O. Rodríguez-Bayona, and D.K. Moskovits (eds.), Perú: Biabo, Cordillera Azul. Rapid Biological Inventories (2).
- Rodríguez Gamarra, J.J., G.G. Cárdenas Ramírez, A. De La Cruz Abarca, N. Llerena Martínez, S. Ríos Torres, C. Rivera Gonzáles, E. Salazar Zapata, V.H. Vargas Paredes, P. Soini, and K. Ruokolainen. 2003. Comparaciones florísticas y faunísticas entre diferentes lugares de bosques de tierra firme en la selva baja de la Amazonía Peruana. Folia Amazónica 14:35–72.
- Rojas-Ahumada, D.P. and M. Menin. 2010. Composition and abundance of anurans in riparian and non-riparian areas in a forest in central Amazonia,

- Brazil. South American Journal of Herpetology 5: 157–167.
- Rojas Zolezzi, E. 2002. Las clasificaciones Ashaninka de la fauna del piedemonte central: Un caso de diferentes niveles de aproximación. Bulletin de l'Institut Français d'Études Andines 31:185–212.
- Roseghini, M., V. Erspamer, G.F. Erspamer, and J.M. Cei. 1986. Indole-, imidazole- and phenyl-alkylamines in the skin of one hundred and forty American amphibian species other than bufonids. Comparative Biochemistry and Physiology 85C: 139–147.
- Rosenberg, P. 1987. Common names index: Poisonous animals, plants and bacteria. Toxicon 25: 799–890.
- Rossa-Feres, D.C., M. Menin, and T.J. Izzo. 1999. Ocorrência sazonal e comportamento territorial em *Leptodactylus fuscus* (Anura, Leptodactylidae). Iheringia, Série Zoologia (87):93–100.
- Rowlatt, U.F. and F.J.C. Roe. 1966. Generalized tuberculosis in a South American frog *Leptodactylus pentadactylus*. Pathologia Veterinaria 3: 451–460.
- Rueda-Almonacid, J.V. 1994. Estudio anatómico y relaciones sistemáticas de *Centrolene geckoideum* (Salientia: Anura: Centrolenidae). Trianea 5: 133–187.
- , F. Castro, and C. Cortez. 2006. Técnicas para el inventario y muestreo de anfibios: Una compilación, p. 135–171. In A. Angulo, J.V. Rueda-Almonacid, J.V. Rodríguez-Mahecha, and E. La Marca (eds.), Técnicas de Inventario y Monitoreo para los Anfibios de la Región Tropical Andina. Conservación Internacional Andes CBC, Bogotá.
- Ruiz-Carranza, P.M., M.C. Ardila-Robayo, and J.D. Lynch. 1996. Lista actualizada de la fauna de Amphibia de Colombia. Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales 20:365–415.
- Ruiz Pérez, G.A. and F. Buitrago Vannini. 2003. Historia natural, p. 1–20. In G.A. Pérez and F. Buitrago Vannini (eds.), Guía Ilustrada de la Herpetofauna de Nicaragua. Araucaria-Marena-Aeci, Managua.
- Rundquist, E.M. 1994. Reptiles and Amphibians: Management in Captivity. T.F.H. Publications, Inc., Neptune City, New Jersey.
- Salas, A.W. 1995. Herpetofauna peruana: Una visión panorámica sobre investigación, conservación y manejo. Biotempo 2:125–137.
- , G. Tello, W. Arizabal Arriaga, P.J. Sehgelmeble, and D.H. Neira. 1998. Monitoring leaf-litter amphibians in Manu National Park, Peru, p. 615–631. In F. Dallmeier and J.A. Comiskey (eds.), Forest Biodiversity in North, Central and South America, and the Caribbean: Research and Monitoring, Vol. 21. UNESCO and Parthenon Publishing Group, Paris.
- Salthe, S.N. and J.S. Mecham. 1974. Reproductive and courtship patterns, p. 309–521. In B. Lofts (ed.), Physiology of the Amphibia. Volume II. Academic Press, New York.
- Sanchiz, B. 1998. Salientia. Verlag Dr. Friedrich Pfeil, München.
- Santana, M.A. and E. Menin. 1997. Histologia do esôfago de *Leptodactylus labyrinthicus* Spix, 1824 (Amphibia, Anura, Leptodactylidae). Revista Ceres 44:111–123.
- Santos, E. 1942. Anfíbios e Répteis do Brasil (Vida e Costumes). F. Brigueit & Cia., Rio de Janeiro.
- . 1994. Anfíbios e Répteis do Brasil (Vida e Costumes). 4.a, Revista e aumentada ed. Villa Rica Editoras Reunidas Limitada, Belo Horizonte.
- São Pedro, V.A., H.C. Costa, and R.N. Feio. 2009. A Herpetofauna do AHE Dardanelos, Aripuanã, Mato Grosso. Universidade Federal de Viçosa, Museu de Zoologia João Moojen. Viçosa.
- Satel, S.L. and R.J. Wassersug. 1981. On the relative sizes of buccal floor depressor and elevator musculature in tadpoles. Copeia 1981:129–137.
- Scharf, K. 1971. In memoriam: Meine Riesenfrösche. Fressen war ihr Hauptpläsier. Aquarien Magazin 5:462–463.
- Schenberg, S. 1956. Positive inotropic response of amphibian hearts to adenosine nucleotides. Acta Physiologica Latino Americana 6:137–146.
- Schleser, D.M. and D.T. Roberts. 1998. A preliminary survey of the herpetofauna of the Madre Selva II Biological Preserve and its immediate vicinity. Reptiles Magazine 6:68–87.
- Schlüter, A. 1980. Bio-akustische Untersuchungen an Leptodactyliden in einem begrenzten Gebiet des tropischen Regenwaldes von Peru (Amphibia: Salientia: Leptodactylidae). Salamandra 16:227–247.
- . 1984. Ökologische Untersuchungen an einem Stillgewässer im tropischen Regenwald von Peru unter besonderer Berücksichtigung der Amphibien. Doctoral Dissertation, Universität Hamburg, Hamburg.
- . 1987a. Die Amphibien Panguanas unter besonderer Berücksichtigung der Anuren an einem Schwarzwasser-Stillgewässer. Österreichische Gesellschaft für Herpetologie-Nachrichten (12/13):25–35.
- . 1987b. Die Froschlurche an einem Stillgewässer im tropischen Regenwald von Peru. I. Artenspektrum und Massenkonzert. Herpetofauna 9:11–20.
- . 1987c. Die Froschlurche an einem Stillgewässer im tropischen Regenwald von Peru. II. Ökologische Betrachtungen. Herpetofauna 9:17–24.
- . 2005. Amphibien an einem Stillgewässer in Peru. Chimaira Buchhandels-gesellschaft, Frankfurt am Main.
- , J. Icochea, and J.M. Perez. 2004. Amphibians and reptiles of the lower Río Llullapichis, Amazonian Peru: Updated species list with ecological and biogeographical notes. Salamandra 40:141–160.
- and A.W. Salas. 1991. Reproduction, tadpoles, and ecological aspects of three syntopic microhylid species from Peru (Amphibia: Microhylidae). Stuttgarter Beiträge zur Naturkunde, Serie A (Biologie) (458):1–17.
- Slater, P.L. 1883. List of the Vertebrated Animals Now or Lately Living in the Gardens of the Zoological Society of London. Eighth Edition. Taylor



- and Francis, London.
- . 1896. List of the Vertebrated Animals Now or Late-ly Living in the Gardens of the Zoological Society of London. Ninth Edition. Taylor and Francis, London.
- Schmidt, K.P. 1928. Scientific Survey of Porto Rico and the Virgin Islands. Amphibians and land reptiles of Porto Rico, with a list of those reported from the Virgin Islands. New York Academy of Sciences 10(1):1–160 + plates I–IV.
- and R.F. Inger. 1951. Amphibians and reptiles of the Hopkins-Branner Expedition to Brazil. Fieldiana, Zoology 31:439–465.
- Schmidt, R.E. 1984. Amphibian chromomycosis, p. 169–181. In G.L. Hoff, F.L. Frye, and E.R. Jacobson (eds.), Diseases of Amphibians and Reptiles. Plenum Press, New York.
- Schneider, H. 1984. Der Südamerikanische Ochsenfrosch und seine Brutfürsorge. Aquarien Magazin 18:60–62.
- , G. Joermann, and W. Hödl. 1988. Calling and antiphonal calling in four neotropical anuran species of the family Leptodactylidae. Zoologische Jahrbücher. Abteilung für Allgemeine Zoologie und Physiologie der Tiere (Jena) 92:77–103.
- Schreiber, G. and N. Melucci. 1949. Pesquisas de citologia quantitativa. VIII. O crescimento rítmico do núcleo nos canalículos renais de *Leptodactylus*. Considerações sobre o poliploidismo somático. Revista Brasileira de Biologia 9:327–335.
- Schulte, R. 1984. Frösche und Kröten. Tropische und einheimische Froschlurche im Terrarium. Second, revised edition. Verlag Eugen Ulmer, Stuttgart.
- Schwartz, A. 1978. Some aspects of the herpetogeography of the West Indies. In F.B. Gill (ed.), Zoogeography in the Caribbean. The 1975 Leidy Medal Symposium. Academy of Natural Sciences of Philadelphia Special Publication (13):31–51.
- Schwartz, C.A., M.S. Castro, O.R. Pires Júnior, N.M. Maciel, E.N.F. Schwartz, and A. Sebben. 2007. Princípios bioativos da pele de anfíbios: Panorama atual e perspectivas, p. 146–168. In L.B. Nascimento and M.E. Oliveira (eds.), Herpetologia no Brasil II. Sociedade Brasileira de Herpetologia, Belo Horizonte.
- Scorza, J.V. and C. Dagert Boyer. 1956. Consideraciones sobre los llamados corpusculos paranucleares. Revisión del genero *Toddia* Franca, 1911, con adición de tres nuevas especies. Boletín Venezolano de Laboratorio Clínico 1:199–210.
- Seba, A. 1734. Locupletissimi rerum naturalium thesauri accurata descriptio, et iconibus artificiosissimis expressio, per universam physices historiam. Opus, cui, in hoc rerum genere, nullum par exstitit. Ex toto terrarum orbe collegit, digessit, descripsit, et depingendum curavit Albertus Seba. Tomus I. Janssonio-Waesbergios, & J. Wetstenium, & Gul. Smith, Amstelaedami.
- Sebben, A., L.A. Campos, M.N.C. Kokubum, and N.M. Maciel. 2005. Ocorrência de odontóides e morfologia do dente madibular [sic] de *Leptodactylus troglodytes* (Anura, Leptodactylidae). [Abstract]. Segundo Congresso Brasileiro de Herpetologia, Belo Horizonte, Minas Gerais. 10–15 Julho, 2005. Compact disk.
- , N.M. Maciel, L.A. Campos, M.N.C. Kokubum, and H.R. Silva. 2007. Occurrence of a calcified pseudodontoid in *Leptodactylus troglodytes* (Anura: Leptodactylidae). Journal of Herpetology 41:337–340.
- , C.A. Schwartz, and J.S. Cruz. 1993. A defesa química dos anfíbios. Ciência Hoje 15:25–33.
- Secor, S.M. 2005a. Evolutionary and cellular mechanisms regulating intestinal performance of amphibians and reptiles. Integrative and Comparative Biology 45:282–294.
- . 2005b. Physiological responses to feeding, fasting and estivation for anurans. Journal of Experimental Biology 208:2595–2608.
- Segura-Solís, S. and F. Bolaños. 2009. Época reproductiva y distribución geográfica del sapo *Incilius aucoinae* (Bufonidae) en Golfito, Costa Rica. International Journal of Tropical Biology 57 (Supplement 1):301–311.
- Sena, C. 2009. Reserva de desenvolvimento sustentável do Uatumã. Volumes 1 e 2. Série Técnica Planos de Gestão. Itapiranga, São Sebastião do Uatumã, Amazonas, Brasil.
- Señaris, J.C., J.D. Lynch, R.D. MacCulloch, C. Marty, and B. Noonan. 2002. Amphibians of the Guayana Region: An overview for its conservation and future research. Guayana Shield Conservation Priority-setting Workshop, Paramaribo (Suriname). 43 p.
- and R.D. MacCulloch. 2005. Amphibians. In T. Hollowell and R.P. Reynolds (eds.), Checklist of the Terrestrial Vertebrates of the Guiana Shield. Bulletin of the Biological Society of Washington (13): 9–23.
- Senfft, W. 1935. *Leptodactylus labialis* Cope und seine Zucht. Wochenschrift für Aquarien- und Terrarienkunde 32:37–39.
- Shaw, G. 1802. General Zoology, or Systematic Natural History. Vol. III. Part 1. Amphibia. Testudines, Ranae, Lacertae. G. Kearsley, London.
- Shea, G. 2002. Reptiles and Amphibians. Weldon Owen Pty. Ltd., San Francisco.
- Shepard, D.B. and J.P. Caldwell. 2005. From foam to free-living: Ecology of larval *Leptodactylus labyrinthicus*. Copeia 2005:803–811.
- Sherborn, C.D. 1902. Index Animalium: Sive, Index Nominum quae ab A.D. MDCCCLVIII Generibus et Speciebus Animalium Imposita Sunt. Sectio Prima. A Kalendis Ianuariis, MDCCCLVIII Usque ad Finem Decembris, MDCCC. British Museum (Natural History), London.
- . 1925. Part VII. Index Concolor-Czizeki. p. 1453–1771. 1801–1850, p. 1453–1771, Index Animalium: Sive, Index Nominum quae ab A.D. MDCCLVII Generibus et Speciebus Animalium Imposita Sunt, Volume 2. British Museum (Natural History), London.
- . 1926. Part XI. Index Funereus-Gyzezensis, p. 2569–2889. 1801–1850, p. 2569–2880, Index Animalium: Sive, Index Nominum quae ab A.D. MDCCCLVII Generibus et Speciebus Animalium

- Imposita Sunt, Volume 2. British Museum (Natural History), London.
- . 1933. Part XXXIII. Index to trivialia under genera, p. 879–1098 (Prionopus-Zygomma; Addenda acetosae-voltzi). 1801–1850, p. 879–1098, Index Animalium: Sive, Index Nominum quae ab A.D. MDCCLVIII Generibus et Speciebus Animalium Imposita Sunt, Volume 2. British Museum (Natural History), London.
- Shine, R. 1979. Sexual selection and sexual dimorphism in the Amphibia. *Copeia* 1979:297–306.
- Sicchar Valdez, L.A., J.G. Gil Navarro, and M. Chumbe Ayllon. 1995. Manejo en semi cautiverio de *Leptodactylus pentadactylus* (Laurenti, 1768) “hauló” (Amphibia: Leptodactylidae) resultados preliminares. *Folia Amazónica* 7:159–178.
- Silva, F.C. and M.O. Silva. 2008. Composição da anurofauna do sítio Boa Vontade, município de Urupá, Rondônia [Abstract]. *Ciência & Consciência* 1:1 unnumbered.
- Silva, W.R. 2003. Ecologia reprodutiva da Rã-pimenta (*Leptodactylus labyrinthicus*; Anura; Leptodactylidae) em área de Cerrado no sudeste do Brasil. Bacharel em Ciências Biológicas, Universidade Federal de Uberlândia, Uberlândia, Minas Gerais.
- and A.A. Giaretta. 2008. Further notes on the natural history of the South American Pepper Frog, *Leptodactylus labyrinthicus* (Spix, 1824) (Anura, Leptodactylidae). *Brazilian Journal of Biology* 68: 403–407.
- and –. 2009. On the natural history of *Leptodactylus syphax* with comments on the evolution of reproductive features in the *L. pentadactylus* species group (Anura, Leptodactylidae). *Journal of Natural History* 43:191–203.
- , –, and K.G. Facure. 2005. On the natural history of the South American Pepper Frog, *Leptodactylus labyrinthicus* (Spix, 1824) (Anura: Leptodactylidae). *Journal of Natural History* 39:555–566.
- Simon, H. 1975. *Frogs and Toads of the World*. J.B. Lippincott Company, Philadelphia.
- Simon, M.P. and C.A. Toft. 1991. Diet specialization in small vertebrates: Mite-eating in frogs. *Oikos* 61:263–278.
- Simons, V.F.H. 2008. Morphological Correlates of Locomotion in Anurans: Limb Length, Pelvic Anatomy and Contact Structures. Masters of Science Thesis, Ohio University, Athens.
- Skrjabin, K.I. and D.N. Antipin. 1962. Superfamily Plagiorchioidea Dollfus, 1930. Part 5, Family Plagiorchioidea Luhe, 1901, Subfamily Pneumonoecinae Mehra, 1937, p. 49–163. *In* K.I. Skrjabin (ed.), *Trematody Zhivotnykh i Cheloveka. Osnovy Trematodologii*. Tom XX, Vol. 20. Izdatel'stvo Akademii Nauk, Moskva.
- Skuk, G.O., M.G. Lima, F.A.C. Nascimento, and R.O. de Sá. 2007. Oviposição e descrição do girino de *Leptodactylus vastus* A. Lutz, 1930 (Anura: Leptodactylidae). [Abstract]. Terceiro Congresso Brasileiro de Herpetologia, Belém, Pará. 15 a 20 de Julho de 2007. CD.
- Slavens, F.L. 1976. *The Working Guide to Breeding Potential for Reptiles and Amphibians in United States Zoos*. Privately Published (Woodland Park Zoological Garden), Seattle.
- . 1980. Inventory of Live Reptiles and Amphibians in North American Collections, Current January 1, 1980. Privately printed, Seattle.
- . 1984. Inventory of Live Reptiles and Amphibians in Captivity Current January 1, 1984. Privately Printed, Seattle.
- . 1989. Reptiles and Amphibians in Captivity, Breeding-Longevity and Inventory, Current January 1, 1989. Frank L. Slavens, Seattle.
- and K. Slavens. 1993. Reptiles and Amphibians in Captivity, Breeding-Longevity and Inventory, Current January 1, 1993. Slaveware, Seattle.
- and –. 1994. Reptiles and Amphibians in Captivity, Breeding-Longevity and Inventory, Current January 1, 1994. Slaveware, Seattle.
- Smales, L.R. 2007. Acanthocephalans of amphibians and reptiles (Anura and Squamata) from Ecuador, with the description of *Pandosentis napoensis* n. sp. (Neoechinorhynchidae) from *Hyla fasciata*. *Zootaxa* (1445):49–56.
- Smith, H.M., T. Schneider, and R.B. Smith. 1977. An overlooked synonym of the giant toad *Bufo marinus* (Linnaeus) (Amphibia, Anura, Bufonidae). *Journal of Herpetology* 11:423–425.
- Smith, M.A. 1929. Amphibia, p. 273–309. *In* List of the Vertebrated Animals Exhibited in the Gardens of the Zoological Society of London, 1828–1927, Vol. 3, Centenary Edition [10th edition]. Zoological Society of London, London.
- Snider, A.T. and J.K. Bowler. 1992. Longevity of reptiles and amphibians in North American collections. Second edition. *Herpetological Circular* (21):iii + 1–40.
- Soares Filho, J.A.R. and M.O. Silva. 2008. Composição e conservação da anurofauna em ambientes de floresta e pastagem no município de Alto Alegre dos Parecis [Abstract]. *Ciência & Consciência* 1:1 unnumbered.
- Sousa, J.C., R.F. Berto, E.A. Gois, N.C. Fontenele-Cardi, J.E.R. Honório-Júnior, K. Konno, M. Richardson, M.F.G. Rocha, A.A.C.M. Camargo, D.C. Pimenta, B.A. Cardi, and K.M. Carvalho. 2009. Leptoglycin: A new glycine/leucine-rich antimicrobial peptide isolated from the skin secretion of the South American frog *Leptodactylus pentadactylus* (Leptodactylidae). *Toxicon* 54:23–32.
- Souza, G.M.P., J.R. Lima, and L.C. Aveline. 1991. Sistema de informação de recursos naturais e meio ambiente. Volume 3. Sistematização de dados sobre a fauna Brasileira. Tomo VII. Dicionário de nomes vulgares de anfíbios brasileiros. Série Estudos e Pesquisas em Geociências. Subsérie Recursos Naturais e Meio Ambiente. I (3):1–73, 1–29, 1–190, 1–32.
- Souza, J.R.D. 1998. Projeto: Levantamento espacial e sazonal dos anfíbios anuros do complexo "Campus Universitário e Parque Zoobotânico da UFAC". Subprojeto: Levantamento espacial e sazonal dos anfíbios anuros do Parque Zoobotânico-UFAC. Relatório final-PIBIC/CNPq. Universidade Federal do Acre, Departamento de Ciên-

- cias da Natureza, Coordenadoria de Apoio à Pesquisa, Rio Branco, Acre, Brazil.
- Souza, M.B. and A.J. Cardoso. 2002. Anfíbios registrados na Reserva Extrativista do Alto Juruá de Outubro de 1993 a Dezembro de 2000, p. 101–103 + 6 color plates. *In* M.C.Cunha and M.B. Almeida (eds.), *Enciclopédia da Floresta. O Alto Juruá: Práticas e Conhecimentos das Populações*. Companhia das Letras, São Paulo.
- and C. Rivera Gonzáles. 2006a. Amphibians and reptiles, p. 182–185. *In* C. Vriesendorp, T.S. Schulenberg, W.S. Alverson, D.K. Moskovits, and J.-I. Rojas Moscoso (eds), Perú: Sierra del Divisor. *Rapid Biological Inventories* (17).
- and –. 2006b. Apéndice/Appendix 6. Anfíbios y reptiles/Amphibians and reptiles, p. 258–262. *In* C. Vriesendorp, T.S. Schulenberg, W.S. Alverson, D.K. Moskovits, and J.-I. Rojas Moscoso (eds), Perú: Sierra del Divisor. *Rapid Biological Inventories* (17).
- Souza, V.M., M.B. Souza, and E.F. Morato. 2008. Efeitos da sucessão florestal sobre a anurofauna (Amphibia: Anura) da Reserva Catuaba e seu entorno, Acre, Amazônia sul-ocidental. *Revista Brasileira de Zoologia* 25:49–57.
- Spieler, M., F. Skiba, A. Müller, and A. Pfrommer. 1999a. Untersuchungen zur Herpetofauna des Überschwemmungswaldes im Cuyabeno Reservat in Ecuador. Teil 2: Anuren. *Herpetofauna* 21(119):5–15.
- , –, –, and –. 1999b. Untersuchungen zur Herpetofauna des Überschwemmungswaldes im Cuyabeno Reservat in Ecuador. *Herpetofauna* 21(120):5–12.
- Spix, J.B. 1824. *Animalia Nova sive Species Novae Testudinum et Ranarum, quas in Itinere per Brasiliam Annis MDCCCXVII–MDCCCXX jussu et Auspiciis Maximiliani Josephi I. Bavariae Regis Suscepto Collegit et Descripsit Dr. J.B. de Spix*. Franc. Seraph. Hübschmanni, Monachii.
- Stadie, C. 1962. Zur Frage von Anpassungsmerkmalen bei aquatilen Anuren mit Beschreibung einer neuen gattung *Hydrobatrachus*. *Zoologischer Anzeiger, Jena* 169:315–330.
- Stuart, S.N., M. Hoffmann, J.S. Chanson, N.A. Cox, R. Berridge, P. Ramani, and B.E. Young. 2008. Appendix XI. List of least concern species listed on the 2007 IUCN Red List of Threatened Species, with country of occurrence, p. 729–739. *In* S.N. Stuart, M. Hoffmann, J.S. Chanson, N.A. Cox, R. Berridge, P. Ramani, and B.E. Young (eds.), *Threatened Amphibians of the World*. Lynx Edicions, Barcelona.
- Stultifer, M. 1970. The giant chicken-eating frog will soon be extinct unless we take action now! . . . so, for god's sake, let's not do anything. *Playboy* 17: 137–138, 241.
- Suárez-Mayorga, Á.M. 2000 [1999]. Lista preliminar de la fauna Amphibia presente en el transecto La Montañita-Alto de Gabinete, Caquetá, Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 23(Suplemento especial):395–405.
- Suárez, P. 2009. Riqueza e abundância relative de anfíbios de Juruti, Pará. [Abstract]. 4º Congresso Brasileiro de Herpetologia, Pirenópolis, Brasil, Compact disk.
- Sullivan, B. 1974. Amphibian hemoglobins, p. 77–122. *In* M. Florkin and B.T. Scheer (eds.), *Amphibia and Reptilia, Chemical Zoology*, Vol. IX. Academic Press, Inc., New York.
- Sullivan, J.J. 1977. Revision of the genus *Rauschiella* Babero, 1951 (Digenea: Plagiiorchiidae) with a re-description of *R. palmipedis* (Lutz, 1928) n. comb. from Venezuelan frogs. *Proceedings of the Helminthological Society of Washington* 44:82–86.
- Suriano, D.M. 1968. *Glypthelmins biliaris* sp. nov. (Trematoda, Brachycoeliidae) parásita de *Leptodactylus ocellatus* (Amphibia, Leptodactylidae) de la República Argentina. *Neotropica* 14:27–31.
- . 1970. Estudio sobre la fauna parasitaria de *Leptodactylus ocellatus* (L.) (Amphibia-Leptodactylidae) de la República Argentina. 1. Trematodes. *Revista del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Ciencias Zoológicas* 10:215–239.
- Sustare, B.D. 1977. Characterizing parameters of response to light intensity for six species of frogs. *Behavioural Processes* 2:101–112.
- Svara, K.J. and J.C. Chaparro. 2002. *Reptiles & Amphibians of Pantiacolla Lodge, Manu National Park, Peru*. Privately Printed.
- Switak, K.-H. 2006. *Herpetologische Begegnungen in Amazonien. DATZ – Die Aquarien- und Terrarienzeitschrift* 59:64–68.
- Tammesar, M., G.G. Watkins, D. Arjoon, M.A. Donnelly, R.P. Reynolds, C.J. Cole, C.R. Townsend, G.R. Bourne, R.D. MacCulloch, and B.P. Noonan. 2004. Status of amphibians in Guyana, p. 65–70. *In* J.W. Wilkinson (ed.), *Collected DAPTF Working Group Reports: Ten Years On. Declining Amphibian Populations Task Force (DAPTF)*, Milton Keynes, United Kingdom.
- Taylor, E.C. 1864. Five months in the West Indies. Part II. – Martinique, Dominica, and Porto Rico. *The Ibis* 6:157–173.
- Taylor, S.K. 2001. Mycoses, p. 181–191. *In* K.M. Wright and B.R. Whitaker (eds.), *Amphibian Medicine and Captive Husbandry*. Krieger Publ. Co., Malabar, Florida.
- , D.E. Green, K.M. Wright, and B.R. Whitaker. 2001. Bacterial diseases, p. 159–179. *In* K.M. Wright and B.R. Whitaker (eds.), *Amphibian Medicine and Captive Husbandry*. Krieger Publ. Co., Malabar, Florida.
- Teixeira, R.L. and D. Vrcibradic. 2003. Diet of *Leptodactylus ocellatus* (Anura; Leptodactylidae) from coastal lagoons of southeastern Brazil. *Cuadernos de Herpetología* 17:111–118.
- Telford, S.R., Jr. 1984. Haemoparasites of reptiles, p. 385–517. *In* G.L. Hoff, F.L. Frye, and E.R. Jacobson (eds.), *Diseases of Amphibians and Reptiles*. Plenum Press, New York.
- Temminck, C.J. and H. Schlegel. 1838. *Reptilia. Lugduni Batavorum*, Amsterdam.
- Terent'ev, P.V. 1961. *Gerpetologiya: Uchenie o Zem-*

- novodnykh i Presmykayushchikhsya. Vyshaya Shkola, Moscow.
- . 1965. Herpetology (Gerpetologiya). A Manual on Amphibians and Reptiles (Uchenie o Zemnovodnykh i Presmykayushchikhsya). English edition. Israel Program for Scientific Translations Ltd., Jerusalem.
- Thatcher, V.E. 1993. Trematódeos Neotropicais. Instituto Nacional de Pesquisas da Amazonia, Manaus.
- Thorpe, W.H. 1963. Learning and Instinct in Animals. Second edition. Methuen and Co. Ltd., London.
- Tocher, M.D. 1998. Diferenças na composição de espécies de sapos entre três tipos de floresta e campo de pastagem na Amazônia central, p. 219–232. In C. Gascon and P. Moutinho (eds.), Floresta Amazônica: Dinâmica, Regeneração e Manejo. Ministério da Ciência e Tecnologia, Instituto Nacional de Pesquisa da Amazônia, Manaus.
- , C. Gascon, and J. Meyer. 2001. Community composition and breeding success of Amazonian frogs in a continuous forest and matrix habitat aquatic sites, p. 235–247. In R.O. Bierregaard, Jr., C. Gascon, T.E. Lovejoy, and R.C.G. Mesquita (eds.), Lessons from Amazonia: The Ecology and Conservation of a Fragmented Forest. Yale University Press, New Haven, Connecticut.
- , –, and B.L. Zimmerman. 1997. Fragmentation effects on a central Amazonian frog community: A ten-year study, p. 124–137. In W.F. Laurance and R.O. Bierregaard, Jr. (eds.), Tropical Forest Remnants. Ecology, Management, and Conservation of Fragmented Communities. The University of Chicago Press, Chicago.
- Toft, C.A. and W.E. Duellman. 1979. Anurans of the lower Río Lullapichis, Amazonian Perú: A preliminary analysis of community structure. Herpetologica 35:71–77.
- Tokita, M. and N. Iwai. 2010. Development of the pseudothumb in frogs. Biology Letters, doi:10.1098/rsbl.2009.1038, 4 pages + 5 pages supplementary material.
- Toledo. L.F. 2007. Predação e Defesa em Anuros: Revisão, Descrição e Avaliação. Doutor em Ciências Biológicas, Universidade Estadual Paulista “Julio de Mesquita Filho,” Rio Claro, São Paulo.
- and C.F.B. Haddad. 2009. Defensive vocalizations of neotropical anurans. South American Journal of Herpetology 4:25–42.
- , A.M. Tozetti, and J. Zina. 2005. *Leptodactylus labyrinthicus* (Pepper Frog): Repertoire of defensive behaviour. Herpetological Bulletin (91):29–31.
- Toledo, R.C. and C. Jared. 1989. Considerações sobre o veneno dos anfíbios. Ciência e Cultura 41: 250–258.
- Trader, C.D. and E. Frieden. 1966. Dimerization and other chemical changes in amphibian hemoglobins during metamorphosis. Journal of Biological Chemistry 241:357–366.
- Travassos, L. 1927. *Schrankia brasili* n. sp. Novo oxyuroidea parasita de bratachio [sic]. Boletim Biológico 9:147–152.
- . 1928. Contribuição para o conhecimento das espécies brasileiras do genero *Gorgoderina*. Boletim do Museu Nacional 4:69–71 + 1 plate.
- . 1929. Filaridés des batraciens du Brésil. Comptes Rendus des Séances de la Société de Biologie et de ses Filiales et Associées 100:967–968.
- . 1947. Relatório da excursão do Instituto Oswaldo Cruz realizada no Estado de S. Paulo em Novembro e Dezembro de 1946. Memórias do Instituto Oswaldo Cruz 45:619–627.
- and J.F.T. Freitas. 1942. Relatório da sexta excursão do Instituto Oswaldo Cruz, realizada à zona da Estrada de Ferro Noroeste do Brasil, em Novembro de 1941. Memórias do Instituto Oswaldo Cruz 37:259–286.
- , –, and A. Kohn. 1969. Trematódeos do Brasil. Memorias do Instituto Oswaldo Cruz 67:1–886 + 1 Table.
- Trombeta, A.M. 2008. Estudo da helmintofauna de anfíbios das famílias Ceratophryidae [sic], Lepidodactylidae e Leiuperidae do pantanal sul, Mato Grosso do Sul. Mestre em Biologia Geral e Aplicada, Universidade Estadual Paulista, Botucatu.
- Trueb, L. 1973. Bones, frogs, and evolution, p. 65–132. In J.L. Vial (ed.), Evolutionary Biology of the Anurans. Contemporary Research on Major Problems. University of Missouri Press, Columbia.
- Tschudi, J.J. 1838. Classification der Batrachier, mit Berücksichtigung der fossilen Thiere dieser Abtheilung der Reptilien. Buchdruckerei von Petitpierre, Neuchâtel.
- Turci, L.C.B. and P.S. Bernarde. 2008. Levantamento herpetofaunístico em uma localidade no município de Cacoal, Rondônia, Brasil. Herpetofaunistic survey in a location in the municipality of Cacoal, Rondônia, Brazil. Bioikos 22:101–108.
- and –. 2009. Levantamento herpetofaunístico em uma localidade no município de Cacoal, Rondônia – Brasil. [Abstract]. 4º Congresso Brasileiro de Herpetologia, Pirenópolis, Brasil, Compact disk.
- Turner, F.B. 1962. The demography of frogs and toads. The Quarterly Review of Biology 37:303–314.
- Ulber, T. 1996. Editorial note and index to Gray's names, p. i–xx. In A Synopsis of the Species of the Class Reptilia. Herprint International CC, Breddell.
- Une, Y., S. Kadokaru, K. Tamukai, K. Goka, and T. Kuroki. 2008. First report of spontaneous chytrid-iomycosis in frogs in Asia. Diseases of Aquatic Organisms 82:157–160.
- Urdaneta-Morales, S. and I. McLure. 1972. Observations upon haematophagy in Venezuelan triatomids fed upon poikilotherms. Acta Científica Venezolana 23:161–164.
- Valmont-Bomare, J.C. 1800. Dictionnaire Raisonné, Universel d'Histoire Naturelle, Contenant l'Histoire des Animaux, des Végétaux et des Minéraux, et celle des Corps Célestes, des Météores, et des autres Principaux Phénomènes de la Nature; avec l'Histoire des Trois Regnes, et le Détail des Usages de leurs Productions dans la Médecine, dans l'Économie Domestique et Champêtre, et dans les Arts et Métiers; une Table Con-

- cordante des Noms Latins, et le Renvoi aux Objets Mentionnés dans cet Ouvrage. Tome Sixième. Chez Bruyset Ainé et C<sup>e</sup>, Lyon.
- van Reukum, M. 1960. Speciaal gewijd aan de geïmporteerde dieren. *Lacerta* 18:65–78.
- van Santen, M. 2006. Verdwenen juweeltjes, deel 1. *Lacerta* 64:117–130.
- Vanderstraeten, F. 1986. Verdedigingsmechanismen 3. *Terra* (Belgium) 22:41–44.
- Vanzolini, P.E. 1981. The scientific and political contexts of the Bavarian Expedition to Brasil, p. ix–xxix. In Johann Baptist von Spix & Johann Georg Wagler: *Herpetology of Brazil*. Society for the Study of Amphibians and Reptiles, Ithaca, New York.
- . 1986. Levantamento Herpetológico da Área do Estado de Rondônia sob a Influência da Rodovia BR 364. Conselho Nacional de Desenvolvimento Científico e Tecnológico, Assessoria Editorial, Programa Polonoeste, Subprograma Ecologia Animal, Relatório de Pesquisa (1):1–50.
- . 2004. Episódios da Zoologia Brasileira. Lógica e Filosofia da Ciência. Série História da Ciência e da Tecnologia 9. Editora HUCITEC, São Paulo.
- Vaz, Z. 1933. Novo cosmocercideo de *Leptodactylus pentadactylus*. *Revista Medico-Cirurgica do Brasil* 41:5–7.
- Vaz-Ferreira, R. and A. Gehrau. 1975. Comportamento epimelético de la rana comun, *Leptodactylus ocellatus* (L.) (Amphibia, Leptodactylidae) 1. Atención de la cría y actividades alimentarias y agresivas relacionadas. *Physis* 34:1–14.
- Vellard, J. 1947. *Leptodactylus laticeps* Blgr., un raro batracio del chaco argentino. *Acta Zoológica Lilloana* 4:463–491.
- Vera Candioti, M.F. 2007. Anatomy of anuran tadpoles from lentic water bodies: Systematic relevance and correlation with feeding habits. *Zootaxa* (1600):1–175.
- and R. Altig. 2010. A survey of shape variation in keratinized labial teeth of anuran larvae as related to phylogeny and ecology. *Biological Journal of the Linnean Society* 101:609–625.
- Verrill, G.E. 1892. Notes on the fauna of the Island of Dominica, British West Indies, with lists of the species obtained and observed by G.E. and A.H. Verrill. *Transactions of the Connecticut Academy of Arts and Sciences* 8:315–355 + plates XXV–XXVII.
- Vialli, M. 1966. Contributi alla conoscenza istochimica del sistema cellulare enterocromaffine. IV<sup>o</sup>) Le ghiandole granulose cutanee di *Leptodactylus ocellatus*. *Acta Histochemica* 23:163–170.
- . 1967. Il veleno degli anfibi-considerazioni di anatomia e fisiologia comparata. *Studia Ghisleriana* (Serie special per il IV centenario del Collegio Ghislieri in Pavia 1567–1967):385–405.
- Vicente, J.J. and C.R. Jardim. 1980. Filarídeos da coleção helmintológica do Instituto Oswaldo Cruz. I. Peixes, anfíbios e répteis. *Atas da Sociedade de Biologia do Rio de Janeiro* 21:47–57.
- , H.O. Rodrigues, D.C. Gomes, and R.M. Pinto. 1991. Nematóides do Brasil 2<sup>a</sup> parte: Nematóides de anfíbios. *Revista Brasileira de Zoologia* 7: 549–626.
- Vidal, J.A. 1999. *Guías Visuales Océano. Anfibios y Reptiles*. Oceano Grupo Editorial, S.A., Barcelona.
- Vieira, M.L.C. 1980. *Propriedades Funcionais e Antigenicas de Hemoglobinas de Anfíbios Terrestres e Aquáticos*. Tese de Doutorado, Universidade Estadual de Campinas, São Paulo.
- Vieira, W.L.S., G.G. Santana, and K.S. Vieira. 2007. Description of the tadpole of *Leptodactylus vastus* (Anura: Leptodactylidae). *Zootaxa* (1529):61–68.
- Viertel, B. and S. Richter. 1999. Anatomy. Viscera and endocrines, p. 92–148. In R.W. McDiarmid and R. Altig (eds.), *Tadpoles: The Biology of Anuran Larvae*. The University of Chicago Press, Chicago.
- Vigle, G. 2000. Amphibians, p. 46–63, 262–271. In D.L. Pearson and L. Beletsky (eds.), *Ecuador and its Galápagos Islands: The Ecotravellers' Wildlife Guide*. AP Natural World, Academic Press, San Diego.
- . 2008. The amphibians and reptiles of the Estación Biológica Jatun Sacha in the lowland rainforest of Amazonian Ecuador: A 20-year record. *Breviora* (514):1–30.
- Villa, J. 1980. "Frogflies" from Central and South America with notes on other organisms of the amphibian egg microhabitat. *Brenesia* 17:49–67.
- , R.W. McDiarmid, and J.M. Gallardo. 1982. Arthropod predators of leptodactylid frog foam nests. *Brenesia* 19/20:577–589.
- Vitt, L.J. and J.P. Caldwell. 2001. The effects of logging on reptiles and amphibians of tropical forests, p. 239–259. In R.A. Fimbel, A. Grajal, and J.G. Robinson (eds.), *The Cutting Edge: Conserving Wildlife in Logged Tropical Forest*. Columbia University Press, New York.
- and –. 2009. *Herpetology. An Introductory Biology of Amphibians and Reptiles*. Third Edition. Academic Press, Amsterdam.
- Vizotto, L.D. 1964. Amphibia, p. 387–417. In P.E. Vanzolini (ed.), *História Natural de Organismos Aquáticos do Brasil*. Bibliografia Comentada. Fundação de Amparo à Pesquisa do Estado de São Paulo, São Paulo.
- . 1979. Aspectos técnicos da ranicultura, p. 27–60. In Anonymous (ed.), *Súmula das Atividades do I Encontro Nacional de Ranicultura I ENAR*. Ministério da Agricultura, Superintendência do Desenvolvimento da Pesca, Brasília.
- . 1984. Ranicultura. *Ciência e Cultura* 36:42–45.
- Vogel, Z. 1961. Frösche aus dem Regenwald. *Aquarien und Terrarien* 8:84–85.
- . 1966. *Reptiles and Amphibians*. Paul Hamlyn, London.
- and G. Vevers. 1964. *Reptiles and Amphibians, Their Care and Behaviour*. Studio Vista, London.
- Vogt, D. and H. Wermuth. 1972. *The Complete Aquarium*. Third printing (1972) of published translation copyrighted and originally published in 1963 edition. Arco Publishing Company, Inc., New York.
- Vogt, R.C. 2004. Amphibians, p. 418–447. In S.

- Goodwin and A. Handley (eds.), *The Encyclopedia of Animals: A Complete Visual Guide*. University of California Press, Berkeley.
- and R. Bernhard. 2003. Biodiversidade e biogeografia de répteis e anfíbios da Amazônia. *Caderno de Ciência, Instituto Amazônia* (1):1–40 (un-numbered) + additional pages at beginning and end.
- Volkert, J. 2002. Baseball as America. *American Museum of Natural History, New York, March 18–August 18, 2002* [review]. *Curator: The Museum Journal* 44:309–313.
- von May, R., J.M. Jacobs, R.D. Jennings, A. Catenazzi, and L.O. Rodríguez. 2007. *Anfibios de Los Amigos, Manu y Tambopata, Perú*. *Rapid Color Guide* (236):1–12.
- , K. Siu-Ting, J.M. Jacobs, M. Medina-Müller, G. Gagliardi, L.O. Rodríguez, and M.A. Donnelly. 2009. Species diversity and conservation status of amphibians in Madre de Dios, southern Peru. *Herpetological Conservation and Biology* 4:14–29.
- Wagler, J.G. 1830. *Natürliches System der Amphibien, mit vorangehender Classification der Säugthiere und Vögel. Ein Beitrag zur vergleichenden Zoologie*. J.G. Cotta, München, Germany.
- Walley, H.D. 2000. Bibliography and scientific name index to amphibians and reptiles in the Occasional Papers of the Museum of Natural History, University of Kansas, Numbers 1–180, 1971–1995. *Smithsonian Herpetological Information Service* (128):1–45.
- Walton, A.C. 1933. The Nematoda as parasites of Amphibia. *The Journal of Parasitology* 20:1–32 + 1 plate.
- . 1935. The Nematoda as parasites of Amphibia. II. *The Journal of Parasitology* 21:27–50.
- . 1938a. The Nematoda as parasites of Amphibia. IV. Transactions of the American Microscopical Society 57:38–53.
- . 1938b. The trematodes as parasites of Amphibia. List of hosts. *Contribution from the Biological Laboratories of Knox College* (62):1–24.
- . 1938c. The trematodes as parasites of Amphibia. List of parasites. *Contribution from the Biological Laboratories of Knox College* (61):1–64.
- . 1940. The nematode genus *Raillietnema* Travassos, 1927. *Journal of the Washington Academy of Sciences* 30:474–478.
- . 1946 [1945]. Parasites of Amphibia. Bufonidae: Procoela: Saliencia. I. *Transactions of the Illinois State Academy of Science* 38:113–116.
- . 1953a. Nematode parasites of Amphibia. [Abstract]. *Anatomical Record* 117:647–648.
- . 1953b. Trematode parasites of Amphibia. I. [Abstract]. *Anatomical Record* 117:648.
- . 1962. The Amphibia as hosts of trematode parasites. III. [Abstract]. *The Journal of Parasitology* 48 (Number 2, Section 2, Supplement):25.
- . 1964a. The parasites of Amphibia. *Wildlife Disease* 39:1–28.
- . 1964b. The parasites of Amphibia, continued. *Wildlife Disease* (40):1–39, 1–48, 1–21, 1–41, 1–63, 1–18, 1–29, 1–35, 1–6, 1–9, 1–19, 1–7, 1–9, 1–3, 1–5, 1–2, 1–2, 1–2, 1–3, 1–4, 1–2, 1–3, 1–5, 1, 1–11.
- Warkentin, K.M. 2000. Wasp predation and wasp-induced hatching of Red-eyed Treefrog eggs. *Animal Behaviour* 60:503–510.
- Warren, A. 1973. Herpetological work in the Kaieteur-Echerak region, p. 85–86. *In* A. Warren (ed.), *Report of the 1971 British Expedition to Mount Roraima in Guyana, South America*. Privately published.
- Watermolen, D.J. 1995. More herpetological philately. *Bulletin of the Chicago Herpetological Society* 30:91–93.
- Watling, J.I. and L.F. Ngadino. 2007. List of reptiles and amphibians recorded on the Nassau and Lely plateaus, p. 250–252. *In* L.E. Alonso and J.H. Mol (eds.), *A Rapid Biological Assessment of the Lely and Nassau plateaus, Suriname (with additional information on the Brownsberg plateau)*. RAP (Rapid Assessment Program) *Bulletin of Biological Assessment* (43).
- Weldon, P.J., B.J. Demeter, and R. Rosasco. 1993. A survey of shed skin-eating (dermatophagy) in amphibians and reptiles. *Journal of Herpetology* 27: 219–228.
- Wells, K.D. 2007. *The Ecology and Behavior of Amphibians*. The University of Chicago Press, Chicago.
- Wenyon, C.M. 1926. *Protozoology. A Manual for Medical Men, Veterinarians and Zoologists*. Volume 2. William Wood and Company, New York.
- Werner, F. 1904 [1896]. Bericht über die Leistungen in der Herpetologie im Jahre 1894. *Archiv für Naturgeschichte* 62:85–182.
- . 1907. Anleitung zum Bestimmen der Reptilien= und Amphibienarten des handels nebst kurzgefasster Beschreibung derselben, p. 344–484. *In* P. Krefft (ed.), *Das Terrarium. Ein handbuch der häuslichen Reptilien= und Amphibienpflege unter Mitwirkung erfahrener Fachgenossen verfasst von Dr. Paul Krefft nebst einer Anleitung zum Bestimmen der Terrarientiere*. Fritz Pfennigstorff Verlag für Sport und Naturliebhaberei, Berlin.
- . 1908. Reptilien und Amphibien. *Das Tierreich in der Sammlung Göschen* 3:1–184.
- . 1910. Amphibien und Reptilien II. (Anpassung der Organe an die Lebensweise). *Naturwissenschaftliche Wegweiser Sammlung gemeinverständlicher Darstellungen A 16:vi + 1 unnumbered + 1–83 + 1 unnumbered*.
- . 1912. Die Lurche und Kriechtiere (Brückeneschen, Schildkröten, Panzerechsen). Volume 4, Part 1, p. xvi + 572 + 37 plates. *In* O. Strassen (ed.), *Brehms Tierleben. Allgemeine Kunde des Tierreichs*, Volume 4, Part 1. Bibliographisches Institut, Leipzig.
- . 1920. Die Lurche und Kriechtiere (Brückeneschen, Schildkröten, Panzerechsen). Volume 4, Part 1, p. xiv + 572. *In* O. Strassen (ed.), *Brehms Tierleben. Allgemeine Kunde des Tierreichs*. Zweiter Neudruck. Volume 4, Part 1. Bibliographisches Institut, Leipzig.

- . 1922. Reptilien und Amphibien. Zweiter Band. Amphibien. Das Tierreich in der Sammlung Göschen 3:1–80.
- . 1930. Dritte Klasse der Craniota. Dritte und zugleich letzte Klasse der Ichthyopsida. Amphibia = Lurche. Allgemeine einleitung in die Naturgeschichte der Amphibia. Handbuch der Zoologie, Eine Naturgeschichte der Stämme des Tierreiches 6:1–92.
- Whitaker, B.R. 2001. The amphibian eye, p. 245–252. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- and K.M. Wright. 2001. Clinical techniques, p. 89–110. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- Witenberg, G. and C. Gerichter. 1944. The morphology and life history of *Foleyella duboisi* with remarks on allied filariids of Amphibia. *Journal of Parasitology* 30:245–256.
- Wright, K.M. 2001a. Taxonomy of amphibians kept in captivity, p. 3–14. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- . 2001b. Restraint techniques and euthanasia, p. 111–122. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- . 2001c. Amphibian hematology, p. 129–146. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- . 2001d. Trauma, p. 233–238. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- . 2006. Overview of amphibian medicine, p. 941–971. *In* D.R. Mader (ed.), Reptile Medicine and Surgery. Second Edition. Saunders Elsevier, St. Louis, Missouri.
- and B.R. Whitaker (eds.) 2001a. Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- and –. 2001b. Nutritional disorders, p. 73–87. *In* K.M. Wright and B.R. Whitaker (eds.), Amphibian Medicine and Captive Husbandry. Krieger Publ. Co., Malabar, Florida.
- Wrobel, M. 2004. Elsevier's Dictionary of Amphibians in Latin, English, German, French and Italian. Elsevier, Amsterdam, Boston.
- Yamaguti, S. 1958. Systema Helminthum. Volume I. The Digenetic Trematodes of Vertebrates – Part 1. Interscience Publishers, Inc., New York.
- . 1961. Systema Helminthum. Volume III. The Nematodes of Vertebrates – Part I. Intersciences Publishers, Inc., New York.
- . 1971. Synopsis of Digenetic Trematodes of Vertebrates. Vol. I. Keigaku Publishing Co., Tokyo.
- Yáñez-Muñoz, M. and Á. Chimbo. 2007. Apéndice/Appendix 5. Anfíbios y reptiles/Amphibians and reptiles, p. 148–159. *In* R. Borman, C. Vriesendorp, W.S. Alverson, D.K. Moskovits, D.F. Stotz, and Á. Campo (eds.), Ecuador: Territorio Cofan Dureno. Rapid Biological Inventories (19).
- and P.J. Venegas. 2008a. Anfíbios y reptiles, p. 90–96. *In* W.S. Alverson, C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. (eds.), Ecuador, Perú: Cuyabeno-Güepí. Rapid Biological and Social Inventories (20).
- and –. 2008b. Amphibians and reptiles, p. 215–221. *In* W.S. Alverson, C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. (eds.), Ecuador, Perú: Cuyabeno-Güepí. Rapid Biological and Social Inventories (20).
- and –. 2008c. Apéndice/Appendix 6. Anfíbios y reptiles/amphibians and reptiles. Anfíbios y reptiles observados durante el inventario biológico rápido en la Reserva de Producción Faunística Cuyabeno (Ecuador) y la Zona Reservada Güepí (Perú) del 5 al 29 de octubre de 2007, p. 308–313. *In* W.S. Alverson, C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. (eds.), Ecuador, Perú: Cuyabeno-Güepí. Rapid Biological and Social Inventories (20).
- and –. 2008d. Apéndice/Appendix 7. Inventarios regionales de anfíbios y reptiles/Regional amphibian and reptile inventories. Lista comparativa de anfíbios y reptiles en inventarios rápidos y de largo plazo en la Amazonía de Ecuador y Perú, p. 314–323. *In* W.S. Alverson, C. Vriesendorp, A. del Campo, D.K. Moskovits, D.F. Stotz, M.G. Donayre, and L.A. Borbor L. (eds.), Ecuador, Perú: Cuyabeno-Güepí. Rapid Biological and Social Inventories (20).
- Young, B.E., S.N. Stuart, J.S. Chanson, N.A. Cox, and T.M. Boucher. 2004. Disappearing Jewels. The Status of New World Amphibians. Nature Serve, Arlington, Virginia.
- Zamore, M.P. 2000. The Wildlife of Dominica. Forestry Division, Ministry of Agriculture, Dominica, Roseau, Dominica.
- Zimmerman, B.L. 1983. A comparison of structural features of calls of open and forest habitat frog species in the central Amazon. *Herpetologica* 39: 235–246.
- . 1991. Distribution and abundance of frogs in a central Amazonian forest. Ph.D. Dissertation, The Florida State University, Tallahassee.
- and R.O. Bierregaard. 1986. Relevance of the equilibrium theory of island biogeography and species-area relations to conservation with a case from Amazonia. *Journal of Biogeography* 13:133–142.
- and J.P. Bogart. 1984. Vocalizations of primary forest frog species in the central Amazon. *Acta Amazonica* 14:473–519.
- and –. 1988. Ecology and calls of four species of Amazonian forest frogs. *Journal of Herpetology* 22:97–108.
- and M.T. Rodrigues. 1990. Frogs, snakes, and lizards of the INPA-WWF Reserves near Manaus, Brazil, p. 426–454. *In* A.H. Gentry (ed.), Four

- Neotropical Rainforests. Yale University Press, New Haven, Connecticut.
- and D. Simberloff. 1996. An historical interpretation of habitat use by frogs in a central Amazonian forest. *Journal of Biogeography* 23:27–46.
- Zimmermann, H. 1979. *Tropical Frogs*. T.F.H. Publications, Inc., Ltd., Neptune City, New Jersey.
- . 2000. Höchstlebensdauer von Amphibien und Reptilien, insbesondere von Pfeilgiftfröschen. *Herpetofauna* 22:23–25.
- Zug, G.R., L.J. Vitt, and J.P. Caldwell. 2001. *Herpetology. An Introductory Biology of Amphibians and Reptiles*. Second edition. Academic Press, San Diego.
- Zweifel, R.G. 1998. Frogs & toads, p. 76–105. *In* H.G. Cogger and R.G. Zweifel (eds.), *Encyclopedia of Reptiles & Amphibians*, Second edition. Academic Press, San Diego.
- Zwinenberg, A.J. 1978. Bemerkenswerte australische

Pfeiffrösche der Gattung *Heleioporus*. *Das Aquarium mit Aqua Terra* 12:177–180.

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