HANS THOMASSEN ANDRADE

CHECKLIST AND TAXONOMIC TREATMENT OF THE HYLIDAE AND PHYLLOMEDUSIDAE (AMPHIBIA: ANURA) FROM PARQUE ESTADUAL DO RIO DOCE, SOUTHEASTERN BRAZIL

Dissertação apresentada à Universidade Federal de Viçosa como parte das exigências do Programa de Pós-Graduação em Manejo e Conservação de Ecossistemas Naturais e Agrários para obtenção do título de *Magister Scientiae*.

VIÇOSA
MINAS GERAIS – BRASIL
2019

Ficha catalográfica preparada pela Biblioteca Central da Universidade Federal de Viçosa - Campus Florestal

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A553c
2019

Thomassen Andrade, Hans, 1989-
Checklist and taxonomic treatment of the Hylidae and Phyllomedusidae (Amphibia: Anura) from Parque Estadual do Rio Doce, southeastern Brazil : . / Hans Thomassen Andrade. - Florestal, MG, 2019.
v, 181 f. : il. (algumas color.) ; 29 cm.

Orientador: Felipe Sá Fortes Leite.
Dissertação (mestrado) - Universidade Federal de Viçosa.
Referências bibliográficas: f.172-181.

1. Taxonomia. 2. Mata Atlântica. 3. Anfíbios. 4. Amphibia. I. Universidade Federal de Viçosa. Instituto de Ciências Biólogicas e da Saude (IBF). Mestrado em Manejo e Conservação de Ecossistemas Naturais e Agrários. II. Título.

597.8

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APROVADA: 26 de abril de 2019.

Pedro Paulo Goulart Taucce

João Victor Andrade de Lacerda

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(Orientador)

ABSTRACT

THOMASSEN, Hans, M.Sc., Universidade Federal de Viçosa, April 2019. **Checklist and taxonomic treatment of the Hylidae and Phyllomedusidae (Amphibia: Anura) from Parque Estadual do Rio Doce, southeastern Brazil.** Adviser: Felipe Sá Fortes Leite.

Local taxonomic treatments are impactful works which provide detailed morphological descriptions of all species within a geographical area. These works have significant importance for basic (taxonomy, systematic, biogeography) and applied science (conservation, education) but, unfortunately, few are such studies concerning Neotropical amphibians. The Parque Estadual do Rio Doce (PERD) is the largest remnant of Atlantic Forest in the state of Minas Gerais – southeastern Brazil. We recorded 23 Hylidae and two Phyllomedusidae for PERD, representing around half of the amphibian species known for the reserve. Herein we provide an updated checklist and detailed morphological descriptions with high-quality illustrations of all Hylidae and Phyllomedusidae from PERD.

RESUMO

THOMASSEN, Hans, M.Sc., Universidade Federal de Viçosa, abril de 2019. **Checklist e tratamento taxonômico dos Hylidae e Phyllomedusidae (Amphibia: Anura) do Parque Estadual do Rio Doce, sudeste do Brasil.** Orientador: Felipe Sá Fortes Leite.

Tratamentos taxonômicos locais são trabalhos impactantes que fornecem descrições morfológicas detalhadas de todas as espécies dentro de uma área geográfica. Esses trabalhos têm importância significativa para a ciência básica (taxonomia, sistemática, biogeografia) e aplicada (conservação, educação) mas, infelizmente, poucos são os estudos sobre anfíbios neotropicais. O Parque Estadual do Rio Doce (PERD) é o maior remanescente de Mata Atlântica no estado de Minas Gerais – sudeste do Brasil. Nós registramos 23 Hylidae e dois Phyllomedusidae para o PERD, representando cerca de metade das espécies de anfíbios conhecidas na reserva. Fornecemos uma lista de espécies atualizada e detalhadas descrições morfológicas com ilustrações de alta qualidade de todos os Hylidae e Phyllomedusidae do PERD.

SUMMARY

Checklist and taxonomic treatment of the Hylidae and Phyllomedusidae (Amphibia: Anura) from Parque Estadual do Rio Doce, southeastern Brazil

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Key words: taxonomy, Atlantic Forest, external morphology

Introduction

We live in a time where taxonomy is increasingly devalued (Godfray & Knapp, 2004; Wheeler, 2018) and, by contrast, biodiversity is being lost at an unprecedented rate even before being known (Loreau *et al*., 2006). However, taxonomy is the very foundation of biodiversity research (Tahseen, 2004; Watson *et al*., 2015). The numerous ramifications of taxonomy study the diversity of species in the world, species characters and their intra and interspecific variations, phylogenetic relationships and classifications (Wheeler, 2008). Taxonomy is also the platform that provides the basis for the very functionality of ecology studies, conservation programs, medical science discoveries, invasive species and pest control, biosecurity, among many others (Tahseen, 2004). Within descriptive taxonomy papers that gather the most complete and inclusive information are monographs and taxonomic treatments, which synthetize and contextualize information from a taxon or from a certain geographical area (Funk, 1993, 2006; Wheeler, 2004). Unfortunately, there are few of such studies and although taxonomic treatments wrongly tend to not be recognized as big science due to their descriptive nature and long completion time (Wheeler, 2008), these studies are of great

importance. They provide additional means for proper species identification, identification of species rich areas, they record information on morphology, distribution, ecology and conservation statuses. These studies also provide baseline information for numerous other biodiversity studies, to study biogeography, establish patterns of speciation, phylogenetic analyses, and help identifying areas which are in critical need of sampling (Funk 1993, 2006; Watson *et al*., 2015). On top of that, with the rise of e-taxonomy and modern days technology such studies can be heavily illustrated with high quality images giving means to a faster, easier and more accessible taxonomy (Wheeler, 2004).

The anurans commonly called treefrogs are classified into three families: Hylidae, Phyllomedusidae and Pelodryadidae (Duellman *et al.*, 2016). Together they sum around 1000 described species (Frost, 2019). In Brazil, two of these families are found, Phyllomedusidae has 65 described species grouped into 8 genera inhabiting tropical and subtropical regions from Mexico to northern Argentina (Duellman *et al.*, 2016). Hylidae inhabits temperate and tropical regions from Japan, Eurasia, northern Africa and the Americas consisting of 49 genera with 720 species (Duellman *et al.*, 2016). However, it is in South America that these families are most diverse (Schmid *et al.,* 2018). In terms of general biodiversity Brazil stands out among Neotropical countries with 1039 anurans (Segalla *et al*., 2016), and impressively, more than half of these species inhabit the Atlantic Forest (Rossa-Feres *et al*., 2017).

The Atlantic Forest is one of the most species rich and highly endemic biome in Brazil, one of the most amphibian rich biome in the world and one of the five most important hotspots of biodiversity on earth (Myers *et al*., 2000; Young *et al*., 2004; Jenkins *et al*. 2015). Unfortunately, it is severely fragmented and around 84 –89% of its original extension has already been lost making it also one of the most threatened biomes in the world (Ribeiro *et al*., 2009). Within this context is the Parque Estadual do Rio Doce (PERD), the largest remnant of Atlantic Forest in the state of Minas Gerais inserted into the third largest natural lake system in Brazil (Tundisi *et al*., 1981). The park and its surrounding areas are considered high priority for conservation in Minas Gerais - Brazil (Drummond *et al*., 2005), but even so herpetological studies in the park are scarce. Only four amphibian related works have been published for PERD. Two amphibian guides (Feio *et al*., 1998; Guimaraes *et al*., 2019), a short correspondence about distribution extension of five species from PERD (Feio *et al.,* 1999), and an

ecology study focused on leaf litter frogs (Rievers *et al*., 2014). Therefore, to date PERD still does not have a detailed analysis of its amphibian fauna.

This study provides a complete checklist of the Hylidae and Phyllomedusidae from PERD along with detailed morphological descriptions (taxonomic treatment) and high-quality images taken in a standardized fashion of all species. We aim to provide baseline data for this large remnant of Atlantic Forest species for future research in taxonomy and biodiversity.

Materials and methods

Sampling and storage — Specimens were collected during the rainy season on a continuous survey from 25 October 2017 to 28 February 2018 at Parque Estadual do Rio Doce (PERD) (19º48'18''–19º29'24''S, 42º28'18''–48º38'030''W), a remnant of Atlantic Forest with tropical, semideciduous and seasonal characteristics (Veloso *et al.* 1991). Furthermore, we used specimens deposited at the Amphibian Collections of Centro de Coleções Taxonômicas da Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil (CCT-UFMG), Museu de Ciências Naturais, Pontifícia Universidade Católica de Minas Gerais (MCNAM), Museu de Zoologia João Moojen of Universidade Federal de Viçosa, Viçosa, Minas Gerais State – Brazil (MZUFV) and Coleção de Anfíbios da Universidade Federal de Viçosa–Campus Florestal (UFVF).

All specimens were collected by active search or with the aid of pitfall traps. The collected specimens were anesthetized and killed with the application of an excessive dose of lidocaine 5%, fixed in 10% formaldehyde solution and stored in 70% ethanol. Tissue samples were taken from all adult specimens and stored in 99.5% ethanol P.A. All specimens and their tissues are deposited at Coleção de Anfíbios da Universidade Federal de Viçosa–Campus Florestal (UFVF), Minas Gerais, Brazil.

External Morphology — Measurements (in mm) follow Duellman (1970) for snout–vent length (SVL), head length (HL), head width (HW), eye diameter (ED), eyelid width (EW), interorbital distance (IOD), eye–nostril distance (END), internarial distance (IND), tympanum diameter (TD), tibia length (TL), tarsal length (TAL), foot length (FL); Watters *et al.* (2016) for snout length (SL), thigh length (THL), upper arm

length (UAL), forearm length (FLL), hand length (HAL); Napoli & Caramaschi (1999) for finger III disc diameter (3FD), and toe IV disc diameter (4TD). SVL, HW, EW, IOD, END, IND, TD, TL, TAL, FL, SL, THL, 3FD, 4TD, UAL, FAL, HAL were measured from photographs using ImageJ software and recorded to the nearest 0.1 mm (Schneider *et al*., 2012), HL and ED were taken with a digital caliper. Fingers relative size was estimated comparing pressed fingers against the palm of the hand. Measurements proportions in text are giving for males and females together, separated on tables.

Webbing formulae follows Savage & Heyer (1967) as modified by Myers & Duellman (1982). For the external morphology description, we follow Duellman (1970), except for the dorsal and profile outline of the snout, which follows Heyer *et al.* (1990) as modified by Kok & Kalamandeen (2008). When a character varies by more than 10% on our sampling size, we consider it to be common, and this will be indicated in the text as "or", when it is present in 10% or less of the individuals sampled, we consider it rare, and this will be indicated in text as “rare” or “rarely”. Sex was determined by the presence of a vocal slit, development of nuptial pads or vocalization in males, and presence of mature oocytes in females. External morphology was analyzed with males and females together and sexual dimorphic characters pointed out in text.

Skin texture was evaluated under magnification with the aid of a stereoscopic microscope and classified as smooth: when skin is free from projections and without any texture or finely textured; coarsely texturized: when surface is rough and irregular with many friezes; sparsely tuberculate: when the skin is smooth but has only few tubercles throughout the body; tuberculate scattered: when the tubercles are many, close but usually do not touch each other; tuberculate concentrated: when the tubercles are many and generally touch one another; areolate: many closely-set, roughly circular, hardly elevated protuberances; spiculated: bearing stiff, hard projections; warty: soft tubercles with a stiff, hard tip.

Results

We recorded a total of 28 anuran species from the Hylidae (26 spp.) and Phyllomedusidae (2 spp.) families. All species are considered of least concern at the

International Union for Conservation of Nature (IUCN) red list. The most representative genera were *Dendropsophus*, *Boana* and *Scinax* with seven, six and five species respectively (Table 1).

TABLE 1. Hylidae and Phyllomedusidae species registered at Parque Estadual do Rio Doce, Marliéria, Minas Gerais – Brazil. F = forest (found inside the forest away from water sources), FP = forest pools (temporary pools that form on the forest floor), L = large lagoons edges (deep waters with few aquatic plants), P = ponds in open areas (usually man made), SL = silted lagoons (shallow waters covered with aquatic plants) (could represent just a small parcel of a large lagoon), SW = swamps (shallow waters covered with aquatic plants and isolated from large lagoons). *not found during field sampling.

Order/Family/Species	Status IUCN	Habitat
ANURA		
Hylidae		
Aparasphenodon brunoi Miranda-Ribeiro, 1920	LC	F, SL
Boana albomarginata (Spix, 1824)	LC	F
Boana albopunctata (Spix, 1824)	LC	L, P, SL, SW
Boana crepitans (Wied-Neuwied, 1824)	LC	P
Boana faber (Wied-Neuwied, 1821)	LC	P, SL, SW
Boana pardalis (Spix, 1824)	LC	*
Boana semilineata (Spix, 1824)	LC	L, SL
Dendropsophus anceps (Lutz, 1929)	LC	F, SL, SL, SW
Dendropsophus bipunctatus (Spix, 1824)	LC	SL, SW
Dendropsophus branneri (Cochran, 1948)	LC	L, SL, SW
Dendropsophus decipiens (Lutz, 1925)	LC	SL, SW
Dendropsophus elegans (Wied-Neuwied, 1824)	LC	P, SL, SW
Dendropsophus minutus (Peters, 1872)	LC	P
Dendropsophus seniculus (Cope, 1868)	LC	P, SL, SW
Itapotihyla langsdorffii (Duméril & Bibron, 1841)	LC	FP
Ololygon argyreornata (Miranda-Ribeiro, 1926)	LC	*
Ololygon carnevallii (Caramaschi & Kisteumacher, 1989)	LC	*
Pseudis fusca Garman, 1883	LC	SL
Scinax cuspidatus (Lutz, 1925)	LC	SL, SW
Scinax eurydice (Bokermann, 1968)	LC	P, SL, SW
Scinax fuscomarginatus (Lutz, 1925)	LC	SW
Scinax fuscovarius (Lutz, 1925)	LC	P, SW
Scinax aff. *x-signatus*	LC	P, SW
Sphaenorhynchus prasinus Bokermann, 1973	LC	SW
Trachycephalus mesophaeus (Hensel, 1867)	LC	F, SL
Trachycephalus nigromaculatus Tschudi, 1838	LC	F, SL, SW
Phyllomedusidae		

Phyllomedusa burmeisteri Boulenger, 1882	LC	P, SW, SL
Pithecopus rohdei (Mertens, 1926)	LC	FP, SL, SW

Prior to the sampling efforts of this work *Boana crepitans* and *Trachycephalus nigromaculatus* had not yet been recorded at PERD. *Boana pardalis* had one specimen deposited at MZUFV, but without records in literature. During field sampling *Ololygon argyreornata*, *Ololygon carnevallii* and *Boana pardalis* were the only unregistered species. *Boana albomarginata*, *Dendropsophus minutus* and *Pseudis fusca* were only registered by its vocalization. All taxa were identified to species level, except for *Scinax* aff. *x-signatus*.

HYLIDAE

Aparasphenodon brunoi

(Table 2; Figs. 1–3)

FIGURE 1. *Aparasphenodon brunoi* (UFVF-1674) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 71.3 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology— n = 9 males, 6 females. Adult male SVL 55.9–71.3 mm (n = 11), adult female 69.5–80.7 mm (n = 8). Head with coosified skin; HW/HL = 0.8–1.0. Snout rounded tending to pointed or rounded tending to mucronate in dorsal view; strongly acute in lateral view. Canthal, labial, postorbital, preorbital, pretympanic, suborbital, supraorbital and supratympanic cranial crests present. Canthus rostralis distinct; ridge-like (elevated). Loreal region deeply concave. Interorbital area nearly flat. Internarial region elevated due to the two canthus rostralis crest, but, depressed in between those crests. Lips and cranial crests covered with scattered bony spines (may look absent when broken). Snout mucronation absent. Eyes prominent; anterolaterally

oriented; its diameter 40–60% eye-nostril distance. Pupils round; horizontally oriented. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils not protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); laterally directed; nearly round; its diameter 10–20% head length. Supratympanic dermal crest distinct; bypassing eardrum, not reaching arms level; partially covering the tympanic annulus. Vocal sac single, sub-gular; externally distinct. Vocal slit present; about 2/3 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated or odontophores merge into one; vomerine teeth's number 09–10. Palatine teeth located in an almost straight row beneath choanae's. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; without dermal folds/fringes or tubercle rows on ventrolateral surface. Metacarpal edge with a discreet dermal fold on ventrolateral surface or without any dermal folds/fringes or tubercle rows. Postaxial edge of finger IV with discreet fimbria. Axillary membrane absent. Post axillary glands distinct (one or more small cream-colored spots), rarely indistinguishable. Hands unwebbed. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle indistinct (poorly protuberant), bifid or with no distinct shape, only hardened skin. Subarticular tubercle I on finger IV squarish, in ventral view (rarely bifid), all other rounded in ventral view; conical in profile on fingers I and II or on finger I, II and III, flattened on fingers III and IV or only on finger IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins discreetly fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; darkly pigmented. Prepollical spine absent.

Hind limbs short sized; thigh length 43–50% SVL; Inner tarsal fold indistinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold

absent. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge without tubercles, folds or fringes. Postaxial edge of toe V with discreet dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present, rarely absent; distinct or indistinct; rounded. Subarticular tubercles distinct; bifid, rounded and/or squarish in ventral view; conical and/or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet basally webbed (sometimes only with vestigial webbing between toes I and II). Toe margins discreetly fimbriated. Webbing formula I (2–2^{-}) - (x–x) II ($1^{2/3}$–2^{+}) - (3–3^{-}) III ($1^{2/3}$–2^{+}) - (3–3^{-}) IV (2–3^{+}) - ($1^{2/3}$–3) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Upper eyelid smooth. Head skin texture spiculated. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area with concentrated tubercles. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening present, rarely absent; distinct. Fringes or dermal fold below anal opening absent.

FIGURE 2. *Aparasphenodon brunoi* (UFVF-1674) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 71.3 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 19. In life body dorsum grey to yellowish platinum with large dark irregular blotches. Interorbital region with a distinct dark longitudinal blotch, roughly bone-shaped. Loreal region anterior half dark colored and posterior half lightly colored, divided in an oblique color change. Lips slightly lighter colored than adjacent snout with no distinct markings. Eyes iris covered with concentrated small dark reddish-brown blotches over a black background. Arms follow the same color pattern as body dorsum. Thighs with one grey to yellowish platinum colored longitudinal stripe. Thighs hidden surfaces immaculate, dark purple. Tibia with a grey to yellowish platinum coverage stained with large dark irregular blotches, as dorsum. Inguinal region dark purple; with small lightly colored blotches, or, immaculate. Ventral and gular region purplish with concentrated small white-colored granules, males gular region slightly darker than females.

Color after preservation—yellowish platinum coverage and markings progressively fade getting pale grey or pale brown colored, rarely disappearing. Ventral and gular region gets pale brown or greyish. Eyes iris loses reddish brown color and becomes greyish.

FIGURE 03. *Aparasphenodon brunoi* male (UFVF-1673) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 2. Measurements and proportions of *Aparasphenodon brunoi* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Males (n=11)		Females (n=08)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	63.6 ± 4.8	55.9–71.3	75 ± 3.9	69.5–80.7
Head length	22.7 ± 1.8	20.2–25.4	26.9 ± 1.7	25–30.1
Head width	20 ± 1.7	17.3–21.8	23.1 ± 1.7	21.7–26.9
Snout length	11.6 ± 1.1	10–13.2	13.8 ± 1.3	12–16.1
Eye diameter	5.2 ± 0.9	3.3–6.4	6.4 ± 0.5	5.8–7.2
Eyelid width	5.2 ± 1	3.7–6.6	6 ± 0.6	5.1–6.9
Interorbital distance	11.2 ± 1.2	8.9–13.1	13.1 ± 0.8	12.3–14.4

Eye-nostril distance	8.5 ± 0.9	7–9.9	9.8 ± 1	8.4–11.9
Internarial distance	3.7 ± 0.5	2.5–4.4	4.5 ± 0.4	4–5.4
Tympanum diameter	3.2 ± 0.2	2.9–3.4	3.9 ± 0.4	3.5–4.5
Thigh length	28.7 ± 2.4	24.3–31.6	34 ± 1.5	32–36.5
Tibia length	27.4 ± 2.1	23.5–29.3	32.7 ± 1.5	31.3–35.6
Tarsus length	12.5 ± 0.7	11.3–13.6	14.6 ± 1.2	12.7–16.4
Foot length	23.7 ± 2.5	19.8–26.6	27.9 ± 1.2	25.9–29.4
IV toe disc width	3.2 ± 0.4	2.5–3.7	3.7 ± 0.5	2.9–4.5
Upper arm length	9.6 ± 1.4	6.8–11.9	11.4 ± 0.9	10.2–12.7
Forearm length	9.7 ± 1	7.9–11.2	11.4 ± 1.1	10–13.5
Hand length	20.5 ± 2.1	17.3–23.3	23.5 ± 1.3	21.9–25.7
III finger disc width	3.5 ± 0.5	2.7–4.2	4.1 ± 0.4	3.5–4.9
HW/HL	0.9 ± 0	0.8–1	0.9 ± 0	0.8–0.9
ED/IOD	0.5 ± 0.1	0.3–0.6	0.5 ± 0	0.4–0.5
TD/HL	0.1 ± 0	0.1–0.2	0.1 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.4–0.5

Boana albomarginata

(Table 3; Figs. 4–6)

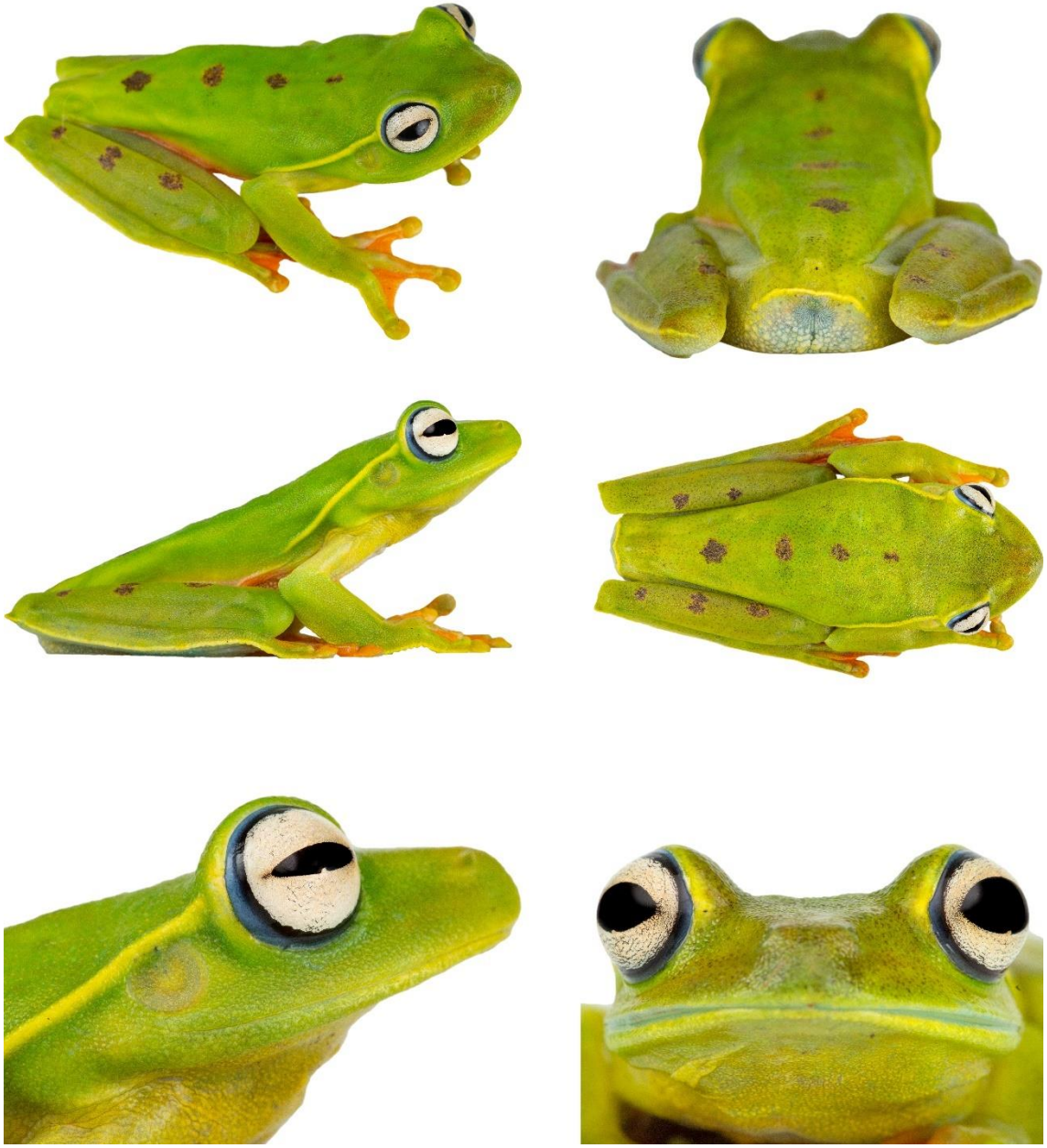

FIGURE 4. *Boana albomarginata* (FSFL - 5024) live adult male from Parque Estadual Alto Cariri, Santa Maria do Salto, Minas Gerais (SVL = 46.8 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 13 males, 2 females. Adult male SVL 37.8–53.7 mm (n = 15), adult female 43.1–51.6 mm (n = 2). Head without skin co-ossification; HW/HL = 0.9–1.2. Snout rounded in dorsal view; rounded or rounded tending to truncate in lateral view. Cranial crests absent. Canthus rostralis indistinct; rounded. Loreal region slightly concave or nearly flat and inclined laterally. Interorbital area nearly flat. Internarial region depressed. Maxilla slightly expanded beyond lower jaw or not expanded beyond

lower jaw. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 50–101% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); dorsolaterally directed; nearly round; its diameter 11–23% head length. Supratympanic dermal fold distinct; bypassing eardrum and continuing in a dorsolateral straight line up to 1/4 of the body; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated; vomerine teeth's number 08–10. Palatine teeth absent. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped. Metacarpal edge and postaxial edge of finger IV with ventrolateral surface fringed but not scalloped. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula: I–II ($1–1^{1/2}$) - ($2^{-}–2^{1/2}$) III ($2^{+}–2^{-}$) - ($2^{+}–2^{-}$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle present; many rounded tubercles gathered together with no distinction of one isolated outer metacarpal tubercle. Subarticular tubercles rounded in ventral view. Subarticular tubercles I and/or II conical in profile, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine present; distinct.

Hind limbs long; thigh length 50–61% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and Postaxial edge of toe V fringed

but not scalloped. Heels with distinct fringe continuous with the outer tarsal fold. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; indistinct; with no distinct shape, just a partial region of the skin hardened. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (0^{-}–1^{-}) - ($1^{1/2}$–2^{+}) II (0^{-}–1^{-}) - (2^{+}–2^{-}) III (0^{-}–1^{-}) - (2^{+}–2^{-}) IV (2^{+}–2) - (0^{-}–1) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture smooth. Upper eyelid smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area smooth or coarsely texturized. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

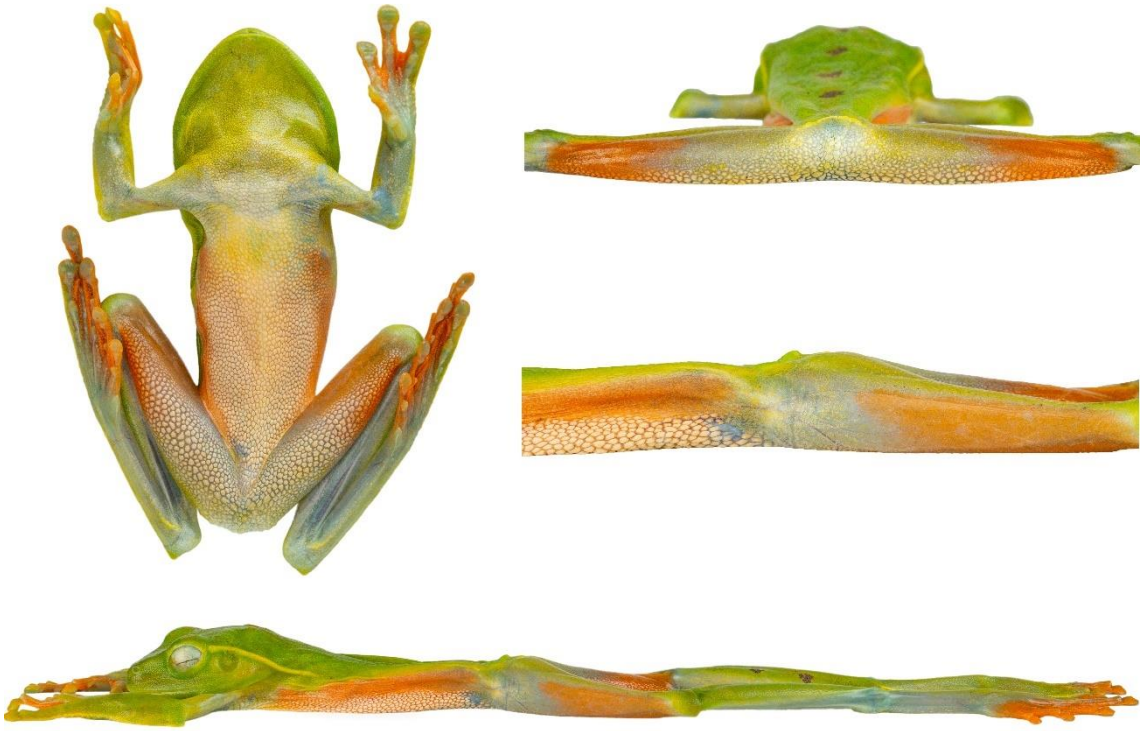

FIGURE 5. *Boana albomarginata* (UFVF-5024) adult male from Parque Estadual Alto Cariri, Santa Maria do Salto, Minas Gerais right after euthanasia (SVL = 46.8 mm).

Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 17. In life body dorsum green; immaculate or partially or completely speckled by small dark brown spots and/or marked with a single or numerous large white blotches and spots (or without white markings). Interorbital region follows the same color pattern as the body dorsum. Canthal stripe absent. Lips and loreal region follow the same color pattern as the adjacent snout and body dorsum. Eyes iris white; speckled with small black blotches; a superior blue line outlining the iris is present, almost hidden beneath the palpebral membrane. Arms and legs ventrolateral fringes and supratympanic dermal folds yellowish. Arms, thighs and tibia dorsal surface same color pattern as body dorsum. Thighs hidden surfaces orange, immaculate, rarely speckled with dark spots; a distinct whitish/yellow ventrolateral line extends from the heels to the postaxial edge of toe V. Inguinal region orange and blue; immaculate. Ventral region orange; covered with white granules. Gular region green; immaculate. Horizontal white/yellowish stripe above anal opening present. Region around the anus blueish white with yellowish tubercles.

Color after preservation—Dorsal color fades quickly after preservation getting overall whitish cream. dorsal speckles fade and get brown, white blotches remain white. Ventral and gular color fades and gets whitish cream. Eyes iris becomes greyish.

FIGURE 6. *Boana albomarginata,* male (MZUFV-2421), from Parque Estadual do Rio

Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 3. Measurements and proportions of *Boana albomarginata* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Males (n=15)		Females (n=02)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	45.7 ± 4.4	37.8–53.7	47.4 ± 6.1	43.1–51.6
Head length	15.7 ± 1.3	13.5–17.3	15.6 ± 2.3	14–17.3
Head width	16.3 ± 1.7	13.1–18.9	16.7 ± 2	15.2–18.1
Snout length	6.6 ± 2	0–8.2	6.8 ± 1	6.1–7.6
Eye diameter	4.3 ± 0.4	3.5–5.2	4.1 ± 0.5	3.8–4.5
Eyelid width	3.3 ± 0.6	2.3–4.4	3.3 ± 1	2.6–4
Interorbital distance	5.6 ± 1	4–7.4	7 ± 2.8	5.1–9
Eye-nostril distance	5.4 ± 0.7	4.2–7	5.8 ± 1.4	4.9–6.8
Internarial distance	2.4 ± 0.5	1.4–3.4	2.1 ± 0.4	1.8–2.3
Tympanum diameter	2.7 ± 0.6	1.6–4	2.4 ± 0.1	2.3–2.5
Thigh length	25.2 ± 2.2	20.1–29.6	25.8 ± 3.2	23.5–28.1
Tibia length	24.9 ± 2.4	19.8–28.3	25.4 ± 3.1	23.2–27.5
Tarsus length	13.9 ± 1.2	11.8–15.8	14.3 ± 3.8	11.6–17
Foot length	19 ± 1.8	15.7–22.8	17.1 ± 2.6	15.3–19
IV toe disc width	2.2 ± 0.4	1.4–3	2.2 ± 0.5	1.9–2.6
Upper arm length	8.1 ± 1	6.4–10.6	8.3 ± 0	8.3–8.3
Forearm length	7.6 ± 1	6.4–10.5	8.4 ± 1.4	7.4–9.4
Hand length	13.7 ± 1	11.7–15.5	13.4 ± 1.9	12.1–14.7
III finger disc width	2.5 ± 0.4	1.7–3.1	2.2 ± 0.2	2.1–2.4
HW/HL	1 ± 0.1	0.9–1.2	1.1 ± 0	1–1.1
ED/IOD	0.8 ± 0.1	0.6–1	0.6 ± 0.2	0.5–0.7
TD/HL	0.2 ± 0	0.1–0.2	0.2 ± 0	0.1–0.2
THL/SVL	0.6 ± 0	0.5–0.6	0.5 ± 0	0.5–0.5

Boana albopunctata

(Table 4; Figs. 7–9)

FIGURE 7. *Boana albopunctata* (UFVF-1731) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 57.0 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 13 males, 2 females. Adult male SVL 43.9–58.8 mm (n = 13), adult female 49.9 mm (n = 1). Head without skin co-ossification; HW/HL = 0.8–1.1. Snout rounded tending to pointed in dorsal view; rounded or rounded tending to protruding in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region slightly concave. Interorbital area nearly flat. Internarial region nearly flat

or slightly depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 72–110% eye-nostril distance; Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant; laterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 15–27% head length. Supratympanic dermal fold distinct; bypassing eardrum and continuing in a dorsolateral straight line up to 1/4 of the body; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 08– 12. Palatine teeth absent. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped. Metacarpal edge and postaxial edge of finger IV with ventrolateral surface fringed but not scalloped. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between fingers I and II and II and III). Webbing formula: I–II 2^{--}- III 3^{+} - $2^{1/2}$ IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on fingers IV rounded or divided, all other rounded in ventral view; conical in profile on finger I and II, rarely on III, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine present; distinct.

Hind limbs short or long; thigh length 47–63% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V fringed but not scalloped. Heels with a distinct fringe continuous with the external

tarsal fold. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; indistinct; rounded or with no distinct shape, just a partial region of the skin hardened. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1^{+}–$1^{2/3}$) - (2^{+}–2) II (0^{-}–2^{+}) - (2–$2^{1/2}$) III (1^{-}–$1^{1/2}$) - ($2^{1/2}$–3) IV ($2^{1/2}$–3) - (1^{-}–$1^{1/3}$) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture smooth. Upper eyelid smooth. Paratoid glands absent. Dorsal dermal fold absent. Abdominal region and thighs venter areolate. Gular region and pectoral area smooth or coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 8. *Boana albopunctata* (UFVF-1731) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 57.0 mm). Ventral view

(top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 14. In life body dorsum greyish, brown or yellow; dorsum immaculate or covered with transversal bars; scattered dark or light-colored blotches and spots present (or absent); a dark vertebral line extending from the tip of the snout to almost the end of the body is present (or absent). Interorbital region follows the same color pattern as the body dorsum. Cantus rostralis marked with a dark colored stripe. Loreal region dark brown or black. Lips on maxilla follow the same color pattern as the adjacent snout and mandibular lips are lighter colored when compared to the snout coloration. Eyes iris bright orange over a black background with black reticulations. Arms barred with ventrolateral dermal fold whitish, extending from the elbows to the postaxial edge of finger IV. Thighs with transversal bars on the dorsal surface. Tibia with transversal bars on the dorsal surface and a ventrolateral dermal fold white or yellowish. Inguinal region and thighs hidden surfaces pink or purple with a blueish haze; covered with scattered yellow blotches and spots. Ventral region yellowish; immaculate. Pectoral region covered with small irregular brownish blotches or immaculate. Gular region bright yellow on males, pallid yellow on females; covered with small irregular brownish blotches or immaculate. Horizontal white stripe above anal opening present. Region around the anal opening purplish with whitish tubercles.

Color after preservation—dorsum color progressively fades getting greyish or orange brown. Ventral and gular region become whitish cream. Dorsal and ventral markings such as blotches and bars fade after preservation, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

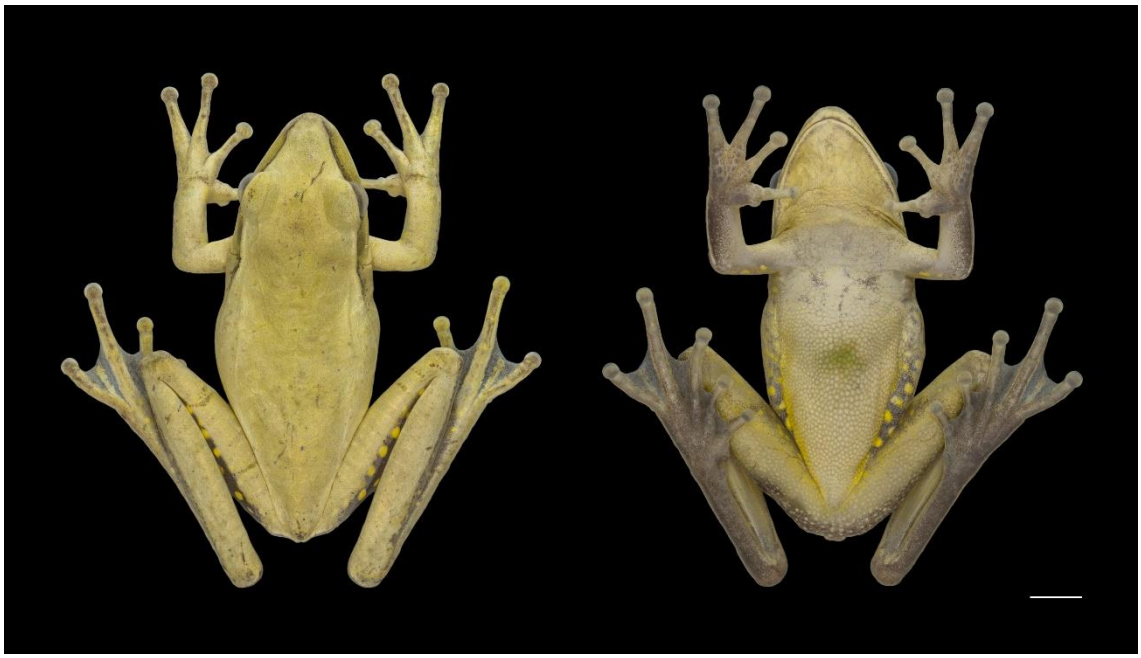

FIGURE 9. *Boana albopunctata,* male (UFVF-1731), from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 4. Measurements and proportions of *Boana albopunctata* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Males (n=13)		Females (n=01)
	Mean ± SD	Range	Measurements
Snout-vent length	52.9 ± 4.5	43.9–58.8	49.9
Head length	17.2 ± 1.7	13.4–19.4	21.4
Head width	16.5 ± 1.4	13.4–18.4	17.6
Snout length	8.5 ± 1.8	3.9–10.3	9.6
Eye diameter	4.9 ± 0.5	3.8–5.9	5.1
Eyelid width	4.2 ± 0.7	3.1–5.1	4.8
Interorbital distance	5.7 ± 0.7	4.6–7.1	5.5
Eye-nostril distance	6.3 ± 1.6	3.5–10	6.5
Internarial distance	4.5 ± 0.7	3.4–5.4	4.5
Tympanum diameter	3.5 ± 0.5	2.9–4.8	3.8
Thigh length	28.2 ± 3.3	22.2–32.1	31.4

Tibia length	29.9 ± 2.7	24.9–34	34.0
Tarsus length	16 ± 1.8	13.2–18.6	18.4
Foot length	23.4 ± 2.7	19–27.4	27.7
IV toe disc width	2 ± 0.3	1.3–2.5	2.0
Upper arm length	7.9 ± 0.9	6.7–9.8	7.7
Forearm length	8.4 ± 1.2	6.2–10.6	10.7
Hand length	14 ± 2.4	8.2–16.9	16.5
III finger disc width	2.2 ± 0.3	1.6–2.6	2.1
HW/HL	1 ± 0	0.9–1.1	
ED/IOD	0.9 ± 0.1	0.7–1.1	
TD/HL	0.2 ± 0	0.2–0.3	
THL/SVL	0.5 ± 0	0.5–0.6	

Boana crepitans

(Table 5; Figs. 10–12)

FIGURE 10. *Boana crepitans* (UFVF-1695) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 58.8 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 2 males. Adult male SVL 58.8–60.5 mm (n = 2). Head without skin co-ossification; HW/HL = 1.0–1.2. Snout rounded in dorsal view; truncate (vertical) in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region slightly concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 80–81% eye-nostril distance. Pupils elliptical;

horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins discreetly scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); dorsolaterally directed; nearly round; its diameter 19–21% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arms level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; almost the entire buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated; vomerine teeth's number 08–09; Palatine teeth absent. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms with distinct longitudinal line of tubercles on ventrolateral surface and with discreet fringe present or absent. Metacarpal edge and postaxial edge of finger IV with ventrolateral surface fringed but not scalloped. Axillary membrane absent. Post axillary glands distinct; one or more cream colored spot. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula: I–II 2^{+}–3^{-} III 3^{+}–2^{-} IV. Inner metacarpal tubercle distinct; elliptical. Outer metacarpal tubercle indistinct (poorly protuberant); bifid. Subarticular tubercle I rounded in ventral view; conical or flattened in profile on fingers I and II, flattened in profile on finger III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine present; distinct.

Hind limbs long; thigh length 56–57% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V fringed but not scalloped. Heels with distinct fringe continuous with the external tarsal fold. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle absent or present; with no distinct shape, just a partial region of the skin hardened. Subarticular tubercles distinct; rounded in ventral view; flattened in

profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I 2^{+}–2^{+} II 0^{-}–2^{-} III 1–2^{-} IV (2–2^{-}) - (1) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture and upper eyelid smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with concentrated tubercles or areolate. Pectoral area areolate. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 11. *Boana crepitans* (UFVF-1695) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 58.8 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 02. In life body dorsum whitish cream or yellowish brown or dark brown; starting behind the eyes a distinct large dark brown, roughly X-shaped blotch, occupies about 2/3 of the body dorsum; behind the x-shaped blotch, 2 to 4 transversal long brown blotches are present (or absent); the rest of the body dorsum is completely stained by irregular indistinct-shaped brown blotches; a vertebral thin line starting on the tip of the snout and ending on the X-shaped blotch present. Interorbital region blotched. Cantus rostralis marked with a dark colored stripe. Loreal region blotched. Lips follow the same color pattern as the adjacent snout. Eyes iris bright yellow with scattered small black blotches; a superior blue line outlining the iris is present, almost hidden beneath the palpebral membrane. Arms with barred blotches; ventrolateral dermal fold/fringe whitish. Thighs and tibia with transversal bars/blotches; ventrolateral dermal fold/fringe whitish. Thighs hidden surfaces orange; with dark transversal blotches and reticulations. Inguinal region bright orange; with dark transversal blotches. Ventral region orange; immaculate. Gular region with concentrated tiny black speckles giving it an overall greyish dirty look. Anal flap brownish with a white stripe above. Region around the anal opening whitish.

Color after preservation—dorsum color progressively fades getting overall greyish or pale brown. Ventral region becomes whitish cream. Gular region dark coloration becomes paler but stays dark. Inguinal region and hidden surfaces of thighs lose bright color and gets cream colored. Dorsal and ventral markings such as blotches and bars fade after preservation, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 12. *Boana crepitans* male (UFVF-1694) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 5. Measurements and proportions of *Boana crepitans* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Males (n=02)	
	Mean ± SD	Range
Snout-vent length	59.6 ± 1.2	58.8–60.5
Head length	20.3 ± 1.3	19.4–21.2
Head width	22.3 ± 1.1	21.5–23.1
Snout length	7.1 ± 2.6	5.2–9
Eye diameter	4.7 ± 0.2	4.6–4.9
Eyelid width	5.3 ± 0.7	4.8–5.8
Interorbital distance	5.9 ± 0.2	5.7–6.1
Eye-nostril distance	5.3 ± 0.4	5–5.7
Internarial distance	4 ± 0	4–4.1
Tympanum diameter	4 ± 0	4–4.1
Thigh length	33.8 ± 0.2	33.6–34

Tibia length	32.9 ± 0.8	32.3–33.5
Tarsus length	16.2 ± 0.2	16.1–16.3
Foot length	25.1 ± 0.7	24.6–25.6
IV toe disc width	2.9 ± 0.1	2.8–2.9
Upper arm length	10.7 ± 0.1	10.6–10.8
Forearm length	11.2 ± 0.2	11–11.3
Hand length	18.8 ± 0.6	18.4–19.2
III finger disc width	3.1 ± 0	3.1–3.1
HW/HL	1.1 ± 0.1	1–1.2
ED/IOD	0.8 ± 0	0.8–0.8
TD/HL	0.2 ± 0	0.2–0.2
THL/SVL	0.6 ± 0	0.6–0.6

Boana faber

(Table 6; Figs. 13–15)

FIGURE 13. *Boana faber* (UFVF-1778) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 83.3 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 4 males, 8 females. Adult male SVL 83.3–91.1 mm (n = 3), adult female 87.8–94.5 mm (n = 8). Head without skin co-ossification; HW/HL = 1.1–1.2. Snout rounded in dorsal view; acuminate or obtuse (sloping) in lateral view, rarely truncate (vertical). Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region slightly concave. Interorbital area depressed or nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent;

anterolaterally oriented; its diameter 58–83% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); dorsolaterally directed; nearly round; its diameter 19–23% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arms level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 2/3 of the buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated or odontophores may merge into one; vomerine teeth's number 12–14. Palatine teeth absent. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped, Metacarpal edge and postaxial edge of finger IV with ventrolateral surface fringed but not scalloped. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula: I–II ($1^{1/2}$) - (2^{-}–$2^{1/3}$) III (2^{-}) - (2^{+}–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle present or absent; distinct or indistinct (poorly protuberant); bifid or divided. Subarticular tubercle I on finger IV rounded, squarish or bifid in ventral view, all other rounded in ventral view; subarticular tubercles conical or flattened in profile on finger I, II and III, flattened in profile on finger IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine present; distinct.

Hind limbs long; thigh length 53–59% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V fringed but not scalloped. Heels with distinct fringe continuous with the external tarsal fold. Toe

I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present; distinct, rarely indistinct; rounded or bifid or with no distinct shape, just a partial region of the skin hardened. Subarticular tubercles distinct; rounded or ovoid in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (0^{-}–1^{-}) - ($1^{1/3}$–2^{+}) II (0^{-}–1^{-}) - (2) III (1–1^{-}) - (2^{+}–2^{-}) IV (2^{+}–2^{-}) - (0^{-}–1^{-}) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture and upper eyelid smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area smooth or areolate (rarely with concentrated tubercles). Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present. Tubercles around the anal opening present (rarely absent); distinct. Fringes or dermal fold below anal opening absent.

FIGURE 14. *Boana faber* (UFVF-1778) adult male from Parque Estadual do Rio Doce,

Marliéria, Minas Gerais right after euthanasia (SVL = 83.3 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 12. In life body dorsum orange brown or pale brown or whitish cream; immaculate or stained with small dark or light-colored irregular blotches; overall speckled; a vertebral stripe extending from the tip of the snout until around 2/3 of the body present (or absent), rarely reaching as far as the anal region. Interorbital region follows the same color pattern as the body dorsum. Loreal region speckled. Lips on maxilla follow the same color pattern as the adjacent snout, mandibular lips are lighter colored when compared to the snout coloration. Eyes iris bright yellow/gold with scattered small black blotches and/or. Arms with transversal bars/blotches or immaculate as dorsum; ventrolateral dermal fold/fringe white. Thighs and tibia with transversal bars/blotches, rarely overall immaculate with scattered indistinct small blotches/spots; ventrolateral dermal fold/fringe white. Thighs hidden surfaces bright orange; barred or immaculate. Inguinal region bright orange; barred or with indistinct small blotches. Ventral region orange; immaculate. Gular region greyish or cream; overall immaculate with a dirty darkish haze that gets stronger closer to the lips. Anal flap greyish with a white stripe above. Region around the anal opening whitish.

Color after preservation—dorsum color progressively fades getting overall greyish or pale brown. Ventral region becomes whitish cream. Gular region dark coloration becomes paler. Inguinal region and hidden surfaces of thighs lose bright color and gets cream colored. Dorsal and ventral markings such as blotches and bars fade after preservation, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 15. *Boana faber* male (UFVF-1778) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 6. Measurements and proportions of *Boana faber* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=03)		Females (n=08)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	86.6 ± 4	83.3–91.1	90.9 ± 2.4	87.8–94.5
Head length	29.8 ± 1.6	27.9–30.8	29.6 ± 0.7	28.7–30.7
Head width	33.6 ± 1.5	32.6–35.3	35.2 ± 0.9	33.9–36.3
Snout length	14.8 ± 0.3	14.4–15	13.6 ± 1	12.2–14.9
Eye diameter	7.4 ± 0.1	7.3–7.5	7.4 ± 0.6	6.8–8.5
Eyelid width	7.7 ± 1.1	6.6–8.8	7.4 ± 0.8	6.6–8.5
Interorbital distance	9.8 ± 1.1	8.9–11	11.4 ± 0.8	10.1–12.5
Eye-nostril distance	9.1 ± 0.6	8.7–9.7	7.6 ± 0.7	6.9–8.7
Internarial distance	6.1 ± 0.4	5.8–6.6	5.9 ± 0.3	5.4–6.3
Tympanum diameter	6.1 ± 0	6.1–6.2	6.3 ± 0.4	5.6–6.9
Thigh length	50.4 ± 3	48.7–53.8	51.3 ± 2	47.6–53.6
Tibia length	50 ± 3	48.2–53.5	51.1 ± 1.9	47.2–53.6

Tarsus length	22.2 ± 2.9	19.8–25.5	23.4 ± 1.3	21.3–24.9
Foot length	38.4 ± 4.9	33.9–43.6	41.1 ± 2.1	36.5–43.2
IV toe disc width	4.5 ± 0.3	4.3–4.9	4.6 ± 0.4	4–5
Upper arm length	15.7 ± 2.2	13.2–17.4	16.1 ± 1.1	14.4–18.2
Forearm length	15.9 ± 0.8	15–16.5	16.2 ± 0.9	14.9–17.4
Hand length	29.7 ± 2.5	27.1–32.2	30 ± 1.7	26.1–31
III finger disc width	5.2 ± 0.4	4.9–5.6	5.5 ± 0.3	5–5.9
HW/HL	1.1 ± 0.1	1.1–1.2	1.2 ± 0	1.1–1.2
ED/IOD	0.8 ± 0.1	0.7–0.8	0.7 ± 0.1	0.6–0.8
TD/HL	0.2 ± 0	0.2–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.6 ± 0	0.6–0.6	0.6 ± 0	0.5–0.6

Boana pardalis

(Table 7; Figs. 16–18)

FIGURE 16. *Boana pardalis* (FSFL-5026) live adult male from Parque Estadual Alto Cariri, Santa Maria do Salto, Minas Gerais (SVL = 57.1 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 1 female. Adult female SVL 63.1 mm (n = 1). Head without skin co-ossification; 0.9 times shorter than wide. Snout rounded in dorsal view; acuminate tending to truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region slightly concave. Interorbital area slightly depressed. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 69% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly

protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins discreetly scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); nearly round; its diameter 18% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arms level; partially covering the tympanic annulus. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 9. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms, metacarpal and postaxial edge of finger IV with scalloped fringe along ventrolateral surface. Axillary membrane poorly developed. Post axillary glands externally indistinguishable. Hands half-webbed. Webbing formula I 2^{-}–2^{-} II 1–2^{-} III $1^{1/2}$–$1^{1/2}$ IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I on finger IV lanceolate in ventral view, all other rounded in ventral view and flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine present; discreet.

Hind limbs long; thigh length 55% SVL. Inner tarsal fold discreet; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed, scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V with scalloped fringes along ventrolateral surfaces. Heels with distinct triangular shaped calcar. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle absent. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I 1–2^{+} II $0^{-}2^{+}$ III 0^{-}–2^{+} IV $1^{1/2}$–0^{-}) V.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture and upper eyelid smooth. Paratoid glands absent. Dorsal dermal fold absent. Abdominal region and thighs venter areolate. Gular region area tuberculated

(concentrated). Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present. Tubercles around the anal opening distinct. Fringe below anal opening present.

FIGURE 17. *Boana pardalis* (FSFL-5026) adult male from Parque Estadual Alto Cariri, Santa Maria do Salto, Minas Gerais right after euthanasia (SVL = 57.1 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 01. In life body dorsum light brown; completely marbled with dark brown markings. Interorbital region follows the same color pattern as the body dorsum. Cantus rostralis marked with a dark colored stripe. Loreal region follows the same color pattern as the body dorsum. Lips follow the same color pattern as the adjacent snout. Eyes iris bright yellow with black reticulations. Arms barred and marbled. Thighs and tibia with transversal bars/blotches over a marbled background. Thighs hidden surfaces light purplish; barred. Inguinal region light purplish; barred.

Ventral region pale orange; immaculate. Gular region immaculate. Horizontal white stripe above anal crest present. Region around anal opening white.

Color after preservation—color progressively fades getting overall cream with brown markings. Ventral region gets pale cream to whitish. Gular region gets cream. Inguinal region and hidden surfaces of thighs lose bright color and gets pale cream colored. Dorsal and ventral markings such as blotches and bars fade after preservation. Eyes iris loses bright color and becomes greyish.

FIGURE 18. *Boana pardalis* female (MZUFV-786) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 7. Measurements of *Boana pardalis* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Female (n=01)
	Measurements
Snout-vent length	63.1
Head length	23.6
Head width	22.0
Snout length	9.9
Eye diameter	5.0

Eyelid width	4.7
Interorbital distance	7.1
Eye-nostril distance	8.1
Internarial distance	5.6
Tympanum diameter	4.4
Thigh length	34.5
Tibia length	33.6
Tarsus length	19.7
Foot length	28.6
IV toe disc width	2.8
Upper arm length	13.0
Forearm length	12.5
Hand length	19.3
III finger disc width	2.8
HW/HL	0.9
ED/IOD	0.7
TD/HL	0.2
THL/SVL	0.5

Boana semilineata

(Table 8; Figs. 19–21)

FIGURE 19. *Boana semilineata* (UFVF-1775) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 49.0 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 13 males, 2 females. Adult male SVL 45.0–55.7 mm (n = 14), adult female 59.9–67.8 mm (n = 2). Head without skin co-ossification; HW/HL = 1.0–1.2. Snout rounded in dorsal view; rounded or acuminate or acuminate tending to rounded in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its

diameter 46–121% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall reticulated with inferior third and upper border homogenously pigmented. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); dorsolaterally directed; nearly round; its diameter 19–27% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally indistinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located at the middle of the buccal roof slightly below choanae level; arc shaped; barely separated; vomerine teeth's number 9–18. Palatine teeth absent. Maxillary teeth present. Tongue round or cordiform or round tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with scalloped fringe along ventrolateral surface. Metacarpal edge and postaxial edge of finger IV with scalloped fringe along ventrolateral surface. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II (1^{-} $1^{1/2}$) - (2–2^{-}) III (2^{+}–2^{-}) - (1^{-}–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle present or absent; many rounded tubercles gathered together with no distinction of one isolated outer metacarpal tubercle. Subarticular tubercles rounded in ventral view, conical or flattened in profile on finger I, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; darkly pigmented. Prepollical spine present; discreet.

Hind limbs long; thigh length 48–56% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V fringed but not scalloped. Heels with distinct triangular shaped calcar. Toe I not opposing toe II.

Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle absent. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (x–x) - (x–x) II (x–x) - (x–x) III (x–x) - (x–x) IV (x–x) - (x–x) V.

Body dorsum texture smooth under magnification; smooth under naked eye. Head and upper eyelid skin texture smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area smooth or coarsely texturized. Pectoral fold absent. Mental, femoral, ventrolateral, tibial glands externally indistinguishable.

Anal opening directed posteriorly at upper level of thighs. Anal flap present. Anal dermal crest present. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 20. *Boana semilineata* (UFVF-1775) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 49.0 mm). Ventral view

(top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 16. In life body dorsum orange or brown colored; a roughly X shaped blotch that extends from behind the eyes up to midbody present (or absent); scattered irregular brown blotches and transversal irregular stripes and rounded white spots present (or absent); a vertebral stripe extending from the snout until midbody, rarely extending beyond present (or absent); rarely immaculate. Interorbital and loreal region follow the same color pattern as body dorsum. Lips are lightly colored when compared to the adjacent snout coloration. Eyes iris red with few black and white speckles; a superior blue line outlining the iris is present, almost hidden beneath the palpebral membrane; palpebral membrane reticulations orange colored. Arms with transversal bars/blotches; with a distinct ventrolateral white line extending from the elbows to the postaxial edge of finger IV. Axillary region and inner side of the arms with same color pattern as inguinal region. Thighs with transversal bars/blotches. Tibia marked with transversal bars/blotches, rarely speckled; legs with a distinct white ventrolateral line extending from the heels to the postaxial edge of toe V; thighs hidden surfaces, body flank and inguinal region white with a purple haze; covered with small black blotches and short black stripes. Ventral region orange; varying from completely marked by scattered black blotches to only a few sparse blotches or immaculate. Gular region white with orange haze; immaculate or with brown inconspicuous blotches bordering the lips. Anal flap rarely dark colored. Region surrounding anal opening whitish.

Color after preservation—dorsum color progressively fades getting overall greyish, pale pink or dark orange brown. Inguinal region, flanks and hidden surfaces of thighs lose bright color and get white colored with black spots. Ventral and gular region get cream or white. Dorsal and ventral markings such as blotches and bars fade after preservation, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 21. *Boana semilineata* male (UFVF-1775) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 8. Measurements and proportions of *Boana semilineata* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=14)		Females (n=02)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	50.1 ± 2.8	45–55.7	63.8 ± 5.6	59.9–67.8
Head length	16.7 ± 1.2	15–19.1	20.1 ± 1.2	19.2–21
Head width	18.2 ± 1.1	16.5–19.9	21.7 ± 3.5	19.3–24.2
Snout length	7.7 ± 1	4.9–9.4	9.2 ± 1.1	8.5–10
Eye diameter	4.1 ± 0.3	3.4–4.8	4.7 ± 0.5	4.3–5.1
Eyelid width	3.1 ± 0.7	2.1–4.3	4.5 ± 0.2	4.4–4.6
Interorbital distance	6.1 ± 1.1	3.5–7.9	7.4 ± 1.9	6–8.7
Eye-nostril distance	5.4 ± 0.8	3.9–6.7	7.4 ± 0.8	6.9–8
Internarial distance	2.8 ± 0.4	2.1–3.3	3.2 ± 0.9	2.6–3.9
Tympanum diameter	3.6 ± 0.4	2.9–4.5	4.5 ± 0.1	4.5–4.6

Thigh length	25.9 ± 1.4	23.6–28.2	32.3 ± 3.1	30.1–34.5
Tibia length	23.5 ± 7.1	0–28.2	30.8 ± 3.4	28.5–33.2
Tarsus length	14.2 ± 1.3	11.7–16.7	17.7 ± 2	16.3–19.2
Foot length	18.2 ± 1.5	15.3–20.1	23 ± 1.9	21.6–24.3
IV toe disc width	2.5 ± 0.2	2.1–2.8	3.1 ± 0.3	2.9–3.3
Upper arm length	8.1 ± 1	6.2–10.1	9.5 ± 1.9	8.1–10.8
Forearm length	9.1 ± 0.8	7.9–10.4	10.3 ± 1	9.6–11
Hand length	14.3 ± 0.8	12.4–15.4	18.7 ± 1.4	17.6–19.7
III finger disc width	2.7 ± 0.4	1.7–3.3	3.1 ± 0.8	2.5–3.7
HW/HL	1.1 ± 0.1	1–1.2	1.1 ± 0.1	1–1.2
ED/IOD	0.7 ± 0.2	0.5–1.2	0.6 ± 0.1	0.6–0.7
TD/HL	0.2 ± 0	0.2–0.3	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.6	0.5 ± 0	0.5–0.5

Dendropsophus anceps

(Table 9; Figs. 22–24)

FIGURE 22. *Dendropsophus anceps* (UFVF-1779) live adult SEX from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 36.0 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 11 males, 9 females. Adult male SVL 34.7–40.0 mm (n = 14), adult female 37.7–46.1 mm (n = 4). Head without skin co-ossification; HW/HL = 0.8–1.2. Snout rounded in dorsal view; rounded in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region nearly flat. Interorbital area nearly flat. Internarial region nearly flat or slightly depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 31–81% eye-

nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 11–18% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; oblique; barely separated; vomerine teeth's number 4–7. Palatine teeth absent. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped. Metacarpal edge and postaxial edge of finger IV ventrolateral surface fringed but not scalloped. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands basally webbed (sometimes only with vestigial webbing between fingers I and II). Webbing formula I ($2–2^{-}$) - (2^{-}) II ($1–1^{1/2}$) - ($2–2^{1/2}$) III ($2^{+}–2^{-}$) - ($2^{+}–2$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct or indistinct (poorly protuberant) divided. Subarticular tubercle I on fingers III and IV divided, rarely rounded on finger III, all other rounded in ventral view; conical in profile on finger I and II, flattened on finger III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short or long; thigh length 43–52% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge with discreet dermal fold or with discreet line of tubercles. Postaxial edge of toe V with discreet dermal fold. Heels with

2 distinctive tubercles on each edge. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct or indistinct; rounded Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (0^{-}–1^{-}) - (1^{+}–1^{-}) II (0^{-}–1^{-}) - (1^{+}–2^{+}) III (0^{-}–1^{-}) - (1^{+}–$1^{1/2}$) IV (1–$1^{2/3}$) - (1^{+}–1^{-}) V.

Body dorsum skin texture tuberculate (sparse) under magnification; smooth under naked eye. Head skin texture tuberculated (sparse). Upper eyelid with few sparse tubercles or with scattered tubercles. Paratoid glands absent. Dorsal dermal folds present; each large dark blotch on the dorsum is outlined by a thin dermal fold.

Abdominal region and thighs venter areolate. Gular region smooth. Pectoral area tuberculated (concentrated) or smooth. Pectoral fold present. Mental gland, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present, rarely absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 23. *Dendropsophus anceps* (UFVF-1779) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 36.0 mm). Ventral

view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 33. In life body dorsum brown or grey colored; covered with large chevron and bubble-like blotches which are delineated by a cream-colored line; rarely covered with scattered or concentrated small black spots and blotches. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis is marked with a light-colored line which extends from the tip of the snout, bypassing the eyeball and descending in an oblique manner until behind the arms. Loreal region is darkly pigmented and forms a dark band that extends from the loreal region until behind the eyes and above the arms, delimited by the canthus rostralis line. Lips follow the same color pattern as the adjacent snout, slightly lighter colored. Eyes iris is orange brown; with dark reticulations and speckles; diagonal light-colored lines are present beneath the eyes. Arms with the same color pattern as the dorsum or barred or immaculate. Axillary membrane and inner side of the arm bright orange. Thighs and tibia with transversal bars/blotches delimited by light colored lines, as dorsum. Thighs hidden surfaces and inguinal region bright orange and pale yellow interleaved by dark brown blotches or barres. Heels dark brown, contoured by a thin whitish fringe. Ventral region bright orange; marbled with pale grey reticulations. Gular region purplish or dark brown in males, brown in females; homogenously colored. Anal flap dark brown; with a horizontal white line above.

Color after preservation—dorsum color progressively fades getting overall pale brown, greyish or cream. Inguinal region, flanks, thighs hidden surfaces and ventral region bright colors fade and gets greyish. Gular region keeps darker pigmentation. Dorsal and ventral markings such as lines, blotches and bars fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 24. *Dendropsophus anceps* female (UFVF-2022) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 9. Measurements and proportions of *Dendropsophus anceps* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=14)		Females (n=4)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	37.2 ± 1.7	34.7–40	40.7 ± 2.7	37.7–46.1
Head length	12.2 ± 1.2	10.5–14.9	12.2 ± 1.3	10.6–15.5
Head width	12.8 ± 0.9	10.8–13.7	12.8 ± 0.9	11–14.1
Snout length	5.5 ± 0.4	5.1–6.3	5.8 ± 0.7	4.1–6.6
Eye diameter	3.5 ± 0.3	3–4	3.5 ± 0.4	3.1–4.3
Eyelid width	3.2 ± 0.5	2.3–4.2	3.1 ± 0.4	2.5–3.9
Interorbital distance	6.5 ± 1.6	4.8–10.9	6.3 ± 1	4.2–7.8
Eye-nostril distance	3.3 ± 0.3	2.9–3.7	3.4 ± 0.6	2.3–4.2
Internarial distance	3.5 ± 0.2	3–3.9	3.5 ± 0.3	2.8–4
Tympanum diameter	1.8 ± 0.2	1.5–2.3	1.8 ± 0.2	1.2–2.1
Thigh length	18.3 ± 0.7	17.2–19.4	19.6 ± 1.6	17.6–22.9

Tibia length	18.9 ± 0.7	17.9–19.8	20.6 ± 1.2	18.7–22.9
Tarsus length	9 ± 0.8	7.8–10.3	9.5 ± 0.9	8.1–10.9
Foot length	16.8 ± 0.7	15.9–18.1	18.2 ± 1.8	16.4–22.2
IV toe disc width	1.9 ± 0.1	1.7–2.1	2.1 ± 0.3	1.7–2.5
Upper arm length	5.7 ± 0.5	4.3–6.4	6.8 ± 0.9	5.6–8.3
Forearm length	6.9 ± 0.7	5.9–9	7.2 ± 0.8	6–8.8
Hand length	12.2 ± 0.6	11.4–13.5	13.1 ± 1.2	11.2–15.8
III finger disc width	2.1 ± 0.2	1.9–2.4	2.3 ± 0.3	1.9–3
HW/HL	1.1 ± 0.1	0.9–1.2	1.1 ± 0.1	0.8–1.1
ED/IOD	0.6 ± 0.1	0.3–0.7	0.6 ± 0.1	0.4–0.8
TD/HL	0.1 ± 0	0.1–0.2	0.1 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.4–0.5

Dendropsophus bipunctatus

(Table 10; Figs. 25–27)

FIGURE 25. *Dendropsophus bipunctatus* (UFVF-1627) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 24.1 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 11 males, 9 females. Adult male SVL 22.8–26.9 mm (n = 11), adult female 26.0–29.8 mm (n = 9). Head without skin co-ossification; HW/HL = 0.9–1.2. Snout rounded in dorsal view or rounded tending to semicircular in dorsal view; rounded, truncate or rounded tending to truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat. Interorbital area nearly flat. Internarial region nearly flat or slightly depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 44–66% eye-nostril distance. Pupils elliptical; horizontally orientated.

Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like, Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 10–19% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/3 of the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; separation varies from barely to widely separated; vomerine teeth's number 2–4. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or round tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with discreet longitudinal line of tubercles along ventrolateral surface or without dermal folds/fringes or tubercle rows. Metacarpal edge with a discreet dermal or with discreet longitudinal line of tubercles on ventrolateral surface. Postaxial edge of finger IV with discreet dermal fold. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands basally webbed (sometimes only with vestigial webbing between fingers I and II). Webbing formula I 2^{-}–2^{-} II (1^{-}–2^{+}) - (2^{+}–$2^{1/2}$) III ($1^{2/3}$–2) - ($1^{1/2}$–2^{+}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle present or absent; indistinct (poorly protuberant); bifid. Subarticular tubercle I on fingers III and IV bifid, all other rounded in ventral view; conical in profile on finger I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short or long; thigh length 45–60% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent, rarely present; indistinct. Metatarsal edge with discreet dermal fold or without

tubercles, folds or fringes. Postaxial edge of toe V with discreet dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1–1^{+}) - ($1^{2/3}$–2^{+}) II (0^{-}–1) - ($1^{2/3}$–2) III ($0^{-}1^{-}$) - ($1^{1/2}$–2^{+}) IV ($1^{2/3}$–2^{-}) - (1^{+}–1^{-}) V.

Body dorsum skin texture tuberculate (scattered or concentrated) under magnification; smooth under naked eye. Head and upper eyelid skin texture with scattered or concentrated tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region smooth. Pectoral area smooth or coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 26. *Dendropsophus bipunctatus* (UFVF-1627) adult male from Parque

Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 24.1 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 20. In life body dorsum orange or cream colored; dorsum with two grey/blackish chevron shaped blotches filled with cream colored ocelli, or, only a few irregular scattered striping's over the dorsum, or, a completely immaculate dorsum; two small paravertebral black/greyish ocelli on the backs end, close to the anus, are always present, these ocelli are distinct but seem to be under the skin. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark colored irregular stripe which delimits an ocellated loreal region, this pattern is interrupted by the eyes and continuous in an oblique line after the eyes and over the tympanum through the body flank up to midbody. Lips on maxilla follow the same color pattern as the adjacent snout and mandibular lips are speckled. Eyes iris is light orange marked with reddish reticulations. Arms marked by thin transversal bars. Thighs dorsum and thighs hidden surfaces bright orange; immaculate. Tibia with transversal bars/blotches. Heels marked with a ventrolateral black stripe which continues through the tibia up to the tarsus. Inguinal region yellow and orange; immaculate. Ventral region yellow; immaculate. Gular region bright yellow in males, pallid yellow in females; immaculate. Anal flap dark brown with a horizontal white stripe above, or, stripe absent. Region around the anal opening yellow.

Color after preservation—dorsum color progressively fades getting overall greyish, cream or pale orange. Inguinal region, flanks and hidden surfaces of thighs lose bright orange color and get greyish. Ventral and gular region color fades and gets whitish. Dorsal and ventral markings such as blotches and bars generally don't fade much after preservation. Eyes iris loses bright color and becomes greyish.

FIGURE 27. *Dendropsophus bipunctatus* male (UFVF-1627) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 10. Measurements and proportions of *Dendropsophus bipunctatus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=11)		Females (n=09)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	24.5 ± 1.5	22.8–26.9	28.1 ± 1.1	26–29.8
Head length	7 ± 0.3	6.6–7.3	7.8 ± 0.4	7.2–8.8
Head width	7.4 ± 0.6	6.5–8	8 ± 0.3	7.5–8.6
Snout length	3.6 ± 0.2	3.2–4	4.1 ± 0.2	3.9–4.5
Eye diameter	2.2 ± 0.2	1.9–2.5	2.4 ± 0.1	2.2–2.5
Eyelid width	1.7 ± 0.2	1.4–2	1.6 ± 0.1	1.4–1.9
Interorbital distance	4.1 ± 0.4	3.5–4.8	4.8 ± 0.2	4.3–5.1
Eye-nostril distance	2.1 ± 0.2	1.7–2.3	2.3 ± 0.1	2.1–2.6
Internarial distance	2 ± 0.2	1.7–2.3	2.1 ± 0.2	1.8–2.5
Tympanum diameter	1 ± 0.2	0.7–1.4	1.3 ± 0.1	1.1–1.4
Thigh length	13 ± 0.7	11.9–14.2	14.2 ± 1	12.3–15.8
Tibia length	13.1 ± 0.8	11.9–14.1	15 ± 0.6	14.2–15.9

Tarsus length	6.8 ± 0.5	6.2–7.8	7.4 ± 0.5	6.8–8.3
Foot length	11.6 ± 0.7	10.6–12.7	13.1 ± 0.8	12.4–14.8
IV toe disc width	1.3 ± 0.1	0.9–1.4	1.4 ± 0.1	1.2–1.6
Upper arm length	5 ± 0.4	4.2–5.6	5.9 ± 0.8	4.5–7.2
Forearm length	4.9 ± 0.3	4.4–5.2	5.3 ± 0.4	4.6–5.9
Hand length	8 ± 0.6	6.9–9.1	9 ± 0.6	8.2–9.9
III finger disc width	1.3 ± 0.1	1.1–1.5	1.5 ± 0.1	1.4–1.7
HW/HL	1.1 ± 0.1	0.9–1.2	1 ± 0	1–1.1
ED/IOD	0.5 ± 0.1	0.4–0.7	0.5 ± 0	0.4–0.5
TD/HL	0.1 ± 0	0.1–0.2	0.2 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.5–0.6	0.5 ± 0	0.4–0.6

Dendropsophus branneri

(Table 11; Figs. 28–30)

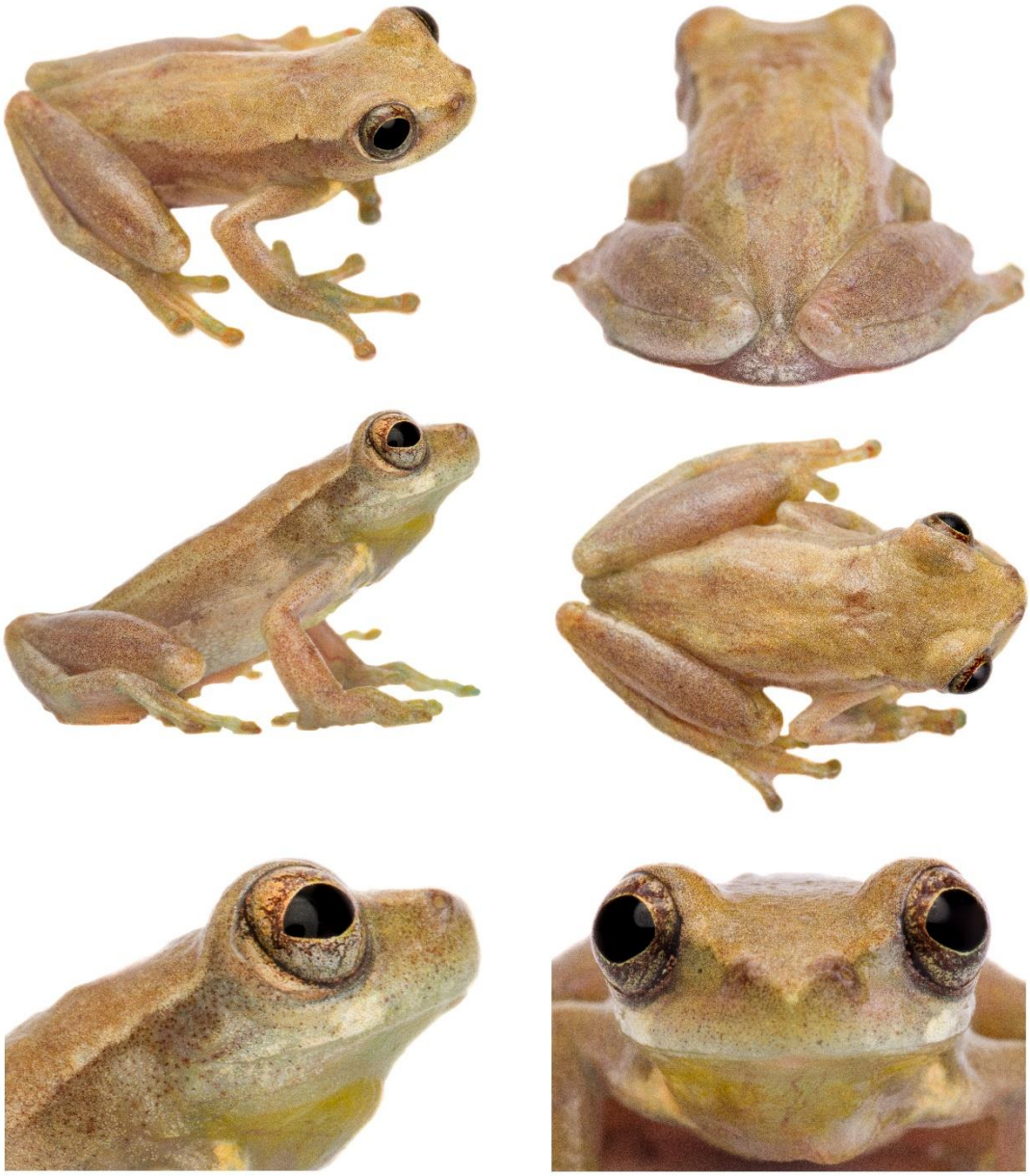

FIGURE 28. *Dendropsophus branneri* (UFVF-1792) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 20.4 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 5 females. Adult male SVL 17.5–24.6 mm (n = 8), adult female 21.8–24.4 mm (n = 3). Head without skin co-ossification; HW/HL = 0.8–1.1. Snout rounded or rounded tending to semicircular in dorsal view; truncate (vertical) or rounded tending to truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat. Interorbital area nearly flat. Internarial region slightly depressed. Lips without spiny structures. Snout mucronation

absent. Eyes prominent; anterolaterally oriented; its diameter 53–73% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior border and upper border pigmented, without reticulation. Nostrils slightly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa present or absent; indistinct. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 8–25% head length. Supratympanic dermal fold indistinct; bypassing eardrums and continuing downwards in a short oblique line, not reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/3 of the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae rounded; not concealed by palatal shelf. Vomerine teeth located in between choanae; oblique; barely separated; vomerine teeth's number 2–4. Palatine teeth absent. Maxillary teeth present. Tongue ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; without dermal folds/fringes or tubercle rows, rarely with a discreet dermal fold on ventrolateral surface. Metacarpal edge without any tubercles or dermal folds/fringes. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II ($1^{1/2}$–2^{+}) - (2–3) III (2^{+}–2^{-}) - (2^{-}–2^{+}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; rounded. Subarticular tubercle I on fingers III and IV bifid in ventral view (rarely rounded), all other rounded in ventral view; conical in profile on finger I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads absent. Prepollical spine absent.

Hind limbs short or long; thigh length 45–55% SVL. Inner tarsal fold discreet; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent, rarely present; discreet. Metatarsal edge with discreet dermal fold or without tubercles, folds or fringes. Postaxial edge of toe V with a discreet dermal fold. Heels

without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle absent, rarely present; indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view, flattened in profile, rarely conical in profile. Supernumerary tubercles present or absent. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1^{+}–$1^{1/2}$) - ($1^{1/2}$–2) II (1^{+}–1^{-}) - (2^{+}–2) III (1^{+}–1^{-}) - (2^{+}–2^{-}) IV (2^{+}–2^{-}) - (2^{-}–1^{-}) V.

Body dorsum skin texture smooth or tuberculate (sparse) under magnification; smooth under naked eye. Head skin texture smooth. Upper eyelid with sparse, scattered or concentrated tubercles or smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area coarsely texturized. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening present or absent; indistinct. Fringes or dermal fold below anal opening absent.

FIGURE 29. *Dendropsophus branneri* (UFVF-1792) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 20.4 mm). Ventral

view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 26. In life body dorsum pale yellow or cream or brown or whitish; blotched by large dark brown irregular shapes or completely immaculate; two small paravertebral black/greyish ocelli on the backs end, close to the anus, are always present, these ocelli are distinct but seem to be under the skin. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark or light-colored line which delimits the homogenously darkly pigmented loreal region, this dark line extends from behind the eyes through the body flank up to midbody. Lips slightly lighter colored than loreal region. Eyes iris golden yellow marked with dark reddish reticulations; an isolated white squarish blotch beneath one or both eyes present (or absent). Arms barred or covered with small blotches. Thighs immaculate or speckled. Tibia with discreet transversal bars/blotches or speckled. Thighs hidden surfaces orange or yellow; immaculate. Inguinal region whitish or orange with or without a blueish tone on the junction of the legs with the body. Ventral region white; immaculate. Gular region greenish/yellow in males, whitish in females; immaculate. Anal flap darkly pigmented or colored as the adjacent region. Region around the anal opening whitish, rarely with blue pigmentation.

Color after preservation—dorsum color progressively fades getting overall greyish or pale pink or pale brown Ventral and gular region gets pale cream. Dorsal and ventral markings such as blotches and bars generally don't fade much after preservation. Eyes iris loses bright color and becomes greyish.

FIGURE 30. *Dendropsophus branneri* female (UFVF-1798) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 11. Measurements and proportions of *Dendropsophus branneri* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=8)		Females (n=3)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	20.3 ± 2	17.5–24.6	22.7 ± 1.4	21.8–24.4
Head length	5.9 ± 0.6	5.2–7.4	6.3 ± 0.3	6–6.6
Head width	5.7 ± 0.5	4.9–6.8	6.5 ± 0.1	6.4–6.7
Snout length	2.9 ± 0.4	2.4–3.8	3.3 ± 0.1	3.2–3.3
Eye diameter	2 ± 0.2	1.7–2.6	2.1 ± 0.1	2.1–2.2
Eyelid width	1.4 ± 0.2	1.1–1.9	1.6 ± 0.2	1.4–1.7
Interorbital distance	3 ± 0.3	2.7–3.9	3.3 ± 0.7	2.8–4.1
Eye-nostril distance	1.7 ± 0.2	1.5–2.3	1.9 ± 0	1.9–1.9
Internarial distance	1.6 ± 0.2	1.2–1.9	1.9 ± 0.2	1.7–2
Tympanum diameter	0.8 ± 0.3	0.5–1.2	1.3 ± 0.4	0.9–1.7
Thigh length	9.9 ± 0.8	8.8–11.7	12.2 ± 0.8	11.7–13.1

Tibia length	10.5 ± 1.2	9.4–13.5	12.4 ± 0.6	11.8–13
Tarsus length	5.4 ± 0.8	4.4–7.3	6.7 ± 0.7	6.3–7.4
Foot length	9.2 ± 0.9	8–11.3	10.8 ± 0.7	10.1–11.6
IV toe disc width	0.9 ± 0.1	0.8–1.3	1.1 ± 0.1	1.1–1.2
Upper arm length	4.6 ± 0.4	4.1–5.3	5.1 ± 0.9	4.4–6.1
Forearm length	3.8 ± 0.5	3.1–4.9	4.5 ± 0.3	4.2–4.7
Hand length	6.2 ± 0.6	5.4–7.9	7.6 ± 0.5	7.1–8.1
III finger disc width	1 ± 0.1	0.8–1.3	1.2 ± 0.1	1–1.3
HW/HL	1 ± 0.1	0.8–1.1	1 ± 0.1	1–1.1
ED/IOD	0.7 ± 0.1	0.6–0.7	0.7 ± 0.1	0.5–0.7
TD/HL	0.1 ± 0	0.1–0.2	0.2 ± 0.1	0.1–0.3
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.5–0.5

Dendropsophus decipiens

(Table 12; Figs. 31–33)

FIGURE 31. *Dendropsophus decipiens* (UFVF-1680) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 20.4 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 5 females. Adult male SVL 16.5–20.7 mm (n = 14), adult female 21.0–22.2 mm (n = 4). Head without skin co-ossification; HW/HL = 0.9–1.3 times wider than long. Snout semicircular or rounded in dorsal view; rounded or truncate (vertical) or rounded tending to protruding or rounded tending to truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat. Interorbital area nearly flat. Internarial region depressed or nearly flat. Lips

without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 68–86% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior border and upper border pigmented, without reticulation. Nostrils slightly protuberant; laterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa present or absent; indistinct. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 9–21% head length. Supratympanic dermal fold distinct, rarely indistinct; bypassing eardrum, not reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; 1/4 or less the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 1–5. Palatine teeth absent. Maxillary teeth present. Tongue ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with a distinct dermal fold on ventrolateral surface or with distinct longitudinal line of tubercles on ventrolateral surface. Metacarpal edge with distinct dermal fold on ventrolateral surface, rarely without dermal fold. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II ($1^{1/2}$–2^{+}) - ($2^{2/3}$–3) III ($1^{2/3}$–2) - (2–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle present (rarely absent); distinct or indistinct (poorly protuberant); rounded. Subarticular tubercle I on fingers III and IV bifid or squarish in ventral view, all other rounded in ventral view; conical in profile on finger I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short to long sized; thigh length 44–51% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal

fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge without tubercles, folds or fringes. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I ($1^{2/3}$–2^{+}) - (2–2^{-}) II (1–$1^{1/2}$) - ($1^{2/3}$–2^{-}) III (1–1^{-}) - (2^{+}–$2^{1/3}$) IV (2–2^{+}) - (1–1^{-}) V.

Body dorsal skin texture smooth or sparsely tuberculated under magnification; smooth under naked eye. Head and upper eyelid skin texture smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area coarsely texturized. Pectoral fold absent. Mental, femoral and ventrolateral glands externally indistinguishable. Tibial glands present (rarely absent); scattered spots on the outer tarsal fold and on feet.

Anal opening directed posteroventrally at upper level of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening present or absent; indistinct. Fringes or dermal fold below anal opening absent.

FIGURE 32. *Dendropsophus decipiens* (UFVF-1680) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = XX.X mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 26. In life body dorsum pale brown, cream or whitish cream; homogenously speckled with brown small blotches, or, speckled and framed by an incomplete whitish stripe of variable width, or, completely covered by a whitish/cream mantle with scattered brown speckles and longitudinal lines; with or without a thin vertebral stripe. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark colored line which continues until midbody. Loreal region speckled. Lips are lightly colored when compared to the adjacent snout coloration. Eyes iris yellowish with red/brownish reticulations. Arms, thighs and tibia overall speckled, rarely immaculate. Thighs hidden surfaces orange or yellow; immaculate. Inguinal region transparent; immaculate or sparsely speckled. Ventral region whitish; immaculate. Gular region yellow in males, pale cream or whitish in females; immaculate. Anal flap slightly darker than the adjacent anal region but not darker than dorsum.

Color after preservation—dorsum color progressively fades getting overall cream or pale yellow or pale brown. Ventral and gular region gets pale cream or whitish. Dorsal and ventral markings such as blotches and bars generally don't fade much after preservation. Eyes iris loses bright color and becomes greyish.

FIGURE 33. *Dendropsophus decipiens* male (UFVF-1681) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 12. Measurements and proportions of *Dendropsophus decipiens* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=14)		Females (n=4)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	19.2 ± 1.2	16.5–20.7	21.6 ± 0.5	21–22.2
Head length	6.2 ± 0.4	5.7–6.8	6.6 ± 0.7	6–7.3
Head width	6.1 ± 0.4	5.3–6.7	7.1 ± 0.8	6.3–7.8
Snout length	3 ± 0.2	2.5–3.3	3.2 ± 0.2	2.9–3.4
Eye diameter	2.2 ± 0.1	2–2.5	2.2 ± 0.1	2.1–2.3
Eyelid width	1.4 ± 0.2	1.1–1.8	2 ± 0.5	1.6–2.6
Interorbital distance	2.9 ± 0.1	2.6–3.2	2.8 ± 0.2	2.6–3

Eye-nostril distance	1.7 ± 0.2	1.4–2.2	1.8 ± 0.4	1.3–2.2
Internarial distance	1.7 ± 0.2	1.4–2	2 ± 0.2	2–2.3
Tympanum diameter	0.9 ± 0.2	0.5–1.3	0.9 ± 0.1	0.8–1
Thigh length	9.1 ± 0.5	8.2–9.8	10.7 ± 0.2	10.5–10.9
Tibia length	9.5 ± 0.6	8.2–10.2	10.7 ± 0.7	10–11.4
Tarsus length	4.8 ± 0.7	2.8–5.6	5.7 ± 0.2	5.5–6
Foot length	7.9 ± 0.5	6.9–8.5	9.3 ± 0.3	9.1–9.8
IV toe disc width	0.9 ± 0.1	0.7–1.2	1.1 ± 0.2	0.9–1.3
Upper arm length	3.8 ± 0.4	2.9–4.3	4.1 ± 0.3	3.6–4.3
Forearm length	5.5 ± 7.9	2.5–33.1	4.1 ± 0.4	3.6–4.6
Hand length	5.6 ± 0.5	4.8–6.3	6.3 ± 0.4	5.8–6.6
III finger disc width	1 ± 0.1	0.8–1.2	1.2 ± 0.2	1–1.4
HW/HL	1 ± 0.1	0.9–1.1	1.1 ± 0.2	0.9–1.3
ED/IOD	0.8 ± 0.1	0.7–0.9	0.8 ± 0	0.7–0.8
TD/HL	0.1 ± 0	0.1–0.2	0.1 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.5–0.5

Dendropsophus elegans

(Table 13; Figs. 34–36)

FIGURE 34. *Dendropsophus elegans* (UFVF-1621) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 28.2 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 8 females. Adult male SVL 23.6–30.3 mm (n = 13), adult female 28.7–34.6 mm (n = 7). Head without skin co-ossification; HW/HL = 0.9–1.3. Snout rounded or rounded tending to truncate in dorsal view; truncate (vertical) or truncate tending to rounded in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region nearly flat. Interorbital area nearly flat. Internarial region nearly flat. Lips without spiny structures. Snout mucronation absent. Eyes prominent;

anterolaterally oriented; its diameter 50–90% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant; laterally directed (slightly dorsolaterally) directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 12–18% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical or rounded; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; separation varies from barely to widely separated; vomerine teeth's number 1–4. Palatine teeth absent. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with a distinct dermal fold on ventrolateral surface or with distinct longitudinal line of tubercles on ventrolateral surface. Metacarpal edge with distinct dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands half-webbed. Webbing formula I (2^{+}–2^{-}) - (2–2^{-}) II (0^{-}–1^{-}) - (2–2^{-}) III (2+–2^{-}) - ($1^{1/2}$–2) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; divided. Subarticular tubercle I on finger IV bifid in ventral view, all other rounded in ventral view; conical in profile on finger I, II and rarely III, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin, unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short or long; thigh length 43–55% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral

surface present or absent; discreet. metatarsal edge with discreet line of tubercles or without tubercles, folds or fringes. Postaxial edge of toe V with discreet dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (0^{-}–1^{-}) - (1^{-}–2^{+}) II (0^{-}–1) - ($1^{1/2}$–2) III (1^{+}–1^{-}) - ($1^{2/3}$–2) IV ($1^{2/3}$–2) - (1^{+}–1^{-}) V.

Body skin texture smooth under magnification; smooth under naked eye. Head and upper eyelid skin texture smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region smooth . Pectoral area smooth or coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at upper level of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 35. *Dendropsophus elegans* (UFVF-1621) adult male from Parque Estadual do

Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 28.2 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 29. In life body dorsum brownish, reddish brown or yellow brown; covered with tiny cream or yellowish spots; framed with a white or bronze, complete or incomplete (or absent), stripe of variable width, or, body completely covered by a bronze or white mantle with scattered large irregular brownish blotches; with two small paravertebral black/greyish ocelli on the backs end, close to the anus, these ocelli are distinct but seem to be under the skin. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark or light-colored line which continues after the eyes delimiting the body's dorsal framed pattern. Loreal region brownish, speckled with tiny cream spots which continues through the body flanks. Lips slightly lighter colored than adjacent region. Eyes iris reddish brown speckled with golden spots and a thin golden outline around the pupils. Arms with a large bronze or white blotch on each elbow. Thighs orange; speckled or immaculate. Thighs hidden surfaces orange; immaculate. Tibia with bronze or white single longitudinal blotch which can be interrupted and become 2 or 3 blotches on each leg. Inguinal region yellow; immaculate. Ventral region pale yellow in males, whitish in females; immaculate. Gular region bright yellow or orange in males, whitish or cream in females; immaculate. Anal flap slightly darker than the adjacent whitish anal region but not darker than dorsum.

Color after preservation—dorsum color progressively fades getting a dark brown background with clear white markings. Ventral and gular region gets cream or pale yellow. Dorsal and ventral markings such as blotches and bars don't fade after preservation, instead get strongly white colored. Eyes iris loses bright color and becomes greyish.

FIGURE 36. *Dendropsophus elegans* female (UFVF-1797) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 13. Measurements and proportions of *Dendropsophus elegans* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=13)		Females (n=07)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	28.2 ± 1.8	23.6–30.3	32.9 ± 2	28.7–34.6
Head length	8.3 ± 0.2	7.9–8.7	9.6 ± 0.3	9–9.9
Head width	9.5 ± 0.9	7.6–10.4	10.8 ± 0.6	9.5–11.4
Snout length	3.9 ± 0.3	3.2–4.3	4.1 ± 0.5	3.4–4.7
Eye diameter	2.6 ± 0.2	2.4–2.9	2.7 ± 0.1	2.6–2.8
Eyelid width	2.1 ± 0.1	1.9–2.3	2.3 ± 0.5	1.7–2.8
Interorbital distance	4 ± 0.6	2.9–4.8	3.7 ± 0.5	3–4.2
Eye-nostril distance	2.5 ± 0.3	2.2–3	2.4 ± 0.6	1.5–3.3
Internarial distance	1.8 ± 0.3	1.4–2.2	2.1 ± 0.2	1.8–2.4
Tympanum diameter	1.1 ± 0.3	0–1.3	1.5 ± 0.2	1.1–1.8
Thigh length	14.1 ± 1.1	12.3–16.2	16.6 ± 1.3	14.4–18.3

Tibia length	14.8 ± 0.9	12.4–15.9	17.7 ± 0.9	16.2–18.8
Tarsus length	7.1 ± 0.8	6.1–8.5	8 ± 0.8	7–9.4
Foot length	13.3 ± 1.3	10.4–15.3	15.6 ± 2	12.4–17.7
IV toe disc width	1.4 ± 0.2	1.1–1.7	1.7 ± 0.2	1.2–1.9
Upper arm length	5.8 ± 0.4	5.2–6.7	5.8 ± 0.9	4.3–6.8
Forearm length	5.7 ± 0.7	4.4–7	6.7 ± 0.8	6.1–8.4
Hand length	8.9 ± 0.7	7.7–10.1	10.3 ± 0.8	8.6–11.2
III finger disc width	1.6 ± 0.2	1.2–2	1.9 ± 0.3	1.3–2.1
HW/HL	1.1 ± 0.1	0.9–1.3	1.1 ± 0.1	1–1.2
ED/IOD	0.7 ± 0.1	0.5–0.9	0.7 ± 0.1	0.6–0.9
TD/HL	0.1 ± 0	0–0.2	0.2 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.5–0.5

Dendropsophus minutus

(Table 14; Figs. 37)

External Morphology—n = 9 males, 1 female. Adult male SVL 15.5–19.1 mm (n = 9), adult female 22.3 mm (n = 1). Head without skin co-ossification; HW/HL = 0.9–1.3. Snout rounded in dorsal view; obtuse (sloping) or obtuse tending to truncate in lateral view. Cranial crests absent. Canthus rostralis indistinct; rounded. Loreal region nearly flat. Interorbital area nearly flat. Internarial region slightly depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 62–94% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 12–25% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue.

Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; oblique; barely separated; vomerine teeth's number 3–6. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; rarely with discreet longitudinal line of tubercles on ventrolateral surface present. Metacarpal edge and postaxial edge of finger IV with discreet dermal fold. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands basally webbed (sometimes only with vestigial webbing between fingers I and II). Webbing formula I ($2–2^{-}$) - ($2–2^{-}$) II ($1^{1/2}–2^{-}$) - ($2^{1/2}–3^{+}$) III ($2–2^{-}$) - ($2–2^{-}$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I bifid, divided or rounded in ventral view, all other rounded in ventral view; conical in profile on finger I, II and rarely III, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short or long sized; thigh length 48–56% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Discreet tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge without tubercles, folds or fringes. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I ($1^{-}–1^{1/2}$) - ($2^{+}–2$) II ($1^{+}–1$) - ($2^{+}–2^{-}$) III ($2–2^{-}$) - ($1–1^{-}$) IV (x–x) - (x–x) V.

Body dorsum skin texture tuberculate (scattered) under magnification; smooth under naked eye. Head and upper eyelid skin texture tuberculated (scattered). Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region coarsely texturized. Pectoral area coarsely texturized. Pectoral fold present. Mental gland externally distinct. Femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal sheath present. Anal dermal crest present. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

Coloration—n = 10. In life body dorsum yellow or cream; with chevron like blotches which may or may not be delimited by a thin white stripe, or, dorsum completely speckled, or, dorsum completely immaculate; two small paravertebral black/greyish ocelli on the backs end, close to the anus are always present, these ocelli are distinct but seem to be under the skin; a thin vertebral stripe is rarely present. Interorbital region and loreal region follow the same color pattern as body dorsum. Lips with no distinct coloration. Eyes iris golden or reddish brown with yellowish/gold speckles on a pink-whitish background; golden speckles outline the pupils; with vertical/diagonal stripes beneath the eyes present (or absent). Arms with transversal bars/blotches, rarely speckled. Thighs immaculate or with few scattered speckles. Thighs hidden surfaces yellow or pallid orange; immaculate. Tibia with transversal bars/blotches, rarely speckled. Inguinal region yellow; immaculate. Ventral and gular region bright yellow in males, pallid yellow or cream in females; immaculate. Anal flap dark brown with a white stripe above.

Color after preservation—dorsum color progressively fades getting overall cream or pale pink or pale brown. Ventral and gular region gets pale cream or whitish. Dorsal and ventral markings such as blotches and fade much after preservation, but don’t disappear. Eyes iris loses bright color and becomes greyish.

FIGURE 37. *Dendropsophus minutus* male (MCNAM-4543) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 14. Measurements and proportions of *Dendropsophus minutus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=09)		Females (n=01)
	Mean ± SD	Range	Measurements
Snout-vent length	18.2 ± 1.2	15.5–19.1	22.3
Head length	6 ± 0.5	5.3–6.9	6.9
Head width	6.8 ± 0.7	5.3–7.4	8.0
Snout length	2.7 ± 0.2	2.5–3.3	3.0
Eye diameter	2 ± 0.1	1.7–2.1	2.6
Eyelid width	1.6 ± 0.3	1.2–2.3	1.7
Interorbital distance	2.4 ± 0.2	2.1–2.7	3.2
Eye-nostril distance	1.8 ± 0.3	1.5–2.3	2.4
Internarial distance	1.5 ± 0.1	1.3–1.8	1.5
Tympanum diameter	1 ± 0.3	0.8–1.8	1.1
Thigh length	9.5 ± 0.7	8.6–10.6	11.1
Tibia length	9.7 ± 0.6	8.9–10.7	12.2

Tarsus length	5.3 ± 0.4	4.8–6.2	6.1
Foot length	8.5 ± 0.6	7.4–9.5	10.2
IV toe disc width	0.9 ± 0.1	0.8–1.1	1.2
Upper arm length	3.4 ± 0.3	2.9–3.8	2.6
Forearm length	3.6 ± 0.3	3.1–4.3	6.7
Hand length	5.7 ± 0.6	4.4–6.4	6.9
III finger disc width	1 ± 0.1	0.8–1.2	1.2
HW/HL	1.1 ± 0.1	0.9–1.3	1.2
ED/IOD	0.8 ± 0.1	0.6–0.9	0.8
TD/HL	0.2 ± 0	0.1–0.3	0.2
THL/SVL	0.5 ± 0	0.5–0.6	0.5

Dendropsophus seniculus

(Table 15; Figs. 38–40)

FIGURE 38. *Dendropsophus seniculus* (UFVF-1466) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 36.9 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 5 females. Adult male SVL 30.6–40.6 mm (n = 13), adult female 33.6–40.1 mm (n = 5). Head without skin co-ossification; HW/HL = 1.0–1.3. Snout rounded in dorsal view; truncate tending to rounded, rarely obtuse (sloping) in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat. Interorbital area slightly rounded. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent;

anterolaterally oriented; its diameter 51–97% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils slightly protuberant rarely distinctly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 11–22% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac bilobate; subgular; externally distinct. Vocal slit present; almost the entire buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated or odontophores merging into one; vomerine teeth's number 7–8. Palatine teeth absent. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with scalloped fringe along ventrolateral surface. Metacarpal edge and postaxial edge of finger IV with scalloped fringe along ventrolateral surface. Axillary membrane well developed. Post axillary glands externally indistinguishable. Hands half-webbed. Webbing formula I (2–2^{-}) - (2–2^{-}) II (1^{+}–1) - (2^{+}–2) III (1$^{2/3}$–2^{+}) - (1–1$^{1/2}$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on fingers III and IV bifid or divided, all other rounded in ventral view; conical in profile on finger I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs medium to long sized; thigh length 44–59% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed, scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V with scalloped fringes along ventrolateral surfaces. Heels with a single tubercle on

each edge. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1^{+}–1) - (1–$1^{2/3}$) II (1^{+}–1^{-}) - ($1^{-}1^{2/3}$) III (0–1) - (1–$1^{1/2}$) IV (1^{-}–2) - (0^{-}–1) V.

Body dorsum skin texture tuberculate (scattered or concentrated) under magnification; smooth under naked eye. Head skin texture tuberculate (scattered or concentrated). Upper eyelid with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with scattered or concentrated tubercles or coarsely texturized. Pectoral area smooth. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest present; formed by a row of separated tubercles. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 39. *Dendropsophus seniculus* (UFVF-1619) adult male from Parque Estadual

do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 35.9 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 18. In life body dorsum yellow, brown or whitish; completely marbled. Interorbital and loreal region follow the same color pattern as body dorsum. Canthus rostralis rarely marked with a dark colored stripe. Lips slightly lighter colored than the adjacent snout. Eyes iris yellowish, covered with red reticulations; vertical or diagonal stripes beneath the eyes present (or absent). Arms marbled; with a discreet lateral dark stripe on each elbow. Axillary membrane purple; immaculate. thighs and tibia with transversal bars/blotches. Heels marked with a discreet dark stripe. Thighs hidden surfaces and inguinal region purple/magenta; immaculate. Ventral region with a pinkish or magenta background covered with whitish granules; scattered small dark blotches present (or absent). Gular region pinkish in males and whitish in females; small dark blotches present (or absent). Anal flap dark colored. Region around the anal opening cream/yellowish. White stripe above the anal flap present (or absent); very discreet.

Color after preservation—dorsal color progressively fades getting overall grey or cream colored. Ventral and gular region lose bright colors and gets pale cream or whitish. Dorsal and ventral markings such as blotches and marbled markings fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 40. *Dendropsophus seniculus* male (UFVF-1625) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 15. Measurements and proportions of *Dendropsophus seniculus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=13)		Females (n=05)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	36.1 ± 2.7	30.6–40.6	37.2 ± 2.7	33.6–40.1
Head length	9.8 ± 0.4	9.1–10.5	10.9 ± 1	9.8–12
Head width	11.4 ± 0.8	10.1–12.8	12.3 ± 1.2	11–13.9
Snout length	4.3 ± 0.6	3.3–5	5.2 ± 0.6	4.6–5.9
Eye diameter	3 ± 0.2	2.7–3.5	2.9 ± 0.1	2.7–3
Eyelid width	3 ± 0.2	2.7–3.5	2.9 ± 0.5	2.3–3.7
Interorbital distance	3.7 ± 0.5	3.1–5	4.5 ± 0.9	3.4–6
Eye-nostril distance	2.7 ± 0.5	1.8–3.4	3.1 ± 0.3	2.8–3.4
Internarial distance	2.5 ± 0.3	2.1–3.1	2.9 ± 0.2	2.6–3.1
Tympanum diameter	1.9 ± 0.3	1.5–2.3	1.6 ± 0.3	1.1–2
Thigh length	17.4 ± 1.1	16–19.9	18.1 ± 2.2	14.7–19.7

Tibia length	17.4 ± 1.2	15.4–19.3	18.4 ± 0.9	17.4–19.5
Tarsus length	8.8 ± 0.9	7.3–10.6	8.7 ± 1	7.9–10.4
Foot length	14.7 ± 4	2.3–18	17.1 ± 2.2	13.4–18.8
IV toe disc width	1.9 ± 0.2	1.5–2.2	2 ± 0.6	1.3–2.8
Upper arm length	6.9 ± 0.8	5.1–8	7.2 ± 0.8	6.1–8
Forearm length	7 ± 0.9	5.1–8.6	7.7 ± 1.3	5.6–8.7
Hand length	11.6 ± 0.8	10.4–13.2	11.8 ± 1.5	9.2–12.9
III finger disc width	2.1 ± 0.3	1.7–2.7	2.2 ± 0.5	1.6–2.9
HW/HL	1.2 ± 0.1	1–1.3	1.1 ± 0	1.1–1.2
ED/IOD	0.8 ± 0.1	0.6–1	0.7 ± 0.1	0.5–0.9
TD/HL	0.2 ± 0	0.2–0.2	0.1 ± 0	0.1–0.2
THL/SVL	0.5 ± 0	0.5–0.6	0.5 ± 0	0.4–0.6

Itapotihyla langsdorffii

(Table 16; Figs. 41–43)

FIGURE 41. *Itapotihyla langsdorffii* (UFVF-1513) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 83.8 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 9 males, 6 females. Adult male SVL 67.2–90.2 mm (n = 9), adult female 77.7–119.5 mm (n = 6). Head without skin co-ossification; HW/HL = 0.8–1.1. Snout rounded in dorsal view; acuminate in lateral view. Supratympanic cranial crests present. Canthus rostralis distinct; angular. Loreal region concave. Interorbital area slightly depressed or nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its

diameter 53–100% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins distinctly scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 14–21% head length. Supratympanic dermal crest distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac paired; sub gular; externally distinct. Vocal slit present; 1/4 or less the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 6–12. Palatine teeth present; almost straight row located beneath choanae. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with scalloped fringe along ventrolateral surface. Metacarpal edge and postaxial edge of finger IV with scalloped fringe along ventrolateral surface. Axillary membrane poorly developed. Post axillary glands distinct (one or more cream colored spot). Hands half-webbed (only with vestigial webbing between finger I and II). Webbing formula I–II ($1–1^{-}$) - ($2–2^{-}$) III ($1^{1/2}–2$) - ($1^{1/2}–2^{+}$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on finger III squarish or rounded in ventral view, on finger IV squarish in ventral view, all other rounded in ventral view; conical in profile on finger I, rarely flattened, conical on finger II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; dark colored. Prepollical spine absent.

Hind limbs short or long sized; thigh length 49–59% SVL. Inner tarsal fold indistinct or distinct; extending from the heel to the basis of the inner tubercle, sometimes not reaching the basis of the inner tubercle or sometimes formed by a row of small tubercles. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; with scalloped fringes along ventrolateral surfaces. Tubercle row along tarsus

ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V with scalloped fringes along ventrolateral surfaces. Heels with distinct fringe continuous with the external tarsal fold. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded or squarish in ventral view; conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (0^{-}–1) - (1–2^{+}) II (0^{-}–1) - ($1^{1/2}$–2) III (0^{-}–1) - ($1^{1/2}$–2^{+}) IV ($0^{-}$$2^{+}$) - ($0^{-}$–1) V.

Body dorsum skin texture tuberculate (scattered) under magnification; tuberculate under naked eye. Head skin texture tuberculate (scattered). Upper eyelid with concentrated tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area tuberculate (sparse or scattered). Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at upper level of thighs. Anal sheath present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes below anal opening present.

FIGURE 42. *Itapotihyla langsdorffii* (UFVF-1513) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 83.8 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 15. In life body dorsum green on a yellowish background with scattered yellowish tubercles all over the body; covered with large dark green marbled stains, or, immaculate. interorbital and loreal region follows the same color pattern as the body dorsum. Lips follow the same color pattern as the adjacent snout. Eyes iris bright yellow with black reticulations. Arms with transversal bars/blotches, rarely as dorsum. Axillary region and inner side of the arms light green, immaculate. Thighs and tibia with transversal bars/blotches, or, immaculate, or, as dorsum. Thighs hidden surfaces orange; immaculate. Inguinal region greenish and/or orange and/or blueish; immaculate. Ventral region light green and orange. Gular region yellowish green in males, light green in females; immaculate. Area surrounding anal opening white.

Color after preservation—dorsal color progressively fades getting overall pale orange, or, cream, or, greyish colored. Ventral and gular region lose bright colors and gets pale cream or whitish. Dorsal and ventral markings such as blotches, barres and

marbled markings fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 43. *Itapotihyla langsdorffii* male (UFVF-1537) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 16. Measurements and proportions of *Itapotihyla langsdorffii* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=09)		Females (n=06)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	80.4 ± 7.5	67–90.2	102.3 ± 14	77.7–119.5
Head length	25.1 ± 1.9	21.5–27.1	30.1 ± 2.4	25.7–32.2
Head width	24.6 ± 2.1	21–27.6	31.6 ± 4	24.3–35.8
Snout length	11.8 ± 1.6	9.5–14.9	15.2 ± 2.7	11.6–19.4
Eye diameter	7.1 ± 0.8	5.9–8.6	10.1 ± 1.3	8.3–11.8
Eyelid width	6.8 ± 1.2	5–8.1	8.6 ± 1.4	5.9–9.8
Interorbital distance	9.5 ± 1	8.3–11.1	12 ± 1.9	9.2–13.6
Eye-nostril distance	7 ± 1.2	5.2–9	9.8 ± 1.8	7.6–12.6
Internarial distance	5.9 ± 0.7	4.7–6.9	6.6 ± 1.2	4.7–7.8
Tympanum diameter	4.4 ± 0.5	3.3–5	5.8 ± 0.5	5.2–6.5

Thigh length	42.8 ± 4.8	35.8–49.5	53.3 ± 5.9	43–59.2
Tibia length	44.4 ± 4	37–48.1	57.4 ± 8	42.6–64.2
Tarsus length	20.7 ± 1.9	18.3–23.5	26.6 ± 2.5	22.8–30.2
Foot length	35.2 ± 4.6	28.2–42.4	42.2 ± 6.8	32.9–52
IV toe disc width	4.3 ± 0.4	3.5–4.9	5.5 ± 1.1	4–6.6
Upper arm length	13.6 ± 2.5	8.2–16.2	12.8 ± 1.8	9.6–14.7
Forearm length	13.9 ± 1.4	10.9–15.5	14.4 ± 2.5	10.9–17.4
Hand length	26.5 ± 3.3	20.7–30.5	32 ± 4.2	25.1–37.6
III finger disc width	5.1 ± 0.7	3.8–5.8	6.7 ± 1	5.6–8.5
HW/HL	1 ± 0.1	0.8–1.1	1 ± 0.1	0.9–1.1
ED/IOD	0.8 ± 0.1	0.5–1	0.9 ± 0.1	0.7–0.9
TD/HL	0.2 ± 0	0.1–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.6	0.5 ± 0	0.5–0.6

Ololygon argyreornata

(Table 17; Figs. 44)

External Morphology—n = 3 males, 2 females. Adult male SVL 17.0–18.3 mm (n = 3), adult female 21.1–22.2 mm (n = 2). Head without skin co-ossification; HW/HL = 1.0. Snout mucronate or rounded tending to mucronate in dorsal view; acute or acute tending to strongly acute in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation present. Eyes prominent; anterolaterally oriented; its diameter 64–89% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa indistinct. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); dorsolaterally directed; nearly round; its diameter 17–21% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the

tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated; vomerine teeth's number 3– 4. Palatine teeth absent. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with distinct longitudinal line of tubercles on ventrolateral surface or without dermal folds/fringes or tubercle rows. Metacarpal edge with a discreet dermal fold on ventrolateral surface or without any tubercles or dermal fold. Postaxial edge of finger IV with discreet dermal fold or without any tubercles or dermal folds. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed (only with vestigial webbing between fingers). Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on fingers IV rounded or squarish in ventral view, all other rounded in ventral view; conical in profile on fingers I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins without fimbria or discreetly fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short; thigh length 45–48% SVL. Inner tarsal fold indistinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge with distinct dermal fold or with distinct line of tubercles. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded in dorsal view and distinctly conical in lateral view. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical. Feet basally webbed (only with vestigial webbing between toes I and II). Toe margins fimbriated. Webbing formula I–II (2^{+}–2) - (2–2^{-}) III ($1^{1/2}$–2) - (2–2^{-}) IV (2–2^{-}) - (2^{+}–2) V.

Body dorsum skin texture tuberculate (scattered) under magnification; tuberculate under naked eye. Head skin texture tuberculated (scattered). Upper eyelid with few sparse tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area coarsely texturized. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

Coloration—n = 5. In life body dorsum brown or cream; with two longitudinal arc shaped blotches on each side of the dorsum present or absent, giving an overall x-shaped or constricted look to the clearer colored region present in between those blotches; chevron shaped blotch on the posterior region of the dorsum present. Interorbital region with a roughly W-like blotch. Loreal region follows the same color pattern as the body dorsum. Lips barred. Eyes iris pale pink with black reticulations; a gold/orange line outlines the pupils; a black entrance reaching from the pupils into the iris lower margin present; with vertical or diagonal stripes beneath the eyes present (or absent). Arms, thighs and tibia with transversal bars/blotches. Inguinal region, axillary region and inner side of the arms and thighs hidden surfaces dark purple, almost black; covered with bright orange blotches. Ventral region pale pink covered with white granules; with brown blotches entering the pectoral region present (or absent). Gular region green or yellow-green in males; pale brown or cream in females; covered with white granules; with scattered small brown blotches, or, immaculate. Anal flap dark brown.

Color after preservation—dorsal color progressively fades getting overall pallid brown or cream colored. Ventral and gular region gets pale cream. Dorsal and ventral markings such as blotches and barres fade, but do not disappear. Eyes iris loses bright color and becomes greyish.

FIGURE 44. *Ololygon argyreornata* male (MZUFV-2573) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 17. Measurements and proportions of *Ololygon argyreornata* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=03)		Females (n=02)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	17.6 ± 0.7	17–18.3	21.6 ± 0.8	21.1–22.2
Head length	5.9 ± 0.2	5.7–6.2	6.9 ± 0.3	6.7–7.1
Head width	6.3 ± 0.2	6–6.4	7 ± 0.4	6.7–7.3
Snout length	3.3 ± 0.1	3.2–3.3	4.1 ± 0.2	4–4.2
Eye diameter	1.6 ± 0.1	1.5–1.7	1.8 ± 0.3	1.6–2.1
Eyelid width	1.4 ± 0.2	1.2–1.6	1.6 ± 0.3	1.3–1.8
Interorbital distance	2.3 ± 0.3	2–2.6	2.2 ± 0.1	2.2–2.3
Eye-nostril distance	2.2 ± 0.1	2.1–2.3	2.8 ± 0.1	2.8–2.9
Internarial distance	1.4 ± 0.1	1.3–1.5	1.5 ± 0.1	1.5–1.5
Tympanum diameter	1 ± 0	0.9–1	1.4 ± 0.1	1.4–1.5
Thigh length	8.2 ± 0.4	7.8–8.7	9.9 ± 0.2	9.8–10.1
Tibia length	9.7 ± 0.4	9.5–10.2	11.5 ± 0.1	11.4–11.5

Tarsus length	4.9 ± 0.3	4.6–5.1	6.2 ± 0.1	6.1–6.3
Foot length	7 ± 0.4	6.6–7.3	7.9 ± 0	7.8–7.9
IV toe disc width	0.9 ± 0.1	0.8–1	1 ± 0.2	0.9–1.1
Upper arm length	3 ± 0.5	2.5–3.6	3.7 ± 0.1	3.7–3.8
Forearm length	3 ± 0.1	2.9–3	3.5 ± 0.5	3.1–3.9
Hand length	4.6 ± 0.5	4.1–5.1	5 ± 0.7	4.6–5.5
III finger disc width	0.9 ± 0.2	0.7–1.1	1.2 ± 0.3	1–1.3
HW/HL	1.1 ± 0	1–1.1	1 ± 0	1–1
ED/IOD	0.7 ± 0.1	0.6–0.8	0.8 ± 0.1	0.7–0.9
TD/HL	0.2 ± 0	0.2–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.5–0.5

Ololygon carnevallii

(Table 18; Figs. 45)

External Morphology—n = 5 males, 5 females. Adult male SVL 19.5–25.9 mm (n = 5), adult female 26.7–35.1 mm (n = 4). Head without skin co-ossification; HW/HL = 1.0–1.1. Snout mucronate or rounded tending to mucronate in dorsal view; acute in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region slightly concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation present. Eyes prominent; anterolaterally oriented; its diameter 62–98% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins rarely discreetly scalloped. Upper margin of nasal fossa indistinct. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 8–22% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally indistinct. Vocal slit present; about 1/3 of the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between

choanae; oblique; barely separated; vomerine teeth's number 3–5. Palatine teeth absent. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with a distinct longitudinal line of tubercles on ventrolateral surface. Metacarpal edge with distinct dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed (only with vestigial webbing between fingers). Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on fingers IV bifid or rounded in ventral view, all other rounded in ventral view; conical in profile on fingers I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through transparent skin. Prepollical spine absent.

Hind limbs short or long; thigh length 48–58% SVL. Inner tarsal fold indistinct; extending from the heel to the basis of the inner tubercle, sometimes not reaching the basis of the inner tubercle, rarely absent. Transversal dermal fold at the basis of the feet absent. Outer tarsal absent. Discreet tubercle row along tarsus ventrolateral surface present or absent. Metatarsal edge with discreet line of tubercles or without tubercles, folds or fringes. Postaxial edge of toe V with distinct dermal fold. Heels with pronounced cumuli of tubercles. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical. Feet basally webbed (only with vestigial webbing between toes I and II). Toe margins fimbriated. Webbing formula I–II (2^{+}–2) - ($1^{2/3}$–2) III ($1^{1/3}$–$1^{1/2}$) - (2^{+}–2-) IV (2^{+}–$2^{2/3}$) - (1^{-}–$1^{1/2}$) V.

Body dorsum skin texture tuberculate (scattered) under magnification; smooth or tuberculate under naked eye. Head skin texture tuberculated (scattered). Upper eyelid with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with concentrated tubercles. Pectoral area tuberculated (scattered or concentrated). Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent or present; formed by a row of separated tubercles. Tubercles around the anal opening present (rarely absent); distinct. Fringes or dermal fold below anal opening absent.

Coloration—n = 10. In life body dorsum pallid yellow with a greenish haze or dark green with blackish markings; two longitudinal arc shaped blotches on each side of the dorsum are present (or absent), giving an overall x-shaped/constricted look to a clearer colored region in between those blotches, or, irregular large blotches scattered all over the body, some chevron shaped. Interorbital region with a roughly W-like, or, triangular-shaped, or, pentagonal shaped dark blotch. Loreal region follows the same color pattern as the body dorsum. Lips barred or with same pattern as adjacent snout. Eyes iris pale pink; covered with black short lines and speckles; a yellow haze outlines the pupils; a central vertical and central horizontal black stripe crosses the eye iris giving it a +-shaped mark; vertical or diagonal stripes beneath the eyes present or absent. Arms with transversal bars/blotches. Thighs and tibia with transversal bars/blotches. Inguinal region with large rounded blotches. Ventral region with scattered small irregular blotches, rarely immaculate. Gular region with scattered small irregular blotches, rarely immaculate. Anal flap with dark brown or blackish pigmentation. Region surrounding the anal opening dark brown.

Color after preservation—dorsal color progressively fades getting overall grey or cream colored. Ventral and gular region gets pale cream or whitish. Dorsal and ventral markings such as blotches and marbled markings fade, but do not disappear. Eyes iris loses bright color and becomes greyish.

FIGURE 45. *Ololygon carnevallii* male (MZUFV-752) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 18. Measurements and proportions of *Ololygon carnevallii* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=05)		Females (n=04)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	24 ± 2.6	19.5–25.9	31.3 ± 4.1	26.7–35.1
Head length	7.8 ± 1	6.3–8.9	10.3 ± 1.2	8.6–11.2
Head width	8.4 ± 0.7	7.2–9.1	10.5 ± 1.7	8.2–11.9
Snout length	5.7 ± 4.4	3.1–13.6	5.1 ± 0.9	4–6.1
Eye diameter	2.3 ± 0.3	1.8–2.6	2.8 ± 0.4	2.4–3.2
Eyelid width	2.3 ± 0.6	1.4–2.8	2.4 ± 0.1	2.3–2.5
Interorbital distance	2.9 ± 0.2	2.5–3.1	3.6 ± 0.8	2.7–4.4
Eye-nostril distance	2.8 ± 0.6	2.1–3.3	3.5 ± 0.7	2.7–4.2
Internarial distance	2.3 ± 1	1.5–4.1	2.4 ± 0.4	1.8–2.6
Tympanum diameter	1 ± 0.5	0.6–1.7	1.4 ± 0.2	1.2–1.7
Thigh length	12.5 ± 1.5	9.7–13.3	16.1 ± 2.4	13.4–19.1
Tibia length	13.3 ± 1.5	10.9–14.4	17.6 ± 2.2	14.9–19.5

Tarsus length	7.3 ± 0.9	5.7–7.9	9.7 ± 1.7	7.6–11.7
Foot length	9.7 ± 1.4	7.2–10.7	12.8 ± 1.4	11.2–14.3
IV toe disc width	1 ± 0.2	0.7–1.3	1.4 ± 0.3	1–1.7
Upper arm length	3.8 ± 0.5	3.1–4.3	4.9 ± 0.5	4.7–5.7
Forearm length	4.5 ± 0.6	3.8–5.1	6.5 ± 0.8	5.7–7.6
Hand length	7 ± 0.9	5.5–7.8	8.8 ± 1.3	7.2–10.3
III finger disc width	1.1 ± 0.2	0.8–1.3	1.6 ± 0.3	1.3–2.1
HW/HL	1.1 ± 0.1	1–1.2	1 ± 0.1	1–1.1
ED/IOD	0.8 ± 0.2	0.6–1	0.8 ± 0.1	0.7–0.9
TD/HL	0.1 ± 0.1	0.1–0.2	0.1 ± 0	0.1–0.1
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.5–0.5

Scinax cuspidatus

(Table 19; Figs. 46–48)

FIGURE 46. *Scinax cuspidatus* (UFVF-1922) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 31.2 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 13 males, 2 females. Adult male SVL 19.5–33.3 mm (n = 14), adult female 27.9–29.4 mm (n = 3). Head without skin co-ossification; HW/HL = 1.0–1.3. Snout mucronate or rounded tending to mucronate in dorsal view; acute in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat or slightly concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation present. Eyes prominent;

anterolaterally oriented; its diameter 61–131% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins with a small fleshy appendage. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 13–27% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated; vomerine teeth's number 3–7. Palatine teeth absent. Maxillary teeth present. Tongue lanceolate tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with distinct longitudinal line of tubercles on ventrolateral surface. Metacarpal edge with distinct dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II (2^{+}–2^{-}) - (3–3^{-}) III (3^{+}–3^{-}) - (2–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid or divided. Subarticular tubercle I on fingers IV bifid or squarish, all other rounded in ventral view; conical in profile on finger I, II, and rarely III, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; unpigmented. Prepollical spine absent.

Hind limbs short; thigh length 39–50% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge with distinct dermal fold or with distinct line of tubercles. Postaxial edge of toe V with distinct dermal fold. Heels with

pronounced cumuli of tubercles. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical. Feet half-webbed. Toe margins fimbriated. Webbing formula I (2^{+}–2) - (2^{+}–2^{-}) II (1^{+}–1^{-}) - (2^{+}–2^{-}) III (1–1^{-}) - (2^{+}–2^{-}) IV (1^{-}–2^{-}) - (1^{+}–2^{-}) V.

Body dorsum skin texture tuberculate (concentrated) under magnification; smooth under naked eye. Head skin texture tuberculated (scattered). Upper eyelid with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area coarsely texturized, rarely smooth. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening absent, rarely present; distinct. Fringes or dermal fold below anal opening absent.

FIGURE 47. *Scinax cuspidatus* (UFVF-1922) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 31.2 mm). Ventral view

(top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 17. In life body dorsum yellow or pale brown; with scattered small and medium sized irregular dark brown or greyish blotches and two larger dorsolateral longitudinal blotches extending to midbody present (rarely absent); Larger blotches are delimited by a thin even darker line, or, body overall immaculate with few scattered small greyish blotches. Interorbital region with a roughly triangular or pentagonal shaped blotch. Canthus rostralis marked with a dark colored stripe. Loreal region and lips immaculate or speckled with small greyish blotches. Eyes iris bright red/orange with black reticulations and a small black entrance from the pupils on the iris lower margin. Arms, thighs and tibia with transversal bars/blotches or speckled, rarely immaculate. Thighs hidden surfaces and inguinal region with a pinkish and purple background and faint yellowish blotches; vermiculated or speckled, rarely immaculate. Ventral region pale yellow in males, whitish in females; immaculate or with pectoral region speckled with small blotches. Gular region bright yellow in males, cream in females. Anal flap pigmented as the adjacent region.

Color after preservation—dorsal color progressively fades getting overall grey or pale brown. Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as blotches and barres fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 48. *Scinax cuspidatus* male (UFVF-1922) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 19. Measurements and proportions of *Scinax alter* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=14)		Females (n=03)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	28 ± 4.1	19.5–33.3	28.5 ± 0.8	27.9–29.4
Head length	9.4 ± 0.6	8.3–10.9	9.3 ± 0.5	8.7–9.6
Head width	10.3 ± 0.7	9.1–11.4	10.2 ± 0.4	9.9–10.7
Snout length	4.7 ± 0.8	3–5.2	5.6 ± 0.5	5.2–6.2
Eye diameter	2.5 ± 0.3	2.1–3	2.5 ± 0.2	2.3–2.7
Eyelid width	2.2 ± 0.3	1.8–2.7	2.3 ± 0.2	2.1–2.4
Interorbital distance	3.3 ± 0.5	2.1–4.1	3.5 ± 0.2	3.3–3.7
Eye-nostril distance	3.3 ± 0.4	1.9–3.8	3.7 ± 0.1	3.6–3.9
Internarial distance	1.9 ± 0.3	1.5–2.6	2 ± 0.3	1.8–2.3
Tympanum diameter	1.7 ± 0.4	1.2–2.6	1.9 ± 0.2	1.7–2
Thigh length	12.9 ± 1.7	9.6–14.9	13 ± 0.6	12.6–13.8
Tibia length	14.3 ± 1.6	9.8–16.6	14.3 ± 0.7	13.6–15.1

Tarsus length	8.3 ± 3.3	5.1–19	7.4 ± 0.7	6.8–8.1
Foot length	13.1 ± 4.4	7.6–27.2	12 ± 0.3	11.6–12.2
IV toe disc width	1.5 ± 0.4	0.9–2.5	1.4 ± 0.2	1.3–1.6
Upper arm length	4.7 ± 1.1	3.2–7.7	4.9 ± 0.1	4.8–5.1
Forearm length	5 ± 1.8	3.1–10.9	4.7 ± 0.4	4.3–5
Hand length	8.8 ± 3.1	3.2–17.8	7.4 ± 2.1	5.1–9
III finger disc width	1.6 ± 0.4	1.1–2.7	1.4 ± 0.2	1.3–1.6
HW/HL	1.1 ± 0.1	0.9–1.2	1.1 ± 0	1.1–1.1
ED/IOD	0.8 ± 0.2	0.6–1.3	0.7 ± 0.1	0.6–0.8
TD/HL	0.2 ± 0	0.1–0.3	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.4–0.5

Scinax eurydice

(Table 20; Figs. 49–51)

FIGURE 49. *Scinax eurydice* (UFVF-1656) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 44.5 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 5 females. Adult male SVL 39.0–48.4 mm (n = 14), adult female 35.6–46.9 mm (n = 11). Head without skin co-ossification; HW/HL = 1.0–1.13. Snout rounded, rarely rounded tending to pointed in dorsal view; rounded or protruding in lateral view. Cranial crests absent. Canthus rostralis distinct; angular or rounded. Loreal region nearly flat or slightly concave. Interorbital area nearly flat or slightly rounded. Internarial region depressed. Lips without spiny structures. Snout

mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 41–99% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior half and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins discreetly scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 13–22% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 2/3 of the buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated; vomerine teeth's number 4–11. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with discreet longitudinal line of tubercles on ventrolateral surface. Metacarpal edge and postaxial edge of finger IV with a discreet dermal fold on ventrolateral surface. Axillary membrane absent. Post axillary glands present or absent; discreet; one or more cream colored spot. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II (2^{+}–2) - (3–3^{-}) III (3^{+}–3) - (2–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I on fingers IV squarish in ventral view; all other rounded in ventral view; conical in profile on finger I, II and rarely III, flattened in profile on finger III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I (absent in females); with thickened skin; unpigmented. Prepollical spine absent.

Hind limbs short or long; thigh length 46–52% SVL. Inner tarsal fold discreet; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface absent, rarely present; discreet. Metatarsal edge with discreet line of tubercles or

without tubercles, folds or fringes. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet basally webbed. Toe margins fimbriated. Webbing formula I (2^{+}–2) - (2^{+}–2) II (1^{+}–1) - (2^{+}–2) III (0^{-}–1) - (2^{+}–2) IV (2^{+}–2) - (1^{+}–2) V.

Body dorsum skin texture smooth or tuberculate (scattered) under magnification; smooth under naked eye. Head skin texture smooth or tuberculated (sparse). Upper eyelid with few sparse or scattered tubercles or smooth. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with scattered tubercles or smooth. Pectoral area smooth or coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 50. *Scinax eurydice* (UFVF-1593) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 46.2 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 25. In life body dorsum yellow, brown or cream colored; with scattered dark brown or greyish blotches and one large dorsolateral slightly arched longitudinal blotch on each side of the body, reaching from behind the eyes up to midbody (all blotches are contoured/delimited by a darker line), or, dorsum overall immaculate; two small paravertebral black/greyish ocelli on the backs end, close to the anus, are rarely absent, these ocelli are distinct but seem to be under the skin. Interorbital region with a roughly W-like blotch delimited by a darker line. Canthus rostralis marked with a dark colored stripe. Loreal region follows the same color pattern as the body dorsum. Lips are lightly colored when compared to the adjacent snout coloration. Eyes iris golden yellow; with black reticulations; and a small black entrance reaching from the pupils into the iris lateral and lower margins. Arms with transversal bars/blotches, or, speckled, or with irregular scattered blotches. Thighs with transversal bars/blotches or blotched. Tibia with transversal bars/blotches present, rarely absent. Inguinal region, thighs hidden surfaces, axillary region and inner side of the arms with a

pinkish or purplish background covered with orange or yellow or dark yellow blotches with an anastomosed pattern. Ventral region bright yellow in males, pale yellow or cream or whitish in females; immaculate. Gular region bright yellow in males, whitish in females; immaculate. Anal flap slightly darker colored than the adjacent region.

Color after preservation—dorsal color progressively fades getting overall grey or pale brown. Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as blotches and barres fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 51. *Scinax eurydice* female (UFVF-1365) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 20. Measurements and proportions of *Scinax Eurydice* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=14)		Females (n=11)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	44.5 ± 2.7	39–48.4	43.4 ± 3.3	35.6–46.9
Head length	14.2 ± 0.8	12.7–15.6	13.1 ± 1.1	10.4–14.7
Head width	14.7 ± 0.9	13.4–16.3	14.2 ± 1.3	11.6–16

Snout length	8.3 ± 4	5.9–22	7.1 ± 0.6	6.1–8
Eye diameter	3.2 ± 0.2	2.8–3.6	3.1 ± 0.3	2.7–3.4
Eyelid width	3.3 ± 0.4	2.8–4.1	3.4 ± 0.5	2.5–4.1
Interorbital distance	5.6 ± 1	3.2–7.6	5 ± 0.4	4.2–5.6
Eye-nostril distance	4.8 ± 0.5	4.2–6.1	4.6 ± 0.4	3.9–5.3
Internarial distance	3.3 ± 1.2	2.6–7.3	2.9 ± 0.3	2.5–3.5
Tympanum diameter	2.3 ± 0.3	1.9–2.9	2.5 ± 0.3	2.2–2.9
Thigh length	21.4 ± 1	19.9–23.6	21.4 ± 2.2	16.2–23.8
Tibia length	22.8 ± 1.1	20.8–25.2	22.4 ± 1.7	18.1–24.4
Tarsus length	10.8 ± 0.6	9.7–11.7	10.8 ± 1	8.3–11.7
Foot length	19.9 ± 1	18.4–21.6	19.8 ± 1.6	16.4–22.3
IV toe disc width	2.4 ± 0.3	1.8–3.1	2.2 ± 0.3	1.7–2.7
Upper arm length	6.3 ± 0.5	5.7–7.3	7 ± 0.7	5.7–8
Forearm length	7.5 ± 0.6	6.3–8.2	7.4 ± 0.6	6.2–8.2
Hand length	13.5 ± 1	12.2–15	13.4 ± 1.3	10.2–15.3
III finger disc width	2.6 ± 0.3	2.2–3.2	2.5 ± 0.2	2.2–2.8
HW/HL	1 ± 0	1–1.1	1.1 ± 0	1–1.1
ED/IOD	0.6 ± 0.1	0.4–1	0.6 ± 0.1	0.5–0.7
TD/HL	0.2 ± 0	0.1–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.5–0.5

Scinax fuscomarginatus

(Table 21; Figs. 52–54)

FIGURE 52. *Scinax fuscomarginatus* (UFVF-1558) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 21.0 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 15 males. Adult male SVL 17.4–27.2 mm (n = 13). Head without skin co-ossification; HW/HL = 0.8–1.2. Snout pointed in dorsal view; acute in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat or slightly concave. Interorbital area nearly flat. Internarial region depressed. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 42–86% eye-nostril distance. Pupils elliptical;

horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum distinct (tympanum well visible, but tympanic annulus less visible); laterally directed; nearly round; its diameter 14–32% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; oblique or slightly arc-shaped; oblique; barely separated or odontophores may merge into one; vomerine teeth's number 3–5. Palatine teeth absent. Maxillary teeth present. Tongue cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with discreet longitudinal line of tubercles on ventrolateral surface present, rarely absent. Metacarpal edge with a discreet dermal fold on ventrolateral surface. Postaxial edge of finger IV with discreet dermal fold. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed (only with vestigial webbing between finger I and II). Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I on finger IV squarish or rounded, all other rounded in ventral view; conical in profile on finger I, II and rarely III, flattened in profile on finer III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); without thickened skin; unpigmented; with acinar glands visible through the transparent skin. Prepollical spine absent.

Hind limbs short; thigh length 41–46% SVL. Inner tarsal fold discreet or distinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Small transversal dermal fold extending from the base of the inner tubercle to the base of finger III present (rarely absent). Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge without tubercles, folds or fringes. Postaxial edge of toe V with discreet dermal

fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical. Feet basally webbed. Toe margins fimbriated. Webbing formula I (2^{+}–2^{-}) - (2^{+}–2^{-}) II (1^{-}–$1^{2/3}$) - (2^{+}–2^{-}) III (2–1^{-}) - (2–$2^{1/3}$) IV (2–$2^{2/3}$) - (1–1^{-}) V.

Body dorsum skin texture tuberculate (concentrated), rarely tuberculate (scattered) under magnification; smooth under naked eye. Head skin texture tuberculated (scattered or concentrated). Upper eyelid with concentrated tubercles, rarely with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 53. *Scinax fuscomarginatus* (UFVF-1558) adult male from Parque Estadual do

Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 21.0 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 14. In life body dorsum brownish grey; with a large central light-colored band crossing longitudinally through the body; divided by a thin vertebral stripe; with two large dark dorsolateral bands. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark colored strip. Loreal region light colored; speckled. Lips are lightly colored when compared to the adjacent snout coloration. Eyes iris reddish brown; speckled and reticulated by black markings; a golden line contours the pupils; a small black entrance reaches from the pupils into the iris lateral and lower margins. Arms speckled with few scattered blotches. Thighs and tibia vermiculated. Thighs hidden surfaces and inguinal region grey; vermiculated and speckled with dark spots. The dorsal dark body coloration abruptly changes to a whitish/grey ventral pattern. Ventral region pale yellow or cream; immaculate. Gular region bright yellow in males; immaculate. Anal flap as adjacent region. Region around the anal opening whitish.

Color after preservation—dorsal color progressively fades getting overall grey or pale brown. Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as blotches and barres fade, but do not disappear. Eyes iris loses bright color and becomes greyish.

FIGURE 54. *Scinax fuscomarginatus* male (UFVF-1559) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 21. Measurements and proportions of *Scinax fuscomarginatus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=13)	
	Mean ± SD	Range
Snout-vent length	24 ± 3.2	17.4–27.2
Head length	7.3 ± 0.6	6.6–8.7
Head width	7.8 ± 1	5.5–8.9
Snout length	4.1 ± 0.7	3.1–5.1
Eye diameter	1.8 ± 0.2	1.6–2.3
Eyelid width	1.6 ± 0.4	1.2–2.3
Interorbital distance	3 ± 0.7	2–3.8
Eye-nostril distance	2.5 ± 0.3	2–3
Internarial distance	1.6 ± 0.3	1.1–1.9
Tympanum diameter	1.6 ± 0.4	1–2.4
Thigh length	10.6 ± 1.6	7.9–12.4
Tibia length	11.7 ± 1.3	9.9–13.3

Tarsus length	5.9 ± 1.1	3.7–7.2
Foot length	9.6 ± 1.9	6.2–11.7
IV toe disc width	1 ± 0.3	0.4–1.2
Upper arm length	3.8 ± 0.4	3–4.6
Forearm length	4.5 ± 0.6	3.6–5.3
Hand length	6 ± 1	4.3–7.3
III finger disc width	1 ± 0.2	0.6–1.2
HW/HL	1.1 ± 0.1	0.8–1.2
ED/IOD	0.6 ± 0.1	0.4–0.9
TD/HL	0.2 ± 0	0.1–0.3
THL/SVL	0.4 ± 0	0.4–0.5

Scinax fuscovarius

(Table 22; Figs. 55–57)

FIGURE 55. *Scinax fuscovarius* (UFVF-1700) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 45.1 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 10 males, 5 females. Adult male SVL 43.0–47.6 mm (n = 12), adult female 45.4–47.9 mm (n = 4). Head without skin co-ossification; HW/HL = 1.0–1.2. Snout pointed, tending to rounded in dorsal view; rounded or acuminate tending to rounded in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region slightly concave. Interorbital area nearly flat or slightly rounded. Internarial region depressed. Lips with tiny spines all over the snout (only visible under

magnification). Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 65–99% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 16–21% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 7–9. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with discreet longitudinal line of tubercles on ventrolateral surface or without dermal folds/fringes or tubercle rows. Metacarpal edge with a discreet dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane absent. Post axillary glands present or absent; discreet; one or more cream colored spots. Hands unwebbed (only with a remnant of membrane between fingers). Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I on finger IV squarish or rounded in ventral view, all other rounded in ventral view; conical in profile on finger I, II and rarely III, flattened in profile on finger III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; unpigmented. Prepollical spine absent.

Hind limbs short or long; thigh length 46–54% SVL. Inner tarsal fold discreet or distinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle or formed by a row of small tubercles. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus

ventrolateral surface absent. Metatarsal edge with distinct or discreet dermal fold or with discreet line of tubercles. Postaxial edge of toe V with discreet dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical, with pointed tip or without pointed tip. Feet half-webbed. Toe margins fimbriated. Webbing formula I (2^{+}–2^{-}) - (2^{+}–2^{-}) II (1–$1^{2/3}$) - (2–$2^{2/3}$) III (1–$1^{2/3}$) - (2–3^{+}) IV (2^{+}–$2^{1/3}$) - (1^{+}–1^{-}) V.

Body dorsum skin texture tuberculate (concentrated) under magnification; smooth or tuberculate under naked eye. Head skin texture tuberculated (sparse or scattered or concentrated). Upper eyelid with concentrated tubercles, rarely with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with scattered tubercles or with concentrated tubercles, rarely coarsely texturized. Pectoral area tuberculated (scattered or concentrated) or areolate or coarsely texturized, rarely smooth. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at upper level of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening absent or present; indistinct or distinct. Fringes or dermal fold below anal opening absent.

FIGURE 56. *Scinax fuscovarius* (UFVF-1875) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 44.2 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 16. In life body dorsum bright yellow or yellow in males, grey or brown in females; with large dark colored blotches all over the body, or, sparsely blotched, or, overall immaculate with few indistinct small blotches. Interorbital region with a roughly W-like blotch present or absent. Canthus rostralis marked with a dark colored stripe or without any longitudinal marking. Loreal region follows the same color pattern as dorsum. Lips as adjacent snout, slightly lighter-colored. Eyes iris golden colored with black reticulations; a black entrance reaches from the pupils into the iris lateral margins. Arms with transversal bars/blotches or speckled or overall immaculate with few indistinct blotches. Inguinal region, axillary region, inner side of the arms and thighs hidden surfaces with large yellow blotches on a purplish or greyish background, giving it an overall anastomosed pattern. Thighs with transversal bars/blotches. Tibia with transversal bars/blotches or blotched or immaculate. Ventral and gular region bright yellow in males, pallid yellow or cream or whitish in females; immaculate.

Color after preservation—dorsal color progressively fades getting overall grey. Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as blotches and barres fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 57. *Scinax fuscovarius* female (UFVF-1884) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 22. Measurements and proportions of *Scinax fuscovarius* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=12)		Females (n=04)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	45 ± 1.4	43–47.6	46.7 ± 1.1	45.4–47.9
Head length	13.8 ± 0.7	12.8–15.2	14.4 ± 0.9	13.6–15.5
Head width	15.1 ± 0.8	14.2–16.7	15.7 ± 0.3	15.4–16
Snout length	7.3 ± 0.4	6.8–8.1	7.7 ± 0.3	7.3–7.9
Eye diameter	3.6 ± 0.3	3.1–4.3	3.6 ± 0.3	3.4–4
Eyelid width	3 ± 0.3	2.6–3.7	3.5 ± 0.1	3.3–3.6
Interorbital distance	4.6 ± 0.6	3.7–5.6	4.3 ± 0.1	4.2–4.4

Eye-nostril distance	4.6 ± 0.2	4.1–5.1	4.9 ± 0.1	4.8–4.9
Internarial distance	2.7 ± 0.2	2.4–2.9	2.7 ± 0.3	2.4–3
Tympanum diameter	2.6 ± 0.2	2.2–2.9	2.7 ± 0.1	2.6–2.9
Thigh length	22.4 ± 0.9	20.9–24.2	23.7 ± 1.7	21.7–25.5
Tibia length	23.2 ± 1.1	22–25.8	25.3 ± 1.1	24.1–26.5
Tarsus length	10.3 ± 1.1	8.2–11.9	11.2 ± 0.4	10.8–11.7
Foot length	21 ± 1.2	19.2–23.8	23 ± 1.8	20.9–25
IV toe disc width	2.1 ± 0.2	1.8–2.4	2.3 ± 0.2	2–2.5
Upper arm length	7.6 ± 0.7	6.9–8.8	7.9 ± 0.8	7.1–8.9
Forearm length	7.5 ± 0.5	6.9–8.3	8.7 ± 0.6	8.2–9.6
Hand length	12.7 ± 0.8	11.7–14.6	13.3 ± 0.9	12.3–14.2
III finger disc width	2.2 ± 0.2	1.9–2.5	2.6 ± 0.5	1.9–2.9
HW/HL	1.1 ± 0.1	1–1.2	1.1 ± 0.1	1–1.2
ED/IOD	0.8 ± 0.1	0.6–1	0.8 ± 0.1	0.8–0.9
TD/HL	0.2 ± 0	0.2–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.5–0.5

Scinax aff. *x-signatus*

(Table 23; Figs. 58–59)

External Morphology—n = 10 males, 5 females. Adult male SVL 32.0–38.0 mm (n = 10), adult female 34.8–37.8 mm (n = 5). Head without skin co-ossification; HW/HL = 1.0–1.1. Snout rounded tending to pointed in dorsal view; rounded in lateral view. Cranial crests absent. Canthus rostralis distinct; rounded. Loreal region nearly flat or slightly concave. Interorbital area nearly flat or slightly rounded. Internarial region depressed or nearly flat. Lips without spiny structures. Eyes prominent; anterolaterally oriented; its diameter 43–83% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); nearly

round; its diameter 16–21% head length. Supratympanic dermal fold distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally distinct. Vocal slit present; about 1/2 of the buccal floor length; extending from the angle of the jaws up to the middle edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped; barely separated; vomerine teeth's number 5–6. Palatine teeth absent. Maxillary teeth present. Tongue cordiform or ovoid; overall attached to the buccal floor; narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with discreet longitudinal line of tubercles on ventrolateral surface or without dermal folds/fringes. Metacarpal edge with a discreet dermal fold on ventrolateral surface. Postaxial edge of finger IV with discreet dermal fold. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed (only with vestigial webbing between fingers). Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; bifid. Subarticular tubercle I on finger IV squarish or rounded in ventral view, all other rounded in ventral view; conical in profile on fingers I and II, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded (rarely with two scutelike flaps). Finger margins fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; unpigmented. Prepollical spine absent.

Hind limbs short; thigh length 40–49% SVL. Inner tarsal fold discreet; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle or formed by a row of small tubercles. Transversal dermal fold at the basis of the feet absent. Metatarsal edge with discreet dermal fold or with discreet line of tubercles on ventrolateral surface. Postaxial edge of toe V with discreet dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical. Feet basally webbed. Toe margins fimbriated. Webbing formula I (2^{+}–2^{-}) - (2^{+}–2^{-}) II (1–$1^{1/3}$) - ($2^{—}2^{1/2}$) III (1–$1^{1/2}$) - ($2^{—}2^{1/2}$) IV (2–2^{-}) - (0–1^{-}) V.

Body dorsum skin texture tuberculate (sparse or scattered) under magnification; smooth or tuberculate under naked eye. Head skin texture smooth or tuberculated

(sparse or scattered). Upper eyelid with scattered tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area with scattered or concentrated tubercles or smooth or coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteriorly at upper level of thighs or directed posteroventrally at upper level of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening present or absent; indistinct. Fringes or dermal fold below anal opening absent.

FIGURE 58. *Scinax* aff. *x-signatus* (UFVF-1892) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 36.6 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 15. In life body dorsum light or dark grey or greenish grey; with two dorsolateral arc-shaped blotches behind the eyes (which together are x-shaped), or, without x-shaped blotches; the rest of the body covered with large light--colored blotches and spots. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark colored stripe or without any marking. Loreal region follows the same color pattern as the body dorsum. Lips light-

colored when compared to the adjacent region; speckled or blotched. Eyes iris golden colored with black reticulations; a black entrance reaches from the pupils into the iris lateral margins. Arms with transversal bars/blotches or speckled. Inguinal region, axillary region, inner side of the arms and thighs hidden surfaces with large yellow blotches and/or spots on a purplish or greyish or pinkish background, giving it an overall anastomosed pattern. Thighs with transversal bars/blotches, rarely blotched. Tibia with transversal bars/blotches or blotched or speckled. Ventral region white; immaculate. Gular region pink in males, whitish in females; immaculate. Anal flap rarely darker colored than the adjacent region. Region surrounding anal opening whitish.

Color after preservation—dorsal color progressively fades getting overall grey. Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as blotches and barres fade, sometimes disappearing. Eyes iris loses bright color and becomes greyish.

FIGURE 59. *Scinax* aff. *x-signatus* female (UFVF-1929) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 23. Measurements and proportions of *Scinax* aff. *x-signatus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=10)		Females (n=05)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	34.1 ± 1.8	32–38	36.4 ± 1.3	34.8–37.8
Head length	11.4 ± 0.9	10.3–13.2	11.7 ± 0.8	10.9–13
Head width	11.5 ± 0.7	10.5–13	12.1 ± 0.5	11.3–12.8
Snout length	5.6 ± 0.8	3.6–6.2	6 ± 0.3	5.6–6.3
Eye diameter	2.9 ± 0.4	2.5–3.7	2.9 ± 0.3	2.5–3.3
Eyelid width	2.4 ± 0.3	2.1–3.1	2.7 ± 0.3	2.4–3.1
Interorbital distance	4.3 ± 0.5	3.6–5	4.5 ± 0.9	3.5–5.9
Eye-nostril distance	3.7 ± 0.3	3.1–4.1	4.4 ± 1	3.8–6.1
Internarial distance	2.2 ± 0.1	2–2.5	2.2 ± 0.3	1.9–2.5
Tympanum diameter	2.1 ± 0.2	1.9–2.4	2.3 ± 0.2	2.1–2.6
Thigh length	15.6 ± 0.8	14.5–17	16.5 ± 1.7	14–18.6
Tibia length	16.2 ± 0.9	14.9–17.6	17.5 ± 0.8	16.5–18.6
Tarsus length	7.5 ± 1	5.8–8.7	8.9 ± 1.1	7.2–10
Foot length	13.7 ± 0.8	12.6–15.2	14.8 ± 1.5	12.6–16.7
IV toe disc width	1.7 ± 0.1	1.5–1.9	1.8 ± 0.1	1.6–1.9
Upper arm length	4.9 ± 0.4	4.3–5.5	5.4 ± 0.7	4.3–6.1
Forearm length	5.4 ± 0.3	5–6	6.1 ± 0.8	4.9–6.8
Hand length	8.6 ± 0.5	8.1–9.6	9.7 ± 0.9	8.4–10.7
III finger disc width	1.8 ± 0.2	1.6–2.1	1.9 ± 0.1	1.8–2
HW/HL	1 ± 0	1–1.1	1 ± 0	1–1.1
ED/IOD	0.7 ± 0.1	0.5–0.8	0.7 ± 0.2	0.4–0.8
TD/HL	0.2 ± 0	0.2–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.4–0.5

Sphaenorhynchus prasinus

(Table 24; Figs. 60–62)

FIGURE 60. *Sphaenorhynchus prasinus* (UFVF-1737) live adult female from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 36.5 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 13 males, 2 females. Adult male SVL 30.5–35.2 mm (n = 11), adult female 36.5–37.2 mm (n = 2). Head without skin co-ossification; HW/HL = 1.4–1.8. Snout rounded or rounded tending to pointed or rounded tending to mucronate in dorsal view; acute in lateral view. Cranial crests absent. Canthus rostralis distinct; angular. Loreal region nearly flat. Interorbital area nearly flat. Internarial region depressed or nearly flat. Lips without spiny structures. Snout mucronation absent or

present. Eyes prominent; anterolaterally oriented; its diameter 32–44% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant or not protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very indistinct (tympanic annulus not visible, most tympanum barely visible); laterally directed; its diameter 20–33% head length. Supratympanic dermal fold absent. Vocal sac single; sub-gular; externally distinct. Vocal slit present; almost the entire buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae rounded; not concealed by palatal shelf. Vomerine teeth located at the middle of the buccal roof, slightly below choanae level; straight; barely separated; vomerine teeth's number 4–6. Palatine teeth absent. Maxillary teeth present. Tongue ovoid or lanceolate or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms not distinctly more hypertrophied in males than in females; with scalloped fringe along ventrolateral surface. Metacarpal with scalloped fringe along ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane poorly developed. Post axillary glands externally indistinguishable. Hands half-webbed. Webbing formula I (2^{+}–2^{-}) - (2^{+}–2^{-}) II (1–$1^{1/3}$) - (2–$2^{1/3}$) III (2^{+}–2) - (1^{-}–2^{+}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct; elliptical or divided. Subarticular tubercles rounded in ventral view; conical or flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on finger I in males colored (absent in females); with thickened skin; dark. Prepollical spine absent.

Hind limbs short or long; thigh length 45–54% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle or not reaching the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed, scalloped. Metatarsal edge and postaxial edge of toe V with scalloped fringes along ventrolateral surfaces. Heels with distinct fringe continuous with the external tarsal fold. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle present or absent; distinct; rounded.

Subarticular tubercles distinct; rounded in ventral view, flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1^{+}–1^{-}) - (1^{-}–$1^{2/3}$) II (0^{-}–1) - ($1^{1/2}$–2^{+}) III (0^{-}–1) - ($1^{—}2^{+}$) IV (0^{-}–2^{+}) - ($0^{—}1^{1/2}$) V.

Body dorsum skin texture coarsely texturized under magnification; smooth under naked eye. Head skin texture coarsely texturized. Upper eyelid coarsely texturized. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area with concentrated tubercles, rarely coarsely texturized. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed ventrally at lower level of thighs. Anal sheath present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes below anal opening present.

FIGURE 61. *Sphaenorynchus prasinus* (UFVF-1747) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 34.8 mm). Ventral

view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 13. In life body dorsum green; covered with small yellow spots. Interorbital region follows the same color pattern as the body dorsum. Canthus rostralis marked with a dark colored stripe present (or absent). Loreal region follows the same color pattern as the body dorsum. Lips as adjacent snout. Eyes iris overall red on the outer margins and a yellowish inner circle surrounding the pupils; covered with scattered black blotches and reticulations; yellow colored flap present at the posterior margin of the eyes. Arms as dorsum. Inguinal region, axillary region and inner side of the arms transparent green and blue; immaculate. Thighs and tibia as dorsum. Thighs hidden surfaces green; immaculate. Ventral region transparent, whitish with a blue haze; immaculate. Gular region green in males, whitish in females; with scattered yellow spots in males; immaculate in females.

Color after preservation—dorsal color progressively fades getting overall white or cream colored; Ventral and gular region gets cream or whitish. Dorsal and ventral markings such as yellow spots fade, become greyish or disappear. Canthus rostralis stripe gets more evident, black-colored. Eyes iris loses bright color and becomes greyish.

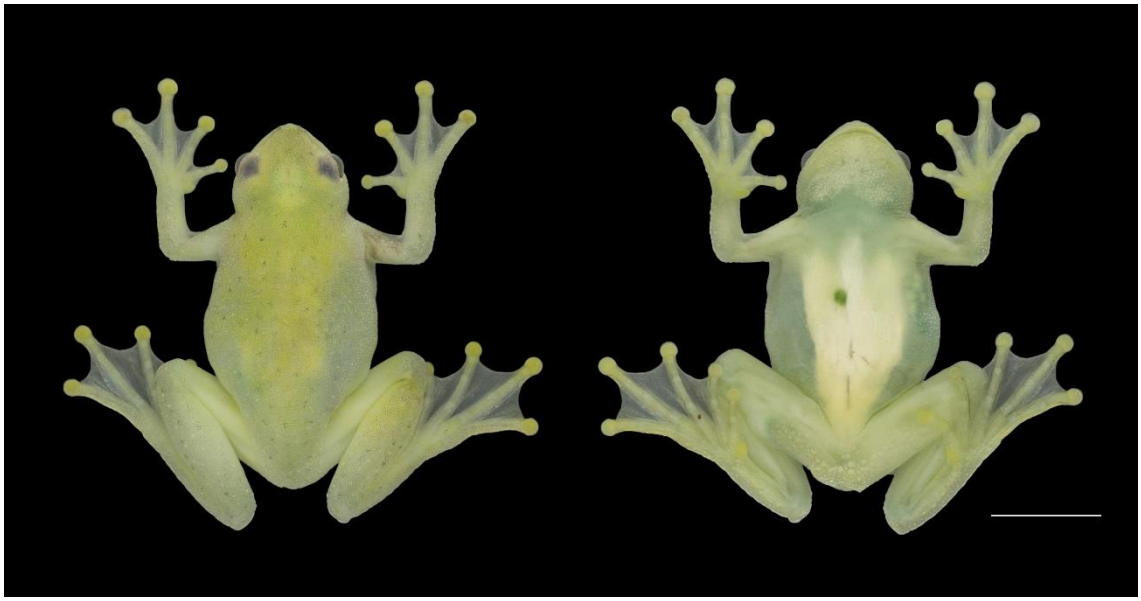

FIGURE 62. *Sphaenorynchus prasinus* female (UFVF-1737) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 24. Measurements and proportions of *Sphaenorynchus prasinus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=11)		Females (n=02)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	33.3 ± 1.6	30.5–35.2	36.9 ± 0.5	36.5–37.2
Head length	7.6 ± 0.3	7.1–8.1	8 ± 0.2	7.8–8.1
Head width	11.5 ± 0.7	10.1–12.6	11.9 ± 0.4	11.6–12.2
Snout length	5 ± 0.4	4.4–5.6	5.2 ± 0.1	5.2–5.3
Eye diameter	2.1 ± 0.1	1.9–2.4	2.1 ± 0.3	1.9–2.3
Eyelid width	1.8 ± 0.2	1.3–2.1	2 ± 0.1	1.9–2
Interorbital distance	5.2 ± 0.5	4.5–6	5.9 ± 0.1	5.8–5.9
Eye-nostril distance	2.9 ± 0.3	2.4–3.3	3.2 ± 0.1	3.1–3.3
Internarial distance	1.8 ± 0.1	1.5–1.9	1.9 ± 0	1.9–1.9
Tympanum diameter	1.9 ± 0.4	1.5–2.7	1.8 ± 0.1	1.8–1.9
Thigh length	16.3 ± 0.7	15.3–17.6	17.2 ± 0.8	16.6–17.7
Tibia length	16.4 ± 0.9	14.2–17.5	18.1 ± 0.1	18–18.2
Tarsus length	7.7 ± 0.6	7–8.7	8.5 ± 0.3	8.3–8.8
Foot length	15.3 ± 0.8	13.6–16.3	17.1 ± 0.9	16.5–17.7
IV toe disc width	1.7 ± 0.2	1.4–2	1.8 ± 0	1.8–1.8
Upper arm length	6.1 ± 0.7	4.6–7.6	6.6 ± 0	6.6–6.6
Forearm length	6.9 ± 0.5	6.1–7.9	7.2 ± 0.1	7.2–7.3
Hand length	10.3 ± 0.8	8.9–11.7	12.2 ± 0.2	12.1–12.4
III finger disc width	1.9 ± 0.2	1.5–2.1	1.9 ± 0.1	1.9–2
HW/HL	1.5 ± 0.1	1.4–1.8	1.5 ± 0.1	1.4–1.6
ED/IOD	0.4 ± 0	0.3–0.4	0.4 ± 0.1	0.3–0.4
TD/HL	0.2 ± 0	0.2–0.3	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.5–0.5	0.5 ± 0	0.4–0.5

Trachycephalus mesophaeus

(Table 25; Figs. 63–65)

FIGURE 63. *Trachycephalus mesophaeus* (UFVF-1648) live adult female from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 75.1 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 8 males, 7 females. Adult male SVL 59.0–80.5 mm (n = 11), adult female 60.6–85.6 mm (n = 10). Head without skin co-ossification; HW/HL 1.0–1.2. Snout rounded in dorsal view; rounded or truncate (vertical) or rounded tending to truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; angular.

Loreal region concave. Interorbital area slightly depressed or nearly flat. Internarial region depressed or nearly flat. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 35–69% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 15–23% head length. Supratympanic dermal fold distinct; bypassing eardrum, not reaching arm level; partially covering the tympanic annulus. Vocal sac paired; lateral; externally distinct. Vocal slit present; about 1/3 of the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc shaped and/or oblique; barely separated or odontophores may merge into one; vomerine teeth's number 8–12. Palatine teeth present; almost straight row located beneath choanae. Maxillary teeth present. Tongue ovoid or ovoid tending to cordiform; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with distinct dermal fold on ventrolateral surface or with distinct longitudinal line of tubercles on ventrolateral surface. Metacarpal edge with distinct dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane poorly developed. Post axillary glands distinct; one or more cream colored spots. Hands basally webbed (sometimes only with a vestigial webbing between fingers I and II). Webbing formula: I (2–2^{-}) - (2–2^{-}) II (1^{+}–$1^{1/3}$) - ($2^{—}2^{1/3}$) III (2–2^{-}) - (2^{+}–2^{-}) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle distinct or indistinct (poorly protuberant); bifid or divided. Subarticular tubercle I on fingers IV squarish in ventral view, all other rounded in ventral view; conical in profile on finger I, II and rarely III, flattened in profile on finger III and IV. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads

present on finger I and II in males (absent in females); with thickened skin; dark colored. Prepollical spine absent.

Hind limbs short or long; thigh length 43–51% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge with discreet dermal fold or with discreet line of tubercles. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct (rarely indistinct); single; rounded. Subarticular tubercles distinct; rounded or squarish in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet half-webbed. Toe margins fimbriated. Webbing formula I (1^{+}–1) - ($1^{2/3}$–2^{+}) II (0^{-}–1) - ($1^{1/3}$–2^{+}) III (1^{+}–1^{-}) - ($1^{2/3}$–2^{+}) IV ($1^{2/3}$–2^{+})) - (0^{-}–1) V.

Body dorsum skin texture tuberculate (concentrated) under magnification; smooth or tuberculate under naked eye. Head skin texture tuberculated (concentrated). Upper eyelid with concentrated tubercles, rarely with scattered tubercles. Paratoid glands absent.

Abdominal region and thighs venter areolate. Gular region and pectoral area with concentrated tubercles, rarely coarsely texturized. Pectoral fold present. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening present, rarely absent; distinct. Fringes or dermal fold below anal opening absent.

FIGURE 64. *Trachycephalus mesophaeus* (UFVF-1523) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 80.5 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 23. In life body dorsum pale yellow/cream to bright yellow; framed by a complete or incomplete (or absent) light-colored stripe of variable width outlined by a complete or incomplete (or absent) thin black line. The entire dorsal region can be completely marked with small black irregular blotches and spots, varying from absent to densely concentrated and with small to large cream colored rounded or bubble-like blotches between frames margins (might be present or absent). Interorbital region follows the same color pattern of the body dorsum. Canthus rostralis marked by a dark colored line; present or absent. Lips on maxilla have the same color of snout, lips on the mandibles are lighter colored when compared to the snout coloration. Loreal region immaculate. Eyes iris bright yellow with black reticulations. Arms dorsal surface with transversal bars/blotches or blotched or immaculate. Thighs and tibia dorsum immaculate or with transversal bars/blotches or blotched. Thighs hidden surfaces purplish, pinkish or yellow colored; immaculate. Inguinal region yellow or cream/whitish; with blackish irregular blotches present, rarely absent. Ventral region

yellow in males, paler yellow or cream/whitish in females; covered with small blackish irregular blotches and spots, almost forming a reticulated pattern, rarely immaculate. Gular region yellow on males and whitish in females; immaculate or covered with small irregular black blotches. Anal flap greyish. Region surrounding anal opening yellowish.

Color after preservation—after preservation, the overall pattern of blotches and stripes fade but are usually maintained, sometimes disappearing. Dorsal color progressively fades getting overall brown, pale brown or cream. Ventral region gets pale cream to whitish. Gular region pale cream or whitish on males and females. Eyes iris loses bright color and becomes greyish.

FIGURE 65. *Trachycephalus mesophaeus* male (UFVF-2064) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 25. Measurements and proportions of *Trachycephalus mesophaeus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=11)		Females (n=10)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	70.7 ± 6.2	59–80.5	74.2 ± 8.1	60.6–85.6

Head length	20.1 ± 1.4	16.8–22.8	21 ± 1.8	18.1–23.8
Head width	22.1 ± 1.7	18.4–24.3	22.6 ± 2.5	18.5–26.9
Snout length	10.5 ± 1	8.2–11.5	10.4 ± 0.7	9.6–11.6
Eye diameter	4.7 ± 0.4	3.7–5.3	4.6 ± 0.6	3.7–5.5
Eyelid width	5.4 ± 0.9	4.1–7.2	5.8 ± 0.5	4.8–6.5
Interorbital distance	8.6 ± 0.9	7.7–10.5	9.2 ± 1.5	6.7–11.5
Eye-nostril distance	6.6 ± 0.7	5.5–7.9	7 ± 0.7	5.9–8
Internarial distance	4.8 ± 0.9	2.2–5.6	5.1 ± 0.4	4.6–5.8
Tympanum diameter	3.8 ± 0.5	3.1–4.7	4.1 ± 0.6	3.3–5
Thigh length	34.1 ± 2.9	27.7–38.7	35.5 ± 3.3	30.2–39.8
Tibia length	34.8 ± 2.7	29.9–38.8	36.7 ± 3.6	30.7–41.8
Tarsus length	16.6 ± 1.7	13.1–18.7	17.4 ± 1.7	14–18.7
Foot length	29.5 ± 2.8	22.9–32.7	31.1 ± 3.4	25.5–35.6
IV toe disc width	3.9 ± 0.6	2.7–5	3.9 ± 0.5	3.1–5.1
Upper arm length	10.3 ± 1.3	7.7–12.5	10.9 ± 1.9	9.4–14.9
Forearm length	11.4 ± 1	9.3–13.1	12.6 ± 1.4	10–14.7
Hand length	23 ± 2.4	18.1–26.5	23 ± 2.2	19.4–26
III finger disc width	4.4 ± 0.6	3–5.3	4.5 ± 0.4	3.7–5.3
HW/HL	1.1 ± 0	1–1.2	1.1 ± 0	1–1.2
ED/IOD	0.5 ± 0.1	0.4–0.6	0.5 ± 0.1	0.4–0.7
TD/HL	0.2 ± 0	0.1–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.5 ± 0	0.4–0.5	0.5 ± 0	0.4–0.5

Trachycephalus nigromaculatus

(Table 26; Figs. 66–68)

FIGURE 66. *Trachycephalus nigromaculatus* (UFVF-1463) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 107.8 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 8 males, 5 females. Adult male SVL 92.2–113.9 mm (n = 8 males), adult female 91.9–113.7 (n = 5 females). Head with coosified skin; HW/HL = 1.2–1.4. Snout truncate in dorsal view; obtuse (sloping) in lateral view, rarely acuminate in lateral view. Canthal, labial, postorbital, preorbital, pretympanic, suborbital, supraorbital and supratympanic Cranial crests present. Canthus rostralis distinct; ridge-like (elevated). Loreal region deeply concave. Interorbital area depressed. Internarial

region elevated due to the two canthus rostralis crest, but, depressed in between those crests. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 29–42% eye-nostril distance. Pupils elliptical; horizontally orientated. Palpebral membrane overall transparent with only inferior half and upper border pigmented, without reticulation. Nostrils slightly protuberant; dorsolaterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum very distinct (tympanic annulus prominently ringing the well visible tympanum); dorsolaterally directed; nearly round; its diameter 19–25% head length. Supratympanic dermal crest distinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac paired; lateral; externally distinct. Vocal slit present; about 2/3 of the buccal floor length; extending from the angle of the jaws up to the anterior edge of the tongue. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; arc-shaped or straight and/or oblique; barely separated; vomerine teeth's number 6– 9. Palatine teeth present; almost straight row located beneath choanae. Maxillary teeth present. Tongue ovoid; overall attached to the buccal floor, narrowly free on the edges (shape prone to post-mortem alteration).

Forearms more hypertrophied in males than in females, rarely of equal robustness; with distinct longitudinal line of tubercles on ventrolateral surface, rarely with distinct dermal fold on ventrolateral surface. Metacarpal edge with distinct longitudinal line of tubercles on ventrolateral surface, rarely with a discreet dermal fold on ventrolateral surface. Postaxial edge of finger IV with distinct dermal fold. Axillary membrane poorly developed. Post axillary glands distinct; one or more cream colored spots. Hands basally webbed (only with vestigial webbing between finger I and II). Webbing formula I–II (2^{+}–2^{-}) - ($2^{1/3}$–$2^{1/2}$) III (2–2^{-}) - (2^{-}–$2^{1/2}$) IV. Inner metacarpal tubercle distinct; ovoid or elliptical. Outer metacarpal tubercle indistinct (poorly protuberant); bifid. Subarticular tubercle I on finger IV squarish or bifid in ventral view, on fingers I, II and III squarish or rounded in ventral view; conical in profile on finger II, conical or flattened in profile on finger I, all others flattened in profile. Supernumerary tubercles present. Fingers relative size III > IV > II > I. Finger discs expanded; elliptical or rounded. Finger margins fimbriated. Nuptial pads present on

finger I in males (absent in females); with thickened skin; dark colored. Prepollical spine absent.

Hind limbs short; thigh length 41–48% SVL. Inner tarsal fold discreet or distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold absent. Tubercle row along tarsus ventrolateral surface present or absent; discreet. Metatarsal edge with discreet dermal fold or with discreet line of tubercles. Postaxial edge of toe V with distinct dermal fold. Heels without distinctive structures. Toe I not opposing toe II. Inner metatarsal tubercle distinct; elliptical or ovoid. Outer metatarsal tubercle distinct; rounded or bifid. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; elliptical or rounded. Feet basally webbed. Toe margins fimbriated. Webbing formula I ($1^{1/2}$–2^{+}) - (2^{+}–2^{-}) II (1^{-}–$1^{1/2}$) - (2–2^{-}) III ($1^{1/3}$–2) - (2^{-}–$2^{1/2}$) IV (2–$2^{1/2}$) - (1–$1^{1/3}$) V.

Body dorsum skin texture tuberculate (concentrated) under magnification; smooth or tuberculate under naked eye. Head skin texture spiculated. Upper eyelid smooth, rarely with few sparse tubercles. Paratoid glands absent. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region with concentrated tubercles. Pectoral area tuberculated (concentrated), rarely smooth. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteroventrally at midlevel of thighs. Anal flap present. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 67. *Trachycephalus nigromaculatus* (UFVF-1789) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 113.7 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 13. In life body dorsum dark o light brown or yellow; completely covered with small and large grey or black irregular blotches; large blotches are outlined by a darker thin line; marbled or anastomosed or with indistinct pattern; red or pinkish spots scattered all over the body present (rarely absent). Interorbital region and loreal region follow the same color pattern as body dorsum. Lips as snout, lightly colored when compared to the snout on the mandible. Eyes iris bronze with thick black reticulations. Arms with transversal bars and blotches, rarely only blotched. Inguinal region, axillary region and inner side of the arms white, cream or yellowish; anastomosed or with sparse blotches. Thighs and tibia with transversal bars/blotches. Thighs hidden surfaces pallid orange or pallid yellow; immaculate. Ventral and gular region whitish or cream or pallid yellow or pallid orange; immaculate or with scattered small brown blotches.

Color after preservation—the overall pattern of blotches and spots fade but are maintained. Dorsal color progressively fades getting overall brown, pale brown or cream. Ventral and gular region gets pale cream or whitish. Eyes iris loses bright color and becomes greyish.

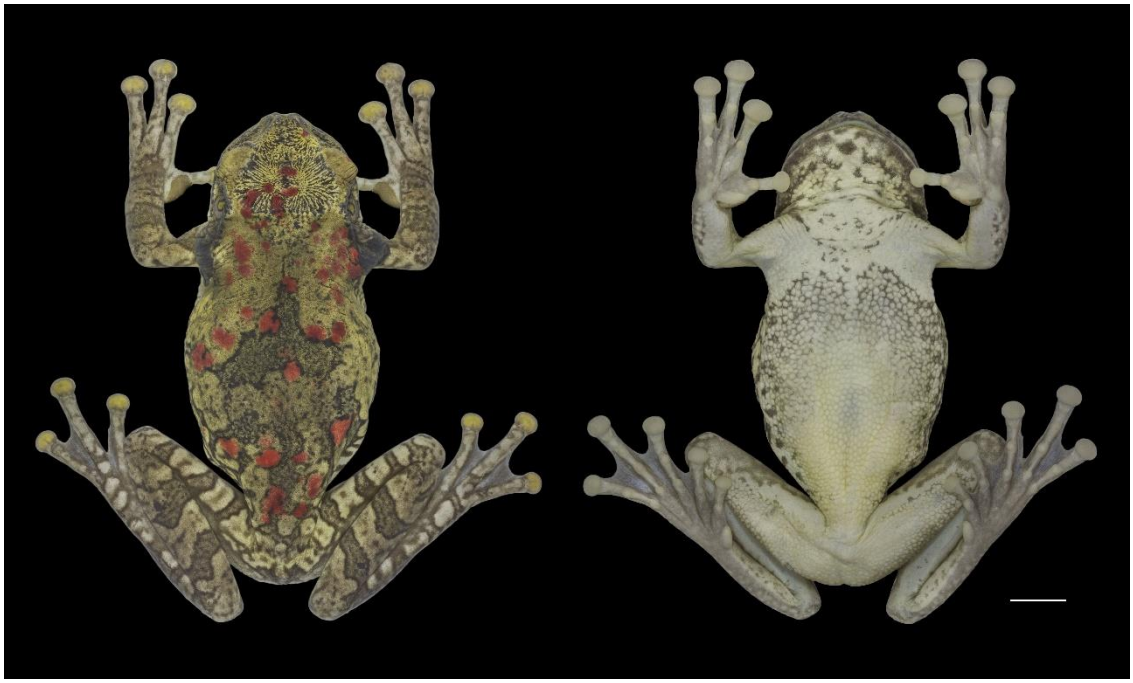

FIGURE 68. *Trachycephalus nigromaculatus* male (UFVF-2062) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 26. Measurements and proportions of *Trachycephalus nigromaculatus* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=08)		Females (n=05)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	101.1 ± 8.2	92.2–113.9	100.6 ± 8.1	91.9–113.7
Head length	26.6 ± 2	24.4–30	25.9 ± 1.8	22.9–27.3
Head width	33.6 ± 4	29.5–40.7	31.8 ± 1.9	29.7–34.9
Snout length	14 ± 3.1	9.1–18.4	14 ± 0.5	13.7–14.7
Eye diameter	5.8 ± 0.7	5.1–6.7	5.5 ± 0.8	4.8–6.7
Eyelid width	5.8 ± 0.5	5.4–6.8	5.7 ± 0.9	5.1–7.4

Interorbital distance	17.2 ± 1.4	14.4–18.2	16.1 ± 1.2	14.4–17.1
Eye-nostril distance	6 ± 1.4	4–7.7	6.5 ± 1.2	4.9–7.7
Internarial distance	6.3 ± 1.2	4.8–7.5	5.8 ± 0.3	5.5–6.2
Tympanum diameter	5.6 ± 0.7	4.8–6.7	5.4 ± 0.8	4.7–6.7
Thigh length	44.4 ± 2	42.5–48.1	44.5 ± 3.5	41.7–49.9
Tibia length	44.5 ± 1.7	42.2–47.3	46 ± 2.8	43.5–50.8
Tarsus length	21.3 ± 0.6	20.7–22.1	22.9 ± 1	21.6–23.8
Foot length	39.6 ± 2.4	37.1–43.1	40.1 ± 3.2	37.5–45.4
IV toe disc width	5.3 ± 0.4	4.8–5.7	4.6 ± 0.7	3.8–5.4
Upper arm length	12.9 ± 0.8	11.8–14.2	13.8 ± 1.1	12.4–15.2
Forearm length	15.7 ± 1.8	12.6–17.7	17.1 ± 0.8	15.7–17.9
Hand length	31.5 ± 2	29.5–34.9	31.4 ± 2.7	28.4–35.6
III finger disc width	6 ± 0.4	5.4–6.8	5.8 ± 0.6	5.2–6.7
HW/HL	1.3 ± 0.1	1.2–1.4	1.2 ± 0.1	1.2–1.3
ED/IOD	0.3 ± 0	0.3–0.4	0.3 ± 0	0.3–0.4
TD/HL	0.2 ± 0	0.2–0.2	0.2 ± 0	0.2–0.2
THL/SVL	0.4 ± 0	0.4–0.5	0.4 ± 0	0.4–0.5

PHYLLOMEDUSIDAE

Phyllomedusa burmeisteri

(Table 27; Figs. 69–71)

FIGURE 69. *Phyllomedusa burmeisteri* (HT–1823) live adult male, SVL = 73.1 mm, from Parque Estadual do Rio Doce, municipality of Marliéria, state of Minas Gerais. Dorsolateral (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal views (down right).

External Morphology—n = 12 males, 4 females. Adult male SVL 65.9–75.6 mm (n =11), adult female 80.3–101.0 mm (n = 2). Head without skin co-ossification; HW/HL = 0.8–1.3. Snout truncate in dorsal view; acuminate in lateral view. Cranial crests absent. Canthus rostralis distinct; ridge-like (elevated). Loreal region concave. Interorbital area nearly flat. Internarial region nearly flat or slightly depressed. Lips not flared; without spiny structures. Snout mucronation absent. Eyes prominent;

anterolaterally oriented; its diameter 36–86% eye-nostril distance. Pupils elliptical; vertically orientated. Palpebral membrane overall transparent with only inferior third and upper border pigmented, without reticulation. Nostrils protuberant; laterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit-like. Tympanum indistinct (tympanic annulus not visible, upper tympanum barely visible); laterally directed; nearly round; its diameter 10–20% head length. Supratympanic dermal fold distinct or indistinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally indistinct. Vocal slit present; 1/4 or less the buccal floor length; positioned close to the angle of the jaws. Choanae roughly elliptical; not concealed by palatal shelf. Vomerine teeth located in between choanae; straight and/or oblique; widely separated; vomerine teeth's number 4–7. Palatine teeth absent. Maxillary teeth present. Tongue lanceolate; attached to the buccal floor only by the central region of the tongue, margins free.

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped. Metacarpal edge and postaxial edge of finger IV fringed. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed. Inner metacarpal tubercle distinct; elliptical. Outer metacarpal tubercle distinct; rounded or bifid. Subarticular tubercles rounded in ventral view; conical in profile on finger I and II, flattened in profile on fingers III and IV, rarely flattened in profile on finger II. Supernumerary tubercles present. Fingers relative size III > IV > II > I or III ≈ IV > II > I. Finger discs expanded; rounded. Finger margins without fimbria. Nuptial pads present on finger I in males (absent in females); with thickened skin; dark colored. Prepollical spine absent.

Hind limbs short; thigh length 40–46% SVL. Inner tarsal fold distinct; extending from the heel to the basis of the inner tubercle. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed but not scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal edge and postaxial edge of toe V fringed. Heels with distinct fringe continuous with the outer tarsal fold. Toe I opposing to toe II. Inner metatarsal tubercle distinct; rounded. Outer metatarsal tubercle distinct or indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view, conical or flattened in profile. Supernumerary tubercles present. Toe discs expanded; rounded or elliptical. Feet unwebbed. Toe margins discreetly fimbriated.

Body dorsum skin texture tuberculate (concentrated) under magnification; tuberculate under naked eye. Head skin texture tuberculated (concentrated). Upper eyelid with concentrated tubercles. Paratoid glands present; distinct. Dorsal dermal fold absent.

Abdominal region skin texture areolate. Thighs venter areolate. Gular region with concentrated tubercles. Pectoral area tuberculated (concentrated) or smooth. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteriorly at midlevel of thighs. Anal sheath or flap absent. Anal dermal crest present. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 70. *Phyllomedusa burmeisteri* (UFVF-1823) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 73.1 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 16. In life body dorsum green; immaculate or with scattered blueish/white small spots and blotches. Interorbital region as body dorsum. Lip on maxilla is green as snout, mandibular lip is white colored. Loreal region follows the same color pattern as the body dorsum. Eyes iris whitish cream. Palpebral membrane with two white blotches on each margin. Arms, thighs and tibia green; immaculate; with a lateral white or yellow line. Thighs hidden surfaces, inguinal and axillary region and inner side of the arms with a blue to purplish background covered with large yellow blotches. Heels green; with a thin white or yellow line. Digital discs white in dorsal view. Ventral region pinkish or cream; covered with large yellow blotches and spots varying from absent to densely concentrated; blotches are delimited or not by a black line on its margins. Pectoral, ventrolateral margins and inner arms venter white colored. Gular region same as ventral region. Horizontal white stripe on or above anal crest present. Area surrounding anal opening slightly darker colored.

Color after preservation—dorsal color progressively fades getting overall blue. Ventral and gular region gets pale cream with whitish blotches and markings. Dorsal and ventral markings such as blotches fade but are maintained. Eyes iris loses bright color and becomes greyish.

FIGURE 71. *Phyllomedusa burmeisteri* (UFVF-1580) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 27. Measurements and proportions of *Phyllomedusa burmeisteri* from Parque Estadual do Rio Doce, State of Minas Gerais. Values (in mm) are reported as mean ± SD and (ranges).

	Males (n=11)		Females (n=02)	
	Mean ± SD	Range	Mean ± SD	Range
Snout-vent length	70.5 ± 2.8	65.9–75.6	90.7 ± 14.6	80.3–101
Head length	20.5 ± 1.2	17.7–21.8	26.3 ± 1.3	25.4–27.2
Head width	20.4 ± 1.1	18.2–22.3	27.6 ± 6.7	22.9–32.4
Snout length	9.6 ± 1.1	7.1–11.5	13.1 ± 2	11.7–14.5
Eye diameter	6 ± 0.5	5.3–6.9	6.2 ± 0.5	5.9–6.6
Eyelid width	5.5 ± 0.8	4.7–7.4	6.8 ± 0.1	6.7–6.9
Interorbital distance	10 ± 1.1	8.1–11.6	13 ± 4.8	9.6–16.4
Eye-nostril distance	5.7 ± 0.7	4.7–7.1	9.6 ± 2.6	7.7–11.5
Internarial distance	5.1 ± 0.9	3.8–6.8	5.8 ± 0.4	5.6–6.1

Tympanum diameter	3.5 ± 0.6	2.6–4.6	4.1 ± 1.2	3.3–4.9
Thigh length	30.5 ± 1.1	28.4–32	39.7 ± 4.9	36.3–43.2
Tibia length	29 ± 1.4	27.2–31.6	37.7 ± 6.1	33.4–42
Tarsus length	19.2 ± 1.3	16.5–21.1	24.7 ± 2.1	23.2–26.1
Foot length	25.8 ± 0.6	24.8–26.7	33 ± 4.5	29.8–36.2
IV toe disc width	2.5 ± 0.3	2.2–3	3 ± 0.1	3–3.1
Upper arm length	16.5 ± 0.4	15.7–17.2	21.3 ± 2.6	19.5–23.2
Forearm length	17.3 ± 1	15.6–19	25.3 ± 5.2	21.7–29
Hand length	20.2 ± 0.9	19.3–21.9	26.3 ± 3.9	23.5–29
III finger disc width	2.4 ± 0.3	1.9–3.1	3.3 ± 0.2	3.1–3.5
HW/HL	1 ± 0.1	0.9–1.1	1.1 ± 0.3	0.8–1.3
ED/IOD	0.6 ± 0.1	0.5–0.9	0.5 ± 0.2	0.4–0.7
TD/HL	0.2 ± 0	0.1–0.2	0.2 ± 0.1	0.1–0.2
THL/SVL	0.4 ± 0	0.4–0.5	0.4 ± 0	0.4–0.5

Pithecopus rohdei

(Table 28; Figs. 72–74)

FIGURE 72. *Pithecopus rohdei* (HT–1526) live adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais (SVL = 46.1 mm). Dorsolateral view (top left), lateral (middle left), head lateral (middle down), back (top right), dorsal (middle right); frontal view (down right).

External Morphology—n = 11 males, 4 females. Adult male SVL 40.1–44.4 mm (n = 11), adult female 44.2–51.2 mm (n = 4). Head without skin co-ossification; HW/HL = 0.9–1.2. Snout truncate in dorsal view; truncate in lateral view. Cranial crests absent. Canthus rostralis distinct; acutely angular. Loreal region slightly concave. Interorbital area nearly flat. Internarial region nearly flat. Lips without spiny structures. Snout mucronation absent. Eyes prominent; anterolaterally oriented; its diameter 65–90% eye-

nostril distance; Pupils elliptical; vertically orientated. Palpebral membrane overall reticulated with only inferior half and upper border fully pigmented. Nostrils not protuberant; laterally directed; roughly elliptical with a narrowing upper end (shape prone to post-mortem alteration). Narial margins not scalloped. Upper margin of nasal fossa distinct; slit like. Tympanum indistinct (tympanic annulus not visible, upper tympanum barely visible); laterally directed; nearly round; its diameter 12–24% head length. Supratympanic dermal fold distinct or indistinct; bypassing eardrum, reaching arm level; partially covering the tympanic annulus. Vocal sac single; sub-gular; externally indistinct. Vocal slit present; about 1/3 of the buccal floor length; extending from the angle of the jaws up to the posterior edge of the tongue. Choanae roughly triangular; not concealed by palatal shelf. Vomerine teeth absent. Palatine teeth absent. Maxillary teeth present. Tongue lanceolate; attached to the buccal floor only by the central region of the tongue, margins free.

Forearms more hypertrophied in males than in females, rarely of equal robustness; with ventrolateral surface fringed but not scalloped. Metacarpal edge and postaxial edge of finger IV fringed but not scalloped. Axillary membrane absent. Post axillary glands externally indistinguishable. Hands unwebbed. Inner metacarpal tubercle distinct; elliptical. Outer metacarpal tubercle present or absent; distinct or indistinct; rounded. Subarticular tubercles distinct; rounded in ventral view flattened in profile. Supernumerary tubercles present; distinct. Fingers relative size III > IV > II > I. Finger discs expanded; rounded or ovoid. Finger margins discreetly fimbriated. Nuptial pads present on finger I in males (absent in females); with thickened skin; darkly pigmented. Prepollical spine absent.

Hind limbs short; thigh length 37–47% SVL. Inner tarsal fold absent. Transversal dermal fold at the basis of the feet absent. Outer tarsal fold distinct; fringed, scalloped. Tubercle row along tarsus ventrolateral surface absent. Metatarsal and postaxial edge of toe V fringed but not scalloped. Heels with distinct fringe continuous with the external tarsal fold. Toe I opposing to toe II. Inner metatarsal tubercle indistinct. Outer metatarsal tubercle distinct; rounded. Subarticular tubercles distinct; rounded in ventral view; flattened in profile. Supernumerary tubercles distinct. Toe discs expanded; rounded or ovoid. Feet unwebbed. Toe margins not fimbriated.

Body dorsum skin texture smooth under magnification; smooth under naked eye. Head skin texture smooth. Upper eyelid smooth. Paratoid glands present. Dorsal dermal fold absent.

Abdominal region and thighs venter areolate. Gular region areolate. Pectoral area areolate, rarely smooth. Pectoral fold absent. Mental, femoral, ventrolateral and tibial glands externally indistinguishable.

Anal opening directed posteriorly at midlevel of thighs. Anal sheath or flap absent. Anal dermal crest absent. Tubercles around the anal opening distinct. Fringes or dermal fold below anal opening absent.

FIGURE 73. *Pithecopus rohdei* (UFVF-1555) adult male from Parque Estadual do Rio Doce, Marliéria, Minas Gerais right after euthanasia (SVL = 41.5 mm). Ventral view (top left), lateral view (bottom), detail of cloacal region and posterior surface of thighs (top right), detail of inguinal region (middle right).

Coloration—n = 16. In life body dorsum green; with scattered tiny yellowish and/or blue and/or black blotches and spots, varying from scattered to absent. Interorbital region follows the same color pattern as the body dorsum. Loreal region has a cream-colored stripe running parallel and below the canthus rostralis, from the nares to the eyes, this stripe can be complete, incomplete or absent. Lips cream or pale orange; covered with small dark blotches. Eyes iris golden or brownish-yellow spots interleaved with black reticulations. Arms, thighs and tibia dorsal surface green;

immaculate; with a lateral cream-orange line. Heels green; with a thin cream-orange line. Thighs hidden surfaces, inguinal region and inner arms have a purple background covered with large orange-red blotches. Ventral and dorsal coloration pattern are abruptly divided/delimited. Ventral and gular region whitish, cream or pale orange; covered with irregular dark blotches varying from scattered to almost absent. Horizontal white stripe on or above anal crest present or absent. Region surrounding anal opening slightly darker colored.

Color after preservation—dorsal color progressively fades getting overall blue. Ventral and gular region gets pale cream with greyish blotches and markings. Dorsal and ventral markings such as blotches fade but are maintained. Eyes iris loses bright color and becomes greyish.

FIGURE 74. *Pithecopus rohdei* female (UFVF-1421) from Parque Estadual do Rio Doce, Marliéria, Minas Gerais. Dorsal view (top left), ventral view (top right). Scale bar = 10mm.

TABLE 28. Measurements and proportions of *Pithecopus rohdei* from Parque Estadual do Rio Doce, State of Minas Gerais, Brazil. Values (mm) are reported as ranges (mean ± SD).

	Males (n=11)		Females (n=04)	
	Mean ± SD	Range	Mean ± SD	Range

Snout-vent length	42.2 ± 1.7	40.1–44.4	47.4 ± 3	44.2–51.2
Head length	12.5 ± 0.9	11.3–14.1	13.8 ± 0.9	12.6–14.7
Head width	13.3 ± 0.4	12.6–14.2	14.1 ± 0.4	13.7–14.5
Snout length	5.5 ± 0.3	4.9–6.2	6 ± 0.8	4.8–6.5
Eye diameter	4.6 ± 0.3	3.9–5.1	4.5 ± 0.3	4.1–4.7
Eyelid width	3.7 ± 0.4	3.2–4.1	3.4 ± 0.4	3–3.9
Interorbital distance	5.8 ± 0.5	5–6.6	6.8 ± 1.2	5.5–8.2
Eye-nostril distance	3.4 ± 0.5	2.7–4.4	3.6 ± 0.4	3.4–4.2
Internarial distance	3.4 ± 0.7	2–4	3.9 ± 0.2	3.7–4.1
Tympanum diameter	2 ± 0.5	1.6–3.2	2 ± 0.2	1.8–2.2
Thigh length	18.1 ± 1.6	14.7–20.4	19.9 ± 1.2	18.3–21
Tibia length	18.2 ± 0.9	17.2–19.4	19.9 ± 1.6	18.5–21.9
Tarsus length	11.7 ± 1	10.6–14.3	13.1 ± 1.2	11.4–14.5
Foot length	15 ± 1.5	12.3–17.8	15.2 ± 1.3	14.1–17
IV toe disc width	1.6 ± 0.2	1.2–2	1.6 ± 0.3	1.2–1.8
Upper arm length	10.1 ± 1.4	7–11.3	9.9 ± 1.9	7.2–11.5
Forearm length	10.7 ± 1.4	8.5–12.8	11.3 ± 1.1	10–12.3
Hand length	11.7 ± 1.2	8.7–13.2	12.2 ± 1.7	9.8–13.8
III finger disc width	1.6 ± 0.3	1.1–2.1	1.5 ± 0.2	1.2–1.7
HW/HL	1.1 ± 0.1	0.9–1.2	1 ± 0.1	0.9–1.2
ED/IOD	0.8 ± 0.1	0.6–0.9	0.7 ± 0.1	0.6–0.8
TD/HL	0.2 ± 0	0.1–0.2	0.1 ± 0	0.1–0.2
THL/SVL	0.4 ± 0	0.4–0.5	0.4 ± 0	0.4–0.5

Discussion

Checklist

Feio *et al.* (1998) registered 21 Hylidae and 2 Phyllomedusidae species at PERD. Guimarães *et al.* (2019) increased that number to 23 hylid frogs. We in turn add three more Hylidae species to the reserve checklist, increasing it to 26.

Boana pardalis, *B. crepitans*, *D. bipunctatus*, *T. mesophaeus* and *T. nigromaculatus* were the new records made since the publication made by Feio *et al*. (1998). Two of these species, *D. bipunctatus* and *T.* mesophaeus, stand out for their abundance in the park during our samplings. While other species that were common and abundant in the past (R. N. Feio, personal communication) are today rare (e.g. *B. albomarginata*, *P. fusca*), and some that were already rare, were not found (e.g. *O. carnevallii*, *O. argyreornata*). These data demonstrate that the structure of PERD Hylidae community has changed over time. Such modifications may be related to the severe drought that has been affecting the region of the middle Rio Doce basin during the last decade (Cupolillo, 2015), which could have altered the availability of reproductive habitats and altered the composition of amphibian fauna (Mac-Nally *et al*., 2017; Vasconcelos *et* al., 2018; Shivo *et al*., 2019).

Dendropsophus bipunctatus and *T. mesophaeus* were abundant species found throughout the whole time of this study field samplings. The former was found in almost any marsh in the park and its surroundings, the latter being found on any rainy day, perched on vegetation close or not to water sources. Both species have already been recorded at the municipality of Marliéria, in the surroundings of PERD (Pereira *et* al., 2016; Santana *et al.*, 2016), but were not recorded inside the park until Guimaraes *et al*. (2019). Thus, it is possible to hypothesize that the presence of these species could be a result of recent colonization (Lopes, 2008)

PERD vegetation is comprised of natural open areas such as marches and silted lagoons inside Atlantic Forests woodlands which is surrounded by a degraded matrix formed by a mosaic of pastures, eucalypt plantations and small forest fragments (Gilhuis, 1986). This makes PERD a place capable of sheltering high amphibian diversity, generalist species (e.g. *B. albopunctata*, *B. faber*, *D. minutus*, *D. elegans, S. fuscovarius*) (Frost, 2019), Atlantic Forest associated species from open habitats and forest dependent species.

Dendropsophus anceps, *D. bipunctatus*, *S. argyreornata* and *T. mesophaeus* are species typically associated to open areas in the coastal the Atlantic Forest biome (Frost, 2019). These species could have reached the park dispersing through forest remnants and flooded regions along the lowlands of the Rio Doce river. Such lowlands favor the dispersion of coastal species thus promoting a similarity of the amphibian fauna coastal regions with the interior, as is observed in portions of the Paraiba do Sul (Feio &

Ferreira, 2005; Santana *et al.*, 2010) Jequitinhonha (Feio & Caramaschi 1995, 2002) and Muriaé river basins (Perreira *et al*., 2016). Furthermore, the presence of *A. brunoi* typically associated to restinga vegetations (Teixeira *et al*., 2002) and *I. langsdorffii,* a species dependent of forested habitats (Molo-Neto & Teixeira Jr, 2012; Frost., 2019), demonstrate the importance of PERD as an interior forest refuge. It should also be noted that the occurrence of *A. brunoi* represents the only record of this species in Minas Gerais, which emphasizes the importance of re-evaluating its conservation status in the state.

Moreover, we must emphasize the fact that the last record of *O. carnevallii* inside PERD's perimeter (the species type locality) dates from 1996. Since then, the species has not been recorded in the reserve despite sampling efforts performed by Rievers *et al.* (2014), Henrique Folly, in 2016 (personal communication), and during the consecutive 4 months of sampling performed by us in 2017/2018. Also, there are only three topotypes of this species collected and deposited at the MZUFV collection. *Ololygon carnevallii* usually reproduces in backwaters associated with permanent streams or slow-flowing swamps surrounded by semideciduous forest (Pezzuti *et al.*, 2016). We visited exactly the collection site of the type series, described as the interior of a floodable forest associated with the Dom Helvécio lagoon (Caramaschi & Kisteumacher, 1989), but which we discovered to be close to the park's greenhouse and seedling nursery rather than closer to the lagoon's shores (R.N. Feio personal communication). Today, the closest margin of the lagoon from the type locality retreats due to the strong drought affecting the region in recent years (Cupollilo, 2015) and there is no trace of the suitable reproductive environment known for *O. carnevallii*. However, *O. carnevallii* has been recorded in relatively close areas (about 10 km in a straight line) to the park, in the municipality of Marliéria.

Intraspecific variation

The development of molecular technology highly increased the uncovering of several cryptic species (Bickford *et al*., 2006; Vieites *et al*., 2009; Lyra *et al*., 2017), making understanding the level of intraspecific variation to help determine the morphological boundaries between different species more important than ever. In our data intraspecific variations appeared in almost all characters, however, some tend to vary more than others. Snout-vent length varied in same-sex individuals within all species. Some

examples include *B. albomarginata* which ranged 15.9 mm (ca. 30% of max SVL) in male adult size (n=15). *S. eurydice* varied 11.3 mm (ca. 24% of max SVL) in adult females SVL (n=11). Snout shape in dorsal and lateral views varied within 43% of analyzed species. The shape of the subarticular tubercles on hands and feet varied in about 72% of analyzed species. These were more commonly rounded but varied from rounded to divided, bifid, squarish and most rarely lanceolate shape. The outer metacarpal tubercle varied in shape in 32% of species, and in presence/absence in 15%. The most common variation here was outer metacarpal tubercle bifid or divided. The outer metatarsal tubercle varied in presence/absence in 32% of species, and in 29% it could be present but barely noticeable (indistinct). The degree of webbing on hands and feet varied in all species. Webbing extension could vary as much as one or two phalanxes in between same-species individuals as found in *B. albopunctata, B. crepitans, D. anceps* and *S. eurydice.* The inner tarsal fold varied from distinct or indistinct and extension on up to 47% of species. The tubercle row on the tarsus ventrolateral surface absence/presence varied in 29% of species. Most characters were prone to some level of variation, however the ones described here presented variation at higher levels (20% or more). Therefore, these characters should be used with caution in decision making situations for these species groups, such as attribute these as diagnostic characters for new species descriptions.

Furthermore, almost any external character could be altered or damaged by incorrect fixation techniques. However, there are those characters which we observed were more easily altered even if fixation technique was properly applied. We observed that the internarial region shaped, nostrils shape and protuberance, protuberant structures such as spicules, spines, tubercles and calcars, tongue shape, dermal folds and coloration are the most easily affected characters by suffering shape alterations or breaking. Therefore, these characters should also be used with caution.

Taxonomic accounts and the importance of local taxonomic treatments

All analyzed species were determined up to species level except for *Scinax* aff. *x-signatus*. The species found in this study resembles *Scinax x-signatus* (Spix, 1824) and was so identified by Feio *et al.* (1998) and Guimarães *et al.* (2019). Furthermore, this species has already been recorded in other sites in the Rio Doce River basin (*e.g*. São Pedro & Feio, 2011). However, as was highlighted by Pombal *et al*. (1995) the *S. x-*

signatus group composition is highly variable, and literature is confusing regarding which populations could be called *S. x-signatus.* In addition, the holotype is lost, no neotype is assigned (Hoogmoed & Gruber, 1983; Pugliese *et al*., 2009) and the original description and subsequent descriptions preclude correct identification (Pombal *et al*., 1995). Therefore, the correct identification of this species depends on a review of *S. x-signatus* and we hereby refrain from determining this species to the species level to avoid spreading unreliable information.

Around 61% (17) of the Hylidae and Phyllomedusidae species evaluated here were described before 1900 and around 88% (25) before 1950. Of these, only 25% have more recent and detailed descriptions, *S. eurydice* (Bokermann, 1968), *B. albopunctata*, *B. faber*, *D. minutus*, *D. seniculus*, *I. langsdorffii*, *S. prasinus* (Heyer *et al*., 1990), *O. carnevallii* (Caramaschi & Kisteumacher, 1989) and *S. fuscomarginatus* (Brusquetti *et al*., 2014). For this reason, most of the original descriptions are poorly detailed, incomplete, and non-standardized [*e.g. B. crepitans* (Wied-Neuwied, 1824) and *D. bipunctatus* (Spix, 1824)]. Therefore, the descriptions presented here for *A. brunoi*, *B. albomarginata*, *B. crepitans*, *B. semilineata*, *D. anceps*, *D. bipunctatus*, *D. decipiens*, *D. elegans*, *O. argyreornata*, *S. cuspidatus*, *S. fuscovarius*, *T. mesophaeus*, *T. nigromaculatus*., *P. burmeisteri* and *P. rohdei* can be considered one of the only detailed descriptions available in literature and thus of great value for the taxonomy of their respective groups.

For instance, Prado *et al*. (2012) uncovered that *B. albopunctata* has three geographically structured lineages with well supported clades, one from Chapada dos Guimaraes, one for the Central Cerrado region and a Southeastern clade, where PERD population is inserted. Since the most recent description of *B. albopunctata* is that of Heyer *et al*. (1990), also inserted into the Southeastern clade, PERD description and illustrations could be an important addition for understanding intraspecific variation of the Southeastern clade and its taxonomy.

Fouquet *et al*. (2016) and Peloso *et al*. (2018) presented the existence of many distinct lineages within the *B. semilineata* group. Fouquet *et al.* (2016) focused their studies on northern populations and included two topotypic samples from the Atlantic Forest in the State of Rio de Janeiro, Southeastern Brazil. Even so, they found five candidate species. Peloso *et al.* (2018) included in their analyses two more Southeastern samples from the State of Espirito Santo. They corroborated one of Fouquet *et al.*

(2016) lineages as a candidate species and included the other four in an unresolved clade named the *B. semilineata* species complex. Surprisingly the two samples from Espirito Santo did not form a monophyletic clade with the topotypic samples from Rio de Janeiro, suggesting that the population from Espirito Santo could be another candidate species (Peloso *et al*., 2018). The population analyzed by Peloso *et al*. (2018) from Espirito Santo is geographically close to PERD population, which could also be part of this suggested candidate species. However, even with two relatively recent molecular studies the *B. semilineata* species complex remains largely unresolved. Morphological studies for *B. semilineata* are still scarce. Its original description was written in Latin, dates from the 19th century (ref ,1825) and is little detailed for modern standards, since then no detailed descriptions were published. Because of the original description older standards, it will be hardly comparable to more recent descriptions that could be made. Therefore, morphological description of *B. semilineata* presented here is the most recent and detailed ever presented. If a new species from the *B. semilineata* species complex is described, PERD description would be the only available for reliable morphological comparison (Peloso *et al.,* 2018).

Within Phyllomedusidae, Ramos *et al*., (2019) found five different lineages in the *P. rohdei* species complex and highlighted the Doce River basin lineage as a putative species for taxonomic description. Within our study, morphological data on 15 individuals from the Doce River Basin putative new species were described and therefore made promptly available to aid the description of this new species.

Furthermore, PERD houses other species with molecular analyses that indicate these may correspond to more than one taxon under the same name, e.g. *D. minutus* (Hawkins *et* al., 2007; Gehara *et al*., 2014; Estupiñán *et al*., 2016), *S. eurydice* (Menezes *et* al., 2016), *S. fuscomarginatus* (Brusquetti *et al*., 2014) and *P. burmeisteri* (Brunes *et al*., 2014). Together these, and the above commented taxa, represent 30% (9) of the Hylidae and Phyllomedusidae from PERD, all species with complicated taxonomic issues which could benefit from recent descriptions for morphological comparisons and further investigations.

Local taxonomic treatments are impactful works for the development of basic (taxonomy, systematic, biogeography) and applied science (conservation, education) (Funk, 2006). For instance, the classic work Frogs of Boracéia (Heyer *et al*., 1990), has 879 citations (Scholar Google, 2019) and is possibly one of the most cited descriptive

taxonomic works from Brazil. Nevertheless, few are the published papers with this scope concerning amphibians in the neotropics (e.g. Cochran 1955; Cochran & Goin, 1970; Duellman 1970; Heyer *et al.* 1990).

In this work we present meticulous morphological descriptions and high-quality images of 26 species of Hylidae and two Phyllomedusidae from one of the largest semideciduous seasonal forest fragments of eastern Brazil, many of which lacked detailed descriptions. We hope these descriptions will be useful for future works and serve as an incentive for the development of new local taxonomic treatments.

Future perspectives

The idea that e-taxonomy can accelerate the resolution of taxonomic problems and give renewed value to taxonomy has been advocated for many years (Godfray 2002; Clark *et al*., 2009; Scotland & Wood, 2012). Our goal is to provide a basic taxonomic work that would be easily incorporated into the trends of e-taxonomy. For that we intend to develop a multi-access taxonomic key through LUCID softwares and provide high quality and heavily illustrated descriptions off all anurans from PERD with comparisons with their available descriptions. Multi-access keys are powerful and easy to use identification tools that can be illustrated and made available online through computers or smartphones, making the process of species identification faster and more accessible.

Acknowledgements

We thank Fernando Leal, Igor R. Ferreira, Jhonny J. M. Guedes, Paulo D.P. Pinheiro, Pedro P.G. Tauce and Tiago L. Pezzuti for helpful comments during the elaboration of this manuscript. Camila R. Rievers and Renato N. Feio for insights during the preparation of our field expedition. For help during our long sampling expedition we thank Arthur França, Brenda C. Silva, Cesar A. Manduca S., Daniela F. dos Santos, Emanuelle S. Otoni, Isabel de C. C. Marques, Jéssica Alves T., M. Fernanda L. López, Nathalia N. Alves, Pedro C. Rocha, Pedro Tunes P., Sofia Velasquez M. For crucial support with field logistics, rescue's and an amazing hospitality during my stay at PERD I thank André Yves, Lúcio M. C. Lima, Ricardo C. Arrais and the whole PERD staff with special regards to Antônio J. Caetano (Toninho), Celso Damasceno, Claudivan M. dos Santos (Kau), Gecimar M. da Silva (Cimar), Ivanil Morreira (Ivan),

João J. da silva (J. Grilo), José P. dos Reis (Perpétuo), Kamylla K. S. Vasconcelos, Marcos L. Francisco (Marquim), Marlon A. de Souza (Marlim), Maria D. S. V. e Castro (Dora), Osvaldino Moreira (Nico), Renato L. Magalhães, Romário A. da Silva, Sebastião L. Pinto (Tião), Selma S. Gonçalves, Sidimario Freitas and Vinicius de A. Moreira. For financial support we thank Coordenação de Aperfeicoamento de Pessoal de Nivel Superior (CAPES).

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