



A new species of the *Pristimantis orestes* group (Amphibia: Strabomantidae) from the high Andes of Ecuador, Reserva Mazar

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Abstract

We describe a new *Pristimantis* from La Libertad and Rumiloma, Reserva Mazar, Andes of Southeastern Ecuador, at elevations between 2895–3415 m. This species is assigned to the *P. orestes* group, from whose members it differs by its small body size (adult males ≤ 18.1 mm; adult females ≤ 23.7 mm), usually reticulated ventral pattern, and visible tympanum. The vocalization of the new species consists of a series of calls; each call is composed by a pulsed, non-modulated note in frequency, and with a dominant frequency of 3122–3171 Hz. A molecular phylogeny based on a fragment of the mitochondrial gene 12S shows that the new species is sister to *Pristimantis simonbolivari*.

Key words: Cañar, New species, *Pristimantis orestes* Group, Reserva Mazar

Resumen

Se describe una nueva especie de rana del género *Pristimantis* de las localidades de La Libertad y Rumiloma, Reserva Mazar, Andes del sureste del Ecuador, a elevaciones de 2895–3415 m. La especie es asignada al grupo *P. orestes*, de cuyos miembros difiere por su pequeño tamaño (LRC en hembras ≤ 23.7 mm; en machos, ≤ 18.1 mm), vientre normalmente reticulado, y tímpano visible. La vocalización de anuncio de la nueva especie consiste de una serie de cantos; cada canto está compuesto por una nota pulsada, sin modulación de frecuencia y con una frecuencia dominante de 3122–3171 Hz. Una filogenia molecular inferida a partir de un fragmento del gen mitochondrial 12S muestra que la especie nueva es hermana a *Pristimantis simonbolivari*.

Palabras claves: Cañar, Especie nueva, Grupo *Pristimantis orestes*, Reserva Mazar

Introduction

The diversity of *Pristimantis*, currently with 449 species (AmphibiaWeb 2012), seems to be limitless. In only 12 years (since 2000), 97 species of this genus have been described (updated from Frost 2011) and there is no reason to think that the description rate will slow down, especially with the advent of molecular techniques, which have facilitated the discovery of cryptic diversity (e.g., Stuart *et al.* 2006; Fouquet *et al.* 2007; Elmer *et al.* 2007; Castroviejo *et al.* 2011).

The diversity of *Pristimantis* seems to be catalyzed by a combination of geographic and biological variables. The topographic and ecological complexity of the Andes has been proposed to favor allopatric speciation, both through niche conservatism or ecological shift (Graves 1988; Lynch & Duellman 1997). Additionally, allopatric speciation seems to be a very likely mechanism in groups that present low dispersal abilities and are sensitive to climatic factors, such as humidity and temperature (Wiens 2004).

In Ecuador, the exploration of Andean forests has resulted in the discovery of several new species of *Pristimantis* in recent years (e.g., Guayasamin & Funk 2009; Yáñez-Muñoz *et al.* 2010; Reyes-Puig *et al.* 2010;

Valencia *et al.* 2010; Arteaga-Navarro & Guayasamin 2011; Reyes-Puig & Yáñez-Muñoz 2012). Herein, using morphological, molecular, and acoustic data, we describe a new species of the *Pristimantis orestes* Group (*sensu* Hedges *et al.* 2008), which is endemic of paramo and humid upper montane forest in the Andes of southern Ecuador and northern Peru (Hedges *et al.* 2008), and contains 17 species —*Pristimantis atrabracus* (Duellman & Pramuk 1999), *P. bambu* (Arteaga-Navarro & Guayasamin), *P. chimu* (Lehr 2007), *P. cordovae* (Lehr & Duellman 2007), *P. corrugatus* (Duellman, Lehr, & Venegas 2006), *P. mariaelenae* (Venegas & Duellman 2012), *P. melanogaster* (Duellman & Pramuk 1999), *P. orestes* (Lynch 1979), *P. pataikos* (Duellman & Pramuk 1999), *P. pinguis* (Duellman & Pramuk 1999), *P. seorsus* (Lehr 2007), *P. simonbolivari* (Wiens & Coloma 1992), *P. simonsii* (Boulenger 1900), *P. stictoboubonus* (Duellman, Lehr, & Venegas 2006), *P. stipa* (Venegas & Duellman 2012), *P. ventriguttatus* (Lehr & Kohler 2007), and *P. vidua* (Lynch 1979). Hedges *et al.* (2008) noted that the *Pristimantis orestes* group is not monophyletic, and that morphological traits shared among species within this group are likely the product of convergent evolution to cope with similar habitats; the polyphyly of the *P. orestes* group was also inferred in the phylogeny of Pinto-Sánchez *et al.* (2012). Our findings reveal that the new species is the sister species to *P. simonbolivari*.

Methods

Terminology and Morphological data: Generic and family names follow the taxonomy proposed by Hedges *et al.* (2008). Specimens were sacrificed with 20% benzocaine, fixed in 10% formalin and stored in 70% ethanol. Diagnoses and descriptions generally follow Duellman & Lehr (2009). We examined comparative alcohol-preserved specimens from the herpetology collection at the Museo de Zoología of the Universidad Tecnológica Indoamérica (MZUTI), Museo de Zoología of the Pontificia Universidad Católica del Ecuador (QCAZ), and Natural History Museum and Biodiversity Research Center of University of Kansas (KU). See Appendix I. Morphological measurements were taken with Mitutoyo® digital caliper to the nearest 0.1 mm, as described by Guayasamin and Bonaccorso (2004), except when noted, and are as follow: (1) snout–vent length (SVL); (2) tibia length; (3) foot length; (4) head length; (5) head width; (6) interorbital distance; (7) upper eyelid width; (8) internarial distance; (10) eye diameter; (11) tympanum diameter; (12) radioulna length; (13) hand length; (14) Finger I length; (15) Finger II length = distance from outer margin of palmar tubercle to tip of Finger II; (16) disc of Finger III. Sexual maturity was determined by the presence of vocal slits in males and by the presence of eggs or convoluted oviducts in females.

Phylogenetics: The new species was included in a phylogenetic analysis published by Arteaga-Navarro and Guayasamin (2011), using the mitochondrial gene 12S. The methods related to DNA extraction, amplification, and sequencing, as well as those for phylogenetic inference were described in detail in Arteaga-Navarro and Guayasamin (2011). GenBank accession numbers are listed in Appendix 1.

Vocalizations: Sound recordings were made with an Olympus LS-10 Linear PCM Field Recorder and a Sennheiser K6–ME 66 unidirectional microphone. Calls were analyzed in the Sound Analysis Software RAVEN (Charif *et al.* 2004). Call variables were obtained as described in Hutter and Guayasamin (2012) and are: call rate, interval between calls, call duration, number of notes per call, call type (tonal or pulsed), number of pulses per call, dominant frequency, 1st harmonic frequency, and 2nd harmonic frequency.

Systematics

Pristimantis mazar Guayasamin & Arteaga, new species

Holotype. QCAZ 27556 (SC 12660), an adult female (Figs. 1, 2) obtained by Joe Mendelson, Michelle Cummer, and Martín Bustamante on February 2004, at La Libertad, Reserva Mazar (02.546589° S, 78.698375° W; 2895 m.a.s.l.), Cantón Azogues, Provincia Cañar, Ecuador; airline distance from Rivera is 6.6 km.

Paratypes. Paratypes QCAZ 27553–54 have the same collecting data as the holotype. Paratypes QCAZ 27493, 27503–05, 27507–08, 27511, 27514, 27519, 27536, 27555, 27560 were collected by Joe Mendelson, Michelle Cummer, and Martín Bustamante on February 2004, at Rumiloma, Reserva Mazar (02.574616° S,

78.745462° W; 3400 m.a.s.l.), Cantón Azogues, Provincia Cañar, Ecuador. Paratypes QCAZ 29563, 29565, 32619, 49750, 49764 were obtained either by Alejandro Arteaga or Martín Bustamante at the type locality in following years. From all these, ten are adult males (QCAZ 27493, 27504–05, 27507, 27519, 27553–54, 29563, 29565, 49764) and nine adult females (QCAZ 27503, 27508, 27511, 27514, 27536, 27555, 27560, 32619, 49750).

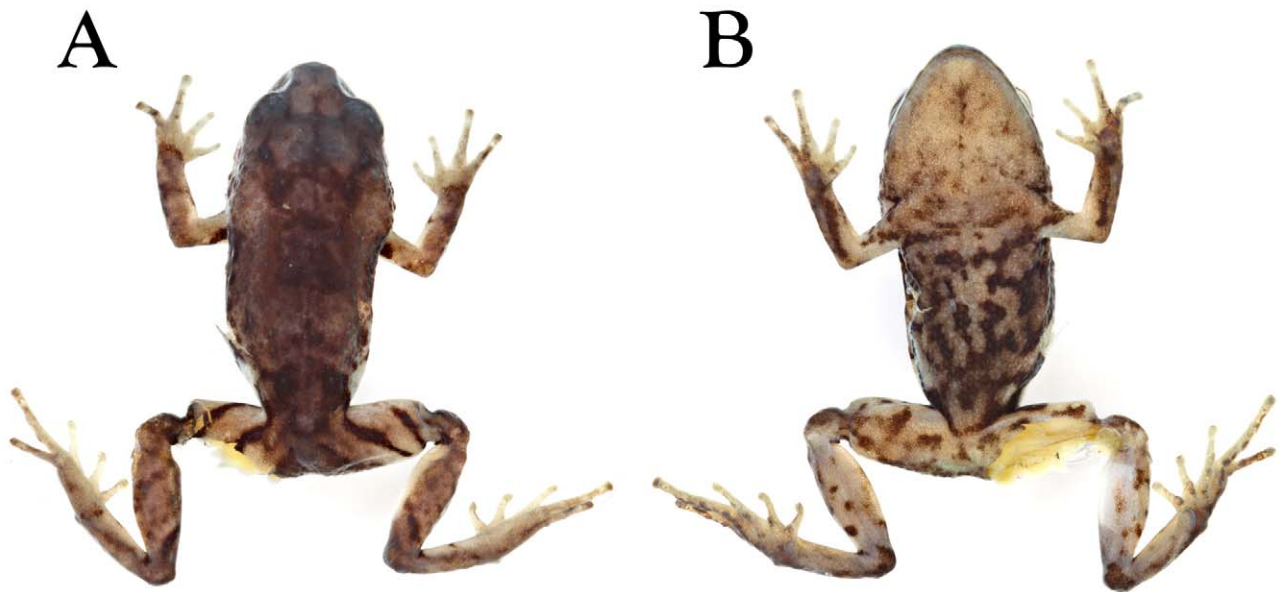


FIGURE 1. Adult female holotype of *Pristimantis mazar*, QCAZ 27556.

Diagnosis. The new species is placed in the genus *Pristimantis*, as diagnosed by Hedges *et al.* (2008), because of the presence of the following traits: cranial crests absent, dentigerous process of the vomers present, and T-shaped terminal phalanges. *Pristimantis mazar* is diagnosed by having: (1) skin texture of dorsum shagreen with few widely interspersed low tubercles, which became more abundant on flanks and posterior end of dorsum; occipital and dorsolateral folds low or absent; venter areolate; (2) tympanic membrane and tympanic annulus present, with upper rim obscured by supratympanic fold; (3) snout short, pointed in dorsal view and rounded in profile; (4) upper eyelid lacking enlarged tubercles; tubercles are low and almost undistinguishable from surrounding skin texture; cranial crests absent; (5) dentigerous process of vomers well developed, oblique in outline, positioned posterior to level of choanae and separated medially by distance less than width of odontophore, each process bearing 0–7 teeth in females and 0–3 teeth in males; (6) males with a small subgular vocal sac; vocal slits present; nuptial pads absent; (7) first finger shorter than the second; discs on fingers rounded, slightly expanded (Fig. 2); (8) fingers bearing narrow lateral fringes; palmar tubercle bifurcated distally; supernumerary tubercles round, fleshy (Fig. 2); (9) ulnar tubercles low or absent in females, present and low in males; inner tarsal fold present, short; (10) heel and tarsal tubercles low or absent in females, present and low in males; (11) toes bearing narrow fringes; webbing absent; Toe V slightly longer than Toe III; toe discs rounded and slightly expanded (Fig. 2); (12) inner metatarsal tubercle elliptical, about 1.4–2 times the size of outer, rounded metatarsal tubercle; supernumerary plantar tubercles round and fleshy (Fig. 2); (13) in ethanol, dorsum creamish gray to dark brownish gray, with or without darker marks and small white spots; lower flanks with a black-and-white pattern; venter from uniformly whitish cream to cream with darker marking that may form a reticulated pattern. In life, dorsum brown to reddish brown, with or without small white dots and dark brown marks; black spots on groin; flanks and venter cream to gray, usually with blackish mottling that may form a reticulated pattern; iris cream to pale brown, with reddish brown to orange horizontal streak; (14) small SVL in females 19.9–23.7 (mean = 21.5 ± 1.18 , $n = 10$), in males 14.9–18.1 mm (mean = 16.6 ± 1.03 , $n = 10$).

Similar species. The smaller, non-overlapping SVL of adult males of *Pristimantis mazar* readily distinguishes them from most species of the *P. orestes* group (*P. atrabracus*, *P. chimu*, *P. cordovae*, *P. corrugatus*, *P. melanogaster*, *P. orestes*, *P. pataikos*, *P. pinguis*, *P. simonsii*, *P. stictoboubonus*; Table 1). Similarly, adult females of

TABLE 1. Character states in species of the *Pristimantis orestes* group (modified from Arteaga-Navarro & Guayasamin, 2011).

Species	SVL males (in mm)	SVL females (in mm)	Eyelid tubercles	Disks on outer fingers	Ulnar tubercles	Heel and tarsal tubercles	Cranial crests	Vocal slits	Ventral coloration
<i>P. atrabrachus</i> ¹	18.9 (<i>n</i> = 1)	22.7 (<i>n</i> = 1)	Absent	Slightly expanded	Absent	Absent	Absent	Present	Creamy tan with fine brown reticulation
<i>P. bambu</i> ²	17.4–20.1 (<i>n</i> = 13)	24.6–26.4 (<i>n</i> = 5)	Several, barely visible; or 1–2 small	Slightly expanded	Present, coalesced into fold	Absent	Absent	Present	Uniformly cream to grayish tan
<i>P. chimu</i> ¹	19.4–20.5 (<i>n</i> = 2)	22.6–25.7 (<i>n</i> = 16)	Several, small	Slightly expanded	Present, coalesced into fold	Absent	Present, low	Absent	Mottled tan and dark brown
<i>P. cordovae</i> ^{1,3}	19.9–27.1 (<i>n</i> = 9)	23.2 (<i>n</i> = 1)	Several, low	Slightly expanded	Present	Small tubercle on heel; absent on tarsus	Absent	Present	Tan with small gray spots
<i>P. corrugatus</i> ^{1,4}	19.5–19.8 (<i>n</i> = 2)	25.8–26.2 (<i>n</i> = 5)	One prominent, conical tubercle	Broadly expanded	Present	Conical tubercle on heel; one low, diffuse tubercle on tarsus	Absent	Present	Creamy orange with brown reticulation and flecks
<i>P. mariaelenae</i> ⁵	16.0–19.4 (<i>n</i> = 5)	23.7–27.8 (<i>n</i> = 3)	Several, low	Slightly expanded	Present, coalesced into fold	Present, low	Absent	Present	White, cream, or orange-ochre with dark brown or black blotches
<i>P. mazar</i>	14.9–18.1 (<i>n</i> = 10)	19.9–23.7 (<i>n</i> = 10)	Several, low	Slightly expanded	Absent or present and low; not forming fold	Absent or present and low	Absent	Present	Whitish cream to cream with darker marking that may form reticulation
<i>P. melanogaster</i> ^{1,6}	20.6–22.8 (<i>n</i> = 3)	24.2–24.7 (<i>n</i> = 2)	Absent	Slightly expanded	Absent	Absent	Absent	Absent	Dark gray
<i>P. orestes</i> ⁷	19.8 (<i>n</i> = 1)	18.1–27.2 (<i>n</i> = 5)	Absent	Slightly expanded	Present, low	Present, low	Absent	Present	Gray to pale brown spotted with brown

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TABLE 1. (continued)

Species	SVL males (in mm)	SVL females (in mm)	Eyelid tubercles	Discs on outer fingers	Ulnar tubercles	Heel and tarsal tubercles	Cranial crests	Vocal slits	Ventral coloration
<i>P. pataikos</i> ¹	18.5–19.0 (n = 2)	21.6 (n = 1)	Absent	Slightly expanded	Absent	Absent	Absent	Present	Creamy gray
<i>P. pinguis</i> ¹	22.0–24.8 (n = 4)	24.6–29.8 (n = 10)	Absent	Slightly expanded	Coalesced into short fold	Absent	Absent	Present	Tan with brown flecks or reticulation
<i>P. seorsus</i> ¹	17.6–19.4 (n = 3)	20.9 (n = 1)	Absent	Slightly expanded	Present as tubercles or as a fold	Conical tubercle on heel; those on tarsus forming ridge	Present, low	Absent	Mottled tan and gray
<i>P. simonbolivari</i> ^{8,10}	16.0–19.2 (n = 4)	18.5–24.7 (n = 25)	Absent or present and low	Slightly expanded	Absent or present and low	Absent or present and low	Absent	Present	Orange (males) or dark brown with lighter spots (females)
<i>P. simonsii</i> ⁹	19.3–25.9 (n = 10)	26.2–33.3 (n = 10)	Absent	Slightly expanded	Coalesced into low fold	Absent	Absent	Absent	Yellow with or without brown markings
<i>P. stictobouabonus</i> ⁴	20.0–21.5 (n = 2)	26.0 (n = 1)	Absent	Discs on Fingers I–II not expanded, others slightly expanded	Absent	Absent	Absent	Absent	Cream with brown flecks
<i>P. stipa</i> ⁵	15.6–24.4 (n = 4)	35.1 (n = 1)	Absent	Not expanded	Coalesced into low fold	Absent	Absent	Absent	Dark brown with white spots or mottling
<i>P. ventriguttatus</i>	17.8–21.8 (n = 3)	29.4 (n = 1)	Present, low	Broadly expanded	Present	Small, present on heel and tarsus	Absent	Present	Brown with cream spots
<i>P. vidua</i> ⁷	–	18.0–23.1 (n = 8)	Present, low	Slightly expanded	Absent	Present only on tarsus	Absent	–	Cream with brown flecks

* Source: ¹Duellman & Lehr (2009), ²Arteaga-Navarro & Guayasamin (2011), ³Lehr & Duellman (2007), ⁴Duellman *et al.* (2006), ⁵Venegas & Duellman (2012), ⁶Duellman & Pramuk (1999), ⁷Lynch (1979), ⁸Wiens & Coloma (1992), ⁹Duellman (2000), ¹⁰this work.

P. mazar are smaller than females of *P. bambu*, *P. corrugatus*, *P. mariaelenae*, *P. melanogaster*, *P. pinguis*, *P. simonsii*, *P. stictoboubonus*, *P. stipe*, and *P. ventriguttatus* (Table 1). The new species differs from *P. vidua* by its ventral color pattern (usually with a reticulated pattern in *P. mazar*; with minute brown flecking in *P. vidua*), skin texture (dorsolateral folds present in *P. vidua* and usually absent in *P. mazar*), and tympanum (visible in *P. mazar*, concealed beneath skin in *P. vidua*). The call of the new species has a higher dominant frequency (3122–3171 Hz in *P. mazar*; 2500–2560 Hz in *P. bambu*) and is longer (0.14–0.022 s in *P. mazar*; 0.005–0.006 s in *P. bambu*) than the call of *Pristimantis bambu*. Finally, *P. mazar* differs from its sister species mostly by having a reticulated venter (Fig. 3; uniform in males and females of *P. simonbolivari*), notorious black stripes on flanks (Fig. 3; uniform dark coloration in *P. simonbolivari*), and by inhabiting on the Cordillera Oriental of the Ecuadorian Andes (*P. simonbolivari* is restricted to one locality in the Cordillera Occidental). The two sister species are reciprocally monophyletic (Fig. 7).

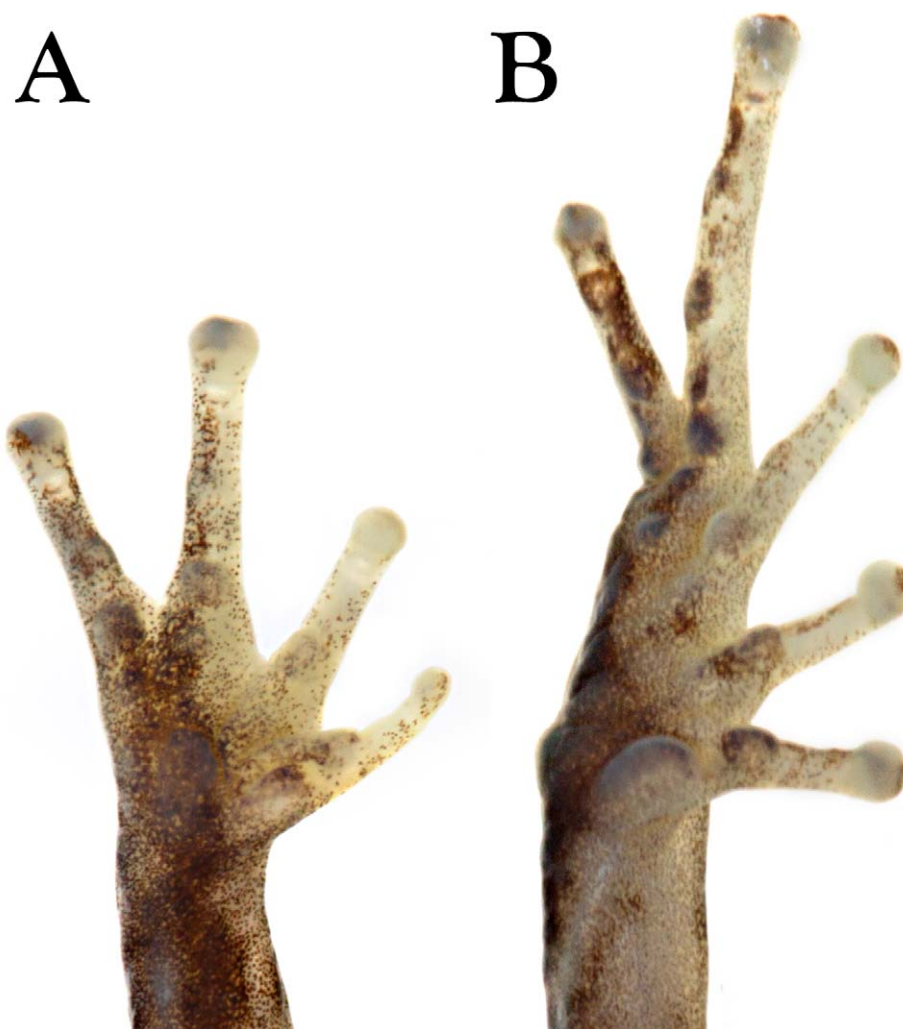


FIGURE 2. (A) Right hand of *Pristimantis mazar*. (B) Right foot of *Pristimantis mazar*. Holotype, adult female (QCAZ 27556).

Description of the holotype. Adult female (QCAZ 27556; Figs. 1, 2). Head as long as wide, slightly wider than body; upper eyelid bearing few low tubercles; head width 38.5% of SVL; head length 39% of SVL; snout relatively short (snout to eye distance 15% of SVL), rounded in dorsal and lateral views; tongue longer than wide, posterior half notched and not adherent to floor of mouth; eye diameter larger than eye–nostril distance; nostrils not protuberant, directed anterolaterally; canthus rostralis weakly concave in profile; loreal region slightly concave; upper eyelid width 68% of interorbital distance; cranial crests absent; tympanic annulus distinct, except for upper border, which is obscured by supratympanic fold; tympanic membrane distinct; several low postrictal tubercles situated posteroventrally to tympanic annulus; choanae round, not concealed by palatal shelf of maxillary;

vomerine odontophores posteromedial to choanae, oblique in outline, about the same size of choana, separated medially by distance less than width of odontophore, each bearing 7–10 teeth; skin on dorsum finely shagreen with interspersed low tubercles; dorsal folds absence, except for thin middorsal fold starting at tip of snout and ending at cloaca; skin of lower flanks and venter areolate; no discoidal or thoracic folds; cloacal sheath absent; two low ulnar tubercles barely evident; outer palmar tubercle oval, large (Fig. 2); subarticular tubercles prominent, round; supernumerary palmar tubercles low and rounded, much lower than subarticular tubercles; fingers bearing narrow lateral fringes; Finger I shorter than Finger II; disc of Finger I not expanded; all other discs slightly expanded, rounded to slightly truncate (Fig. 2); ventral pads defined by circumferential grooves.

Tibia length 40.8% of SVL; foot length 39% of SVL; tarsal and heel tubercles absent; inner metatarsal tubercle oval, about twice the size of the outer, rounded tubercle; subarticular tubercles round; plantar supernumerary tubercles indistinct; toes bearing narrow lateral fringes; webbing absent; all other toe discs expanded, rounded; toes with ventral pads well defined by circumferential grooves; relative length of toes: $I < II < III < V < IV$; Toe V longer than Toe III.

Measurements of holotype (in mm). SVL 21.3; tibia length 8.7; foot length 8.3; head length 8.3; head width 8.2; interorbital distance 2.5; upper eyelid width 1.7; eye diameter 2.3; tympanum diameter 1.0; radioulna length 4.6; hand length 5.1; Finger I length 3.2; Finger II length 3.6; Disc of Finger III width 0.7.

Coloration of holotype in preservative. Dorsal surfaces pale brown with dark gray marks, including interorbital bar, W-shaped occipital mark, sacral chevron, as well as thin middorsal line. Arms faintly barred. Thighs cream with black, oblique stripes. Flanks cream with contrasting black marking; throat cream with dark brown flecks. Venter cream with black reticulum (Fig. 1).

Coloration in life (based on field notes by Alejandro Arteaga and photographs; Fig. 3). Frogs have a dorsal brown to reddish brown coloration, with or without small white dots and dark brown marks (i.e., interorbital bar, chevrons). Black spots on groin area, indistinct when the animal is at rest. Flanks and ventral surfaces cream to gray, with fine blackish mottling that in most individuals forms a reticulated pattern; ventral portion of fingers light reddish brown. Iris cream to pale brown with reddish brown to orange horizontal streak.



FIGURE 3. *Pristimantis mazar* in life, not collected, from the type locality.

Variation. Males present vocal slits and median, subgular vocal sac, and lack nuptial pads. Ulnar and tarsal tubercles are more conspicuous in males than in females. Some males present a thin vertebral fold (QCAZ 27553, 27505) and/or dorsolateral folds (QCAZ 27553, 12602, 27554). Dorsal and ventral color variation in preservative is shown in Figure 4.

Vocalization. (QCAZ 49764; adult male recorded on Reserva Mazar on February 2010, temperature not recorded). *Pristimantis mazar* emits calls at an approximate rate of 9.3 calls per minute ($n = 1$). Each call is composed by a pulsed, non-frequency modulated note (Fig. 5). Call duration is 0.14–0.022 s (mean = 0.0185 ± 0.0032 ; $n = 12$); intervals between calls vary from 4.89 to 12.24 s (mean = 6.36 ± 2.097 ; $n = 11$). The fundamental

dominant is at 3122–3171 Hz (mean = 3148.9 ± 12.551 ; $n = 12$); the 1st harmonic is at 6169–6317 Hz (mean = 6244.4 ± 37.792 ; $n = 12$) and the 2nd harmonic is at 9294–9415 Hz (mean = 9328.2 ± 37.358 ; $n = 12$).

A



B



FIGURE 4. Color variation in paratypes of *Pristimantis mazar*. (A) Dorsal view. (B) Ventral view.

Etymology. This specific epithet *mazar* refers to the type locality of the species, Reserva Mazar. The epithet is a noun in apposition.

Distribution. *Pristimantis mazar* occurs at elevations between 2895 and 3415 m in three localities within

Reserva Mazar (Provincia Cañar, Ecuador; Fig. 6): La Libertad (S02.54804, W78.69741), Rumiloma (S02.57120, W78.74563), and Gasualpampa (S02.55558, W78.70150). The area is a patchwork herbaceous paramo, native evergreen montane forest, shrub, secondary forest and pastures.

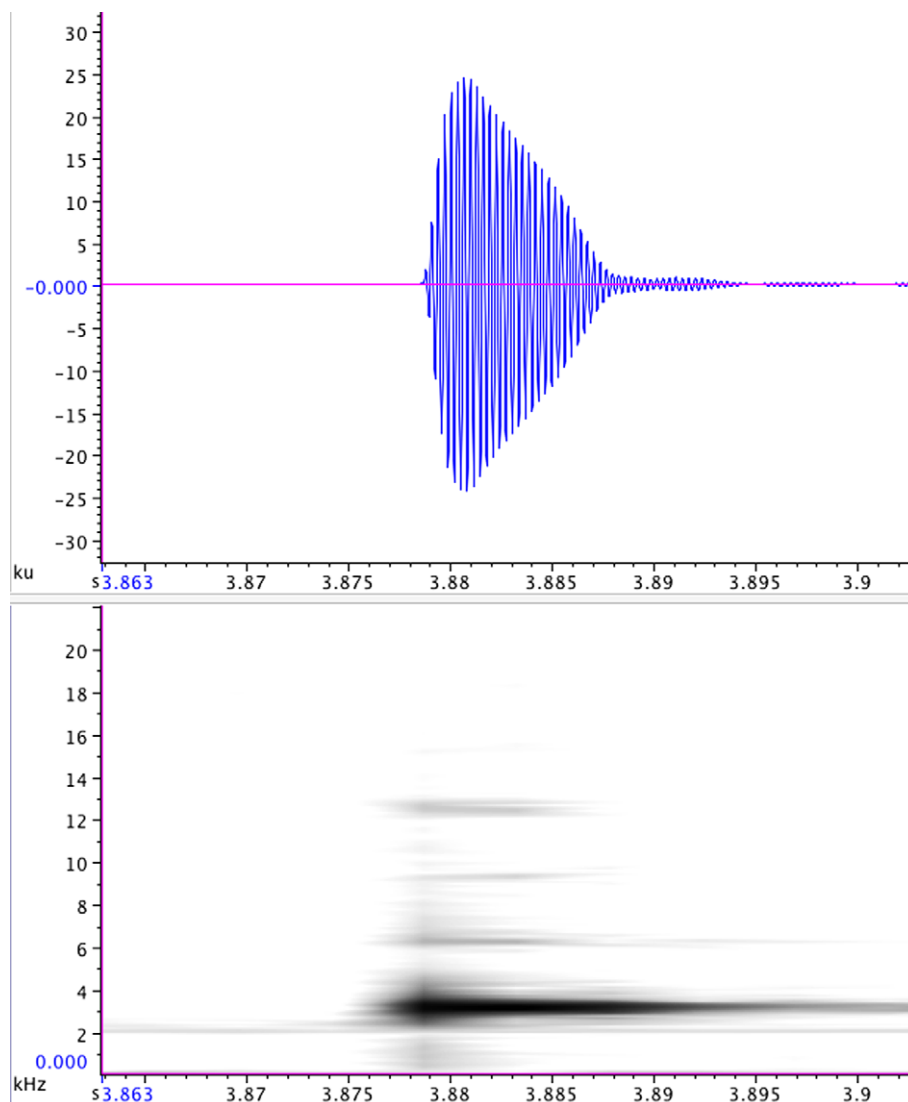


FIGURE 5. Oscillogram and sonogram of the advertisement call of *Pristimantis mazar* (individual not collected).

Natural history. At Reserva Mazar, two distinct seasons are recognizable: a dry season (Oct/Nov - Jan/Feb) and a wet season (FCT 2008). *Pristimantis mazar* is a nocturnal, cryophilic and hygrophilic specialist of herbaceous/shrubby paramos and adjacent high evergreen montane forests. This dominant, and over-abundant rainfrog is active whenever the ambient temperature and humidity levels are favorable (mostly at night), at ground level and on low vegetation (0–67 cm from ground). Diurnal retreats for *Pristimantis mazar* include grass tussocks, leaf-litter and bromeliads. The species is highly vocal and ubiquitous in open paramo, but considerably less vocal and dominant within unbroken forest. Sympatric species of *Pristimantis mazar* include *P. bambu*, *P. pycnodermis*, *P. gagliardoi*, and *P. riveti*.

Discussion. The complexity of the genus *Pristimantis* is exacerbated by its outstanding diversity and recurrent morphological similarities. At this moment, the most recent topologies of *Pristimantis* (Heges et al. 2008; Pinto-Sánchez et al. 2012), which contains about 20% of the described diversity of the genus, shows that the *P. orestes* group is not monophyletic. Under this hypothesis, similar morphologies (those that diagnose the group) have evolved multiple times, probably because of comparable environments and selective forces acting on species of different clades. Furthermore, at least one additional species groups within *Pristimantis* (i.e., *P. myersi* group) shares multiple morphological features that characterize the *P. orestes* group, also suggesting convergence. Within

the *P. orestes* group, the most closely related species to *P. mazar* is *P. simonbolivari* (Fig. 7), a species restricted to Caschca-Totoras, on the Ecuadorian Andes. However, our interpretation on the species relationships and evolution of morphological traits in *Pristimantis* may change as taxon sampling increase and more species are discovered. Currently, we hope that contributions like ours help in having a better understanding of this frog genus, as well as identifying areas of high endemism for conservation proposes. Given the available information on *Pristimantis mazar*, and following IUCN (2001) criteria, we place this species in the Data Deficient category. As the English common name for this species, we suggest *Mazar Rainfrog*. We suggest the name *Cutín de Mazar* as the common name in Spanish.

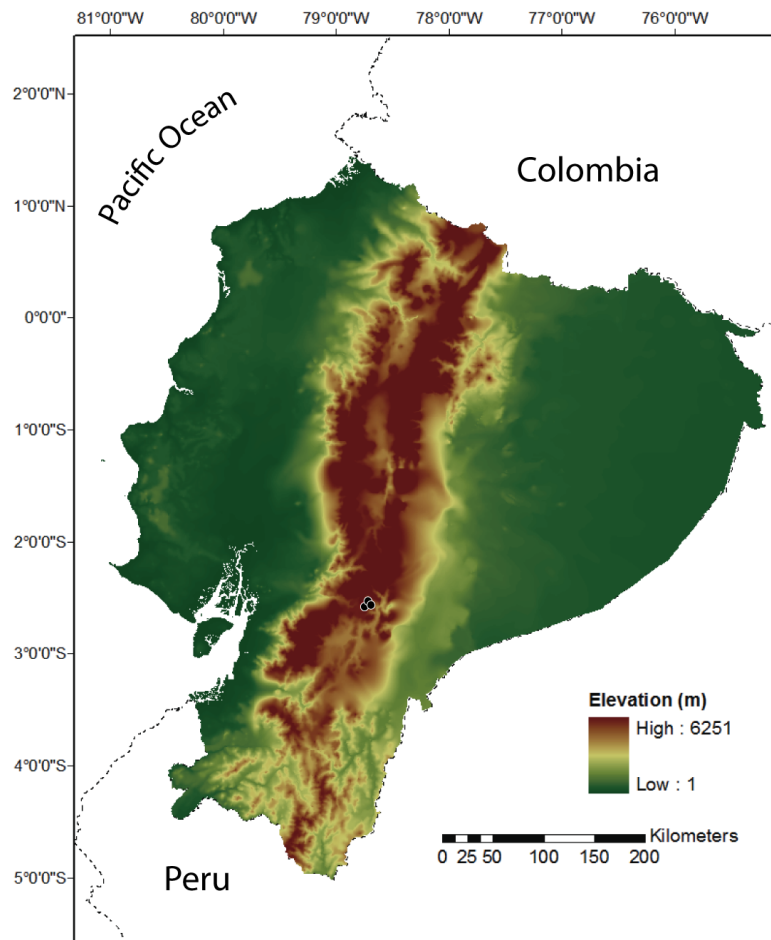


FIGURE 6. Distribution of *Pristimantis mazar* in Ecuador. The black dots indicate the localities from where the species is known.

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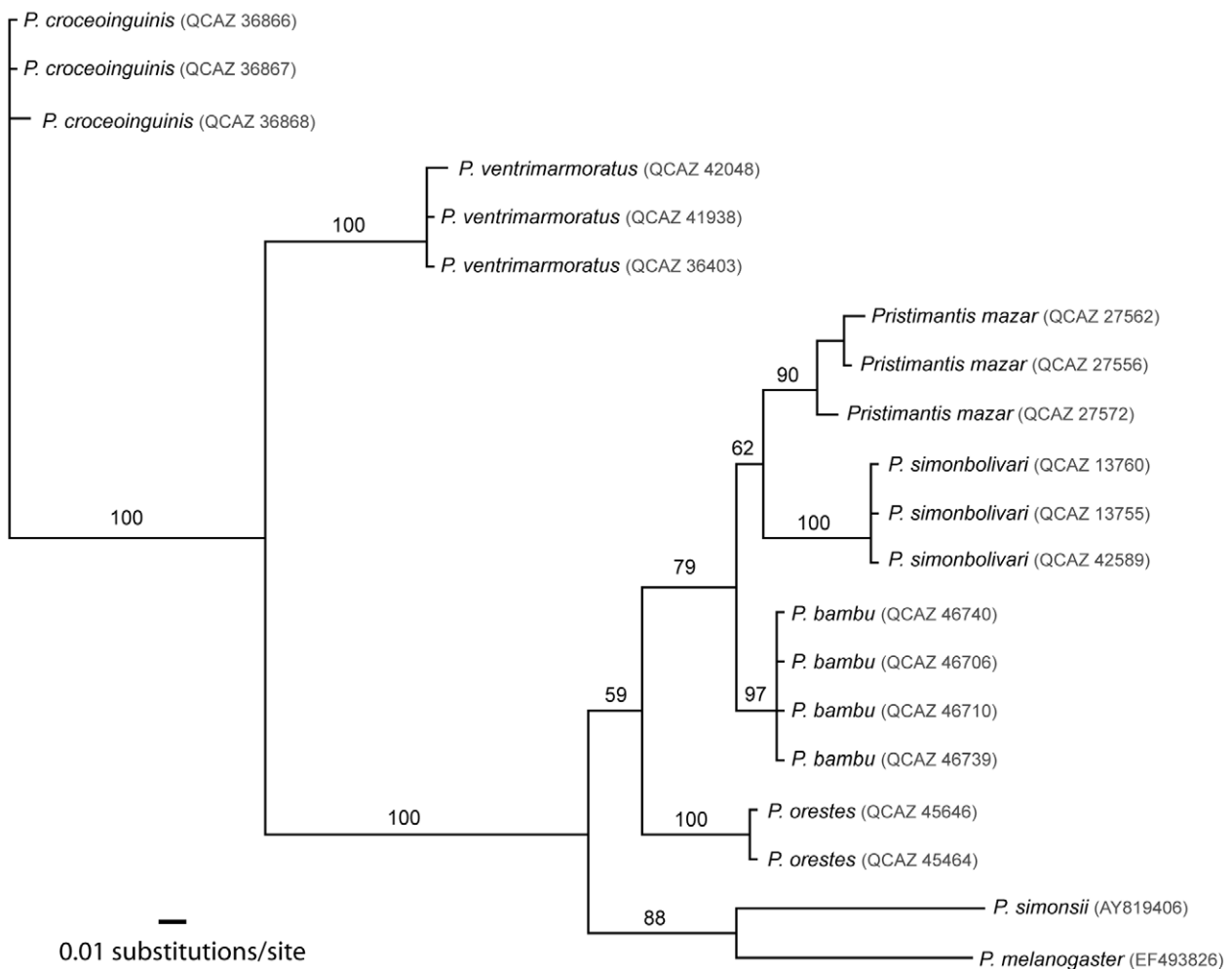


FIGURE 7. Maximum likelihood phylogeny of sampled species in the *Pristimantis orestes* group inferred using GARLI (lnL = -1384,3649; evolution model = GTR + G + I). *Pristimantis croceinguinis* and *P. ventrimarmoratus* are used as outgroups.

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APPENDIX I. Specimens examined. Genbank accession numbers are provided for *Pristimantis mazar*.

- Pristimantis bambu*.—Ecuador: *Provincia Cañar*: Reserva Mazar (02.54804 S, 78.69741 W; 2976–2989 m), QCAZ 46740 (holotype), QCAZ 46704–08, 46710–12, 46724–27, 46741–44, 47555, 47558, 47556–57 (paratypes).
- Pristimantis orestes*.—Ecuador: *Provincia Loja*: 10 km S Saraguro, KU 165553; Parque Nacional Podocarpus, Cajanuma, QCAZ 45646, 45646. *Provincia Azuay*: 1 km on the road Susudel-Cuenca, MZUTI 706
- Pristimantis mazar*.—QCAZ 27556 (Genbank JF906313), QCAZ 27562 (Genbank JF906314), QCAZ 27572 (Genbank JF906315)
- Pristimantis simonbolivari*.—Ecuador: *Provincia Bolívar*: Bosque Protector Cashca Totoras, QCAZ 13755, 13759–61, 42594–95, 35747–49, 42589, 42591, 42594.
- Pristimantis vidua*.—Ecuador: *Provincia Zamora Chinchipe*: 15 km E Loja, KU 120085.