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## A new synonym for *Pristimantis luscombei* (Duellman and Mendelson 1995) and the description of a new species of *Pristimantis* from the upper Amazon basin (Amphibia: Craugastoridae)

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### Abstract

We consider *Pristimantis achuar* as junior synonym of *P. luscombei*, based on morphological and genetic evidence. Paratype specimens of *P. luscombei* are part of a new species, which lead to taxonomic confusion regarding the identity of *P. luscombei*. We describe and name this new species as *Pristimantis miktos* sp. nov. from Juyuintza, Pastaza province, eastern lowlands of Ecuador. Morphological diagnostic characters used to distinguish the new species from other brownish Amazonian *Pristimantis* are: (1) skin of dorsum shagreen with scattered tubercles or pustules; (2) tympanum prominent; (3) a thick X-shaped scapular dermal ridge in males; and (4) an orange iris in life. *Pristimantis miktos* is an inhabitant of the lowlands forests of the Pastaza and Napo drainages in eastern Ecuador and northern Loreto in Peru, reaching elevations of up to 350 m; *P. luscombei* is widely distributed in the upper Amazon Basin of Ecuador, northern Peru and extreme western Brazil, up to 1000 m. Phylogenetic analyses reveals that *P. luscombei* and the new species are not closest relatives, as also deduced from morphological evidence.

**Key words:** Upper Amazon, Anura, barcoding, Brachycephaloidea, *Pristimantis achuar*, *Pristimantis miktos* sp. nov., phylogeny, terraranas

### Introduction

Duellman and Mendelson (1995) described several species of amphibians from northern Departamento Loreto, in Amazonian Peru. Among them, *Pristimantis luscombei* was described based on few adult specimens (3 males, one female), which included a series of subadults and juveniles. *Pristimantis luscombei* was considered a medium sized species (26.1 mm in one female; 17.7–21.3 mm in three males) commonly distinguished from other *Pristimantis* in the region by the presence of a W-shaped dermal ridge on the scapular region, a shagreen dorsum with scattered pustules, and cream or tan spot on top of the head or the snout (Duellman & Lehr 2009). Nonetheless, our examination of the type series revealed that it contains specimens of two species, one that roughly correspond to the original description but that lacks the W-shaped dermal ridge, and another one that possess it and that is identical to frogs now considered part of *Pristimantis achuar* (Elmer & Cannatella 2008). Thus, the original description of *P. luscombei* is misleading, as it lists characteristics of two very distinct species. Here, we solve this problem by providing morphological and molecular evidence to support that *P. achuar* is a junior synonym of *P. luscombei*, while two paratypes of *P. luscombei* and newly collected specimens are part of an unnamed species that we describe herein.

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**APPENDIX I.** GenBank accession numbers for loci and terminals of terraranas and outgroups sampled in this study. \*= Specimens used for phylogenetic analysis in the combined mtDNA matrix (16S+COI by codón+12S); \*\*=New sequences generated for this study.

Species	Museum Number	16S	12S	COI
<i>Craugastor longirostris</i> *	KU177803	EF493395	EF493395	-
<i>Oreobates cruralis</i>	KU215462	EU186666	-	-
<i>Oreogates saxatilis</i>	KU212327	EU186708	-	-
<i>Phrynopus barthlenae</i>	AM039653	AM039653	-	-
<i>Phrynopus bracki</i>	USNM286919	EF493709	-	-
<i>Pristimantis acatallelus</i>	UVC15863	JN371032	-	-
<i>Pristimantis acerus</i>	KU217786	EF493678	-	-
<i>Pristimantis achatinus</i>	AJC573	JN991420	-	-
<i>Pristimantis achatinus</i>	KU217809	EF493660	-	-
<i>Pristimantis achatinus</i>	UVC15953	JN371033	-	-
<i>Pristimantis actites</i>	KU217830	EF493696	-	-
<i>Pristimantis affinis</i>	nrps31	JN991424	-	-
<i>Pristimantis altamazonicus</i> *	KU215460	EF493670	EF493670	-
<i>Pristimantis altamazonicus</i> *	MC11717	DQ195449	-	-
<i>Pristimantis altamnis</i> *	QCAZ25165	EU130622	-	-
<i>Pristimantis altamnis</i> *	QCAZ25654	EU130623	-	-
<i>Pristimantis altamnis</i> *	QCAZ25658	EU130624	-	-
<i>Pristimantis altamnis</i> *	QCAZ25700	EU130625	-	-
<i>Pristimantis altamnis</i> *	QCAZ53031**	KP064155	KP064142	KP064164
<i>Pristimantis angustilineatus</i>	UVC15828	JN371034	-	-
<i>Pristimantis aniptopalmodus</i>	KU291627	EF493390	-	-
<i>Pristimantis anolirex</i>	JDL26115	DQ195450	-	-
<i>Pristimantis appendiculatus</i>	KU177637	EF493524	-	-

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**APPENDIX 1. (Continued)**

Species	Museum Number	16S	12S	COI
<i>Pristimantis ardalonychus</i> *	KU212301	EU186664	EU186664	-
<i>Pristimantis aureoventris</i>	VUB3748	JQ742152	-	-
<i>Pristimantis bipunctatus</i>	KU291638	EF493702	-	-
<i>Pristimantis bogotensis</i>	KAH061	DQ195451	-	-
<i>Pristimantis boulengeri</i>	MAV257	DQ195452	-	-
<i>Pristimantis brevifrons</i>	nrps59	JN991433	-	-
<i>Pristimantis brevifrons</i>	UVC15898	JN370959	-	-
<i>Pristimantis briceni</i>	CVULA8364	JX155297	-	-
<i>Pristimantis bromeliaceus</i>	KU291702	EF493351	-	-
<i>Pristimantis buccinator</i>	MNCNDNA9504	EU712630	-	-
<i>Pristimantis buckleyi</i>	KU217836	EF493350	-	-
<i>Pristimantis cajamarcensis</i>	KU217845	EF493663	-	-
<i>Pristimantis calcaratus</i>	UVC15881	JN104658	-	-
<i>Pristimantis calcarulatus</i>	KU177658	EF493523	-	-
<i>Pristimantis caprifer</i>	KU177680	EF493391	-	-
<i>Pristimantis carrangerorum</i>	MC10866	DQ195453	-	-
<i>Pristimantis carvalhoi</i>	MC11556	DQ195454	-	-
<i>Pristimantis caryophyllaceus</i>	CH6367	JN991436	-	-
<i>Pristimantis celator</i>	KU177684	EF493685	-	-
<i>Pristimantis cerasinus</i>	AJC1142	JN991438	-	-
<i>Pristimantis cerasinus</i>	AJC527	JN991437	-	-
<i>Pristimantis ceuthospilus</i>	KU212216	EF493520	-	-
<i>Pristimantis chalceus</i>	KU177638	EF493675	-	-
<i>Pristimantis chiastonotus</i>	13966MTR	JN691275	-	-
<i>Pristimantis chloronotus</i>	WED52959	AY326007	-	-
<i>Pristimantis citriogaster</i>	KU212278	EF493700	-	-
<i>Pristimantis acuminatus</i> (Clado B)	QCAZ19664	EU130579	-	-
<i>Pristimantis colomai</i>	QCAZ17101	EF493354	-	-
<i>Pristimantis condor</i>	KU217857	EF493701	-	-
<i>Pristimantis conservatio</i>	CVULA7174	JX155287	-	-
<i>Pristimantis conspicillatus</i>	QCAZ28448	EF493529	-	-
<i>Pristimantis cremnobates</i>	KU177252	EF493528	-	-
<i>Pristimantis crenunguis</i>	KU177730	EF493666	-	-
<i>Pristimantis croceinguinis</i> *	KU217862	EF493665	EF493669	-
<i>Pristimantis croceinguinis</i> *	QCAZ53532**	KP064144	KP064139	KP064157
<i>Pristimantis crucifer</i>	KU177733	EU186718	-	-
<i>Pristimantis cruentus</i>	AJC475	JN991441	-	-
<i>Pristimantis cruentus</i>	AJC524	JN991440	-	-
<i>Pristimantis cruentus</i>	CH6721	JN991442	-	-
<i>Pristimantis cryophilus</i> *	KU217863	EF493672	EF493672	-
<i>Pristimantis curtipes</i>	KU217871	EF493513	-	-
<i>Pristimantis danae</i>	MNCN43062	EU192262	-	-

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**APPENDIX 1. (Continued)**

Species	Museum Number	16S	12S	COI
<i>Pristimantis delius*</i>	QCAZ53035**	KP064150	-	KP064162
<i>Pristimantis devillei</i>	KU217991	EF493688	-	-
<i>Pristimantis diadematus*</i>	KU221999	EU186668	EU186668	-
<i>Pristimantis dissimulatus</i>	KU179090	EF493522	-	-
<i>Pristimantis duellmani</i>	WED53050	AY326003	-	-
<i>Pristimantis elegans</i>	KAH058	DQ195457	-	-
<i>Pristimantis eriphus</i>	JJM210	DQ195458	-	-
<i>Pristimantis eriphus</i>	QCAZ32705	EU186671	-	-
<i>Pristimantis erythropleura</i>	nrps55	JN991445	-	-
<i>Pristimantis erythropleura</i>	UVC15886	JN371036	-	-
<i>Pristimantis erythropleura</i>	UVC15933	JN104679	-	-
<i>Pristimantis euphronides</i>	BWMC6918	EF493527	-	-
<i>Pristimantis fenestratus</i>	MNKA6629	EU192273	-	-
<i>Pristimantis frater</i>	JJM112	DQ195459	-	-
<i>Pristimantis gaigei</i>	AJC1339	JN991447	-	-
<i>Pristimantis gaigei</i>	CH6471	JN991448	-	-
<i>Pristimantis gaigei</i>	nrps9	JN991449	-	-
<i>Pristimantis galdi</i>	QCAZ32368	EU186670	-	-
<i>Pristimantis gentryi</i>	KU218109	EF493511	-	-
<i>Pristimantis ginesi</i>	CVULA8363	JX155295	-	-
<i>Pristimantis glandulosus</i>	KU218002	EF493676	-	-
<i>Pristimantis gryllus</i>	CVULA8343	JX306022	-	-
<i>Pristimantis gutturalis</i>	577PG	JN691313	-	-
<i>Pristimantis hectus</i>	UVC15843	JN371038	-	-
<i>Pristimantis imitatrix*</i>	KU215476	EF493667	EF493824	-
<i>Pristimantis inguinalis</i>	204BM	JN691317	-	-
<i>Pristimantis inusitatus</i>	KU218015	EF493677	-	-
<i>Pristimantis jester</i>	VUB3493	JQ742169	-	-
<i>Pristimantis jorgevelosai</i>	JDL26123	DQ195461	-	-
<i>Pristimantis juanchoi</i>	UVC15878	JN104681	-	-
<i>Pristimantis jubatus</i>	UVC15813	JN370991	-	-
<i>Pristimantis kelephas</i>	UVC15872	JN104662	-	-
<i>Pristimantis kichwarum*</i>	QCAZ18023	EU130581	-	-
<i>Pristimantis kichwarum*</i>	QCAZ25277	EU130594	-	-
<i>Pristimantis kichwarum*</i>	QCAZ25427	EU130615	-	-
<i>Pristimantis kichwarum*</i>	QCAZ25428	EU130616	JN991523	JN991387
<i>Pristimantis kichwarum*</i>	QCAZ25766	JN991458	-	JN991388
<i>Pristimantis kichwarum*</i>	QCAZ25847	EU130604	-	-
<i>Pristimantis kichwarum*</i>	QCAZ52975**	KP064154	KP064141	-
<i>Pristimantis koehleri</i>	MNCN42983	FJ438799	-	-
<i>Pristimantis labiosus</i>	QCAZ19771	EF493694	-	-
<i>Pristimantis lancinii</i>	CVULA8362	JX155284	-	-

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**APPENDIX 1. (Continued)**

Species	Museum Number	16S	12S	COI
<i>Pristimantis lanthanites</i> *	KU222001	EF493695	EF493695	-
<i>Pristimantis latidiscus</i>	KU218016	EF493698	-	-
<i>Pristimantis</i> aff. <i>latidiscus</i>	CH6456	KC129363	-	-
<i>Pristimantis</i> aff. <i>latidiscus</i>	KRL1489	KC129351	-	-
<i>Pristimantis leoni</i>	KU218227	EF493684	-	-
<i>Pristimantis librarius</i>	QCAZ25852	JN991451	-	-
<i>Pristimantis lirellus</i> *	KU212226	EF493521	EF493521	-
<i>Pristimantis llojsintuta</i>	MNCNDNA5865	EU712638	-	-
<i>Pristimantis luscombei</i> *	QCAZ25273	EU130626	-	-
<i>Pristimantis luscombei</i> *	QCAZ25492	EU130620	-	-
<i>Pristimantis luscombei</i> *	QCAZ25527	EU130621	-	-
<i>Pristimantis luscombei</i> *	QCAZ53268**	KP064156	KP064143	-
<i>Pristimantis luteolateralis</i>	KU177807	EF493517	-	-
<i>Pristimantis lutitus</i>	JDL26126	DQ195464	-	-
<i>Pristimantis lymani</i>	KU218019	EF493392	-	-
<i>Pristimantis lynchi</i>	AAC1272	DQ195463	-	-
<i>Pristimantis malkini</i>	QCAZ28296	EU186663	-	-
<i>Pristimantis marmoratus</i>	21AF	JN691315	-	-
<i>Pristimantis martiae</i> *	QCAZ52983**	KP064148	-	KP064160
<i>Pristimantis martiae</i> *	QCAZ52984**	KP064149	-	KP064161
<i>Pristimantis matidiktyo</i> *	QCAZ52779**	KP064146	-	KP064158
<i>Pristimantis matidiktyo</i> *	QCAZ53021**	KP064147	KP064140	KP064159
<i>Pristimantis melanogaster</i>	EF493664	EF493664	-	-
<i>Pristimantis mendax</i> aff	MTD45080	EU186659	-	-
<i>Pristimantis merostictus</i>	JDL26125	DQ195465	-	-
<i>Pristimantis miktos</i> *	GGU807**	KP064151	-	-
<i>Pristimantis miktos</i> *	GGU808**	KP064152	-	KP064163
<i>Pristimantis miktos</i> *	QCAZ53531**	KP064153	-	-
<i>Pristimantis mindo</i>	MZUTI1756	KF801581	-	-
<i>Pristimantis minutulus</i> *	KU291677	EU186657	EU186657	-
<i>Pristimantis miyatai</i>	RC610	JN991452	-	-
<i>Pristimantis moro</i>	AJC1860	JN991454	-	-
<i>Pristimantis museosus</i>	AJC1210	JN991455	-	-
<i>Pristimantis myops</i>	UVC15934	JN371039	-	-
<i>Pristimantis nervicus</i>	nrps48	JN991456	-	-
<i>Pristimantis nyctophylax</i>	KU177812	EF493526	-	-
<i>Pristimantis ockendeni</i> *	KU222023	EF493519	EF493519	-
<i>Pristimantis ocreatus</i>	KU208508	EF493682	-	-
<i>Pristimantis orcesi</i>	KU218021	EF493679	-	-
<i>Pristimantis orestes</i>	KU218257	EF493388	-	-
<i>Pristimantis paisa</i>	AJC1344	JN991459	-	-
<i>Pristimantis palmeri</i>	UVC15820	JN371012	-	-

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**APPENDIX 1. (Continued)**

Species	Museum Number	16S	12S	COI
<i>Pristimantis paramerus</i>	CB11	JX155279	-	-
<i>Pristimantis pardalis</i>	KRL690	FJ784336	-	-
<i>Pristimantis parvillus</i>	KU177821	EF493352	-	-
<i>Pristimantis cf. paulodutrai</i>	MNRJ40299	JX267360	-	-
<i>Pristimantis permixtus</i>	CAP765	DQ195467	-	-
<i>Pristimantis peruvianus</i>	AJC2025	JN991461	-	-
<i>Pristimantis petrobardus</i>	KU212293	EF493367	-	-
<i>Pristimantis phoxocephalus*</i>	KU218025	EF493349	EF493349	-
<i>Pristimantis pirrensis</i>	AJC594	JN991462	-	-
<i>Pristimantis platydactylus</i>	MNCNDNA3943	EU712653	-	-
<i>Pristimantis pleurostriatus</i>	CVULA7193	JX155292	-	-
<i>Pristimantis prolatus</i>	KU177433	EU186701	-	-
<i>Pristimantis pulvinatus</i>	KU181015	EU186723	-	-
<i>Pristimantis aff. pulvinatus</i>	VUB3485	JQ742166	-	-
<i>Pristimantis aff. pulvinatus</i>	VUB3491	JQ742167	-	-
<i>Pristimantis pycnodermis</i>	KU218028	EF493680	-	-
<i>Pristimantis pyrrhomerus</i>	KU218030	EF493683	-	-
<i>Pristimantis quantus</i>	UVC15905	JN104684	-	-
<i>Pristimantis quaquaversus</i>	QCAZ25676	JN991463	-	-
<i>Pristimantis quinquagesimus</i>	KU179374	EF493690	-	-
<i>Pristimantis ramagii</i>	MNRJ36751	JX267318	-	-
<i>Pristimantis cf. ramagii</i>	MNRJ49745	JX267484	-	-
<i>Pristimantis reichlei</i>	IDLR4779	EU192285	-	-
<i>Pristimantis reichlei</i>	MNCN43249	EU192288	-	-
<i>Pristimantis rhabdocnemus</i>	KU291651	EU186706	-	-
<i>Pristimantis rhabdolaemus</i>	KU173492	EF493706	-	-
<i>Pristimantis aff. rhabdolaemus</i>	MTD45073	EU186660	-	-
<i>Pristimantis rhodoplichus</i>	KU219788	EF493674	-	-
<i>Pristimantis ridens</i>	AJC126	JN991466	-	-
<i>Pristimantis ridens</i>	AJC211	JN991465	-	-
<i>Pristimantis ridens</i>	ENS10722	JN991464	-	-
<i>Pristimantis riveti*</i>	KU218035	EF493348	EF493348	-
<i>Pristimantis rozei</i>	EF493691	EF493691	-	-
<i>Pristimantis sagittulus</i>	KU291635	EF493705	-	-
<i>Pristimantis saltissimus</i>	VUB3490	JQ742168	-	-
<i>Pristimantis samaipatae</i>	MNCN42989	EU192291	-	-
<i>Pristimantis savagei</i>	JJM111	DQ195470	-	-
<i>Pristimantis savagei</i>	nrps87	JN991468	-	-
<i>Pristimantis schultei</i>	KU212220	EF493681	-	-
<i>Pristimantis shrevei</i>	EF493692	EF493692	-	-
<i>Pristimantis simonbolivari</i>	KU218254	EF493671	-	-
<i>Pristimantis simonsii</i>	KU212350	EU186665	-	-

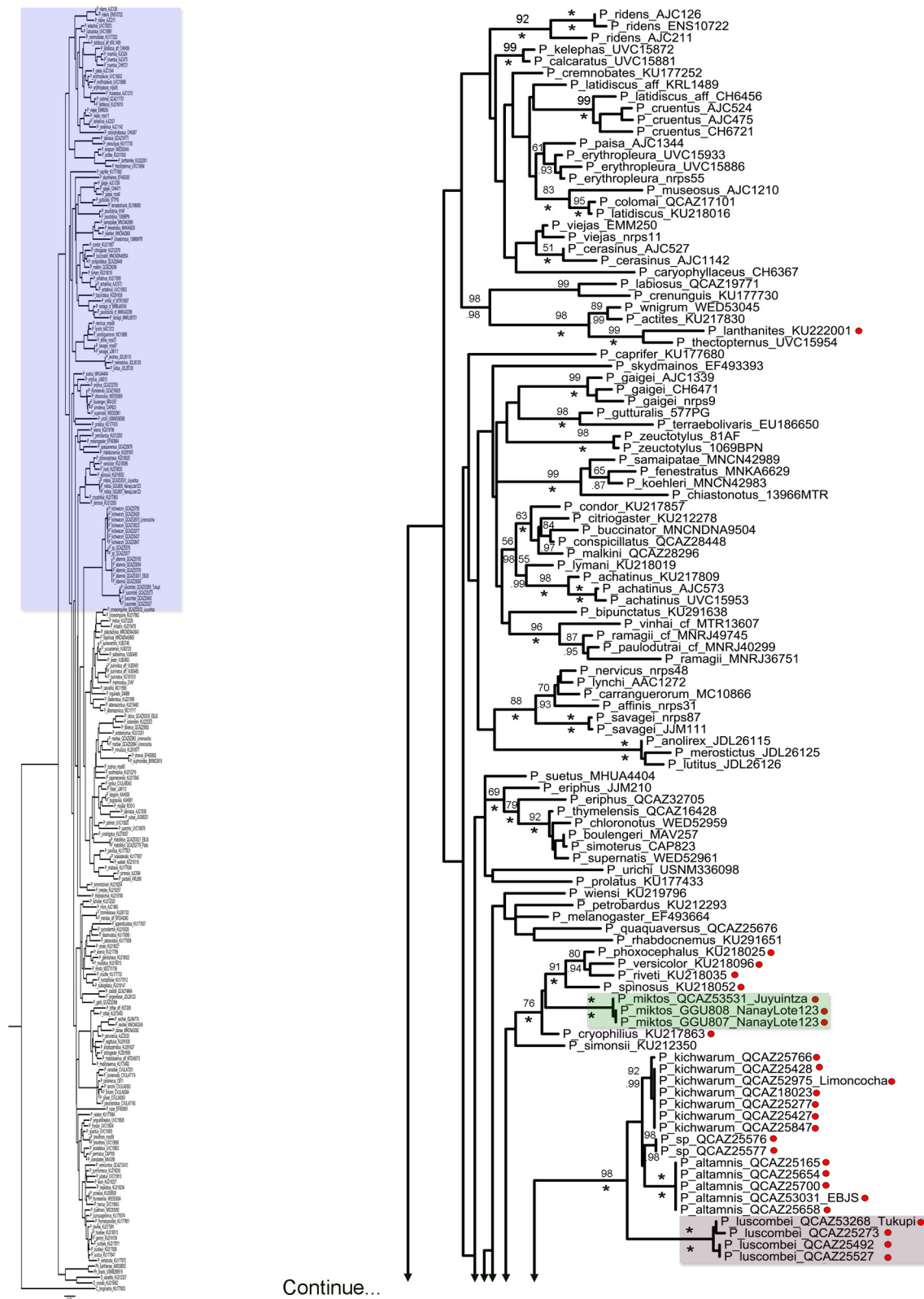
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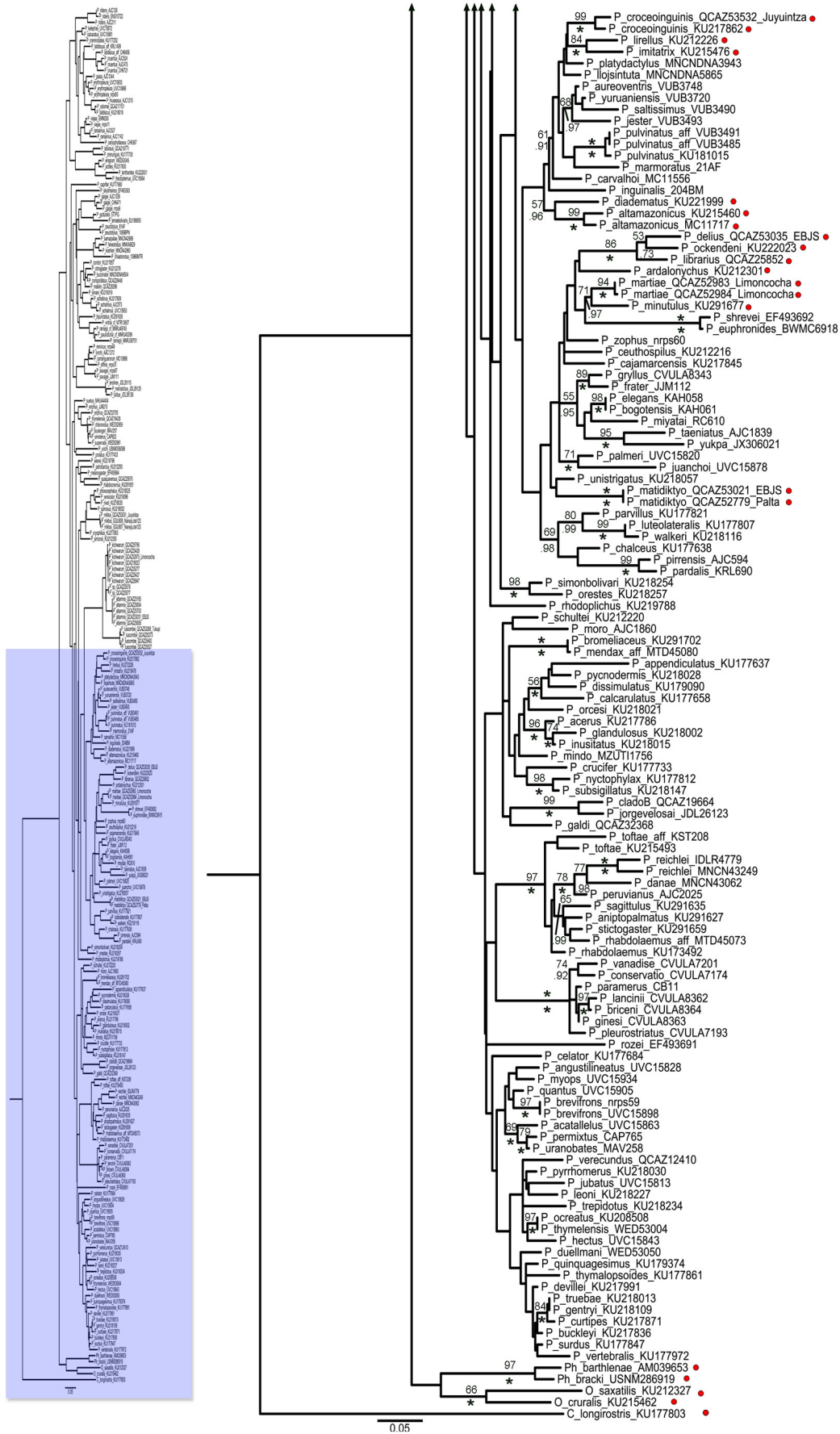


APPENDIX 1. (Continued)

Species	Museum Number	16S	12S	COI
<i>Pristimantis simoterus</i>	CAP823	DQ195471	-	-
<i>Pristimantis skydmainos</i>	EF493393	EF493393	-	-
<i>Pristimantis</i> sp.*	QCAZ25576	EU130590	-	-
<i>Pristimantis</i> sp.*	QCAZ25577	EU130591	-	-
<i>Pristimantis</i> sp.*	QCAZ28002**	KP064145	-	-
<i>Pristimantis spinosus</i> *	KU218052	EF493673	EF493673	-
<i>Pristimantis stictogaster</i>	KU291659	EF493704	-	-
<i>Pristimantis subsigillatus</i>	KU218147	EF493525	-	-
<i>Pristimantis suetus</i>	MHUA4404	JN991469	-	-
<i>Pristimantis supernatis</i>	WED52961	AY326005	-	-
<i>Pristimantis surdus</i>	KU177847	EF493687	-	-
<i>Pristimantis taeniatus</i>	AJC1839	JN991470	-	-
<i>Pristimantis terraebolivaris</i>	EU186650	EU186650	-	-
<i>Pristimantis thectopternus</i>	UVC15954	JN104685	-	-
<i>Pristimantis thymalopsoides</i>	KU177861	EF493514	-	-
<i>Pristimantis thymelensis</i>	QCAZ16428	EF493516	-	-
<i>Pristimantis thymelensis</i>	WED53004	AY326009	-	-
<i>Pristimantis toftae</i>	KU215493	EF493353	-	-
<i>Pristimantis</i> aff. <i>toftae</i>	KST208	JN991439	-	-
<i>Pristimantis trepidotus</i>	KU218234	EF493515	-	-
<i>Pristimantis truebae</i>	KU218013	EF493512	-	-
<i>Pristimantis unistrigatus</i>	KU218057	EF493387	-	-
<i>Pristimantis uranobates</i>	MAV258	DQ195476	-	-
<i>Pristimantis urichi</i>	USNM336098	EF493699	-	-
<i>Pristimantis vanadise</i>	CVULA7201	JX155290	-	-
<i>Pristimantis verecundus</i>	QCAZ12410	EF493686	-	-
<i>Pristimantis versicolor</i> *	KU218096	EF493389	EF493389	-
<i>Pristimantis vertebralis</i>	KU177972	EF493689	-	-
<i>Pristimantis viejas</i>	EMM250	JN991476	-	-
<i>Pristimantis viejas</i>	nrps11	JN991475	-	-
<i>Pristimantis</i> cf. <i>vinhai</i>	MTR13607	JX267364	-	-
<i>Pristimantis walkeri</i>	KU218116	EF493518	-	-
<i>Pristimantis wiensi</i>	KU219796	EF493668	-	-
<i>Pristimantis wnigrum</i>	WED53045	AY326004	-	-
<i>Pristimantis yukpa</i>	JX306021	JX306021	-	-
<i>Pristimantis yuruaniensis</i>	VUB3720	JQ742161	-	-
<i>Pristimantis zeuctotylus</i>	1069BPN	JN691256	-	-
<i>Pristimantis zeuctotylus</i>	81AF	JN691258	-	-
<i>Pristimantis zophus</i>	nrps60	JN991479	-	-

**APPENDIX II.** Optimal maximum likelihood tree (log likelihood= -14743.2), showing the phylogenetic relationships among 224 species of *Pristimantis* and 5 outgroup taxa, scored for 511 aligned sites of the 16S mtDNA gene. Numbers above nodes correspond to non-parametric bootstraps (values < 0.5 not shown, \*= 100). Values below nodes are posterior probabilities resulting from Bayesian phylogenetic analyses (topology not shown; values < 0.9 not shown, \* = 1). Red dots represent taxa used in the combined analysis of multiple gene fragments (see Figure 3).





### APPENDIX III. Specimens examined.

#### *Pristimantis altamnis* (10 specimens)

**Colombia:** Putumayo: Santa Rosa de Sucumbíos, río San Miguel, N0.29, W76.99, 290 m, collected on 2 October 1971, specimens AMNH 103442, 103445. **Ecuador:** Napo: Cando community, upper Napo river, parroquia Talag, S1.09517, W77.92450, 680 m, collected on 3 May 2003 by KRE and T. Sugahara, specimen **QCAZ 25311 (holotype)**. Estación Biológica Jatun Sacha, S1.066, W77.617, 396 m, collected on 25 March 2012, specimens QCAZ 53001, 53031, 53032. Pastaza: Montalvo, S2.07, W76.97, 301 m, specimen AMNH 93334. **Peru:** Loreto: Andoas, S2.35111, W75.81622, 173 m, collected on 1 March 2008, specimens CORBIDI 4930; Capahuari norte, S2.66426, W76.50123, 278 m, collected on 1 March 2008, specimen CORBIDI 4828; Jibarito, S2.73565, W76.03178, 218 m, collected on 14 July 2009, specimen CORBIDI 6485.

#### *Pristimantis delius* (23 specimens)

**Ecuador:** Morona Santiago: Cusuimi, Río Cusuime (=Cusime), S2.54, W77.73, 308 m, collected on 29 May 1971, specimens AMNH 93672, Makuma, Centro Amazonas, S2.13, W77.7, 638 m, specimen FHGO 5061; Napo: 9 km vía Tena–Puyo, S1.07, W77.78, 493 m, specimen QCAZ 30068; Estación Biológica Jatun Sacha, S1.066, W77.617, 396 m, collected on 5 April 2012, specimen QCAZ 53034; 53035. Orellana: 72 km vía Hollin–Loreto, S0.71, W77.34, 401 m, specimen FHGO 902; Parque Nacional Yasuní, S0.67, W76.43, 232 m, specimen FHGO 5263; Pastaza: Bufo, S2.19, W76.79, 294 m, collected on 5 June 2007, specimen DHMECN 4445; 4446, 4452. Pozo Shionayacu, S2.11, W76.58, 298 m, specimen EPN 281; Not locality associated, specimen FHGO 6548; Sucumbíos: Victor Hugo Ruales (=Cantagallo), N0.29, W76.3, 293 m, collected on 3 December 2002, specimen FHGO 3516. **Peru:** Amazonas: Río Cenipa (=Río Cenepa), tributary of Marañón river, S4.65, -78.13, 494 m, specimens AMNH 43265, Loreto: Andoas, S2.70433, W76.31283, 244 m, specimen CORBIDI 2060; Buncuya 1, S6.58871, W74.61145, 153 m, collected on 10 July 2009, specimen GGU 953; Nanay, Lote 123, S3.20457, W74.71207, 154 m, specimen GGU 814; 816, 817, 817a. Río Corrientes, S3.065, W75.82639, 230 m, collected on 6 October 2008, specimen CORBIDI 4777; San Jacinto, S2.31, W75.87, 181 m, specimen **MHNURP 100 (Holotype)**; Sierra del Divisor, S6.21361, W73.23917, 162 m, collected on 1 November 2008, specimen CORBIDI 2561.

#### *Pristimantis kichwarum* (15 specimens)

**Ecuador:** Morona Santiago: Ashuara village (Tukupi ?) on Río Macuma, ca 10 km above Río Morona [ca 83 km ESE Macas], S2.76, W77.51, 220 m, collected on 17 July 1971, specimens AMNH 94641, 94654. Cusuimi, Río Cusuime (=Cusime), S2.54, W77.73, 308 m, collected on 29 May 1971, specimen AMNH 93570; Napo: Estación Biológica Jatun Sacha, S1.066, W77.617, 396 m, specimens DHMECN 1814, 1815, 1817, **QCAZ 18128 (holotype)**, 53018. Pastaza: Pozo Garza 1, S1.81, W76.72, 297 m, collected on 6 July 1989, specimen QCAZ 12704; Sucumbíos: Limoncocha, S0.40688, W76.62063, 252 m, collected on 14 March 2012, specimen QCAZ 52975; 52976, 52977. **Peru:** Loreto: Iquitos, S3.75, W73.25, 94 m, specimens MZUNAP 966, Jibarito, S2.73565, W76.03178, 218 m, collected on 14 July 2009, specimen CORBIDI 6484; Km 31.5, vía Iquitos–Nauta, collected on 10 August 2003, specimen MZUNAP 264.

#### *Pristimantis librarius* (5 specimens)

**Ecuador:** Napo: Estación Biológica Jatun Sacha, S1.066, W77.617, 396 m, collected on 1 April 2012, specimens QCAZ 53028; S side of Río Napo, 6.5 km ESE of Puerto Misahualli at La Cruz Blanca on Jatun Sacha Biological Reserve, along Secondary Forest Trail 'A', S1.07, W77.6, 404 m, collected on 29 March 1986, specimen AMNH 129476, 129476, 111147, **MCZ 111147 (holotype)**.

#### *Pristimantis luscombei* (295 specimens)

**Ecuador:** Morona Santiago: Ashuara village (Tukupi ?) on Río Macuma, ca 10 km above Río Morona [ca 83 km ESE Macas], S2.76, W77.51, 220 m, collected by B. Malkin on 17 July 1971, specimens AMNH 94635–40, 94642–44, 94646–53, 94655; Cusuimi, Río Cusuime (=Cusime), S2.54, W77.73, 308 m, collected by B. Malkin on 29 May 1971, specimen AMNH 93518–19, 93521–25, 93527–29, 93532–40, 93542–55, 93557, 93559, 93561, 93563, 93566, 93568–69, 93571–72, 93574, 93576, 93580, 93582; Kapawi Jungle Lodge, S2.54, W76.82, 258 m, collected by K. Elmer, I. G. Tapia on 23 June 2003, specimen QCAZ 10070, 25454, 25456–**25463 (holotype)**, 25490–92, 25523–30, 25532, 25534, 25538, 25545, 25547, 9661; Tukupi, S2.796451, W77.484009, 234 m, collected by H. M. Ortega-Andrade on 11 May 2012, specimen QCAZ 53248–50, 53252–54, 53257–59, 53268–69, 53272–73, 53282. Pastaza: Balsaura, S1.94, W76.3, 200 m, collected on 9 December 2007, specimen DHMECN 4672; 4673, 4680, 4684, 4687; Conambo, S1.87, W76.9, 337 m, collected on 26 January 2008, specimen DHMECN 4740; 4742. Juyuintza, S2.11, W76.19, 192 m, collected by H. M. Ortega-Andrade and F. Timias on 4 July 2012, specimen QCAZ 53581–82, 53561; Montalvo, S2.07, W76.97, 301 m, specimen EPN 247–49, 251, 253–62; Nuevo Corrientes, S2.02, W76.85, 334 m, collected by FVJ on 14 September 2000, specimen QCAZ 29147, 29149, 29709; Pandenuque, S1.44, W77.65, 799 m, collected by J. Valencia on 30 September 2003, specimen FHGO 3712, 3994; Pozo Garza 1, S1.81, W76.72, 297 m, collected by J. M. Touzet on 6 July 1989, specimen QCAZ 12693, 12706; Pozo Misión, S2.22, W76.52, 314 m, specimen EPN 252, 283–84, 286, 291; Pozo Shionayacu, S2.11, W76.58, 298 m, specimen EPN 250; 282, 285; Río Corrientes, S2.12, W76.05, 185 m, collected by R. Olalla, specimen CORBIDI 2699; Tigüino, Bataburo Lodge, S1.21, W76.72, 240 m, collected on 1 August 1990, specimen DHMECN 1819; Villano, S1.5, W77.47, 393 m, specimen FHGO 573. **Peru:** Amazonas: Condorcanqui, Río Santiago, Cucuasa Pachis, Cordillera del Cóndor, specimens MUSM 31014–17, 31021, 31024; Cordillera

del Cóndor, specimen MUSM 21253; 21257–58, 21279, 21284, 21291, 21294, 21311; Distrito Río Santiago, Quebrada Kampankis, S4.04308, W77.54119, 1212 m, collected by A. Catenazzi on 12 August 2011, specimen CORBIDI 11393; mouth of Río Cenipa (=Río Cenepa), S4.65, W78.133, 494 m, collected by H. Bassler, specimen AMNH 43104. Loreto: 3 km NE Pebas on Río Amazonas, S3.13, W71.82, 133 m, collected by C. W. Myers & J. W. Daly on 11 April 1977, specimen AMNH 103068; ACTS, specimen MUSM 21602; Andoas, S2.65164, W76.51369, 276 m, collected by A. Delgado on 1 September 2008, specimen CORBIDI 1088; Andoas, S2.70433, W76.31283, 244 m, collected by M. Medina, specimen CORBIDI 1469–72, 1476, 1482–83, 1485–88, 1492, 1565, 1568, 1574; Andoas, S2.73389, W76.02722, 211 m, collected by G. Chavez on 15 November 2007, specimen CORBIDI 428; Andoas, S2.35111, W75.81622, 182 m, collected by V. Duran on 1 March 2008, specimen CORBIDI 4717–18, 4722–23, 4728, 4730, 4733, 4940, 4949, 4951, 4953, 4966, 4970, 4972, 4973–74, 4984, 5038, 5044; Belen-1, S3.70671, W74.53647, 138 m, collected by C. Z. Landauro on 9 December 2011, specimen CORBIDI 10352; Cabecera Ere, S1.679021, W73.719686, 188 m, collected by G. Gagliardi on 16 October 2010, specimen GGU-IIAP 1513; Campamento Shivyacu, S2.50692, W76.08906, 229 m, collected by J.C. Chaparro, specimen CORBIDI 5050; Campuya, Maynas, S1.51798, W73.81625, 154 m, collected by G. Gagliardi on 27 October 2012, specimen GGU-IIAP 1580; 1590; Capahuari norte, S2.66426, W76.50123, 278 m, collected by G. Chavez on 1 March 2008, specimen CORBIDI 4824, 4826, 4829, 4835–36, 4845; Curaray Paiche, Lote 67, S1.49719, W75.39673, 190 m, collected by G. Gagliardi, specimen GGU-IIAP 489, 492, 500, 503, 558, 580, 587–90, 595, 613–14; Curaray, Arabella, Lote 39, S2.14833, W75.00916, 154 m, collected by G. Gagliardi on 10 August 2008, specimen GGU-IIAP 641; Curupa (Río Yanayacu-Cuenca del Napo), S2.88544, W73.01797, 135 m, collected by P. J. Venegas on 16 October 2009, specimen CORBIDI 5889; 5891; Datem del Marañon, Andoas, Naranjal, specimen MUSM 27332; Datem del Marañon, Andoas, Sabaloyacu, specimen MUSM 26731; Datem del Marañon, Andoas, Sabaloyacu, specimen MUSM 28628; Datem, Sargento Puño, S3.21875, W77.5845, 211 m, collected by C. Z. Landauro on 10 December 2010, specimen CORBIDI 7495; Datem, sector 3, S3.13743, W77.3001, 229 m, collected by C. Z. Landauro on 23 September 2010, specimen CORBIDI 7470; 7496; Datem, sector 4, S3.30589, W77.32146, 218 m, collected by C. Z. Landauro on 23 November 2010, specimen CORBIDI 7577; 7581, 7583, 7589, 8716, 8746, 8749, 8752, 8778, 8779; Distrito Manseriche, Cabecera Wee, S4.20411, W77.52978, 339 m, collected by A. Catenazzi on 18 August 2011, specimen CORBIDI 11449; Jibarito, S2.73565, W76.03178, 211 m, collected by G. Chavez on 14 July 2009, specimen CORBIDI 5140, 5143, 5544, 6556; Jibarito, S2.73691, W76.03007, 211 m, collected by G. Chavez on 12 September 2008, specimen CORBIDI 6587, 6593; Peru-Brazil Frontier, Río Utoquinia, Río Tapiche, eastern drainage Río Ucayali, collected by H. Bassler on 1 January 1928, specimen AMNH 42690; Quebrada Tamshiyacu-Tamshiyacu (Fernando Loes), S3.99066, W73.08099, 132 m, collected by P. J. Venegas on 24 November 2008, specimen CORBIDI 2930; Río Contaya, mouth of, Río Alto Tapiche, collected by H. Bassler on 1 February 1927, specimen AMNH 42994; Río Corrientes, S3.065, W75.82639, 230 m, collected by C. Ramirez on 6 October 2008, specimen CORBIDI 2657; 2662–63, 2665, 2683, 2694, 2707, 2712, 2714, 2716, 2724–26, 2728–29, 2758, 2765; Río Pisque (=Pisqui), tributary of Río Ucayali, S7.81, W75.33, 156 m, collected by H. Bassler, specimen AMNH 43556; San Jacinto, S2.33083, W75.86369, 169 m, collected by A. Delgado on 1 September 2008, specimen CORBIDI 1115, 1187; San Jacinto, S2.31, W75.87, 181 m, specimen **MHNURP 120 (holotype)**; Sector 15, S3.88517, W77.2537, 184 m, collected by C. Sandoval on 1 September 2010, specimen CORBIDI 7544; Sector 2, collected by C. Z. Landauro on 1 December 2010, specimen CORBIDI 7554, 7594, 8695, 8760; Shivyacu, S2.48187, W76.08565, 218 m, collected by A. Delgado, specimen CORBIDI 6446; Sierra del Divisor, S6.21361, W73.23917, 156 m, collected by R. Santa Cruz on 1 November 2008, specimen CORBIDI 2467; 2467, 2638; Situche norte, S3.03561, W77.37243, 230 m, collected by C. Z. Landauro on 6 December 2010, specimen CORBIDI 8756; Yagua Indian Village, headwaters of Río Loretoyacu [100+ km NW Leticia], S3.91358, W70.3566, 69 m, collected by B. Malkin on 22 April 1970, specimen AMNH 96299–302. Ucayali: Peru-Brazil Frontier, Utoquinia-Tapiche Region, S7.9, W73.776, 302 m, collected by H. Bassler on 1 December 1928, specimen AMNH 43139, 43311; Río Tamaya, S8.75, W74.13893, 159 m, collected by G. Gagliardi on 17 August 2008, specimen GGU-IIAP 1000; Río Unine, Atalaya, specimen MUSM 25104.

*Pristimantis matidiktyo* (2 specimens)

**Ecuador:** Napo: Serena, S1.09516, W77.9245, 547 m, collected on 5 January 2003, specimens QCAZ 25851. Pastaza: Juyuintza, S2.11, W76.19, 187 m, collected on 19 May 2007, specimen **DHMECN 4437 (holotype)**.

*Pristimantis ockendeni* (13 specimens)

**Bolivia:** Pando: Reserva Nacional de Vida Silvestre Amazónica Manuripi, S12.16667, W68.56667, 222 m, specimens MNKA 5111. **Peru:** Cusco: Cordillera Vilcabamba, Río Mapitunari, S12.63, W73.67, 1806 m, collected on 1 June 1968, specimens AMNH 82517, Pachiri, S12.41822, W72.82642, 1306 m, specimens MHNC 10295, 10297, 10298. Loreto: Peru-Brazil Frontier, Río Utoquinia, Río Tapiche, eastern drainage Río Ucayali, collected on 1 January 1928, specimen AMNH 42687; 42688. Río Pisque (=Pisqui), tributary of Río Ucayali, S7.81, W75.33, 156 m, specimen AMNH 42481; 43566. Madre de Dios: Río Huasorocco, S13.00569, W70.84534, 849 m, specimen MHNC 10924; Kinteroni, S11.3785, W73.41376, 705 m, specimen MHNC 9969; Peru-Brazil Frontier, Utoquinia-Tapiche Region, S7.9, W73.776, 302 m, collected on 1 December 1928, specimen AMNH 43315. Puno: La Union, Río Huacamayo, Carabaya, S13.5, W69.667, 600 m, specimens **BMNH 1947.2.16.88–90 (syntypes)**.