Table S1. GenBank accession numbers of samples used in this study. Specimen numbers are institutional catalog numbers when available, specimen numbers in italics are field or collector numbers reported in the studies where these sequences were published. Note that sequence accession numbers beginning with "KDQF" are subsamples from a targeted locus study accessible through GenBank accession number KDQF00000000. Institutional acronyms: AMNH (American Museum of Natural History), BWMC (Bobby Witcher Memorial Collection, Avila University), CORBIDI (Center of Ornithology and Biodiversity), CPI (Coastal Plains Institute), CVULA (Collection of Vertebrates, University of the Andes), ICN (Institute of Natural Sciences, National University of Colombia), KU (University of Kansas Biodiversity Institute), LSUMZ (Louisiana State University Museum of Zoology), MHNSM (Museum of Natural History, San Marcos National University, Lima, Peru), MTD (Senckenburg Museum of Zoology), MVZ (University of California Museum of Vertebrate Zoology), QCAZ (Zoology Museum, Pontifical Catholic University of Ecuador), ROM (Royal Ontario Museum), UF (University of Florida Museum of Natural History), USNM (Smithsonian National Museum of Natural History), VUB (Free University of Brussels).

Species	Specimen Number	GenBank Accession Number
Brachycephalus ephippium	*DMH2*	AY326008
Ceuthomantis smaragdinus	KU 300000	GQ345133
Craugastor podiciferus	MVZ 12020	EF493360
Eleutherodactylus planirostris	USNM 565007	EF493346
Phrynopus bracki	USNM 286919	EF493709
Pristimantis abakapa	VUB 3749	JQ742162
Pristimantis acerus	KU 217786	EF493678
Pristimantis achatinus	KU 217809	EF493660
Pristimantis actites	KU 217830	EF493696
Pristimantis albertus	KU 291675	EU186695
Pristimantis altamazonicus	KU 215460	EF493670
Pristimantis aniptopalmatus	KU 291627	EF493390
Pristimantis appendiculatus	KU 177637	EF493524
Pristimantis ardalonychus	KU 212301	EU186664
Pristimantis atratus	QCAZ 45580	MK881471
Pristimantis aureolineatus	QCAZ 42286	MT636530
Pristimantis aureoventris	CPI 10484	**OQ884608**
Pristimantis aureoventris	VUB 3741	JQ742151
Pristimantis bicantus	QCAZ 59202	MK829660
Pristimantis bipunctatus	KU 291638	EF493702
Pristimantis briceni	CVULA 8364	JX155297
Pristimantis bromeliaceus	KU 291702	EF493351
Pristimantis bromeliaceus	QCAZ 16699	MT636527
Pristimantis buckleyi	KU 217836	EF493350
Pristimantis cajamarcensis	KU 217845	EF493663
Pristimantis calcarulatus	KU 177658	EF493523
Pristimantis caprifer	KU 177680	EF493391
Pristimantis caryophyllaceus	MVZ 203810	EU186686
Pristimantis celator	KU 177684	EF493685
Pristimantis ceuthospilus	KU 212216	EF493520
Pristimantis cf. *fenestratus*	*BM001*	KDQF01001797
Pristimantis cf. *mendax*	MTD 45080	EU186659
Pristimantis cf. *pluvialis*	*AF0916*	KDQF01000321
Pristimantis chalceus	KU 177638	EF493675
Pristimantis chiastonotus	*AF0082*	KDQF01000042
Pristimantis chloronotus	KU 202325	AY326007
Pristimantis chomskyi	QCAZ 45666	MK881476
Pristimantis citriogaster	KU 212278	EF493700
Pristimantis colomai	QCAZ 17101	EF493354
Pristimantis condor	KU 217857	EF493701
Pristimantis conservatio	CVULA 7174	JX155287
Pristimantis conspicillatus	QCAZ 28448	EF493529

Pristimantis cremnobates	KU 177252	EF493528
Pristimantis crenunguis	KU 177730	EF493666
Pristimantis crepitaculus	*77mc*	EU201062
Pristimantis croceoinguinis	KU 217862	EF493669, EF493665
Pristimantis cruciocularis	KU 291673	EU186656
Pristimantis cruentus	AMNH-A 12444-448	EF493697
Pristimantis cryophilius	KU 217863	EF493672
Pristimantis cryptomelas	QCAZ 45612	MK881472
Pristimantis curtipes	KU 217871	EF493513
Pristimantis degener	QCAZ 40304	MW567376
Pristimantis dendrobatoides	ROM 43318	EU186735, EU186717
Pristimantis devillei	KU 217991	EF493688
Pristimantis diadematus	KU 221999	EU186668
Pristimantis dissimulatus	KU 179090	EF493522
Pristimantis duellmani	KU 202404	AY326003
Pristimantis eriphus	QCAZ 32705	EU186671
Pristimantis espedeus	*AF1157*	KDQF01000423
Pristimantis euphronides	BWMC 6918	EF493527
Pristimantis fenestratus	MHNSM 9298	EF493703
Pristimantis festae	KU 218234	EF493515
Pristimantis festae	QCAZ 67551	MK829671
Pristimantis galdi	QCAZ 32368	EU186670
Pristimantis gentryi	KU 218109	EF493511
Pristimantis ginesi	CVULA 8363	JX155295
Pristimantis glandulosus	KU 218002	EF493676
Pristimantis gloria	QCAZ 16448	MK881402
Pristimantis grandoculis	*MPEG30085*	KDQF01002880
Pristimantis gryllus	CVULA 8343	JX306022
Pristimantis guianensis	*BM153*	KDQF01001829
Pristimantis gutturalis	*577pg*	JN691313
Pristimantis hampatusami	QCAZ 58042	MK881504
Pristimantis imitatrix	KU 215476	EF493824, EF493667
Pristimantis incomptus	QCAZ 59041	MK829659
Pristimantis inguinalis	*AG424*	KDQF01001595
Pristimantis inusitatus	KU 218015	EF493677
Pristimantis jamescameroni	*SBH268110*	EU186739, EU186721
Pristimantis jester	VUB 3493	JQ742169
Pristimantis jimenezi	QCAZ 46978	MK881482
Pristimantis kalamandeenae ***sp. nov.***	UF 193778	**OQ884607**
Pristimantis kalamandeenae ***sp. nov.***	ROM 43978	EU186678
Pristimantis koehleri	*HJ134*	KDQF01002635
Pristimantis koki ***sp. nov.***	UF 191300	**OQ884602**
Pristimantis koki ***sp. nov.***	UF 191301	**OQ884603**
Pristimantis koki ***sp. nov.***	UF 191306	**OQ884604**
Pristimantis koki ***sp. nov.***	UF 191307	**OQ884605**
Pristimantis koki ***sp. nov.***	UF 191308	**OQ884606**
Pristimantis kopinangae ***sp. nov.***	ROM 40164	EU186676
Pristimantis kopinangae ***sp. nov.***	UF 193779	**OQ884614**
Pristimantis kopinangae ***sp. nov.***	UF 193780	**OQ884615**
Pristimantis kopinangae ***sp. nov.***	UF 193781	**OQ884616**
Pristimantis labiosus	QCAZ 19771	EF493694
Pristimantis lancinii	CVULA 8358	JX155277
Pristimantis lanthanites	KU 222001	EF493695

Pristimantis lasalleorum	ICN 55758	KY494221
Pristimantis laticlavius	QCAZ 64666	MK829668
Pristimantis latidiscus	KU 218016	EF493698
Pristimantis leoni	KU 218227	EF493684
Pristimantis lirellus	KU 212226	EF493521
Pristimantis lividus	QCAZ 54322	MK881497
Pristimantis luteolateralis	KU 177807	EF493517
Pristimantis lutzae	QCAZ 32785	MK881421
Pristimantis lymani	KU 218019	EF493392
Pristimantis malkini	QCAZ 28296	EU186663
Pristimantis marmoratus	ROM 43302	EU186734, EU186716
Pristimantis marmoratus	KU 181015	EU186741, EU186723
Pristimantis marmoratus	CPI 10420	**OQ884609**
Pristimantis marmoratus	CPI 10423	**OQ884610**
Pristimantis marmoratus	CPI 10561	**OQ884611**
Pristimantis marmoratus	CPI 10565	**OQ884612**
Pristimantis marmoratus	CPI 10739	**OQ884613**
Pristimantis marmoratus	CPI 10668	**OQ884622**
Pristimantis melanogaster	MHNSM-WED56846	EF493664, EF493826
Pristimantis miktos	QCAZ 55445	MK391385
Pristimantis mindo	QCAZ 42197	MT636531
Pristimantis minutulus	KU 291677	EU186657
Pristimantis muscosus	QCAZ 54857	MK881501
Pristimantis nangaritza	QCAZ 41710	MK881436
Pristimantis nyctophylax	KU 177812	EF493526
Pristimantis ockendeni	KU 222023	EF493519
Pristimantis ocreatus	KU 208508	EF493682
Pristimantis orcesi	KU 218021	EF493679
Pristimantis orestes	KU 218257	EF493388
Pristimantis ornatus	MTD 45073	EU186660
Pristimantis paramerus	*CB11*	JX155279
Pristimantis parectatus	ICN 55763	KY494222
Pristimantis parvillus	KU 177821	EF493352
Pristimantis peraticus	*WB1301*	KY494224
Pristimantis petersi	QCAZ 63456	MW567367
Pristimantis petrobardus	KU 212293	EF493367
Pristimantis pharangobates	AMNH-A 165195	AY843586
Pristimantis philipi	QCAZ 37542	MK881427
Pristimantis phoxocephalus	KU 218025	EF493349
Pristimantis pichincha	QCAZ 11673	MK881399
Pristimantis pleurostriatus	CVULA 7191	JX155278
Pristimantis prolatus	KU 177433	EU186701
Pristimantis pulvinatus	CPI 10665	**OQ884618**
Pristimantis pycnodermis	KU 218028	EF493680
Pristimantis pyrrhomerus	KU 218030	EF493683
Pristimantis quinquagesimus	KU 179374	EF493690
Pristimantis reichlei	MHNSM 9267	EF493707
Pristimantis rhabdolaemus	KU 173492	EF493706
Pristimantis rhodoplichus	KU 219788	EF493674
Pristimantis ridens	AMNH-A 124551	EF493355
Pristimantis riveti	KU 218035	EF493348
Pristimantis romeroae	QCAZ 41121	MT636528
Pristimantis rozei	*SBH102308*	EF493691

Pristimantis rubicundus	QCAZ 2B165:B1876551	MK881407
Pristimantis sagittulus	KU 291635	EF493705
Pristimantis saltissimus	CPI 10666	**OQ884617**
Pristimantis saltissimus	CPI 10740	**OQ884619**
Pristimantis saltissimus	CPI 10741	**OQ884620**
Pristimantis saltissimus	CPI 10786	**OQ884621**
Pristimantis saltissimus	ROM 43913	EU186692
Pristimantis saltissimus	VUB 3490	JQ742168
Pristimantis schultei	KU 212220	EF493681
Pristimantis scoloblepharus	ICN 55744	KY494229
Pristimantis shrevei	*SBH266036*	EF493692
Pristimantis simonbolivari	KU 218254	EF493671
Pristimantis simonsii	KU 212350	EU186665
Pristimantis skydmainos	MHNSM 10071	EF493393
Pristimantis sp.	*SBH266045*	EU186658
Pristimantis sp.	KU 218140	EU186661
Pristimantis sp.	QCAZ 52473	MK391386
Pristimantis sp.	QCAZ 45129	MK881462
Pristimantis sp.	QCAZ 32790	MK881423
Pristimantis sp.	LSUMZ 16898	EU186690
Pristimantis sp.	KU 179221	EU186700
Pristimantis sp. "Guianas East"	*317mc*	JN691316
Pristimantis sp. "Neblina 1"	*MTR15532*	KDQF01003322
Pristimantis sp. "Neblina 2"	*MTR15536*	KDQF01003325
Pristimantis sp. "Rondonia"	*HJ039*	KDQF01002627
Pristimantis spinosus	KU 218052	EF493673
Pristimantis sternothylax	CORBIDI 13316	MK881393
Pristimantis stictogaster	KU 291659	EF493704
Pristimantis subsigillatus	KU 218147	EF493525
Pristimantis supernatis	KU 202432	AY326005
Pristimantis surdus	KU 177847	EF493687
Pristimantis terraebolivaris	*SBH102301*	EU186650
Pristimantis thymalopsoides	KU 177861	EF493514
Pristimantis thymelensis	KU 202519	AY326009
Pristimantis thymelensis	QCAZ 16428	EF493516
Pristimantis tinguichaca	QCAZ 31945	MK881418
Pristimantis toftae	KU 215493	EF493353
Pristimantis torresi	QCAZ 47397	MK881492
Pristimantis totoroi	QCAZ 58425	MK881505
Pristimantis trachyblepharis	QCAZ 57645	MK829654
Pristimantis truebae	KU 218013	EF493512
Pristimantis unistrigatus	KU 218057	EF493387
Pristimantis uranobates	ICN 55770	KY494225
Pristimantis urichi	USNM 336098	EF493699
Pristimantis vanadise	CVULA 7198	JX155288
Pristimantis verecundus	QCAZ 12410	EF493686
Pristimantis verrucolatus	QCAZ 46982	MK881483
Pristimantis versicolor	KU 218096	EF493389
Pristimantis vertebralis	KU 177972	EF493689
Pristimantis vilarsi	*MTR20659*	KDQF01003487
Pristimantis walkeri	KU 218116	EF493518
Pristimantis wiensi	KU 219796	EF493668
Pristimantis w-nigrum	KU 205076	AY326004

Pristimantis yukpa	*no voucher*	JX306021
Pristimantis yuruaniensis	VUB 3720	JQ742161
Pristimantis zeuctotylus	*AF0101*	KDQF01000047
Pristimantis zimmermanae	*AF1189*	KDQF01000438