

Table S1. Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Locality ID	Latitude	Longitude	Call Behavior	Habit	Temp	SVL (mm)			Analyzed recordings
								°C	N	$\bar{X}$	SD	N of ♂
<i>Allobates</i>	<i>algorei</i>	60	El Tama	7.65375	-72.19137	concealed	terrestrial	23.50	8	18.90	0.70	3
<i>Allobates</i>	<i>brunneus</i>	37	Guimaraes	-15.2667	-55.5311	--	terrestrial	26.50	1	16.13	0.00	1
<i>Allobates</i>	<i>caeruleodactylus</i>	48	Borba	-4.398593	-59.60251	exposed	terrestrial	25.60	12	15.50	0.40	1
<i>Allobates</i>	<i>crombiei</i>	52	Altamira	-3.65	-52.38	concealed	terrestrial	24.10	2	18.10	0.04	2
<i>Allobates</i>	<i>femorialis</i>	43	ECY	-0.633	-76.5	concealed	terrestrial	25.60	20	23.58	1.27	6
<i>Allobates</i>	<i>femorialis</i>	46	Porongaba	-8.67	-72.78	exposed	terrestrial	25.00	1	25.38	0.00	1
<i>Allobates</i>	<i>femorialis</i>	44	Leticia	-4.2153	-69.9406	exposed	terrestrial	25.50	1	20.90	0.00	1
<i>Allobates</i>	<i>femorialis</i>	40	Albergue	-12.8773	-71.3865	exposed	terrestrial	26.00	6	21.98	2.18	1
<i>Allobates</i>	<i>femorialis</i>	41	CAmazonico	-12.6	-70.08	exposed	terrestrial	26.00	12	22.43	1.06	4
<i>Allobates</i>	<i>femorialis</i>	45	El Palmar	8.333333	-61.66667	concealed	terrestrial	24.00	27	25.50	0.76	1
<i>Allobates</i>	<i>granti</i>	49	FG	3.62	-53.17	exposed	terrestrial	24.60	8	16.15	0.55	1
<i>Allobates</i>	<i>humilis</i>	59	San Ramon	8.8678	-70.4861	concealed	terrestrial	19.50	--	21.80	--	1
<i>Allobates</i>	<i>insperatus</i>	54	ECY	-0.633	-76.4005	exposed	terrestrial	24.60	18	16.64	0.93	7
<i>Allobates</i>	<i>aff. insperatus</i>	55	Leticia	-4.2153	-69.9406	exposed	terrestrial	25.50	1	18.57	0.00	1
<i>Allobates</i>	<i>juanii</i>	47	Restrepo	4.1903	-73.603	concealed	terrestrial	24.00	3	18.50	0.22	4
<i>Allobates</i>	<i>kingsburyi</i>	39	Panguintza	-3.8986	-78.8125	concealed	terrestrial	21.70	16	20.02	0.93	3
<i>Allobates</i>	<i>marchesianus</i>	50	Taracua	0.1322	-68.5508	exposed	terrestrial	25.55	18	15.80	0.50	1
<i>Allobates</i>	<i>masniger</i>	58	Itaituba	-4.439444	-56.84028	--	terrestrial	24.10	2	18.59	0.09	2
<i>Allobates</i>	<i>nidicola</i>	36	Castanho	-3.6194	-59.1455	exposed	terrestrial	26.50	20	19.60	0.60	1
<i>Allobates</i>	<i>olfersoides</i>	1	Teresopolis	-22.4333	-42.9833	exposed	terrestrial	18.00	1	16.15	0.00	1
<i>Allobates</i>	<i>ornatus</i>	51	Tarapoto	-6.47889	-76.5125	concealed	terrestrial	24.90	7	16.92	0.87	2
<i>Allobates</i>	<i>sp. Ducke</i>	61	Ducke	-2.933	-59.95	exposed	terrestrial	27.75	2	15.15	0.45	2
<i>Allobates</i>	<i>sp. Neblina</i>	29	Neblina	0.833	-66.167	--	terrestrial	27.80	--	--	--	1
<i>Allobates</i>	<i>sp. Negro</i>	38	Rio Negro	-2.7454	-78.3034	exposed	terrestrial	24.30	6	19.88	1.90	2
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	Shushufindi	-0.25	-76.43333	exposed	terrestrial	25.00	2	16.39	0.43	1
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	Treviso	-3.15	-54.83	--	terrestrial	25.00	1	14.39	0.00	1
<i>Allobates</i>	<i>talamancae</i>	34	Gamboia	9.14778	-79.72997	exposed	terrestrial	25.55	1	20.33	0.00	1
<i>Allobates</i>	<i>talamancae</i>	32	Quibdo	5.728	-76.591	concealed	terrestrial	26.00	1	21.00	0.00	1
<i>Allobates</i>	<i>talamancae</i>	35	Dragomar	9.42479	-82.32038	exposed	terrestrial	26.30	3	20.94	1.03	2
<i>Allobates</i>	<i>talamancae</i>	31	Cisneros	3.823056	-76.78444	--	terrestrial	29.00	71	20.23	1.35	1
<i>Allobates</i>	<i>talamancae</i>	33	Limon	9.962714	-83.06584	exposed	terrestrial	26.00	71	20.23	1.35	2
<i>Allobates</i>	<i>talamancae</i>	30	Bayano	9.1333	-78.5833	exposed	terrestrial	21.20	1	18.95	0.00	1
<i>Allobates</i>	<i>trilineatus</i>	56	Cusco Amazonico	-12.6	-70.08	exposed	terrestrial	26.00	24	15.20	1.73	2
<i>Allobates</i>	<i>zaparo</i>	42	Santiago	-3.0383	-78.0408	concealed	terrestrial	25.80	22	25.37	1.52	3
<i>Ameerega</i>	<i>altamazonica</i>	103	Tarapoto	-6.47889	-76.5125	exposed	terrestrial	25.60	9	22.46	0.84	2

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Genus	Species	Phy ID	Locality ID	Latitude	Longitude	Call Behavior	Habit	Temp	SVL (mm)			Analyzed recordings
								°C	N	$\bar{X}$	SD	N of ♂
<i>Ameerega</i>	<i>bassleri</i>	89	Chazuta	-6.574166	-76.13667	concealed	terrestrial	25.50	3	35.51	1.27	2
<i>Ameerega</i>	<i>bilinguis</i>	87	ECY	-0.633	-76.5	exposed	terrestrial	25.60	27	19.63	0.68	4
<i>Ameerega</i>	<i>braccata</i>	94	Guimaraes	-15.4	-55.83	exposed	terrestrial	24.50	1	22.40	0.00	1
<i>Ameerega</i>	<i>cainarachi</i>	102	Chazuta	-6.574166	-76.13667	exposed	terrestrial	25.00	4	24.48	2.28	1
<i>Ameerega</i>	<i>flavopicta</i>	95	PESCAN	-17.7691	-48.6608	exposed	terrestrial	22.70	11	26.60	--	1
<i>Ameerega</i>	<i>hahneli</i>	96	Leticia	-3.842332	-73.36121	concealed	terrestrial	24.00	19	19.80	--	1
<i>Ameerega</i>	<i>hahneli</i>	97	Nueva Loja	-0.633	-76.5	concealed	terrestrial	25.20	3	19.62	0.11	1
<i>Ameerega</i>	<i>hahneli</i>	98	Cobija	-11.03333	-68.79043	--	terrestrial	26.90	1	20.00	0.00	1
<i>Ameerega</i>	<i>hahneli</i>	99	Cusco Amazonico	-12.6	-70.08	exposed	terrestrial	27.00	8	18.08	1.49	2
<i>Ameerega</i>	<i>ignipedis</i>	90	La Union	-7.1987	-74.9598	--	terrestrial	24.00	7	22.40	--	1
<i>Ameerega</i>	<i>parvula</i>	86	Macas	-2.1438	-78.03594	exposed	terrestrial	22.00	20	21.22	1.07	2
<i>Ameerega</i>	<i>petersi</i>	101	Tingo Maria	-9.192587	-75.89347	--	terrestrial	24.50	6	25.50	0.39	1
<i>Ameerega</i>	<i>picta</i>	91	Ichilo	-16.90724	-64.12351	--	terrestrial	23.30	1	22.00	0.00	1
<i>Ameerega</i>	<i>picta</i>	92	El Palmar	8.33333	-61.66667	exposed	terrestrial	26.00	16	25.60	--	2
<i>Ameerega</i>	<i>picta</i>	93	FG	3.98	-52.58	--	terrestrial	25.40	16	25.60	--	1
<i>Ameerega</i>	<i>pongoensis</i>	88	Callehuacana	-6.5	-75.9	--	terrestrial	21.00	5	22.90	--	1
<i>Ameerega</i>	<i>silverstonei</i>	85	Tingo Maria	-9.1	-75.8	concealed	terrestrial	18.50	17	35.85	3.47	1
<i>Ameerega</i>	<i>smaragdina</i>	100	Iscozacin	-10.24898	-75.22558	--	terrestrial	24.50	2	26.50	--	1
<i>Ameerega</i>	<i>trivittata</i>	105	Tarapoto	-6.41689	-76.29353	exposed	terrestrial	21.00	5	38.86	1.41	3
<i>Ameerega</i>	<i>trivittata</i>	107	Tambopata	-13.1481	-69.6172	exposed	terrestrial	22.00	1	37.00	0.00	1
<i>Ameerega</i>	<i>trivittata</i>	106	Porongaba	-8.6667	-72.7833	exposed	terrestrial	27.00	79	37.40	2.26	4
<i>Ameerega</i>	<i>trivittata</i>	104	Chazuta	-6.6	-76.2833	exposed	terrestrial	28.80	4	38.75	1.71	1
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	FG	3.75	-53.48	--	terrestrial	24.80	--	16.50	--	1
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	FG	3.57	-53.92	--	terrestrial	25.00	30	17.30	2.00	1
<i>Anomaloglossus</i>	<i>rufulus</i>	5	Chimanta	5.3	-62.1667	concealed	terrestrial	17.50	--	21.10	0.90	1
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	Tobogan	5.410917	-67.61967	concealed	terrestrial	24.50	4	18.80	0.70	4
<i>Aromobates</i>	<i>meridensis</i>	7	El Cedral	8.65	-71.43	concealed	riparian	19.00	5	27.80	3.30	1
<i>Aromobates</i>	<i>saltuensis</i>	11	San Felix	8.0736	-72.22933	concealed	riparian	22.50	4	23.13	0.41	3
<i>Aromobates</i>	<i>cannatellai</i>	9	Escalera	8.003083	-71.7316	concealed	riparian	21.40	2	19.10	0.06	2
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	El Tama	7.578717	-72.17898	concealed	riparian	22.60	1	22.48	0.00	2
<i>Aromobates</i>	<i>ericksonae</i>	8	Los Ranchos	8.39889	-71.68007	exposed	riparian	23.50	4	23.11	0.58	2
<i>Aromobates</i>	<i>ornatissimus</i>	6	Carache	9.6964	-70.14	concealed	riparian	19.00	5	22.00	2.10	1
<i>Colostethus</i>	<i>argyrogaster</i>	83	San Jose	-6.45043	-76.31758	exposed	terrestrial	23.00	6	19.96	0.65	1
<i>Colostethus</i>	<i>fraterdanieli</i>	81	Buga	3.876	-76.435	exposed	terrestrial	19.20	1	23.07	0.00	1
<i>Colostethus</i>	<i>fraterdanieli</i>	82	Finlandia	4.689778	-75.63525	exposed	terrestrial	22.00	3	22.38	0.70	3

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								°C	N	$\bar{X}$	SD	N of ♂
<i>Colostethus</i>	<i>fugax</i>	84	Yaupi	-2.976401	-77.86257	exposed	terrestrial	27.10	7	19.75	1.23	5
<i>Colostethus</i>	<i>panamansis</i>	76	El Gaital	8.62873	-80.11603	exposed	terrestrial	21.20	5	24.06	2.79	6
<i>Colostethus</i>	<i>panamansis</i>	75	Sherman	9.28016	-79.9154	exposed	terrestrial	24.40	2	22.35	0.98	4
<i>Colostethus</i>	<i>pratti</i>	80	El Gaital	8.62873	-80.11603	exposed	terrestrial	21.60	1	21.52	0.00	3
<i>Colostethus</i>	<i>pratti</i>	79	Nusagandi	9.2994	-78.98692	exposed	terrestrial	25.10	1	19.85	0.00	1
<i>Colostethus</i>	<i>pratti</i>	77	Portobello	9.52823	-79.65555	exposed	terrestrial	27.50	1	21.41	0.00	2
<i>Colostethus</i>	aff. <i>pratti</i>	78	Selico Creek	9.0667	-82.2833	exposed	terrestrial	24.40	1	19.27	0.00	2
<i>Dendrobates</i>	<i>auratus</i>	116	BCI	9.1543	-79.8461	concealed	terrestrial	23.00	32	29.42	1.38	1
<i>Dendrobates</i>	<i>bombetes</i>	126	Buga	3.876	-76.435	exposed	terrestrial	20.20	6	18.19	0.87	4
<i>Dendrobates</i>	<i>captivus</i>	125	Panguintza	-3.8986	-78.8125	concealed	terrestrial	21.70	1	16.82	0.00	2
<i>Dendrobates</i>	<i>castaneoticus</i>	114	Captive risen	-3.3667	-51.85	--	terrestrial	25.50	9	19.32	0.77	1
<i>Dendrobates</i>	<i>claudiae</i>	130	Dragomar	9.42479	-82.32038	exposed	terrestrial	26.30	1	13.61	0.00	1
<i>Dendrobates</i>	<i>defleri</i>	133	Taraira	-1.0771	-69.5143	--	terrestrial	26.00	1	16.90	0.00	1
<i>Dendrobates</i>	<i>fantasticus</i>	137	Iquitos	-3.842332	-73.36121	--	terrestrial	24.00	1	19.50	0.00	1
<i>Dendrobates</i>	<i>galactonotus</i>	113	Captive risen	-0.8	-48.13333	--	terrestrial	27.00	7	33.20	1.84	1
<i>Dendrobates</i>	<i>granuliferus</i>	119	Sirena	8.480009	-83.58939	exposed	terrestrial	28.00	2	20.24	0.29	1
<i>Dendrobates</i>	<i>histrionicus</i>	121	Quibdo	5.728	-76.591	exposed	terrestrial	27.60	1	37.15	0.00	3
<i>Dendrobates</i>	<i>imitator</i>	131	Tarapoto	-6.43066	-76.29034	concealed	terrestrial	22.00	6	17.92	0.81	3
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	Tambopata	-7.1854	-74.9536	exposed	terrestrial	23.00	6	17.00	0.48	1
<i>Dendrobates</i>	<i>leucomelas</i>	118	Tobogan	5.410917	-67.61967	exposed	terrestrial	25.40	2	30.99	0.31	4
<i>Dendrobates</i>	<i>minutus</i>	128	BCI	9.1543	-79.8461	exposed	terrestrial	23.00	50	13.20	0.73	1
<i>Dendrobates</i>	<i>mysteriosus</i>	124	Yunga	-5.374104	-78.5805	concealed	terrestrial	23.50	11	27.05	1.25	2
<i>Dendrobates</i>	<i>pumilio</i>	123	Cayo Nancy	9.33182	-82.21667	exposed	terrestrial	24.50	1	16.65	0.00	2
<i>Dendrobates</i>	<i>pumilio</i>	122	Limon	9.96633	-83.03539	exposed	terrestrial	22.00	40	21.60	0.80	1
<i>Dendrobates</i>	<i>reticulatus</i>	136	Iquitos	-3.842332	-73.36121	exposed	terrestrial	29.30	24	14.37	0.07	1
<i>Dendrobates</i>	sp. Quibdo	129	Quibdo	5.728	-76.591	concealed	terrestrial	28.00	1	12.29	0.00	5
<i>Dendrobates</i>	<i>sylvaticus</i>	120	Puerto Quito	0.102073	-79.28292	exposed	terrestrial	32.00	1	28.35	0.00	2
<i>Dendrobates</i>	<i>tinctorius</i>	117	FG	4.08	-52.68	concealed	terrestrial	25.40	21	30.10	2.40	1
<i>Dendrobates</i>	<i>truncatus</i>	115	Mariquita	5.259417	-74.89433	exposed	terrestrial	22.80	18	25.60	1.38	1
<i>Dendrobates</i>	<i>uakarii</i>	138	Tahuayo	-4.1894	-73.1043	--	terrestrial	26.00	3	15.03	0.38	1
<i>Dendrobates</i>	<i>variabilis</i>	135	Tarapoto	-6.41689	-76.29353	--	terrestrial	22.00	5	18.29	0.77	1
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	Iquitos	-3.842332	-73.36121	concealed	terrestrial	24.00	25	14.92	0.90	1
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	FG	4.08	-52.68	concealed	terrestrial	25.40	33	16.19	0.56	1
<i>Dendrobates</i>	<i>virolinensis</i>	127	Virolin	6.113306	-73.19667	concealed	terrestrial	22.00	3	16.27	0.97	4
<i>Epipedobates</i>	<i>anthonyi</i>	71	Dueta	-3.272305	-79.52739	exposed	terrestrial	22.90	1	21.66	0.00	2

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<i>Epidobates</i>	<i>anthonyi</i>	70	El Progreso	-3.250003	-79.70005	exposed	terrestrial	24.50	6	18.21	1.67	3
<i>Epidobates</i>	<i>boulengeri</i>	67	San Francisco	1.09438	-78.7075	exposed	terrestrial	25.20	1	17.07	0.00	1
<i>Epidobates</i>	<i>espinosai</i>	69	Palenque	-0.59134	-79.36161	exposed	terrestrial	26.00	7	16.05	0.28	3
<i>Epidobates</i>	<i>machalilla</i>	73	Ayampe	-1.666667	-80.78333	exposed	terrestrial	25.70	13	15.22	0.78	2
<i>Epidobates</i>	<i>machalilla</i>	72	Caluma	-1.62	-79.27	exposed	terrestrial	28.40	1	15.65	0.00	1
<i>Epidobates</i>	<i>sp. F (darwinwallacei)</i>	68	Mindo	-0.0333	-78.8	exposed	terrestrial	20.00	10	17.95	0.60	6
<i>Epidobates</i>	<i>tricolor</i>	74	Morasungo	-1.158611	-79.15472	exposed	terrestrial	22.00	1	22.40	0.00	1
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	Agua Azul	5.19	-72.58031	concealed	riparian	24.70	1	14.50	0.00	2
<i>Hyloxalus</i>	<i>awa</i>	171	Intag	-0.316	-78.95	concealed	riparian	24.00	11	19.99	0.82	2
<i>Hyloxalus</i>	<i>azureiventris</i>	165	Tarapoto	-6.45043	-76.31758	--	terrestrial	24.00	1	24.65	0.00	2
<i>Hyloxalus</i>	<i>bocagei</i>	151	La Virgen	-0.07	-77.586	concealed	riparian	17.30	1	23.65	0.00	1
<i>Hyloxalus</i>	<i>bocagei</i>	150	San Rafael	-0.104	-77.58712	concealed	riparian	22.00	23	22.80	1.30	3
<i>Hyloxalus</i>	<i>craspedocephalus</i>	166	San Jose	-6.380222	-76.37298	exposed	terrestrial	24.70	7	19.30	1.21	5
<i>Hyloxalus</i>	<i>aff. delatorrae</i>	163	Moran	0.77109	-78.05596	concealed	terrestrial	15.30	1	18.53	0.00	1
<i>Hyloxalus</i>	<i>delatorrae</i>	162	Moran	0.77109	-78.05596	concealed	terrestrial	16.10	1	18.53	0.00	1
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	Corazon	-1.1511	-79.15121	concealed	riparian	19.50	1	21.02	0.00	1
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	Faique	-4.95	-79.733	concealed	riparian	22.60	43	17.70	--	1
<i>Hyloxalus</i>	<i>erythromos</i>	140	Palenque	-0.5833	-79.35	concealed	terrestrial	26.00	1	21.00	0.00	2
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	Jipijapa	-1.5667	-80.8167	concealed	riparian	22.00	13	19.87	0.75	2
<i>Hyloxalus</i>	<i>insulatus</i>	167	La Peca	-5.611112	-78.43501	concealed	riparian	23.20	4	22.62	0.93	2
<i>Hyloxalus</i>	<i>italoi</i>	144	Hola Vida	-1.636	-77.842	concealed	riparian	20.00	94	23.10	1.40	5
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	Aloag	-0.42279	-78.40466	concealed	riparian	11.00	3	23.72	0.58	2
<i>Hyloxalus</i>	<i>maculosus</i>	149	Shell	-1.4667	-78.1333	concealed	riparian	20.00	12	22.60	1.60	1
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	Mendez	-2.7454	-78.3034	exposed	terrestrial	25.00	1	16.20	0.00	2
<i>Hyloxalus</i>	<i>nexipus</i>	154	Mendez	-2.7454	-78.3034	concealed	riparian	22.30	4	21.39	1.70	3
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	Tarapoto	-6.43066	-76.29034	concealed	riparian	24.50	1	19.30	0.00	1
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	Shapaja	-6.6	-76.2833	concealed	riparian	25.40	4	21.01	0.63	3
<i>Hyloxalus</i>	<i>pulchellus</i>	160	Yanayacu	-0.6	-77.886	--	terrestrial	16.00	1	20.40	0.00	1
<i>Hyloxalus</i>	<i>pulchellus</i>	159	Azuela	-0.1667	-77.65	concealed	terrestrial	18.40	51	18.76	0.92	2
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	Monte Olivo	0.4	-77.8833	concealed	terrestrial	24.00	51	18.76	0.92	3
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	Zana	-6.884273	-79.06131	--	riparian	18.00	1	28.20	0.00	1
<i>Hyloxalus</i>	<i>sauli</i>	148	Shiripuno	-1.1045	-76.7319	concealed	riparian	26.00	30	22.70	1.00	1
<i>Hyloxalus</i>	<i>sorditatus</i>	141	San Jose	-6.380222	-76.37298	concealed	riparian	24.70	4	31.20	0.73	3
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	Chipaqui	4.423142	-74.04532	concealed	terrestrial	19.00	34	18.65	1.36	2
<i>Hyloxalus</i>	<i>toachi</i>	172	Gloria	-0.313529	-78.9546	concealed	riparian	19.80	5	17.99	0.97	4

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Locality ID	Latitude	Longitude	Call Behavior	Habit	Temp	SVL (mm)			Analyzed recordings
								°C	N	$\bar{X}$	SD	N of ♂
<i>Hyloxalus</i>	<i>vertebralis</i>	157	Sigsig	-3.092351	-78.80381	concealed	terrestrial	14.00	1	18.24	0.00	1
<i>Hyloxalus</i>	<i>vertebralis</i>	158	El Jordan	-2.633333	-78.6	concealed	terrestrial	18.00	9	17.65	0.73	3
<i>Hyloxalus</i>	<i>yasuni</i>	147	Gugua Sumaco	-0.7258	-77.566	concealed	riparian	24.70	14	22.50	1.60	2
<i>Hyloxalus</i>	<i>yasuni</i>	145	Cuyabeno	0	-76.2167	concealed	riparian	24.70	7	22.70	1.10	4
<i>Hyloxalus</i>	<i>yasuni</i>	146	Iro	-0.881	-77.5881	concealed	riparian	25.10	1	23.76	0.00	1
<i>Mannophryne</i>	<i>urticans</i>	25	Rio Frio	8.85935	-71.2951	concealed	riparian	23.70	1	24.84	0.00	1
<i>Mannophryne</i>	<i>cordilleriana</i>	20	Llano	8.87835	-70.65482	concealed	riparian	19.20	3	25.88	0.36	2
<i>Mannophryne</i>	<i>herminae</i>	19	Rancho Grande	10.34958	-67.68437	concealed	riparian	24.00	68	21.30	2.72	5
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	Guatopo	10.08495	-66.48908	exposed	riparian	26.30	68	21.30	2.72	3
<i>Mannophryne</i>	<i>leonardoi</i>	16	Caripe	10.17088	-63.55355	concealed	riparian	19.50	7	20.18	0.33	3
<i>Mannophryne</i>	<i>olmonae</i>	12	Charlotteville	11.3179	-60.5536	--	riparian	26.20	8	21.00	0.63	1
<i>Mannophryne</i>	<i>orellana</i>	22	La Trampa	8.032517	-71.7277	concealed	riparian	20.60	7	26.50	0.70	2
<i>Mannophryne</i>	<i>orellana</i>	21	El Tama	7.578717	-72.17898	concealed	riparian	20.30	7	26.50	0.70	2
<i>Mannophryne</i>	<i>riveroi</i>	13	Paria	10.68992	-62.61023	concealed	riparian	22.30	5	36.72	1.54	2
<i>Mannophryne</i>	<i>trinitatis</i>	17	St. Benedict	10.6639	-61.3991	concealed	riparian	24.90	15	21.12	0.74	4
<i>Mannophryne</i>	<i>collaris</i>	23	El Vigia	8.543683	-71.58303	concealed	riparian	20.30	1	26.90	0.00	1
<i>Mannophryne</i>	<i>collaris</i>	24	Lagunillas	8.520867	-71.35668	concealed	riparian	22.40	5	25.09	1.11	1
<i>Mannophryne</i>	<i>venezuelensis</i>	18	Paria	10.68666	-61.94656	exposed	terrestrial	23.20	6	21.70	0.90	2
<i>Mannophryne</i>	<i>vulcano</i>	14	Baruta	10.42317	-66.85782	concealed	riparian	21.50	2	18.80	0.50	2
<i>Mannophryne</i>	<i>yustizi</i>	26	Guarico	9.582283	-69.84983	concealed	riparian	19.20	1	21.14	0.00	3
<i>Phyllobates</i>	<i>aurotaenia</i>	108	Quibdo	5.683944	-76.61086	exposed	terrestrial	28.00	1	27.81	0.00	1
<i>Phyllobates</i>	<i>lugubris</i>	111	OTS	10.43002	-84.00552	exposed	terrestrial	26.00	6	19.20	0.26	3
<i>Phyllobates</i>	<i>lugubris</i>	112	Valiente	9.183333	-81.91667	--	terrestrial	27.78	6	19.20	0.26	2
<i>Phyllobates</i>	<i>terribilis</i>	109	Captive risen	1.869548	-77.60501	exposed	terrestrial	25.20	150	41.05	1.36	1
<i>Phyllobates</i>	<i>vittatus</i>	110	Sirena	8.480009	-83.58939	exposed	terrestrial	25.00	8	24.40	1.06	3
<i>Rheobates</i>	<i>palmatus</i>	28	Brisas	4.433	-73.918	concealed	riparian	18.00	5	27.47	1.30	4
<i>Rheobates</i>	<i>palmatus</i>	27	La Galia	4.951	-74.283	concealed	riparian	19.10	13	31.70	0.28	1
<i>Silverstoneia</i>	<i>flotator</i>	62	El Gaital	8.62873	-80.11603	concealed	terrestrial	21.20	2	14.29	0.59	2
<i>Silverstoneia</i>	<i>flotator</i>	63	Gamboa	9.14778	-79.72997	concealed	terrestrial	25.70	35	15.60	0.50	6
<i>Silverstoneia</i>	<i>nubicola</i>	66	El Gaital	8.62873	-80.11603	concealed	terrestrial	22.60	24	17.50	0.70	5
<i>Silverstoneia</i>	<i>nubicola</i>	65	La Garcia	8.064444	-78.36306	--	terrestrial	23.00	24	17.50	0.70	1
<i>Silverstoneia</i>	<i>nubicola</i>	64	Quibdo	5.728	-76.591	concealed	terrestrial	28.00	2	15.04	0.34	4
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	Balbina	-1.907835	-59.48135	exposed	terrestrial	26.00	53	16.60	0.70	1
<i>Allobates</i>	<i>goianus</i>	NA	Silvania	-16.643	-48.6041	concealed	terrestrial	NA	NA	NA	NA	1
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	Mazan	-2.865263	-79.11168	concealed	terrestrial	NA	19	16.21	1.42	1

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Bout Type	Multinote Call Duration (s)			Interval between Multinote Calls (s)			Multinote Call Rise Time (s)		
				N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>brunneus</i>	37	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>crombiei</i>	52	discrete	12	11.7103333	2.7358697	10	15.6518000	3.2807240	10	0.0387641	0.0044621
<i>Allobates</i>	<i>femorialis</i>	43	discrete	10	22.5442000	3.5474325	2	77.3745000	8.6938779	10	8.6756000	2.2179457
<i>Allobates</i>	<i>femorialis</i>	46	discrete	24	0.3882917	0.0080460	22	0.7530455	0.0212972	24	0.0505417	0.0094316
<i>Allobates</i>	<i>femorialis</i>	44	discrete	15	0.5146667	0.0080593	12	1.1808333	0.0925270	15	0.0498000	0.0030284
<i>Allobates</i>	<i>femorialis</i>	40	discrete	42	0.3638333	0.0047827	39	0.8822051	0.1396764	42	0.0352143	0.0014405
<i>Allobates</i>	<i>femorialis</i>	41	discrete	249	0.1783775	0.0187813	243	0.5500864	0.0709239	249	0.0613414	0.0134982
<i>Allobates</i>	<i>femorialis</i>	45	discrete	38	0.5156842	0.0119189	36	0.9795000	0.0540336	38	0.0540000	0.0098447
<i>Allobates</i>	<i>granti</i>	49	discrete	68	0.0842206	0.0040624	63	0.2668730	0.0403834	69	0.0325507	0.0037043
<i>Allobates</i>	<i>humilis</i>	59	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>insperatus</i>	54	discrete	15	3.0039333	0.3747097	4	14.5585000	4.4048447	15	0.2754667	0.0647356
<i>Allobates</i>	<i>aff. insperatus</i>	55	discrete	1	3.9680000	0.0000000	--	--	--	1	0.5980000	0.0000000
<i>Allobates</i>	<i>juanii</i>	47	discrete	138	0.5196739	0.2512094	119	1.6903277	0.3188039	211	0.0398341	0.0083190
<i>Allobates</i>	<i>kingsburyi</i>	39	discrete	19	24.1816316	6.4893567	6	23.2303333	7.2655575	11	5.6612727	1.6572675
<i>Allobates</i>	<i>marchesianus</i>	50	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>masniger</i>	58	discrete	5	38.6236000	22.7434329	3	58.8816667	8.7167440	5	8.7998000	2.6266904
<i>Allobates</i>	<i>nidicola</i>	36	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>olfersioides</i>	1	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>ornatus</i>	51	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	discrete	3	28.2260000	9.9275582	2	58.2255000	15.1115790	3	11.0493333	6.1792683
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	discrete	3	4.7920000	1.2615756	1	10.6270000	0.0000000	4	1.0125000	0.6731669
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	continuous	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	34	discrete	5	3.1238000	0.6983192	1	23.7920000	0.0000000	5	0.5920000	0.1947421
<i>Allobates</i>	<i>talamancae</i>	32	discrete	5	4.4394000	0.9324539	4	7.7310000	1.8338671	2	0.2280000	0.0452548
<i>Allobates</i>	<i>talamancae</i>	35	discrete	12	2.5335000	0.4241487	8	46.9521250	12.9046551	10	0.5786000	0.0967094
<i>Allobates</i>	<i>talamancae</i>	31	discrete	5	11.7526000	2.7547093	2	13.9555000	6.4325504	6	0.5830000	0.3893297
<i>Allobates</i>	<i>talamancae</i>	33	discrete	4	2.3550000	0.2342008	3	25.7563333	11.7571020	5	0.3998000	0.0855026
<i>Allobates</i>	<i>talamancae</i>	30	discrete	1	5.0960000	0.0000000	1	12.5930000	0.0000000	1	0.9770000	0.0000000
<i>Allobates</i>	<i>trilineatus</i>	56	discrete	13	3.1050000	0.8893163	10	8.8517000	2.3503394	153	0.0686471	0.0054573
<i>Allobates</i>	<i>zaparo</i>	42	discrete	65	1.5243692	0.5947750	41	2.9646341	1.2880681	39	0.5404615	0.1362409
<i>Ameerega</i>	<i>altamazonica</i>	103	continuous	--	--	--	--	--	--	--	--	--

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Genus	Species	Phy ID	Bout Type	Multinote Call Duration (s)			Interval between Multinote Calls (s)			Multinote Call Rise Time (s)		
				N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	discrete	5	11.9410000	3.5473988	3	12.9473333	3.8261633	9	1.3704444	0.2572077
<i>Ameerega</i>	<i>bilinguis</i>	87	discrete	17	28.6585294	6.8966730	2	39.5920000	5.8675721	15	4.4510000	1.3322620
<i>Ameerega</i>	<i>braccata</i>	94	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	discrete	33	1.0022727	1.3464426	32	1.2835938	1.3646077	30	0.0281333	0.0094859
<i>Ameerega</i>	<i>flavopicta</i>	95	discrete	60	0.1753333	0.0058763	59	0.6004746	0.0184581	60	0.0336833	0.0007009
<i>Ameerega</i>	<i>hahneli</i>	96	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	97	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	98	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	99	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>ignipedis</i>	90	continuous?	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>parvula</i>	86	discrete	4	6.6950000	0.9184019	2	14.4520000	3.3714851	5	0.6698000	0.0955861
<i>Ameerega</i>	<i>petersi</i>	101	discrete	23	1.1146087	0.5833749	21	1.8900952	0.6433859	24	0.0375417	0.0085056
<i>Ameerega</i>	<i>picta</i>	91	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	92	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	93	continuous	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>pongoensis</i>	88	continuous?	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	discrete	2	29.1215000	1.3569379	1	1.5000000	0.0000000	2	3.8320000	0.5996266
<i>Ameerega</i>	<i>smaragdina</i>	100	discrete	47	0.1840638	0.0065488	46	0.3991304	0.0178520	47	0.0540213	0.0064488
<i>Ameerega</i>	<i>trivittata</i>	105	discrete	2	10.2980000	5.5437172	--	--	--	4	0.1277500	0.1123221
<i>Ameerega</i>	<i>trivittata</i>	107	discrete	2	9.2915000	4.6053865	1	9.8330000	0.0000000	2	0.3715000	0.1605132
<i>Ameerega</i>	<i>trivittata</i>	106	discrete	27	3.8370370	2.7008158	23	3.6949565	2.0292818	28	0.0490357	0.0125889
<i>Ameerega</i>	<i>trivittata</i>	104	discrete	1	9.1910000	0.0000000	2	5.8955000	4.8755013	2	0.2120000	0.0000000
<i>Anomalogl ossus</i>	<i>baeobatrachus</i>	3	discrete	19	0.9094211	0.1860219	18	2.6618889	0.5195031	19	0.0279474	0.0039648
<i>Anomalogl ossus</i>	<i>degranvillei</i>	4	continuous	--	--	--	--	--	--	--	--	--
<i>Anomalogl ossus</i>	<i>rufulus</i>	5	discrete	1	2.9100000	0.0000000	1	5.6900000	0.0000000	2	0.1580000	0.0381838
<i>Anomalogl ossus</i>	<i>verbeeksnyderorum</i>	2	discrete	10	17.8454000	8.4575504	8	16.2691250	8.6921621	15	0.6310667	0.1438489
<i>Aromobates</i>	<i>meridensis</i>	7	discrete	1	2.4130000	0.0000000	--	--	--	1	0.2670000	0.0000000
<i>Aromobates</i>	<i>saltuensis</i>	11	discrete	273	0.1388425	0.0049372	270	0.7315148	0.0928819	273	0.0369231	0.0028267
<i>Aromobates</i>	<i>cannatellai</i>	9	continuous	--	--	--	--	--	--	--	--	--
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	continuous	--	--	--	--	--	--	--	--	--
<i>Aromobates</i>	<i>ericksonae</i>	8	discrete	185	0.1269514	0.0133410	171	1.8741579	0.4369225	185	0.0452541	0.0114591
<i>Aromobates</i>	<i>ornatissimus</i>	6	continuous	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>argyrogastrer</i>	83	continuous	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	continuous	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	continuous	--	--	--	--	--	--	--	--	--

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				N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	continuous	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	76	discrete	71	0.2219577	0.0599277	60	1.3570500	0.1661618	71	0.0602535	0.0028721
<i>Colostethus</i>	<i>panamansis</i>	75	discrete	96	0.1599271	0.0380941	78	0.8214103	0.1112288	97	0.0459278	0.0035185
<i>Colostethus</i>	<i>pratti</i>	80	discrete	76	0.8582632	0.6750027	65	4.4513692	2.2378447	77	0.0783896	0.0090396
<i>Colostethus</i>	<i>pratti</i>	79	discrete	22	2.3517727	0.9861664	17	17.6084706	5.6226025	24	0.0705833	0.0062895
<i>Colostethus</i>	<i>pratti</i>	77	discrete	3	1.0906667	0.0902792	2	14.7910000	6.6623601	4	0.0727500	0.0053151
<i>Colostethus</i>	aff. <i>pratti</i>	78	discrete	37	0.6258378	0.2947049	32	4.1047188	3.0554303	37	0.0576216	0.0076498
<i>Dendrobates</i>	<i>auratus</i>	116	discrete	6	2.5558333	0.7967846	3	12.4163333	5.9037637	2	0.2220000	0.0197990
<i>Dendrobates</i>	<i>bombetes</i>	126	discrete	12	1.3371667	0.1388543	8	16.1603750	3.9672180	10	0.0287000	0.0043218
<i>Dendrobates</i>	<i>captivus</i>	125	discrete	32	0.2445625	0.0224197	24	2.8599583	0.4898592	28	0.0469286	0.0126343
<i>Dendrobates</i>	<i>castaneoticus</i>	114	discrete	2	4.0635000	0.0007071	1	9.5680000	0.0000000	2	0.1930000	0.0070711
<i>Dendrobates</i>	<i>claudiae</i>	130	discrete	4	1.1305000	0.0167432	1	7.8330000	0.0000000	4	0.0470000	0.0121929
<i>Dendrobates</i>	<i>defleri</i>	133	discrete	6	0.4446667	0.0885498	3	2.1513333	0.2521911	6	0.0365000	0.0048477
<i>Dendrobates</i>	<i>fantasticus</i>	137	discrete	17	0.2808824	0.0470716	15	0.5225333	0.0462646	17	0.0258571	0.0117250
<i>Dendrobates</i>	<i>galactonotus</i>	113	discrete	1	10.3120000	0.0000000	--	--	--	1	0.5370000	0.0000000
<i>Dendrobates</i>	<i>granuliferus</i>	119	discrete	42	0.3910238	0.0214209	41	0.8018780	0.0370514	42	0.1569762	0.0272500
<i>Dendrobates</i>	<i>histrionicus</i>	121	discrete	86	0.1249302	0.0149437	84	0.2489405	0.0260821	32	0.0599063	0.0079570
<i>Dendrobates</i>	<i>imitator</i>	131	discrete	58	0.6475690	0.1014480	49	3.9236122	0.9734620	58	0.0337167	0.0117820
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	discrete	4	1.2343333	0.1678730	3	5.6646667	2.8598315	4	0.1102500	0.0172699
<i>Dendrobates</i>	<i>leucomelas</i>	118	discrete	15	10.1725333	1.8935002	6	37.9243333	4.8647647	15	0.4207333	0.0833474
<i>Dendrobates</i>	<i>minutus</i>	128	discrete	1	1.1070000	0.0000000	--	--	--	1	0.0340000	0.0000000
<i>Dendrobates</i>	<i>mysteriosus</i>	124	discrete	19	1.4607895	0.1817748	16	4.3336875	0.3896307	19	0.0905789	0.0220033
<i>Dendrobates</i>	<i>pumilio</i>	123	discrete	160	0.0353813	0.0104472	152	0.1100526	0.0051633	120	0.0149833	0.0032332
<i>Dendrobates</i>	<i>pumilio</i>	122	discrete	30	0.0778667	0.0024598	29	0.1816207	0.0034165	30	0.0331111	0.0044318
<i>Dendrobates</i>	<i>reticulatus</i>	136	discrete	17	0.2468824	0.0386068	17	0.3786471	0.0482350	9	0.0247778	0.0091894
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	discrete	7	1.3732857	0.1139703	1	31.4680000	0.0000000	7	0.0482857	0.0068487
<i>Dendrobates</i>	<i>sylvaticus</i>	120	discrete	292	0.0844692	0.0087029	277	0.1853394	0.0061686	30	0.0405333	0.0050972
<i>Dendrobates</i>	<i>tinctorius</i>	117	discrete	4	0.8680000	0.0184752	3	5.8763333	0.5978815	4	0.0022500	0.0005000
<i>Dendrobates</i>	<i>truncatus</i>	115	discrete	5	3.0568000	0.1262763	3	30.1773333	7.0900435	5	0.1022000	0.0231884
<i>Dendrobates</i>	<i>uakarii</i>	138	discrete	26	0.2415000	0.0214518	25	0.3587200	0.0246230	5	0.0644000	0.0098387
<i>Dendrobates</i>	<i>variabilis</i>	135	discrete	16	0.3492500	0.0658893	14	1.2503571	0.2706097	16	0.0314286	0.0043803
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	discrete	22	0.3942727	0.0615678	18	1.4671111	0.2732542	22	0.0335000	0.0100167
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	discrete	12	0.4470769	0.1009228	11	1.7741818	0.3503703	12	0.0172308	0.0072589
<i>Dendrobates</i>	<i>virolinensis</i>	127	discrete	12	1.8338333	0.1950113	6	15.4806667	4.7888724	10	0.0488000	0.0074655
<i>Epipedobates</i>	<i>anthonyi</i>	71	discrete	8	3.6827500	0.3317395	5	40.4280000	5.6463965	8	0.3287500	0.0536517



Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Bout Type	Multinote Call Duration (s)			Interval between Multinote Calls (s)			Multinote Call Rise Time (s)		
				N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	discrete	22	2.9562273	0.5961909	16	17.7603125	6.9172265	22	0.3106000	0.0973904
<i>Epipedobates</i>	<i>boulengeri</i>	67	discrete	41	0.1673171	0.0382200	33	0.5520606	0.2275005	41	0.0104634	0.0024403
<i>Epipedobates</i>	<i>espinosai</i>	69	discrete	15	1.1154667	0.6657010	3	27.2220000	13.7717638	15	0.0996923	0.0396409
<i>Epipedobates</i>	<i>machalilla</i>	73	discrete	10	6.7558000	0.5137139	6	30.3623333	4.1320271	10	0.1797778	0.0614589
<i>Epipedobates</i>	<i>machalilla</i>	72	discrete	31	4.1762258	0.3300084	30	17.6758000	2.6642026	31	0.1410000	0.0280713
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	discrete	21	1.8972857	0.2667295	11	18.0425455	6.6344713	21	0.0464762	0.0149420
<i>Epipedobates</i>	<i>tricolor</i>	74	discrete	14	2.0288571	0.2323584	4	71.4817500	20.5280594	14	0.0097857	0.0019682
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	discrete	2	10.0450000	0.3860803	1	52.3620000	0.0000000	2	0.7655000	0.2227386
<i>Hyloxalus</i>	<i>awa</i>	171	discrete	24	3.1219167	1.0246179	18	13.4133889	6.7807012	23	0.2530435	0.0277054
<i>Hyloxalus</i>	<i>azureiventris</i>	165	discrete	3	14.8910000	4.4930810	2	22.7595000	2.3497158	3	0.4882500	0.1447627
<i>Hyloxalus</i>	<i>bocagei</i>	151	discrete	3	48.9756667	2.2757927	3	50.4450000	1.4195848	5	1.4058000	0.3022196
<i>Hyloxalus</i>	<i>bocagei</i>	150	discrete	3	44.6180000	3.2563579	2	50.3475000	1.6708933	6	1.3583333	0.7918820
<i>Hyloxalus</i>	<i>craspedoiceps</i>	166	discrete	165	0.2017758	0.0122426	155	1.1691548	0.1503383	165	0.0817962	0.0262434
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	discrete	16	0.0690625	0.0028395	12	0.4527500	0.0726963	16	0.0094375	0.0030977
<i>Hyloxalus</i>	<i>delatorreae</i>	162	discrete	43	0.0666977	0.0038081	33	0.4356970	0.0374454	43	0.0109535	0.0039638
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>erythromos</i>	140	discrete	46	0.1163043	0.0139378	36	1.8160833	0.3126289	46	0.0404348	0.0092416
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	discrete	22	27.3238182	9.7928621	19	35.8256842	11.6378083	30	0.0452333	0.0077490
<i>Hyloxalus</i>	<i>insulatus</i>	167	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	discrete	64	3.0380313	0.7180940	57	3.9411228	0.5651890	65	0.0348769	0.0074760
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>maculosus</i>	149	discrete	6	31.2066000	7.7313448	6	31.0345000	7.5756757	5	1.6056000	0.3168632
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	discrete	7	7.0862857	1.2051717	3	79.2203333	11.2032754	7	0.7128333	0.2539688
<i>Hyloxalus</i>	<i>nexipus</i>	154	discrete	36	1.8346111	0.1998630	25	9.4824400	1.3883303	36	0.0875556	0.0176869
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	discrete	7	1.5537143	0.2741646	3	8.5906667	2.2348746	8	0.1185000	0.0075593
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	discrete	23	1.5677826	0.1508395	19	4.6158947	0.2082282	24	0.0607500	0.0039918
<i>Hyloxalus</i>	<i>pulchellus</i>	160	discrete	22	0.7743182	0.3182659	21	1.8568095	0.3568896	23	0.0688261	0.0047544
<i>Hyloxalus</i>	<i>pulchellus</i>	159	discrete	177	0.4740113	0.2474264	173	1.6578324	0.5531543	182	0.0750495	0.0220282
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	discrete	38	0.4803684	0.1085809	32	2.9524688	0.6478068	41	0.0390000	0.0047958
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	discrete	16	7.0157500	5.9926140	16	3.4898125	3.2916072	24	0.0169167	0.0022634
<i>Hyloxalus</i>	<i>sorditatus</i>	141	discrete	9	2.9732222	0.4488206	7	5.4274286	0.6802815	9	0.0979167	0.0065291
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>toachi</i>	172	discrete	27	17.4919259	5.0806983	23	25.4472174	8.3552037	27	1.3828889	0.5639763

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Bout Type	Multinote Call Duration (s)			Interval between Multinote Calls (s)			Multinote Call Rise Time (s)		
				N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	158	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	147	discrete	78	1.3620128	0.1857319	77	2.6015714	0.3850910	78	0.1301667	0.0050128
<i>Hyloxalus</i>	<i>yasuni</i>	145	discrete	49	3.5503125	0.8500877	39	4.5188462	0.7681206	49	0.3048600	0.0865460
<i>Hyloxalus</i>	<i>yasuni</i>	146	discrete	22	5.8539545	1.5677771	20	6.6163000	1.2993054	22	0.3665455	0.0934043
<i>Mannophryne</i>	<i>urticans</i>	25	discrete	5	5.6770000	0.9954798	4	25.4547500	5.3401528	6	0.5336667	0.1559547
<i>Mannophryne</i>	<i>cordilleriana</i>	20	discrete	3	34.3950000	20.7976508	2	39.7485000	9.8450477	3	1.6650000	0.9354010
<i>Mannophryne</i>	<i>herminae</i>	19	discrete	427	0.1003770	0.0069014	412	0.3277039	0.1252018	427	0.0314169	0.0073055
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	discrete	116	0.1055517	0.0120494	111	0.4811171	0.1222267	116	0.0382414	0.0080516
<i>Mannophryne</i>	<i>leonardoi</i>	16	discrete	126	0.2453492	0.0302500	125	1.4963440	0.1705892	126	0.0309841	0.0054889
<i>Mannophryne</i>	<i>olmonae</i>	12	continuous	--	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	22	discrete	4	6.0940000	0.9612943	2	16.7965000	4.1669803	4	1.6187500	0.2708645
<i>Mannophryne</i>	<i>orellana</i>	21	discrete	14	22.9282143	4.8348544	8	31.1325000	5.3978365	14	7.7427143	1.9477743
<i>Mannophryne</i>	<i>riveroi</i>	13	discrete	7	22.6818571	2.0226319	4	41.3165000	4.7017711	6	8.3753333	1.4589139
<i>Mannophryne</i>	<i>trinitatis</i>	17	discrete	47	0.1165532	0.0065998	43	0.2900465	0.0397570	47	0.0446170	0.0035543
<i>Mannophryne</i>	<i>collaris</i>	23	discrete	6	22.3758333	2.7218040	3	29.3156667	0.5910003	6	7.0796667	1.0954838
<i>Mannophryne</i>	<i>collaris</i>	24	discrete	4	19.1400000	3.9833447	2	27.3470000	0.6802367	4	6.5160000	2.8521374
<i>Mannophryne</i>	<i>venezuelensis</i>	18	discrete	9	3.6550000	0.3123452	8	8.5208750	1.4720622	9	0.2092222	0.0204681
<i>Mannophryne</i>	<i>vulcano</i>	14	discrete	47	0.0839787	0.0030609	46	0.4298913	0.0634610	46	0.0228696	0.0016681
<i>Mannophryne</i>	<i>yustizi</i>	26	discrete	8	9.0840000	1.2412699	5	19.1198000	2.3998303	8	1.1086250	0.4537135
<i>Phyllobates</i>	<i>aurotaenia</i>	108	discrete	10	4.0538000	0.3210624	7	11.9222857	1.6673922	10	0.1644000	0.0609430
<i>Phyllobates</i>	<i>lugubris</i>	111	discrete	10	4.4057000	0.3490384	7	11.9374286	1.1589650	10	0.1238000	0.0339044
<i>Phyllobates</i>	<i>lugubris</i>	112	discrete	6	5.6963333	0.9260068	4	13.1992500	0.6538228	6	0.1053333	0.0323460
<i>Phyllobates</i>	<i>terribilis</i>	109	discrete	9	3.8866667	0.7718779	3	8.2033333	0.6219810	9	0.1523333	0.0057009
<i>Phyllobates</i>	<i>vittatus</i>	110	discrete	51	5.3111961	0.7398598	42	16.1379762	4.4484610	51	0.1086364	0.0297861
<i>Rheobates</i>	<i>palmatus</i>	28	discrete	12	23.9890000	3.3432222	9	54.7277778	4.7071204	12	7.6562500	2.2906497
<i>Rheobates</i>	<i>palmatus</i>	27	discrete	7	34.6585714	8.4319720	2	45.3775000	1.4417907	8	7.2932500	1.2850501
<i>Silverstoneia</i>	<i>flotator</i>	62	discrete	3	41.7520000	6.8821990	4	15.3470000	2.0323413	2	5.3450000	0.6632662
<i>Silverstoneia</i>	<i>flotator</i>	63	discrete	7	14.0818571	2.1521625	2	18.7570000	5.1774359	7	3.3267143	0.8640765
<i>Silverstoneia</i>	<i>nubicola</i>	66	discrete	42	1.9550000	0.2139009	37	3.3112162	0.3805400	43	0.0264651	0.0067342
<i>Silverstoneia</i>	<i>nubicola</i>	65	discrete	2	57.3445000	0.5706352	--	--	--	2	3.0375000	0.2481945
<i>Silverstoneia</i>	<i>nubicola</i>	64	discrete	4	8.4242500	3.7181373	5	10.0112000	5.2906370	5	0.4622000	0.1647671
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	discrete	25	0.3477200	0.0693827	22	1.2029091	0.4771244	25	0.0242000	0.0030822
<i>Allobates</i>	<i>goianus</i>	NA	continuous	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	continuous	--	--	--	--	--	--	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulse-Notes in Multinote Calls			Multinote Call Rate (Calls/second)			Multinote Pulse-Note Rate (Pulses/ second)		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>brunneus</i>	37	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>crombiei</i>	52	12	55.1666667	4.0414519	2	0.0648599	0.0053660	49	11.9157602	1.1972175
<i>Allobates</i>	<i>femorialis</i>	43	10	78.8000000	15.5334764	1	0.0130063	0.0000000	10	3.4824782	0.5372889
<i>Allobates</i>	<i>femorialis</i>	46	24	4.0000000	0.0000000	1	1.3290402	0.0000000	2	5.4713495	0.0827116
<i>Allobates</i>	<i>femorialis</i>	44	15	4.0000000	0.0000000	1	0.8338197	0.0000000	2	4.0334116	0.8055083
<i>Allobates</i>	<i>femorialis</i>	40	42	4.0000000	0.0000000	1	1.1473250	0.0000000	2	3.7952152	1.2171143
<i>Allobates</i>	<i>femorialis</i>	41	249	2.0000000	0.0000000	4	1.8242176	0.0952533	5	3.5826617	0.2568000
<i>Allobates</i>	<i>femorialis</i>	45	38	4.0000000	0.0000000	1	1.0174857	0.0000000	2	4.6096676	0.7997517
<i>Allobates</i>	<i>granti</i>	49	68	2.0000000	0.0000000	5	3.7822953	0.2187595	4	7.5457397	0.4261070
<i>Allobates</i>	<i>humilis</i>	59	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>insperatus</i>	54	15	37.3846154	1.8501559	4	0.0666694	0.0154494	15	12.2113454	1.0831765
<i>Allobates</i>	<i>aff. insperatus</i>	55	1	52.0000000	0.0000000	--	--	--	2	12.8643546	0.1314688
<i>Allobates</i>	<i>juanii</i>	47	138	2.0841584	0.9292626	9	0.5786450	0.0567918	8	1.3531191	0.4524406
<i>Allobates</i>	<i>kingsburyi</i>	39	20	91.9500000	26.9199105	3	0.0437201	0.0126474	20	3.7844478	0.4986547
<i>Allobates</i>	<i>marchesianus</i>	50	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>masniger</i>	58	5	122.2000000 0	64.0288997	2	0.0176511	0.0022900	5	3.2196768	0.2286333
<i>Allobates</i>	<i>nidicola</i>	36	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>olfersioides</i>	1	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>ornatus</i>	51	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	2	297.5000000	3.5355339	2	0.0177732	0.0046128	2	8.7651744	0.3973649
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	4	11.7500000	4.5734742	1	0.0940999	0.0000000	4	2.7235773	0.3121869
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	34	5	18.0000000	3.4641016	1	0.0420309	0.0000000	5	5.5491807	0.3391798
<i>Allobates</i>	<i>talamancae</i>	32	6	16.6666667	4.6761808	4	0.1347204	0.0303824	5	3.3398027	0.4222404
<i>Allobates</i>	<i>talamancae</i>	35	10	11.7000000	1.2516656	2	0.0182275	0.0042090	10	4.5712285	0.8461314
<i>Allobates</i>	<i>talamancae</i>	31	6	32.1666667	5.6361926	1	0.0716563	0.0000000	6	3.1168277	0.6617098
<i>Allobates</i>	<i>talamancae</i>	33	5	14.6000000	3.1304952	2	0.0387792	0.0181044	5	6.4065698	0.3892379
<i>Allobates</i>	<i>talamancae</i>	30	2	19.0000000	1.4142136	1	0.0794092	0.0000000	2	4.8515237	0.3249539
<i>Allobates</i>	<i>trilineatus</i>	56	13	23.5384615	6.5398189	2	0.1091804	0.0187788	13	7.4078021	0.6674876
<i>Allobates</i>	<i>zaparo</i>	42	64	10.3750000	3.5433819	14	0.3700757	0.0962547	59	6.7090397	0.3980032
<i>Ameerega</i>	<i>altamazonica</i>	103	--	--	--	--	--	--	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulse-Notes in Multinote Calls			Multinote Call Rate (Calls/second)			Multinote Pulse-Note Rate (Pulses/ second)		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	6	20.8333333	5.9132619	1	0.0459728	0.0000000	10	2.0688581	0.1889057
<i>Ameerega</i>	<i>bilinguis</i>	87	17	245.823529	65.4649098	2	0.0255381	0.0037848	17	8.4976174	0.6411416
<i>Ameerega</i>	<i>braccata</i>	94	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	33	8.4230769	9.0296094	1	0.5112633	0.0000000	33	8.2255968	0.6122573
<i>Ameerega</i>	<i>flavopicta</i>	95	60	9.0666667	0.2515489	1	1.6653494	0.0000000	60	49.0092191	0.6761700
<i>Ameerega</i>	<i>hahneli</i>	96	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	97	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	98	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	99	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>ignipedis</i>	90	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>parvula</i>	86	4	168.500000	23.9513396	2	0.0711302	0.0165938	4	24.8451822	0.5033856
<i>Ameerega</i>	<i>petersi</i>	101	22	9.1363636	1.7264181	2	0.4796204	0.0320770	23	8.5176197	0.1736190
<i>Ameerega</i>	<i>picta</i>	91	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	92	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	93	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>pongoensis</i>	88	--	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	2	99.5000000	4.9497475	2	0.0321627	0.0014023	2	3.3929068	0.0133995
<i>Ameerega</i>	<i>smaragdina</i>	100	47	2.0000000	0.0000000	1	2.5054466	0.0000000	1	5.0297458	0.0000000
<i>Ameerega</i>	<i>trivittata</i>	105	2	47.5000000	23.3345238	--	--	--	2	4.6059090	0.2110045
<i>Ameerega</i>	<i>trivittata</i>	107	3	38.3333333	20.6478409	1	0.2033967	0.0000000	3	4.7875606	0.0974941
<i>Ameerega</i>	<i>trivittata</i>	106	28	15.4642857	10.3726212	4	0.3087934	0.0910341	33	4.3562288	0.2462356
<i>Ameerega</i>	<i>trivittata</i>	104	2	36.5000000	30.4055916	1	0.4084967	0.0000000	2	6.2172506	0.0163721
<i>Anomalogl ossus</i>	<i>baeobatrachus</i>	3	19	14.4210526	2.8346230	1	0.3756731	0.0000000	19	15.1712987	0.0898294
<i>Anomalogl ossus</i>	<i>degranvillei</i>	4	--	--	--	--	--	--	--	--	--
<i>Anomalogl ossus</i>	<i>rifulus</i>	5	1	18.0000000	0.0000000	1	0.1632387	0.0000000	2	6.4207316	0.6505415
<i>Anomalogl ossus</i>	<i>verbeeksnyderorum</i>	2	10	159.600000	74.4195315	2	0.0689780	0.0318761	12	8.9496862	0.1360160
<i>Aromobates</i>	<i>meridensis</i>	7	1	20.0000000	0.0000000	--	--	--	1	8.0782313	0.0000000
<i>Aromobates</i>	<i>saltuensis</i>	11	273	2.0000000	0.0000000	3	1.4110161	0.1015698	3	2.8410390	0.2213065
<i>Aromobates</i>	<i>cannatellai</i>	9	--	--	--	--	--	--	--	--	--
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	--	--	--	--	--	--	--	--	--
<i>Aromobates</i>	<i>ericksonae</i>	8	185	2.0000000	0.0000000	9	0.4753256	0.0405122	5	1.2555867	0.2331849
<i>Aromobates</i>	<i>ornatissimus</i>	6	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>argyrogastrer</i>	83	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	--	--	--	--	--	--	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulse-Notes in Multinote Calls			Multinote Call Rate (Calls/second)			Multinote Pulse-Note Rate (Pulses/ second)		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	--	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	76	71	2.6760563	0.5548397	6	0.7113362	0.0690464	5	1.9885941	0.3937620
<i>Colostethus</i>	<i>panamansis</i>	75	96	2.4795918	0.5021519	4	1.2211562	0.1030549	3	3.3360951	0.3432298
<i>Colostethus</i>	<i>pratti</i>	80	77	5.0259740	3.4904909	10	0.2210912	0.0635905	74	4.9319271	0.2323629
<i>Colostethus</i>	<i>pratti</i>	79	22	12.0454546	4.5615084	6	0.0586880	0.0172320	24	4.7115051	0.3774403
<i>Colostethus</i>	<i>pratti</i>	77	4	5.7500000	1.2583057	2	0.0752416	0.0338913	4	5.1710273	0.1844375
<i>Colostethus</i>	aff. <i>pratti</i>	78	37	5.8108108	2.7063489	3	0.3106197	0.1001362	35	7.9751712	0.6328982
<i>Dendrobates</i>	<i>auratus</i>	116	2	215.5000000	70.0035713	1	0.0805391	0.0000000	2	62.1740951	4.4407802
<i>Dendrobates</i>	<i>bombetes</i>	126	11	225.545454	16.6334821	3	0.0588885	0.0122031	12	162.575156	17.4081798
<i>Dendrobates</i>	<i>captivus</i>	125	32	12.4375000	1.0757593	2	0.2787046	0.0151917	32	49.6663073	1.9461121
<i>Dendrobates</i>	<i>castaneoticus</i>	114	2	345.0000000	0.0000000	1	0.1045151	0.0000000	2	84.9277983	0.0444782
<i>Dendrobates</i>	<i>claudiae</i>	130	4	70.7500000	5.5000000	1	0.1276650	0.0000000	4	62.1336390	5.6203158
<i>Dendrobates</i>	<i>defleri</i>	133	6	41.6666667	9.9331096	3	0.4694329	0.0589301	5	94.6992434	3.5610933
<i>Dendrobates</i>	<i>fantasticus</i>	137	7	14.0000000	1.8257419	2	1.8862803	0.1799804	7	44.4037064	1.0194858
<i>Dendrobates</i>	<i>galactonotus</i>	113	1	634.0000000	0.0000000	--	--	--	1	61.4503446	0.0000000
<i>Dendrobates</i>	<i>granuliferus</i>	119	42	57.1428571	4.1880866	1	1.2470724	0.0000000	42	145.630531	4.3979319
<i>Dendrobates</i>	<i>histrionicus</i>	121	32	27.7500000	2.6760587	3	3.8380322	0.2886519	29	244.967721	8.2983524
<i>Dendrobates</i>	<i>imitator</i>	131	63	22.9047619	4.4239607	3	0.1866517	0.0690296	61	34.7643041	1.7976659
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	4	32.0000000	3.5590261	1	0.1765329	0.0000000	4	24.5410479	0.4371967
<i>Dendrobates</i>	<i>leucomelas</i>	118	15	163.333333	31.2219398	4	0.0462554	0.0210866	17	16.6554148	0.8246094
<i>Dendrobates</i>	<i>minutus</i>	128	1	93.0000000	0.0000000	--	--	--	1	83.4088849	0.0000000
<i>Dendrobates</i>	<i>mysteriosus</i>	124	18	72.8333333	8.5146932	3	0.2295119	0.0113562	19	51.0486091	3.8430830
<i>Dendrobates</i>	<i>pumilio</i>	123	154	13.0844156	3.9439725	2	8.6016514	0.5882556	147	353.442818	31.5096991
<i>Dendrobates</i>	<i>pumilio</i>	122	30	16.8666667	0.9732042	1	5.5059806	0.0000000	30	213.442260	8.9176284
<i>Dendrobates</i>	<i>reticulatus</i>	136	8	56.3750000	5.3702221	2	2.6793306	0.3565885	7	271.913296	10.8302223
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	7	152.428571	12.5014285	1	0.0317783	0.0000000	7	110.596687	3.7445220
<i>Dendrobates</i>	<i>sylvaticus</i>	120	30	23.4666667	1.6553640	2	5.2287954	0.0710275	26	302.962360	9.7313762
<i>Dendrobates</i>	<i>tinctorius</i>	117	4	121.5000000	2.8867513	1	0.1701741	0.0000000	4	139.179229	0.4157792
<i>Dendrobates</i>	<i>truncatus</i>	115	5	155.4000000	5.8566202	1	0.0331375	0.0000000	5	50.7794290	3.3794130
<i>Dendrobates</i>	<i>uakarii</i>	138	5	13.0000000	0.7071068	1	2.7876896	0.0000000	5	56.4668852	2.6214740
<i>Dendrobates</i>	<i>variabilis</i>	135	14	88.1428571	12.1709436	1	0.7149666	0.0000000	12	249.275604	16.9270958
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	22	107.0000000	11.4309521	1	0.6031965	0.0000000	3	301.651573	27.5988263
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	12	78.2307692	8.3681325	1	0.5250847	0.0000000	11	169.865463	21.2883870
<i>Dendrobates</i>	<i>virolinensis</i>	127	11	197.0000000	29.7892598	2	0.0422793	0.0141707	12	108.153035	12.8018365
<i>Epipedobates</i>	<i>anthonyi</i>	71	8	60.7500000	5.1754917	2	0.0233059	0.0012450	8	16.3754780	0.4639296

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Genus	Species	Phy ID	Pulse-Notes in Multinote Calls			Multinote Call Rate (Calls/second)			Multinote Pulse-Note Rate (Pulses/ second)		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	22	56.5909091	10.9224936	3	0.0639399	0.0326331	22	19.0288307	0.8268543
<i>Epipedobates</i>	<i>boulengeri</i>	67	41	7.4390244	1.5976354	8	1.7979613	0.4811882	41	42.2707890	1.2752533
<i>Epipedobates</i>	<i>espinosai</i>	69	15	60.0833333	31.7503281	3	0.0417234	0.0163531	15	44.4095942	2.6341783
<i>Epipedobates</i>	<i>machalilla</i>	73	10	119.4000000	8.7330789	2	0.0338539	0.0034159	10	17.5832741	0.3664280
<i>Epipedobates</i>	<i>machalilla</i>	72	31	124.848484	9.5266771	3	0.0565305	0.0038258	31	29.8836117	0.2443073
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	19	66.6315790	7.3651622	6	0.0488690	0.0206981	21	35.1054082	4.0190783
<i>Epipedobates</i>	<i>tricolor</i>	74	14	59.0000000	6.5983681	1	0.0139896	0.0000000	14	28.8393939	0.4444189
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	2	78.5000000	0.7071068	1	0.0190978	0.0000000	2	7.8891719	0.3006070
<i>Hyloxalus</i>	<i>awa</i>	171	25	20.1200000	7.1199251	25	6.4203545	0.1986079	25	6.4203545	0.1986079
<i>Hyloxalus</i>	<i>azureiventris</i>	165	3	228.000000	68.0220553	2	0.0441738	0.0046231	5	15.2958541	0.1040519
<i>Hyloxalus</i>	<i>bocagei</i>	151	3	348.000000	17.4355958	1	0.0197433	0.0000000	5	6.3087781	0.9678846
<i>Hyloxalus</i>	<i>bocagei</i>	150	3	274.000000	7.2111026	1	0.0199295	0.0000000	6	5.8848480	0.5080704
<i>Hyloxalus</i>	<i>craspedoiceps</i>	166	13	25.0000000	0.4082483	5	0.8667879	0.0239919	165	142.339816	0.8128326
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	16	7.3125000	0.6020797	4	2.2576166	0.2837818	14	103.190687	4.6324586
<i>Hyloxalus</i>	<i>delatorreae</i>	162	43	6.7209302	0.7661152	10	2.3280185	0.1354180	42	96.9081781	12.5118993
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>erythromos</i>	140	46	20.8461539	2.3679712	1	0.5740195	0.0000000	46	170.602707	19.0604383
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	22	59.2727273	23.9963922	6	0.0324874	0.0096976	25	2.0920895	0.1927151
<i>Hyloxalus</i>	<i>insulatus</i>	167	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	63	34.2222222	8.7001009	5	0.2419844	0.0355546	66	11.2132896	0.9473604
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>maculosus</i>	149	4	167.250000	41.1126501	1	0.0339563	0.0000000	4	7.4128774	0.5586346
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	7	28.4285714	4.6496288	4	0.0187442	0.0091913	7	3.9263553	0.1680832
<i>Hyloxalus</i>	<i>nexipus</i>	154	36	25.9166667	2.6872716	6	0.0989956	0.0169677	36	13.7904109	0.1885200
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	8	17.8750000	4.3895167	3	0.1297824	0.0291665	7	11.8285189	0.2588150
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	22	22.3181818	1.6729319	3	0.2160778	0.0089566	23	13.6014397	0.1794989
<i>Hyloxalus</i>	<i>pulchellus</i>	160	22	2.7826087	0.7358682	1	0.5260641	0.0000000	1	1.4780405	0.0000000
<i>Hyloxalus</i>	<i>pulchellus</i>	159	177	2.1630435	0.4253491	11	0.7437579	0.2332222	8	1.6345070	0.3882818
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	38	4.7297297	0.9617302	5	0.2909166	0.0643129	5	1.7269534	0.3325821
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	19	116.105263	115.486841	1	0.1908857	0.0000000	23	18.7988386	0.5472255
<i>Hyloxalus</i>	<i>sorditatus</i>	141	9	27.3000000	3.9735235	3	0.1780263	0.0302022	9	9.2881726	0.2938481
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>toachi</i>	172	26	38.9230769	10.7700439	4	0.0385339	0.0065460	29	2.2071720	0.1505216

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Genus	Species	Phy ID	Pulse-Notes in Multinote Calls			Multinote Call Rate (Calls/second)			Multinote Pulse-Note Rate (Pulses/ second)		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	158	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	147	78	16.2307692	2.1737697	2	0.3847571	0.0194152	78	11.5282835	0.1119318
<i>Hyloxalus</i>	<i>yasuni</i>	145	49	40.4800000	11.1871647	4	0.1912951	0.0331620	49	11.0336773	0.5430591
<i>Hyloxalus</i>	<i>yasuni</i>	146	22	81.8000000	16.9941166	2	0.1406365	0.0066672	22	13.7743329	0.5030917
<i>Mannophryne</i>	<i>urticans</i>	25	5	66.0000000	20.8710326	2	0.0448160	0.0123523	5	10.1225977	0.1786539
<i>Mannophryne</i>	<i>cordilleriana</i>	20	3	224.250000	152.222151	2	0.0259543	0.0064285	3	7.6772987	0.1187638
<i>Mannophryne</i>	<i>herminae</i>	19	427	2.0000000	0.0000000	5	2.7820929	1.1180950	4	6.0189799	2.3096473
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	116	2.0000000	0.0000000	3	2.1498444	0.4785025	2	3.8995024	0.5523165
<i>Mannophryne</i>	<i>leonardoi</i>	16	126	4.1904762	0.3942443	1	0.6682955	0.0000000	126	14.8842989	0.3515856
<i>Mannophryne</i>	<i>olmonae</i>	12	--	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	22	4	67.5000000	10.2143690	2	0.0614265	0.0152391	4	11.0010610	0.0906612
<i>Mannophryne</i>	<i>orellana</i>	21	12	134.7500000	28.6614248	2	0.0321683	0.0002632	14	5.7661132	0.5252025
<i>Mannophryne</i>	<i>riveroi</i>	13	7	52.8571429	7.2670162	2	0.0243083	0.0022577	7	2.2241685	0.2880355
<i>Mannophryne</i>	<i>trinitatis</i>	17	47	2.0000000	0.0000000	4	3.4731160	0.1387110	3	7.0372744	0.3491365
<i>Mannophryne</i>	<i>collaris</i>	23	6	136.833333	23.7353464	1	0.0341116	0.0000000	6	6.0546896	0.3834207
<i>Mannophryne</i>	<i>collaris</i>	24	4	133.7500000	16.5403547	1	0.0365671	0.0000000	4	7.0489759	0.7440933
<i>Mannophryne</i>	<i>venezuelensis</i>	18	9	22.7777778	1.5634719	2	0.1212549	0.0227931	9	6.0979134	0.1343702
<i>Mannophryne</i>	<i>vulcano</i>	14	47	2.0000000	0.0000000	1	2.3261694	0.0000000	1	4.6891544	0.0000000
<i>Mannophryne</i>	<i>yustizi</i>	26	8	102.2500000	13.8331899	3	0.0512471	0.0068247	8	11.1859592	0.4757013
<i>Phyllobates</i>	<i>aurotaenia</i>	108	10	62.2000000	4.8944413	1	0.0868847	0.0000000	10	15.2191902	0.0458307
<i>Phyllobates</i>	<i>lugubris</i>	111	10	64.3000000	5.8128211	3	0.0875768	0.0103397	10	14.4242582	0.3278878
<i>Phyllobates</i>	<i>lugubris</i>	112	6	89.8333333	14.5796662	2	0.0757964	0.0022881	6	15.6591531	0.0592865
<i>Phyllobates</i>	<i>terribilis</i>	109	9	39.0000000	7.5166482	1	0.1219017	0.0000000	9	9.8999753	0.0945383
<i>Phyllobates</i>	<i>vittatus</i>	110	51	74.8627451	10.2723310	6	0.0594456	0.0101265	51	13.9846988	0.3618635
<i>Rheobates</i>	<i>palmatus</i>	28	12	182.7500000	52.4285228	4	0.0252537	0.0054323	12	7.2260913	0.8319726
<i>Rheobates</i>	<i>palmatus</i>	27	7	300.2500000	100.626253	1	0.0220374	0.0000000	7	9.3531488	0.4311224
<i>Silverstoneia</i>	<i>flotator</i>	62	3	135.666666	23.8607069	1	0.0175134	0.0000000	5	3.3623619	0.4041495
<i>Silverstoneia</i>	<i>flotator</i>	63	7	58.8750000	11.0121686	1	0.0706115	0.0000000	8	4.3211830	0.1895519
<i>Silverstoneia</i>	<i>nubicola</i>	66	41	18.5609756	2.4397621	5	0.2936774	0.0239820	43	9.3497839	0.4217109
<i>Silverstoneia</i>	<i>nubicola</i>	65	1	131.000000	0.0000000	--	--	--	2	2.3356569	0.0672923
<i>Silverstoneia</i>	<i>nubicola</i>	64	6	111.5000000	49.8547891	4	0.1210157	0.0721295	9	11.4138255	0.5252124
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	25	7.0000000	1.3228757	3	0.8463270	0.1134385	23	18.4037755	0.2017090
<i>Allobates</i>	<i>goianus</i>	NA	--	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	--	--	--	--	--	--	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulses in UR		UR Duration (s)			Interval between UR (s)			UR Rate (UR / second)		
			N	Pul.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	3	1	114	0.0490263	0.0041252	109	0.8242110	0.3897468	3	1.2437292	0.0977481
<i>Allobates</i>	<i>brunneus</i>	37	6	1	261	0.0459042	0.0070989	255	0.4750627	0.3317661	6	2.3100940	0.1624029
<i>Allobates</i>	<i>caeruleodactylus</i>	48	2	1	515	0.0280641	0.0031865	477	0.4983249	0.1212178	2	1.8852052	0.1605131
<i>Allobates</i>	<i>crombiei</i>	52	49	1	662	0.0384909	0.0051547	610	0.0884131	0.0081945	49	11.9157602	1.1972175
<i>Allobates</i>	<i>femorialis</i>	43	10	1	788	0.0967487	0.0206133	769	0.2905137	0.1940869	10	3.4824782	0.5372889
<i>Allobates</i>	<i>femorialis</i>	46	1	4	24	0.3882917	0.0080460	22	0.7530455	0.0212972	1	1.3290402	0.0000000
<i>Allobates</i>	<i>femorialis</i>	44	1	4	15	0.5146667	0.0080593	12	1.1808333	0.0925270	1	0.8338197	0.0000000
<i>Allobates</i>	<i>femorialis</i>	40	1	4	42	0.3638333	0.0047827	39	0.8822051	0.1396764	1	1.1473250	0.0000000
<i>Allobates</i>	<i>femorialis</i>	41	4	2	249	0.1783775	0.0187813	243	0.5500864	0.0709239	4	1.8242176	0.0952533
<i>Allobates</i>	<i>femorialis</i>	45	1	4	38	0.5156842	0.0119189	36	0.9795000	0.0540336	1	1.0174857	0.0000000
<i>Allobates</i>	<i>granti</i>	49	5	2	68	0.0842206	0.0040624	63	0.2668730	0.0403834	5	3.7822953	0.2187595
<i>Allobates</i>	<i>humilis</i>	59	1	1	21	0.0388571	0.0025939	20	0.2824000	0.03222023	1	3.5410765	0.0000000
<i>Allobates</i>	<i>insperatus</i>	54	15	1	237	0.0325485	0.0082664	221	0.0808371	0.0099823	15	12.2113454	1.0831765
<i>Allobates</i>	<i>aff. insperatus</i>	55	2	1	73	0.0304658	0.0038009	71	0.0774930	0.0062767	2	12.8643546	0.1314688
<i>Allobates</i>	<i>juanii</i>	47	9	2-3	138	0.5196739	0.2512094	119	1.6903277	0.3188039	9	0.5786450	0.0567918
<i>Allobates</i>	<i>kingsburyi</i>	39	19	2	961	0.1206774	0.0227540	949	0.4880390	0.1846691	19	2.0790707	0.2327674
<i>Allobates</i>	<i>marchesianus</i>	50	3	1	378	0.0523915	0.0064038	350	0.2521829	0.0753400	3	2.9675705	0.4512645
<i>Allobates</i>	<i>masniger</i>	58	5	1	611	0.0635205	0.0078853	590	0.3106068	0.1290244	5	3.4783565	0.2941427
<i>Allobates</i>	<i>nidicola</i>	36	2	1	645	0.0376248	0.0180267	631	0.2401981	0.0338020	2	3.8105731	0.6020460
<i>Allobates</i>	<i>olfersoides</i>	1	1	1	260	0.0430308	0.0048314	258	0.3684922	0.0385468	1	2.7103674	0.0000000
<i>Allobates</i>	<i>ornatus</i>	51	2	1	195	0.0363333	0.0055443	178	0.4669438	0.1032403	2	2.1636347	0.0451750
<i>Allobates</i>	<i>sp. Ducke</i>	61	12	1	807	0.0438265	0.0075870	750	0.3517173	0.2062386	12	2.7988149	0.4932524
<i>Allobates</i>	<i>sp. Neblina</i>	29	1	1	10	0.0288000	0.0042111	9	9.7587778	4.7187411	1	0.1024718	0.0000000
<i>Allobates</i>	<i>sp. Negro</i>	38	2	1	1075	0.0367572	0.0035666	1050	0.1295057	0.1555509	2	8.7651744	0.3973649
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	4	1	47	0.0795957	0.0054120	43	0.3731628	0.0654028	4	2.7235773	0.3121869
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	2	1	333	0.0353213	0.0043000	332	0.4178404	0.1969509	2	2.3564651	0.1486610
<i>Allobates</i>	<i>talamancae</i>	34	5	2	45	0.1088889	0.0052450	44	0.3524865	0.0265609	5	2.6641171	0.1639281
<i>Allobates</i>	<i>talamancae</i>	32	6	2	17	0.1975294	0.0536751	13	0.5920769	0.1033130	6	1.6023410	0.2040429
<i>Allobates</i>	<i>talamancae</i>	35	12	2	93	0.0791075	0.0336340	83	0.3527590	0.1044714	12	2.8357884	0.4463151
<i>Allobates</i>	<i>talamancae</i>	31	6	2	101	0.1357030	0.0321641	89	0.6108876	0.1675383	6	1.6291103	0.2292149
<i>Allobates</i>	<i>talamancae</i>	33	5	2	36	0.1210278	0.0118406	31	0.3215806	0.0444880	5	3.1290539	0.1417523
<i>Allobates</i>	<i>talamancae</i>	30	2	2	43	0.1186512	0.0087038	31	0.4249355	0.0431864	2	2.3323566	0.1448522
<i>Allobates</i>	<i>trilineatus</i>	56	13	2	153	0.0686471	0.0054573	140	0.2818143	0.0743442	13	3.5397071	0.3172536
<i>Allobates</i>	<i>zaparo</i>	42	62	2	335	0.1848955	0.0119218	266	0.3126316	0.0212511	62	3.2162652	0.1993844
<i>Ameerega</i>	<i>altamazonica</i>	103	2	1	456	0.0617697	0.0067513	445	0.5694360	0.1049241	2	1.7218342	0.1480156



Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulses in UR		UR Duration (s)			Interval between UR (s)			UR Rate (UR / second)		
			N	Pul.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	10	1	205	0.1744293	0.0484866	182	0.4838022	0.0718699	10	2.0688581	0.18891
<i>Ameerega</i>	<i>bilinguis</i>	87	17	2	1888	0.0995064	0.0063975	1871	0.2167600	0.0187995	17	4.5927532	0.20440
<i>Ameerega</i>	<i>braccata</i>	94	1	1	79	0.0319747	0.0029307	78	0.1898590	0.0130052	1	5.2670673	0.00000
<i>Ameerega</i>	<i>cainarachi</i>	102	33	1	469	0.0349765	0.0073500	451	0.1315876	0.0257304	33	8.2255968	0.61226
<i>Ameerega</i>	<i>flavopicta</i>	95	60	1	544	0.0159485	0.0067068	484	0.0204029	0.0062197	60	49.0092191	0.67617
<i>Ameerega</i>	<i>hahneli</i>	96	1	1	42	0.0355238	0.0067471	38	0.1538684	0.0312273	1	6.0170238	0.00000
<i>Ameerega</i>	<i>hahneli</i>	97	4	1	1693	0.0174572	0.0030843	1650	0.2392461	0.0546046	4	4.0801635	0.82127
<i>Ameerega</i>	<i>hahneli</i>	98	1	1	146	0.0164452	0.0025812	145	0.1180414	0.0125753	1	8.4716055	0.00000
<i>Ameerega</i>	<i>hahneli</i>	99	1	1	594	0.0142761	0.0012794	568	0.1467852	0.0259582	1	6.6263712	0.00000
<i>Ameerega</i>	<i>ignipedis</i>	90	1	1	22	0.0946818	0.0133395	21	0.6019048	0.1003962	1	1.6613924	0.00000
<i>Ameerega</i>	<i>parvula</i>	86	4	1	757	0.0128309	0.0033619	752	0.0398032	0.0022097	4	24.8451822	0.50339
<i>Ameerega</i>	<i>petersi</i>	101	23	1	272	0.0321397	0.0061172	248	0.1185766	0.0186453	23	8.5176197	0.17362
<i>Ameerega</i>	<i>picta</i>	91	1	1	46	0.0508261	0.0043884	45	0.3673778	0.0338481	1	2.7219937	0.00000
<i>Ameerega</i>	<i>picta</i>	92	5	1	1212	0.0501840	0.0083966	1186	0.3142664	0.0285930	5	2.9810194	0.21181
<i>Ameerega</i>	<i>picta</i>	93	1	1	322	0.0277547	0.0027455	321	0.1536231	0.0102056	1	6.5094397	0.00000
<i>Ameerega</i>	<i>pongoensis</i>	88	4	1	7	0.0772857	0.0129578	4	2.3110000	0.3918393	4	0.4417345	0.07152
<i>Ameerega</i>	<i>silverstonei</i>	85	2	1	199	0.0823518	0.0149297	197	0.2947056	0.0102228	2	3.3929068	0.01340
<i>Ameerega</i>	<i>smaragdina</i>	100	1	2	47	0.1840638	0.0065488	46	0.3991304	0.0178520	1	2.5054466	0.00000
<i>Ameerega</i>	<i>trivittata</i>	105	2	1	95	0.0698000	0.0122053	93	0.2198387	0.0140165	2	4.6059090	0.21100
<i>Ameerega</i>	<i>trivittata</i>	107	3	1	114	0.0615263	0.0098719	112	0.2077768	0.0095764	3	4.7875606	0.09749
<i>Ameerega</i>	<i>trivittata</i>	106	33	1	552	0.0610308	0.0113399	547	0.2430530	0.0708315	33	4.3562288	0.24624
<i>Ameerega</i>	<i>trivittata</i>	104	2	1	73	0.0502192	0.0086156	71	0.1606620	0.0093074	2	6.2172506	0.01637
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	19	1	274	0.0262847	0.0032535	255	0.0659020	0.0018913	19	15.1712987	0.08983
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	2	1	32	0.1100313	0.0066453	30	1.4212333	0.1068062	2	0.6842356	0.04273
<i>Anomaloglossus</i>	<i>rufulus</i>	5	2	1	22	0.0529091	0.0066110	19	0.1653158	0.0153625	2	6.4207316	0.65054
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	12	1	2215	0.0278221	0.0052535	2185	0.1116999	0.0123253	12	8.9496862	0.13602
<i>Aromobates</i>	<i>meridensis</i>	7	1	1	20	0.0598000	0.0051360	18	0.1245556	0.0107332	1	8.0782313	0.00000
<i>Aromobates</i>	<i>saltuensis</i>	11	3	2	273	0.1388425	0.0049372	270	0.7315148	0.0928819	3	1.4110161	0.10157
<i>Aromobates</i>	<i>cannatellai</i>	9	149	1	149	0.0452617	0.0075618	147	0.1868163	0.0341463	149	5.4372756	0.13959
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	304	1	304	0.1028487	0.0243982	301	0.7278405	0.1901579	304	1.3942101	0.03969
<i>Aromobates</i>	<i>ericksonae</i>	8	9	2	185	0.1269514	0.0133410	171	1.8741579	0.4369225	9	0.4753256	0.04051
<i>Aromobates</i>	<i>ornatissimus</i>	6	3	1	21	0.0890476	0.0116382	9	2.8993333	0.4837280	3	0.3184606	0.03329
<i>Colostethus</i>	<i>argyrogaster</i>	83	1	1	29	0.1172069	0.0122951	28	1.1983333	0.1682091	1	0.8119708	0.00000
<i>Colostethus</i>	<i>fraterdanieli</i>	81	6	1	397	0.0632494	0.0109168	390	0.5819487	0.0908494	6	1.7155691	0.06262
<i>Colostethus</i>	<i>fraterdanieli</i>	82	11	1	869	0.0601738	0.0236399	864	0.4029410	0.0700993	11	2.2626010	0.39549

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulses in UR		UR Duration (s)			Interval between UR (s)			UR Rate (UR / second)		
			N	Pul.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	5	1	131	0.0980458	0.0082842	121	2.3206777	0.6076704	5	0.4084228	0.0770299
<i>Colostethus</i>	<i>panamansis</i>	76	6	2-3	71	0.2219577	0.0599277	60	1.3570500	0.1661618	6	0.7113362	0.0690464
<i>Colostethus</i>	<i>panamansis</i>	75	4	2-3	96	0.1599271	0.0380941	78	0.8214103	0.1112288	4	1.2211562	0.1030549
<i>Colostethus</i>	<i>pratti</i>	80	74	1	389	0.0723676	0.0098243	310	0.2003000	0.0140718	74	4.9319271	0.2323629
<i>Colostethus</i>	<i>pratti</i>	79	24	1	309	0.0604595	0.0085692	283	0.2134770	0.0624552	24	4.7115051	0.3774403
<i>Colostethus</i>	<i>pratti</i>	77	4	1	23	0.0675217	0.0076210	19	0.1933684	0.0265627	4	5.1710273	0.1844375
<i>Colostethus</i>	<i>aff. pratti</i>	78	35	1	215	0.0441163	0.0088598	178	0.1214888	0.0138332	35	7.9751712	0.6328982
<i>Dendrobates</i>	<i>auratus</i>	116	2	1	431	0.0065963	0.0017130	428	0.0159533	0.0011152	2	62.1740951	4.4407802
<i>Dendrobates</i>	<i>bombetes</i>	126	12	1	2603	0.0023265	0.0011215	2603	0.0061306	0.0024480	12	162.5751563	17.4081798
<i>Dendrobates</i>	<i>captivus</i>	125	32	1	398	0.0144347	0.0024556	366	0.0201667	0.0034159	32	49.6663073	1.9461121
<i>Dendrobates</i>	<i>castaneoticus</i>	114	2	1	690	0.0056029	0.0011141	688	0.0117747	0.0013305	2	84.9277983	0.0444782
<i>Dendrobates</i>	<i>claudiae</i>	130	4	1	283	0.0064841	0.0015096	280	0.0160893	0.0017256	4	62.1336390	5.6203158
<i>Dendrobates</i>	<i>defleri</i>	133	5	1	250	0.0052560	0.0010012	244	0.0107787	0.0043405	5	94.6992434	3.5610933
<i>Dendrobates</i>	<i>fantasticus</i>	137	7	1	345	0.0091594	0.0059646	326	0.0155767	0.0070736	7	44.4037064	1.0194858
<i>Dendrobates</i>	<i>galactonotus</i>	113	1	1	669	0.0071465	0.0014772	667	0.0162144	0.0045020	1	61.4503446	0.0000000
<i>Dendrobates</i>	<i>granuliferus</i>	119	42	1	2400	0.0036304	0.0007187	2358	0.0068863	0.0011640	42	145.6305317	4.3979319
<i>Dendrobates</i>	<i>histrionicus</i>	121	29	1	889	0.0026625	0.0008198	856	0.0040479	0.0013382	29	244.9677212	8.2983524
<i>Dendrobates</i>	<i>imitator</i>	131	61	1	1479	0.0105680	0.0032934	1414	0.0288147	0.0031210	61	34.7643041	1.7976659
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	4	1	128	0.0093125	0.0016494	124	0.0408065	0.0045276	4	24.5410479	0.4371967
<i>Dendrobates</i>	<i>leucomelas</i>	118	17	1	2700	0.0147067	0.0044143	2684	0.0603279	0.0075579	17	16.6554148	0.8246094
<i>Dendrobates</i>	<i>minutus</i>	128	1	1	93	0.0037419	0.0010825	91	0.0120110	0.0011303	1	83.4088849	0.0000000
<i>Dendrobates</i>	<i>mysteriosus</i>	124	19	1	1417	0.0103126	0.0020750	1398	0.0196896	0.0023191	19	51.0486091	3.8430830
<i>Dendrobates</i>	<i>pumilio</i>	123	147	1	1784	0.0018240	0.0005404	1660	0.0027355	0.0006331	147	353.4428188	31.5096991
<i>Dendrobates</i>	<i>pumilio</i>	122	30	1	506	0.0029743	0.0007639	476	0.0046996	0.0016708	30	213.4422608	8.9176284
<i>Dendrobates</i>	<i>reticulatus</i>	136	7	1	489	0.0015112	0.0005085	479	0.0037098	0.0018368	7	271.9132962	10.8302223
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	7	1	1067	0.0032418	0.0012530	1055	0.0088682	0.0008551	7	110.5966878	3.7445220
<i>Dendrobates</i>	<i>sylvaticus</i>	120	26	1	704	0.0021960	0.0007284	704	0.0088125	0.0302199	26	302.9623606	9.7313762
<i>Dendrobates</i>	<i>tinctorius</i>	117	4	1	486	0.0022160	0.0004981	482	0.0071846	0.0006327	4	139.1792290	0.4157792
<i>Dendrobates</i>	<i>truncatus</i>	115	5	1	775	0.0102581	0.0023990	763	0.0196763	0.0016140	5	50.7794290	3.3794130
<i>Dendrobates</i>	<i>uakarii</i>	138	5	1	65	0.0121692	0.0015966	60	0.0177167	0.0024570	5	56.4668852	2.6214740
<i>Dendrobates</i>	<i>variabilis</i>	135	12	1	1423	0.0013718	0.0004863	1407	0.0039211	0.0026450	12	249.2756047	16.9270958
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	3	1	614	0.0019169	0.0008948	607	0.0032883	0.0018565	3	301.6515732	27.5988263
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	11	1	1017	0.0012124	0.0004092	1004	0.0057689	0.0040839	11	169.8654632	21.2883870
<i>Dendrobates</i>	<i>virolinensis</i>	127	12	1	2376	0.0019621	0.0009011	2364	0.0093003	0.0048463	12	108.1530357	12.8018365
<i>Epipedobates</i>	<i>anthonyi</i>	71	8	1	486	0.0286461	0.0043266	478	0.0611067	0.0048217	8	16.3754780	0.4639296

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulses in UR		UR Duration (s)			Interval between UR (s)			UR Rate (UR / second)		
			N	Pul.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	22	1	1233	0.0251930	0.0050576	1211	0.0531759	0.0073832	22	19.0288307	0.8268543
<i>Epipedobates</i>	<i>boulengeri</i>	67	41	1	306	0.0133464	0.0024410	306	0.0232516	0.0025464	41	42.2707890	1.2752533
<i>Epipedobates</i>	<i>espinosai</i>	69	15	1	738	0.0086531	0.0033577	723	0.0220844	0.0019833	15	44.4095942	2.6341783
<i>Epipedobates</i>	<i>machalilla</i>	73	10	1	1194	0.0181633	0.0043533	1184	0.0568919	0.0160798	10	17.5832741	0.3664280
<i>Epipedobates</i>	<i>machalilla</i>	72	31	1	4120	0.0121066	0.0021429	4087	0.0334705	0.0017737	31	29.8836117	0.2443073
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	21	1	1403	0.0097313	0.0023150	1382	0.0286751	0.0036495	21	35.1054082	4.0190783
<i>Epipedobates</i>	<i>tricolor</i>	74	14	1	826	0.0161780	0.0024083	818	0.0344230	0.0027275	14	28.8393939	0.4444189
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	2	1	160	0.0227125	0.0045272	155	0.1302194	0.0284558	2	7.8891719	0.3006070
<i>Hyloxalus</i>	<i>awa</i>	171	25	1	503	0.0633559	0.0110813	478	0.1566778	0.0178714	25	6.4203545	0.1986079
<i>Hyloxalus</i>	<i>azureiventris</i>	165	5	1	758	0.0160251	0.0051205	753	0.0654821	0.0032726	5	15.2958541	0.1040519
<i>Hyloxalus</i>	<i>bocagei</i>	151	5	2	592	0.1213209	0.0050253	589	0.2888795	0.0346342	5	3.3516847	0.3114360
<i>Hyloxalus</i>	<i>bocagei</i>	150	6	2	716	0.1319204	0.0079792	703	0.3301380	0.0445393	6	2.9338353	0.2588083
<i>Hyloxalus</i>	<i>craspedoceph</i>	166	165	1	325	0.0055754	0.0009677	312	0.0070353	0.0007991	165	142.339817	0.8128326
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	16	1	117	0.0070940	0.0019297	101	0.0098020	0.0018602	16	103.605265	5.4213506
<i>Hyloxalus</i>	<i>delatorreae</i>	162	43	1	277	0.0074440	0.0022955	238	0.0105378	0.0023467	43	100.653729	4.8957153
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	3	1	315	0.0557238	0.0189679	309	1.1413366	0.2042063	3	0.8193312	0.0802109
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	3	1	171	0.1061754	0.0063574	167	0.8047186	0.1955958	3	1.2376683	0.0819356
<i>Hyloxalus</i>	<i>erythromos</i>	140	46	1	436	0.0045459	0.0015611	433	0.0058014	0.0018238	46	170.602707	19.0604383
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	25	1	1640	0.0609732	0.0061952	1610	0.4632348	0.1350713	25	2.0920895	0.1927151
<i>Hyloxalus</i>	<i>insulatus</i>	167	5	1	374	0.0807594	0.0083734	361	0.4099972	0.0923916	5	2.2566664	0.2257827
<i>Hyloxalus</i>	<i>italoi</i>	144	66	1	2353	0.0402197	0.0065396	2286	0.0883018	0.0085603	66	11.2132896	0.9473604
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	5	1	125	0.2975920	0.0380234	106	4.1385283	1.6539599	5	0.2058380	0.0695810
<i>Hyloxalus</i>	<i>maculosus</i>	149	4	2	334	0.1490449	0.0088111	330	0.2694182	0.0180100	4	3.7026340	0.2751140
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	7	1	187	0.0862995	0.0217220	191	0.2528796	0.0402086	7	3.9263553	0.1680832
<i>Hyloxalus</i>	<i>nexipus</i>	154	36	1	863	0.0298181	0.0027044	829	0.0730929	0.0043166	36	13.7904109	0.1885200
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	7	1	164	0.0295244	0.0036712	162	0.0848395	0.0060257	7	11.8285189	0.2588150
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	23	1	520	0.0213404	0.0044498	495	0.0732485	0.0068560	23	13.6014397	0.1794989
<i>Hyloxalus</i>	<i>pulchellus</i>	160	1	2-4	22	0.7743182	0.3182659	21	1.8568095	0.3568896	1	1.4780405	0.0000000
<i>Hyloxalus</i>	<i>pulchellus</i>	159	8	1-2	177	0.4740113	0.2474264	173	1.6578324	0.5531543	8	1.6345070	0.3882818
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	39	1	201	0.0428060	0.0052122	160	0.1144000	0.0188790	39	8.7340877	0.5095902
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	2	1	75	0.0487600	0.0041973	70	0.5537000	0.0216784	2	1.7687064	0.0630293
<i>Hyloxalus</i>	<i>sauli</i>	148	23	1	7516	0.0159975	0.0018493	7514	0.0536799	0.0372843	23	18.7988386	0.5472255
<i>Hyloxalus</i>	<i>sorditatus</i>	141	9	1	287	0.0656411	0.0109478	275	0.1086582	0.0083189	9	9.2881726	0.2938481
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	2	1	43	0.0239070	0.0046538	41	0.8524390	0.0619419	2	1.1747550	0.0130870
<i>Hyloxalus</i>	<i>toachi</i>	172	29	1	1194	0.0621156	0.0090993	1167	0.4547121	0.1839254	29	2.2071720	0.1505216

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Pulses in UR		UR Duration (s)			Interval between UR (s)			UR Rate (UR / second)		
			N	Pul.	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	1	1	252	0.0651468	0.0039234	249	0.6202610	0.0679829	1	1.5248204	0.0000000
<i>Hyloxalus</i>	<i>vertebralis</i>	158	8	1	313	0.0541182	0.0031012	294	0.8971803	0.2504210	8	1.0036064	0.1805108
<i>Hyloxalus</i>	<i>yasuni</i>	147	78	1	1266	0.0420956	0.0042679	1235	0.1250559	0.1944731	78	11.5282835	0.1119318
<i>Hyloxalus</i>	<i>yasuni</i>	145	49	1	2167	0.0463318	0.0063933	2136	0.0972935	0.0787802	49	11.0336773	0.5430591
<i>Hyloxalus</i>	<i>yasuni</i>	146	22	1	2060	0.0293112	0.0033142	2037	0.0740707	0.0446453	22	13.7743329	0.5030917
<i>Mannophryne</i>	<i>urticans</i>	25	5	1	400	0.0178925	0.0031995	388	0.0976701	0.0042200	5	10.1225977	0.1786539
<i>Mannophryne</i>	<i>cordilleriana</i>	20	3	1	536	0.0495504	0.0132385	566	0.1313021	0.0099513	3	7.6772987	0.1187638
<i>Mannophryne</i>	<i>herminae</i>	19	5	2	427	0.1003770	0.0069014	412	0.3277039	0.1252018	5	2.7820929	1.1180950
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	3	2	116	0.1055517	0.0120494	111	0.4811171	0.1222267	3	2.1498444	0.4785025
<i>Mannophryne</i>	<i>leonardo</i>	16	126	1	528	0.0310341	0.0050985	485	0.0660041	0.0036658	126	14.8842989	0.3515856
<i>Mannophryne</i>	<i>olmonae</i>	12	1	1	123	0.0861870	0.0080870	122	0.3310902	0.0338008	1	3.0203253	0.0000000
<i>Mannophryne</i>	<i>orellana</i>	22	4	1	217	0.0416175	0.0071516	212	0.0918113	0.0048847	4	11.0010610	0.0906612
<i>Mannophryne</i>	<i>orellana</i>	21	14	1	1858	0.0452056	0.0109680	1835	0.1701706	0.1180132	14	5.7661132	0.5252025
<i>Mannophryne</i>	<i>riveroi</i>	13	7	1	357	0.1051008	0.0175898	377	0.4441247	0.1911021	7	2.2241685	0.2880355
<i>Mannophryne</i>	<i>trinitatis</i>	17	4	2	47	0.1165532	0.0065998	43	0.2900465	0.0397570	4	3.4731160	0.1387110
<i>Mannophryne</i>	<i>collaris</i>	23	6	1	770	0.0446805	0.0121635	799	0.1608335	0.0985936	6	6.0546896	0.3834207
<i>Mannophryne</i>	<i>collaris</i>	24	4	1	614	0.0357166	0.0070457	627	0.1288676	0.0685185	4	7.0489759	0.7440933
<i>Mannophryne</i>	<i>venezuelensis</i>	18	9	1	196	0.0770255	0.0091989	187	0.1651765	0.0180005	9	6.0629256	0.1333931
<i>Mannophryne</i>	<i>vulcano</i>	14	1	2	47	0.0839787	0.0030609	46	0.4298913	0.0634610	1	2.3261694	0.0000000
<i>Mannophryne</i>	<i>yustizi</i>	26	8	1	818	0.0231430	0.0046329	799	0.0879737	0.0076963	8	11.1859592	0.4757013
<i>Phyllobates</i>	<i>aurotaenia</i>	108	10	1	622	0.0293039	0.0061000	612	0.0657042	0.0033521	10	15.2191902	0.0458307
<i>Phyllobates</i>	<i>lugubris</i>	111	10	1	643	0.0220093	0.0021867	633	0.0692701	0.0074050	10	14.4242582	0.3278878
<i>Phyllobates</i>	<i>lugubris</i>	112	6	1	539	0.0216809	0.0042033	533	0.0638630	0.0027690	6	15.6591531	0.0592865
<i>Phyllobates</i>	<i>terribilis</i>	109	9	1	351	0.0465442	0.0063658	342	0.1010731	0.0042596	9	9.8999753	0.0945383
<i>Phyllobates</i>	<i>vittatus</i>	110	51	1	3818	0.0277004	0.0042696	3764	0.0714014	0.0026579	51	13.9846988	0.3618635
<i>Rheobates</i>	<i>palmatus</i>	28	12	1	2193	0.0460470	0.0064508	2170	0.1378129	0.1411614	12	7.2260913	0.8319726
<i>Rheobates</i>	<i>palmatus</i>	27	7	1	2393	0.0447430	0.0095932	2386	0.1078189	0.0770012	7	9.3531488	0.4311224
<i>Silverstoneia</i>	<i>flotator</i>	62	5	1	615	0.0402813	0.0073219	608	0.3083947	0.0961054	5	3.3623619	0.4041495
<i>Silverstoneia</i>	<i>flotator</i>	63	8	1	471	0.0291295	0.0074838	462	0.2301494	0.0916236	8	4.3211830	0.1895519
<i>Silverstoneia</i>	<i>nubicola</i>	66	43	1	799	0.0282466	0.0053708	756	0.1086534	0.0149615	43	9.3497839	0.4217109
<i>Silverstoneia</i>	<i>nubicola</i>	65	2	1	262	0.0879504	0.0038737	260	0.4404192	0.0290218	2	2.3356569	0.0672923
<i>Silverstoneia</i>	<i>nubicola</i>	64	9	1	769	0.0207217	0.0046391	760	0.0871579	0.0110002	9	11.4138255	0.5252124
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	23	1	174	0.0225115	0.0024036	150	0.0543133	0.0015891	23	18.4037754	0.2017090
<i>Allobates</i>	<i>goianus</i>	NA	1	1	8	0.0362500	0.0027646	7	0.3940000	0.0471487	1	2.90065265	0.0000000
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	2	1	25	0.1341200	0.0092706	22	4.0694545	0.8972483	3	0.24722957	0.0186709

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Pulse-Notes		Initial Pulse-Note Duration (s)			Interval between Initial Pulse-Notes (s)			Initial Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	1.00	0.0	114	0.0490263	0.0041252	109	0.8242110	0.3897468	--	--	--
<i>Allobates</i>	<i>brunneus</i>	37	1.00	0.0	261	0.0459042	0.0070989	255	0.4750627	0.3317661	--	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	1.00	0.0	515	0.0280641	0.0031865	477	0.4983249	0.1212178	--	--	--
<i>Allobates</i>	<i>crombiei</i>	52	1.00	0.0	48	0.0350833	0.0051482	48	0.0716250	0.0047831	--	--	--
<i>Allobates</i>	<i>femorialis</i>	43	19.20	4.6	192	0.0933385	0.0287936	182	0.4548626	0.2734225	10	2.3035754	0.7965966
<i>Allobates</i>	<i>femorialis</i>	46	1.00	0.0	24	0.0505417	0.0094316	24	0.0799615	0.0240408	--	--	--
<i>Allobates</i>	<i>femorialis</i>	44	1.00	0.0	15	0.0498000	0.0030284	15	0.1210000	0.0033381	--	--	--
<i>Allobates</i>	<i>femorialis</i>	40	1.00	0.0	42	0.0352143	0.0014405	42	0.0822143	0.0015387	--	--	--
<i>Allobates</i>	<i>femorialis</i>	41	1.00	0.0	249	0.0613414	0.0134982	249	0.0822289	0.0073424	--	--	--
<i>Allobates</i>	<i>femorialis</i>	45	1.00	0.0	38	0.0540000	0.0098447	37	0.1067941	0.0040883	--	--	--
<i>Allobates</i>	<i>granti</i>	49	1.00	0.0	69	0.0325507	0.0037043	68	0.0518971	0.0022337	--	--	--
<i>Allobates</i>	<i>humilis</i>	59	1.00	0.0	21	0.0388571	0.0025939	20	0.2824000	0.0322023	--	--	--
<i>Allobates</i>	<i>insperatus</i>	54	4.07	0.6	61	0.0218197	0.0072790	46	0.0810652	0.0160463	61	12.7353370	1.4679435
<i>Allobates</i>	<i>aff. insperatus</i>	55	8.00	0.0	8	0.0246250	0.0056300	7	0.0812857	0.0167403	8	12.3022847	0.0000000
<i>Allobates</i>	<i>juanii</i>	47	1.00	0.0	211	0.0398341	0.0083190	206	0.6004175	0.4593572	--	--	--
<i>Allobates</i>	<i>kingsburyi</i>	39	1.00	0.0	971	0.0357971	0.0091989	977	0.0823480	0.0194561	--	--	--
<i>Allobates</i>	<i>marchesianus</i>	50	1.00	0.0	378	0.0523915	0.0064038	375	0.3436533	0.5010348	--	--	--
<i>Allobates</i>	<i>masniger</i>	58	22.00	9.9	110	0.0543909	0.0088235	103	0.4057670	0.1866693	5	2.3566912	0.7041055
<i>Allobates</i>	<i>nidicola</i>	36	1.00	0.0	645	0.0376248	0.0180267	631	0.2401981	0.0338020	--	--	--
<i>Allobates</i>	<i>olfersioides</i>	1	1.00	0.0	260	0.0430308	0.0048314	258	0.3684922	0.0385468	--	--	--
<i>Allobates</i>	<i>ornatus</i>	51	1.00	0.0	195	0.0363333	0.0055443	178	0.4669438	0.1032403	--	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	1.00	0.0	807	0.0438265	0.0075870	750	0.3517173	0.2062386	--	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	1.00	0.0	10	0.0288000	0.0042111	9	9.7587778	4.7187411	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	20.00	2.5	73	0.0310137	0.0033809	69	0.4508116	0.5050852	3	3.5621838	1.3783725
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	3.25	1.5	13	0.0774615	0.0059388	13	0.4135385	0.0507488	4	2.7235773	0.3121869
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	1.00	0.0	333	0.0353213	0.0043000	332	0.4178404	0.1969509	--	--	--
<i>Allobates</i>	<i>talamancae</i>	34	1.00	0.0	45	0.0400222	0.0040536	45	0.0658000	0.0034483	--	--	--
<i>Allobates</i>	<i>talamancae</i>	32	1.00	0.0	15	0.0794000	0.0133299	15	0.1260667	0.0110419	--	--	--
<i>Allobates</i>	<i>talamancae</i>	35	1.00	0.0	95	0.0476421	0.0064229	44	0.0794318	0.0066487	--	--	--
<i>Allobates</i>	<i>talamancae</i>	31	1.00	0.0	101	0.0560594	0.0086612	87	0.0846667	0.0049782	--	--	--
<i>Allobates</i>	<i>talamancae</i>	33	1.00	0.0	36	0.0517222	0.0048909	36	0.0766944	0.0066882	--	--	--
<i>Allobates</i>	<i>talamancae</i>	30	1.00	0.0	43	0.0478605	0.0045018	42	0.0713095	0.0072767	--	--	--
<i>Allobates</i>	<i>trilineatus</i>	56	1.00	0.0	153	0.0320523	0.0029952	153	0.0382288	0.0021073	--	--	--
<i>Allobates</i>	<i>zaparo</i>	42	1.00	0.0	335	0.0720687	0.0108412	335	0.1026866	0.0079108	--	--	--
<i>Ameerega</i>	<i>altamazonica</i>	103	1.00	0.0	456	0.0617697	0.0067513	445	0.5694360	0.1049241	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Pulse-Notes		Initial Pulse-Note Duration (s)			Interval between Initial Pulse-Notes (s)			Initial Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	3.00	1.1	33	0.1718182	0.0544842	24	0.4915417	0.0601136	11	2.0540869	0.1048470
<i>Ameerega</i>	<i>bilinguis</i>	87	1.00	0.0	1890	0.0326238	0.0059893	1843	0.0704867	0.0041095	--	--	--
<i>Ameerega</i>	<i>braccata</i>	94	1.00	0.0	79	0.0319747	0.0029307	78	0.1898590	0.0130052	--	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	1.00	0.0	30	0.0281333	0.0094859	33	0.1176364	0.0040142	--	--	--
<i>Ameerega</i>	<i>flavopicta</i>	95	1.00	0.0	60	0.0336833	0.0007009	60	0.0364667	0.0006235	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	96	1.00	0.0	42	0.0355238	0.0067471	38	0.1538684	0.0312273	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	97	1.00	0.0	1693	0.0174572	0.0030843	1650	0.2392461	0.0546046	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	98	1.00	0.0	146	0.0164452	0.0025812	145	0.1180414	0.0125753	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	99	1.00	0.0	594	0.0142761	0.0012794	568	0.1467852	0.0259582	--	--	--
<i>Ameerega</i>	<i>ignipedis</i>	90	1.00	0.0	22	0.0946818	0.0133395	21	0.6019048	0.1003962	--	--	--
<i>Ameerega</i>	<i>parvula</i>	86	17.20	2.7	91	0.0118132	0.0040958	86	0.0382558	0.0020476	5	24.5689763	0.8105199
<i>Ameerega</i>	<i>petersi</i>	101	1.00	0.0	24	0.0375417	0.0085056	24	0.1080417	0.0069061	--	--	--
<i>Ameerega</i>	<i>picta</i>	91	1.00	0.0	46	0.0508261	0.0043884	45	0.3673778	0.0338481	--	--	--
<i>Ameerega</i>	<i>picta</i>	92	1.00	0.0	1212	0.0501840	0.0083966	1186	0.3142664	0.0285930	--	--	--
<i>Ameerega</i>	<i>picta</i>	93	1.00	0.0	322	0.0277547	0.0027455	321	0.1536231	0.0102056	--	--	--
<i>Ameerega</i>	<i>pongoensis</i>	88	1.00	0.0	7	0.0772857	0.0129578	4	2.3110000	0.3918393	--	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	13.50	2.1	27	0.0684815	0.0092752	25	0.3002800	0.0114438	2	3.3278786	0.0291365
<i>Ameerega</i>	<i>smaragdina</i>	100	1.00	0.0	47	0.0540213	0.0064488	47	0.1287872	0.0062343	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	105	1.50	0.7	3	0.0716667	0.0072342	2	0.2150000	0.0183848	3	4.6682300	0.3991831
<i>Ameerega</i>	<i>trivittata</i>	107	2.00	1.0	6	0.0658333	0.0081833	4	0.1972500	0.0045000	6	5.0672399	0.1729852
<i>Ameerega</i>	<i>trivittata</i>	106	1.15	0.4	34	0.0478235	0.0099589	31	0.2096452	0.0244630	34	4.7722265	0.6796718
<i>Ameerega</i>	<i>trivittata</i>	104	2.00	0.0	4	0.0550000	0.0092014	2	0.1485000	0.0148492	4	6.7678425	0.6767497
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	1.00	0.0	19	0.0279474	0.0039648	19	0.0648947	0.0019691	--	--	--
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	1.00	0.0	32	0.1100313	0.0066453	30	1.4212333	0.1068062	--	--	--
<i>Anomaloglossus</i>	<i>rufulus</i>	5	1.50	0.7	3	0.0476667	0.0105987	2	0.1350000	0.0056569	1	7.1942446	0.0000000
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	4.73	1.0	71	0.0239296	0.0048824	56	0.1301071	0.0137069	15	7.7764003	0.4429125
<i>Aromobates</i>	<i>meridensis</i>	7	3.00	0.0	3	0.0550000	0.0036056	2	0.1040000	0.0084853	2	9.6153846	0.0000000
<i>Aromobates</i>	<i>saltuensis</i>	11	1.00	0.0	273	0.0369231	0.0028267	271	0.0985572	0.0029116	--	--	--
<i>Aromobates</i>	<i>cannatellai</i>	9	1.00	0.0	149	0.0452617	0.0075618	147	0.1868163	0.0341463	--	--	--
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	1.00	0.0	304	0.1028487	0.0243982	301	0.7278405	0.1901579	--	--	--
<i>Aromobates</i>	<i>ericksonae</i>	8	1.00	0.0	185	0.0452541	0.0114591	185	0.0749784	0.0086640	--	--	--
<i>Aromobates</i>	<i>ornatissimus</i>	6	1.00	0.0	21	0.0890476	0.0116382	9	2.8993333	0.4837280	--	--	--
<i>Colostethus</i>	<i>argyrogaster</i>	83	1.00	0.0	29	0.1172069	0.0122951	28	1.1983333	0.1682091	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	1.00	0.0	397	0.0632494	0.0109168	390	0.5819487	0.0908494	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	1.00	0.0	869	0.0601738	0.0236399	864	0.4029410	0.0700993	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Pulse-Notes		Initial Pulse-Note Duration (s)			Interval between Initial Pulse-Notes (s)			Initial Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	1.00	0.0	131	0.0980458	0.0082842	121	2.3206777	0.6076704	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	76	1.00	0.0	71	0.0602535	0.0028721	71	0.1066901	0.0031964	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	75	1.00	0.0	97	0.0459278	0.0035185	97	0.0874021	0.0051874	--	--	--
<i>Colostethus</i>	<i>pratti</i>	80	1.00	0.0	77	0.0783896	0.0090396	77	0.1996883	0.0133350	--	--	--
<i>Colostethus</i>	<i>pratti</i>	79	1.00	0.0	24	0.0705833	0.0062895	23	0.2768261	0.0991434	--	--	--
<i>Colostethus</i>	<i>pratti</i>	77	1.00	0.0	4	0.0727500	0.0053151	4	0.2295000	0.0424146	--	--	--
<i>Colostethus</i>	<i>aff. pratti</i>	78	1.00	0.0	37	0.0576216	0.0076498	36	0.1420556	0.0096922	--	--	--
<i>Dendrobates</i>	<i>auratus</i>	116	14.50	0.7	29	0.0066552	0.0023188	26	0.0162692	0.0015889	2	62.8670381	8.6245519
<i>Dendrobates</i>	<i>bombetes</i>	126	3.25	0.5	39	0.0020000	0.0007947	27	0.0107778	0.0046849	10	84.2411699	17.6227871
<i>Dendrobates</i>	<i>captivus</i>	125	2.88	0.7	86	0.0132674	0.0023082	57	0.0173333	0.0023325	27	58.2850888	5.5425375
<i>Dendrobates</i>	<i>castaneoticus</i>	114	18.50	0.7	37	0.0065946	0.0009267	35	0.0106286	0.0010314	2	94.0972222	0.4910464
<i>Dendrobates</i>	<i>claudiae</i>	130	3.75	0.5	12	0.0059167	0.0026443	11	0.0150000	0.0017889	4	67.7423239	6.8196479
<i>Dendrobates</i>	<i>defleri</i>	133	4.67	0.5	28	0.0046429	0.0011616	22	0.0086364	0.0007895	6	116.0776696	4.3364498
<i>Dendrobates</i>	<i>fantasticus</i>	137	1.43	0.5	10	0.0158000	0.0027809	7	0.0218571	0.0030237	7	46.4795097	6.1885930
<i>Dendrobates</i>	<i>galactonotus</i>	113	35.00	0.0	35	0.0072286	0.0009727	34	0.0155294	0.0029257	1	64.3939394	0.0000000
<i>Dendrobates</i>	<i>granuliferus</i>	119	22.93	4.0	963	0.0035078	0.0006438	921	0.0069924	0.0011946	42	142.9825992	8.2130263
<i>Dendrobates</i>	<i>histrionicus</i>	121	11.94	1.7	382	0.0028534	0.0007169	348	0.0051753	0.0010246	28	189.1379306	12.8971709
<i>Dendrobates</i>	<i>imitator</i>	131	1.77	0.7	105	0.0088286	0.0024747	70	0.0252000	0.0027325	55	39.7164784	3.4397816
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	3.75	0.5	15	0.0078667	0.0013558	11	0.0371818	0.0018340	4	26.8696430	0.9261856
<i>Dendrobates</i>	<i>leucomelas</i>	118	7.35	1.6	125	0.0112960	0.0044305	108	0.0640000	0.0170332	15	15.7575720	1.4248093
<i>Dendrobates</i>	<i>minutus</i>	128	4.00	0.0	4	0.0042500	0.0009574	3	0.0096667	0.0011547	1	103.4482759	0.0000000
<i>Dendrobates</i>	<i>mysteriosus</i>	124	5.21	1.0	98	0.0095918	0.0015388	78	0.0191026	0.0023108	18	52.2629121	3.5044843
<i>Dendrobates</i>	<i>pumilio</i>	123	5.07	1.1	613	0.0017863	0.0005844	470	0.0031851	0.0006769	111	318.3970636	34.3972024
<i>Dendrobates</i>	<i>pumilio</i>	122	5.37	0.9	161	0.0033540	0.0008973	111	0.0070631	0.0006506	161	142.5795221	9.5002421
<i>Dendrobates</i>	<i>reticulatus</i>	136	6.67	1.0	60	0.0015333	0.0005357	38	0.0032895	0.0011368	7	265.3352351	60.4362301
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	6.29	0.8	44	0.0054773	0.0014862	37	0.0082432	0.0014416	7	121.7082479	8.5713566
<i>Dendrobates</i>	<i>sylvaticus</i>	120	10.63	1.5	319	0.0022476	0.0005592	288	0.0039757	0.0006044	26	250.3379342	10.2489271
<i>Dendrobates</i>	<i>tinctorius</i>	117	5.25	0.5	21	0.0024286	0.0005071	17	0.0065882	0.0005073	21	151.8389018	2.6947231
<i>Dendrobates</i>	<i>truncatus</i>	115	5.20	0.8	24	0.0122500	0.0025750	17	0.0192941	0.0015315	5	47.7298170	7.8911872
<i>Dendrobates</i>	<i>uakarii</i>	138	3.80	0.4	19	0.0131053	0.0011970	14	0.0185000	0.0015064	5	54.1698944	1.1098112
<i>Dendrobates</i>	<i>variabilis</i>	135	12.88	2.0	206	0.0011408	0.0003486	190	0.0025421	0.0007873	16	396.2648319	33.6202258
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	10.83	2.6	69	0.0022609	0.0010095	47	0.0039149	0.0015857	5	296.6616390	91.5354838
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	6.38	2.0	82	0.0010610	0.0002408	69	0.0025797	0.0009457	7	360.9385783	46.6130829
<i>Dendrobates</i>	<i>virolinensis</i>	127	13.33	1.8	159	0.0012516	0.0004635	134	0.0046493	0.0031390	5	262.6214555	36.0076213
<i>Epipedobates</i>	<i>anthonyi</i>	71	6.38	0.9	51	0.0220588	0.0052284	43	0.0563721	0.0049762	8	17.7466869	0.5552356

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Genus	Species	Phy ID	Initial Pulse-Notes		Initial Pulse-Note Duration (s)			Interval between Initial Pulse-Notes (s)			Initial Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	7.09	2.3	156	0.0203718	0.0058001	134	0.0477537	0.0042257	22	21.0652919	0.8427564
<i>Epipedobates</i>	<i>boulengeri</i>	67	1.00	0.0	41	0.0104634	0.0024403	41	0.0207805	0.0021156	--	--	--
<i>Epipedobates</i>	<i>espinosai</i>	69	5.60	2.4	98	0.0074082	0.0025680	94	0.0198298	0.0017453	98	45.7624812	6.3452940
<i>Epipedobates</i>	<i>machalilla</i>	73	4.00	1.0	26	0.0112692	0.0040749	23	0.0495217	0.0059838	26	20.3836696	2.4479772
<i>Epipedobates</i>	<i>machalilla</i>	72	5.24	0.9	140	0.0085071	0.0015385	140	0.0311857	0.0013442	140	32.1192574	0.5062134
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	2.52	0.5	53	0.0080566	0.0023892	32	0.0250938	0.0038551	53	40.7898412	6.2126093
<i>Epipedobates</i>	<i>tricolor</i>	74	1.00	0.0	14	0.0097857	0.0019682	14	0.0267143	0.0019386	--	--	--
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	5.50	2.1	11	0.0183636	0.0029077	9	0.1348889	0.0100180	2	7.9502657	1.3996596
<i>Hyloxalus</i>	<i>awa</i>	171	1.00	0.0	23	0.0610435	0.0099976	22	0.1839545	0.0228587	--	--	--
<i>Hyloxalus</i>	<i>azureiventris</i>	165	7.50	2.4	31	0.0175161	0.0040321	27	0.0698148	0.0124377	3	14.8320172	0.0499905
<i>Hyloxalus</i>	<i>bocagei</i>	151	1.00	0.0	592	0.0295946	0.0039963	592	0.0925236	0.0036081	--	--	--
<i>Hyloxalus</i>	<i>bocagei</i>	150	1.00	0.0	716	0.0323953	0.0076933	716	0.1020196	0.0070365	--	--	--
<i>Hyloxalus</i>	<i>craspedoceph</i>	166	7.69	0.8	100	0.0058300	0.0009646	87	0.0071609	0.0010661	11	139.7449168	3.3165632
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	1.00	0.0	16	0.0094375	0.0030977	16	0.0106875	0.0037898	--	--	--
<i>Hyloxalus</i>	<i>delatorreae</i>	162	1.00	0.0	43	0.0109535	0.0039638	43	0.0130233	0.0043066	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	1.00	0.0	315	0.0557238	0.0189679	309	1.1413366	0.2042063	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	1.00	0.0	171	0.1061754	0.0063574	167	0.8047186	0.1955958	--	--	--
<i>Hyloxalus</i>	<i>erythromos</i>	140	3.12	1.1	81	0.0052840	0.0016065	81	0.0067091	0.0018527	81	157.9898492	38.8359031
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	1.00	0.0	30	0.0452333	0.0077490	26	0.8946923	0.2646307	--	--	--
<i>Hyloxalus</i>	<i>insulatus</i>	167	1.00	0.0	374	0.0807594	0.0083734	361	0.4099972	0.0923916	--	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	1.00	0.0	65	0.0348769	0.0074760	67	0.0801642	0.0048040	--	--	--
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	1.00	0.0	125	0.2975920	0.0380234	106	4.1385283	1.6539599	--	--	--
<i>Hyloxalus</i>	<i>maculosus</i>	149	1.00	0.0	334	0.0529820	0.0044708	334	0.1031138	0.0079442	--	--	--
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	3.00	1.2	18	0.0695556	0.0336089	15	0.2713333	0.1349649	18	4.0078996	0.9343306
<i>Hyloxalus</i>	<i>nexipus</i>	154	1.94	0.2	70	0.0231286	0.0062922	36	0.0641667	0.0048314	36	15.6724853	1.2061476
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	1.18	0.6	11	0.0282308	0.0033703	13	0.0880000	0.0067823	11	11.3451430	0.7643346
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	2.00	0.0	48	0.0197917	0.0068849	24	0.0607500	0.0039918	48	16.5287865	1.0802749
<i>Hyloxalus</i>	<i>pulchellus</i>	160	1.00	0.0	23	0.0688261	0.0047544	23	0.3806087	0.0189706	--	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	159	1.00	0.0	182	0.0750495	0.0220282	74	0.4276757	0.0550206	--	--	--
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	1.00	0.0	41	0.0390000	0.0047958	37	0.0936486	0.0083706	--	--	--
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	1.00	0.0	75	0.0487600	0.0041973	70	0.5537000	0.0216784	--	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	1.00	0.0	24	0.0169167	0.0022634	24	0.0498750	0.0026262	--	--	--
<i>Hyloxalus</i>	<i>sorditatus</i>	141	1.00	0.0	11	0.0620000	0.0092087	11	0.0979167	0.0065291	--	--	--
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	1.00	0.0	43	0.0239070	0.0046538	41	0.8524390	0.0619419	--	--	--
<i>Hyloxalus</i>	<i>toachi</i>	172	2.55	0.7	75	0.0512000	0.0092809	41	0.8077805	0.2012602	27	1.2768351	0.3227074



Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Pulse-Notes		Initial Pulse-Note Duration (s)			Interval between Initial Pulse-Notes (s)			Initial Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	1.00	0.0	252	0.0651468	0.0039234	249	0.6202610	0.0679829	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	158	1.00	0.0	313	0.0541182	0.0031012	294	0.8971803	0.2504210	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	147	2.00	0.0	156	0.0436218	0.0040788	78	0.0860000	0.0051092	78	11.6687416	0.6980131
<i>Hyloxalus</i>	<i>yasuni</i>	145	4.09	1.1	217	0.0469770	0.0065585	164	0.0872500	0.0056692	52	11.3958706	0.3028768
<i>Hyloxalus</i>	<i>yasuni</i>	146	6.04	1.6	151	0.0282283	0.0037779	124	0.0666694	0.0044296	25	14.1950300	2.6085431
<i>Mannophryne</i>	<i>urticans</i>	25	6.17	1.5	37	0.0142432	0.0023022	31	0.1004516	0.0060544	6	9.9748243	0.3363865
<i>Mannophryne</i>	<i>cordilleriana</i>	20	10.33	2.1	16	0.0365625	0.0129459	18	0.1232222	0.0070089	16	7.6560485	0.8246334
<i>Mannophryne</i>	<i>herminae</i>	19	1.00	0.0	427	0.0314169	0.0073055	427	0.0690703	0.0070588	--	--	--
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	1.00	0.0	116	0.0382414	0.0080516	116	0.0666207	0.0083183	--	--	--
<i>Mannophryne</i>	<i>leonardo</i>	16	1.00	0.0	126	0.0309841	0.0054889	111	0.0638649	0.0027152	--	--	--
<i>Mannophryne</i>	<i>olmonae</i>	12	1.00	0.0	123	0.0861870	0.0080870	122	0.3310902	0.0338008	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	22	19.00	3.2	76	0.0286974	0.0062333	72	0.0880556	0.0093446	4	11.3505793	0.2960400
<i>Mannophryne</i>	<i>orellana</i>	21	22.42	2.8	310	0.0302129	0.0065265	301	0.3392890	0.2243550	14	2.5336322	0.7303017
<i>Mannophryne</i>	<i>riveroi</i>	13	14.17	1.9	100	0.0832000	0.0118040	105	0.6438476	0.2684916	7	1.4905550	0.1705901
<i>Mannophryne</i>	<i>trinitatis</i>	17	1.00	0.0	47	0.0446170	0.0035543	47	0.0726596	0.0054225	--	--	--
<i>Mannophryne</i>	<i>collaris</i>	23	23.50	1.8	127	0.0313307	0.0102910	125	0.3019600	0.1952005	6	3.2533449	0.5380278
<i>Mannophryne</i>	<i>collaris</i>	24	21.00	1.8	93	0.0246667	0.0043821	85	0.2327059	0.1477314	5	3.8294288	1.3134240
<i>Mannophryne</i>	<i>venezuelensis</i>	18	1.00	0.0	9	0.0688889	0.0113186	9	0.1443333	0.0172772	--	--	--
<i>Mannophryne</i>	<i>vulcano</i>	14	1.00	0.0	46	0.0228696	0.0016681	44	0.0600909	0.0020325	--	--	--
<i>Mannophryne</i>	<i>yustizi</i>	26	11.00	3.3	88	0.0136705	0.0032720	77	0.0938052	0.0219755	88	10.6054152	0.7679254
<i>Phyllobates</i>	<i>aurotaenia</i>	108	3.10	0.9	31	0.0267097	0.0054906	21	0.0656190	0.0042600	10	15.3531891	0.5150292
<i>Phyllobates</i>	<i>lugubris</i>	111	2.40	0.5	24	0.0220417	0.0036769	14	0.0715714	0.0059577	10	13.8963963	0.9138779
<i>Phyllobates</i>	<i>lugubris</i>	112	2.33	0.5	14	0.0247143	0.0049525	8	0.0622500	0.0042003	6	16.1203382	0.8131796
<i>Phyllobates</i>	<i>terribilis</i>	109	2.00	0.0	18	0.0449444	0.0066551	9	0.1033333	0.0037417	9	9.6886837	0.3501633
<i>Phyllobates</i>	<i>vittatus</i>	110	2.24	0.4	114	0.0231404	0.0040699	57	0.0680175	0.0041079	46	14.5171740	0.7698811
<i>Rheobates</i>	<i>palmatus</i>	28	22.50	2.6	270	0.0496148	0.0078716	258	0.3539109	0.3370169	270	3.2018734	1.5118575
<i>Rheobates</i>	<i>palmatus</i>	27	26.00	1.6	199	0.0576482	0.0093591	199	0.2843819	0.1903630	199	3.5225187	0.4944644
<i>Silverstoneia</i>	<i>flotator</i>	62	8.50	0.7	15	0.0382000	0.0110208	14	0.7345000	0.2306712	2	1.4172290	0.0393967
<i>Silverstoneia</i>	<i>flotator</i>	63	11.13	4.7	89	0.0252697	0.0053826	81	0.3806420	0.1610824	8	2.6755161	0.4495702
<i>Silverstoneia</i>	<i>nubicola</i>	66	1.00	0.0	43	0.0264651	0.0067342	43	0.1333488	0.0156356	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	65	7.50	0.7	15	0.0869333	0.0053381	13	0.4553077	0.0464675	2	2.1942084	0.0486224
<i>Silverstoneia</i>	<i>nubicola</i>	64	8.00	11.4	37	0.0133784	0.0027320	31	0.0980645	0.0100164	9	10.1578529	0.2527815
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	1.00	0.0	25	0.0242000	0.00308221	25	0.0567200	0.00120831	--	--	--
<i>Allobates</i>	<i>goianus</i>	NA	1.00	0.0	8	0.0362500	0.00276457	7	0.3940000	0.04714870	--	--	--
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	1.00	0.0	25	0.1341200	0.00927056	22	4.0694545	0.89724827	--	--	--

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Notes		Middle Pulse-Note Duration (s)			Interval between Middle Pulse-Notes (s)			Middle Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	1.00	0.0	114	0.0490263	0.0041252	109	0.8242110	0.3897468	3	1.2437292	0.0977481
<i>Allobates</i>	<i>brunneus</i>	37	1.00	0.0	261	0.0459042	0.0070989	255	0.4750627	0.3317661	6	2.3100940	0.1624029
<i>Allobates</i>	<i>caeruleodactylus</i>	48	1.00	0.0	515	0.0280641	0.0031865	477	0.4983249	0.1212178	2	1.8852052	0.1605131
<i>Allobates</i>	<i>crombiei</i>	52	12.51	16.3	585	0.0387641	0.0044621	541	0.0895730	0.0052747	49	11.4178995	1.1121281
<i>Allobates</i>	<i>femorialis</i>	43	59.60	16.2	596	0.0978473	0.0170564	586	0.2367304	0.1030329	596	4.2815267	0.5527573
<i>Allobates</i>	<i>femorialis</i>	46	2.00	0.0	72	0.0689583	0.0101645	24	0.1307037	0.0124153	72	7.4820036	0.4197321
<i>Allobates</i>	<i>femorialis</i>	44	2.00	0.0	30	0.0875333	0.0034113	15	0.1625333	0.0041208	30	6.1563431	0.1589125
<i>Allobates</i>	<i>femorialis</i>	40	2.00	0.0	84	0.0495833	0.0043802	42	0.1332857	0.0037953	84	7.5086553	0.2150795
<i>Allobates</i>	<i>femorialis</i>	41	1.00	0.0	149	0.0897785	0.0101395	249	0.0822289	0.0073424	249	12.1601938	0.8098573
<i>Allobates</i>	<i>femorialis</i>	45	2.00	0.0	76	0.0869211	0.0135526	36	0.1930278	0.0059208	76	5.1845902	0.1588147
<i>Allobates</i>	<i>granti</i>	49	1.00	0.0	68	0.0323235	0.0031168	68	0.0518971	0.0022337	68	19.3061670	0.8819303
<i>Allobates</i>	<i>humilis</i>	59	1.00	0.0	21	0.0388571	0.0025939	20	0.2824000	0.0322203	1	3.5410765	0.0000000
<i>Allobates</i>	<i>insperatus</i>	54	33.00	4.0	495	0.0357273	0.0044848	493	0.0822759	0.0092295	15	12.1278046	1.0689367
<i>Allobates</i>	<i>aff. insperatus</i>	55	44.00	0.0	65	0.0311846	0.0028278	64	0.0770781	0.0039130	2	12.8654189	0.2331814
<i>Allobates</i>	<i>juanii</i>	47	1.47	0.8	219	0.0434384	0.0101398	218	0.3366055	0.0734581	219	3.0775870	0.3659648
<i>Allobates</i>	<i>kingsburyi</i>	39	1.02	0.1	983	0.0384584	0.0101771	996	0.0841024	0.0237638	980	12.4716370	1.6559587
<i>Allobates</i>	<i>marchesianus</i>	50	1.00	0.0	378	0.0523915	0.0064038	375	0.3436533	0.5010348	3	2.9675705	0.4512645
<i>Allobates</i>	<i>masniger</i>	58	100.2	69.6	501	0.0655250	0.0060433	487	0.2904805	0.1026506	5	3.4783565	0.2941427
<i>Allobates</i>	<i>nidicola</i>	36	1.00	0.0	645	0.0376248	0.0180267	631	0.2401981	0.0338020	2	3.8105731	0.6020460
<i>Allobates</i>	<i>olfersioides</i>	1	1.00	0.0	260	0.0430308	0.0048314	258	0.3684922	0.0385468	260	2.7103674	0.0000000
<i>Allobates</i>	<i>ornatus</i>	51	1.00	0.0	195	0.0363333	0.0055443	178	0.4669438	0.1032403	2	2.1636347	0.0451750
<i>Allobates</i>	<i>sp. Duke</i>	61	1.00	0.0	807	0.0438265	0.0075870	750	0.3517173	0.2062386	12	2.7988149	0.4932524
<i>Allobates</i>	<i>sp. Neblina</i>	29	1.00	0.0	10	0.0288000	0.0042111	9	9.7587778	4.7187411	1	0.1024718	0.0000000
<i>Allobates</i>	<i>sp. Negro</i>	38	271.0	10.4	1002	0.0371756	0.0032008	981	0.1069062	0.0204467	5	9.3078497	0.8859232
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	8.50	3.1	34	0.0804118	0.0050520	34	0.3619118	0.0659781	4	2.8253127	0.2778025
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	1.00	0.0	333	0.0353213	0.0043000	332	0.4178404	0.1969509	2	2.3564651	0.1486610
<i>Allobates</i>	<i>talamancae</i>	34	1.00	0.0	45	0.0430889	0.0046506	45	0.0658000	0.0034483	45	15.1404091	0.6678369
<i>Allobates</i>	<i>talamancae</i>	32	1.00	0.0	15	0.0894667	0.0162035	15	0.1260667	0.0110419	15	7.9890802	0.6957205
<i>Allobates</i>	<i>talamancae</i>	35	1.00	0.0	82	0.0410244	0.0080813	39	0.0809487	0.0053457	42	12.5088159	0.6683370
<i>Allobates</i>	<i>talamancae</i>	31	1.00	0.0	87	0.0633218	0.0082229	85	0.0847176	0.0045738	98	10.5889020	3.3845539
<i>Allobates</i>	<i>talamancae</i>	33	1.00	0.0	34	0.0435000	0.0065886	34	0.0767353	0.0058117	32	12.9688575	0.8473267
<i>Allobates</i>	<i>talamancae</i>	30	1.00	0.0	43	0.0478605	0.0032556	43	0.0707907	0.0079539	40	13.9750189	1.3440785
<i>Allobates</i>	<i>trilineatus</i>	56	1.00	0.0	153	0.0304183	0.0050972	153	0.0382288	0.0021073	153	26.2384866	1.4683084
<i>Allobates</i>	<i>zaparo</i>	42	1.00	0.0	335	0.0822090	0.0096274	335	0.1026866	0.0079108	335	9.7994679	0.7994698
<i>Ameerega</i>	<i>altamazonica</i>	103	1.00	0.0	456	0.0617697	0.0067513	445	0.5694360	0.1049241	2	1.7218342	0.1480156

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Notes		Middle Pulse-Note Duration (s)			Interval between Middle Pulse-Notes (s)			Middle Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	15.75	6.0	172	0.1749302	0.0474085	161	0.4768696	0.0739546	8	2.0404996	0.1110998
<i>Ameerega</i>	<i>bilinguis</i>	87	1.00	0.0	1888	0.0290689	0.0051152	1843	0.0704867	0.0041095	1856	35.5321887	6.6917165
<i>Ameerega</i>	<i>braccata</i>	94	1.00	0.0	79	0.0319747	0.0029307	78	0.1898590	0.0130052	1	5.2670673	0.0000000
<i>Ameerega</i>	<i>cainarachi</i>	102	7.22	8.9	427	0.0358548	0.0059301	424	0.1269363	0.0062719	33	8.2883742	0.5412315
<i>Ameerega</i>	<i>flavopicta</i>	95	8.07	0.3	484	0.0137500	0.0025678	424	0.0181297	0.0015282	60	55.1570563	0.8173872
<i>Ameerega</i>	<i>hahneli</i>	96	1.00	0.0	42	0.0355238	0.0067471	38	0.1538684	0.0312273	1	6.0170238	0.0000000
<i>Ameerega</i>	<i>hahneli</i>	97	1.00	0.0	1693	0.0174572	0.0030843	1650	0.2392461	0.0546046	4	4.0801635	0.8212713
<i>Ameerega</i>	<i>hahneli</i>	98	1.00	0.0	146	0.0164452	0.0025812	145	0.1180414	0.0125753	1	8.4716055	0.0000000
<i>Ameerega</i>	<i>hahneli</i>	99	1.00	0.0	594	0.0142761	0.0012794	568	0.1467852	0.0259582	1	6.6263712	0.0000000
<i>Ameerega</i>	<i>ignipedis</i>	90	1.00	0.0	22	0.0946818	0.0133395	21	0.6019048	0.1003962	1	1.6613924	0.0000000
<i>Ameerega</i>	<i>parvula</i>	86	151.0	23.6	666	0.0129700	0.0032276	660	0.0399955	0.0020102	5	24.8829760	0.4501010
<i>Ameerega</i>	<i>petersi</i>	101	8.14	1.7	248	0.0316169	0.0055865	243	0.1176214	0.0064926	23	8.4346808	0.1718482
<i>Ameerega</i>	<i>picta</i>	91	1.00	0.0	46	0.0508261	0.0043884	45	0.3673778	0.0338481	1	2.7219937	0.0000000
<i>Ameerega</i>	<i>picta</i>	92	1.00	0.0	1212	0.0501840	0.0083966	1186	0.3142664	0.0285930	5	2.9810194	0.2118055
<i>Ameerega</i>	<i>picta</i>	93	1.00	0.0	322	0.0277547	0.0027455	321	0.1536231	0.0102056	1	6.5094397	0.0000000
<i>Ameerega</i>	<i>pongoensis</i>	88	1.00	0.0	7	0.0772857	0.0129578	4	2.3110000	0.3918393	4	0.4417345	0.0715171
<i>Ameerega</i>	<i>silverstonei</i>	85	86.00	7.1	172	0.0845291	0.0144867	172	0.2938953	0.0098081	2	3.4031699	0.0182553
<i>Ameerega</i>	<i>smaragdina</i>	100	1.00	0.0	47	0.0552766	0.0057283	47	0.1287872	0.0062343	44	7.7217947	0.3064198
<i>Ameerega</i>	<i>trivittata</i>	105	46.00	22.6	92	0.0697391	0.0123536	91	0.2198462	0.0141146	2	4.6010895	0.2086807
<i>Ameerega</i>	<i>trivittata</i>	107	36.67	21.1	109	0.0618991	0.0099582	109	0.2079817	0.0095568	3	4.7986686	0.1466030
<i>Ameerega</i>	<i>trivittata</i>	106	14.67	10.4	506	0.0622095	0.0101677	503	0.2280696	0.0174325	33	4.3300783	0.2299605
<i>Ameerega</i>	<i>trivittata</i>	104	34.50	30.4	69	0.0499565	0.0085344	69	0.1606957	0.0093750	2	6.2110358	0.0047530
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	13.42	2.8	255	0.0261608	0.0031688	236	0.0659831	0.0018656	19	15.1547142	0.0804141
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	1.00	0.0	32	0.1100313	0.0066453	30	1.4212333	0.1068062	2	0.6842356	0.0427282
<i>Anomaloglossus</i>	<i>rufulus</i>	5	16.0	0.0	19	0.0537368	0.0057624	17	0.1688824	0.0116237	2	6.2015256	0.5032499
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	165.8	97.3	2144	0.0279510	0.0052169	2129	0.1112776	0.0117447	15	9.0437646	0.1760894
<i>Aromobates</i>	<i>meridensis</i>	7	17.00	0.0	17	0.0606471	0.0049616	16	0.1271250	0.0078983	1	7.8662734	0.0000000
<i>Aromobates</i>	<i>saluensis</i>	11	1.00	0.0	273	0.0401868	0.0040181	271	0.0985572	0.0029116	273	10.1382008	0.3042108
<i>Aromobates</i>	<i>cannatellai</i>	9	1.00	0.0	149	0.0452617	0.0075618	147	0.1868163	0.0341463	149	5.4372756	0.1395947
<i>Aromobates</i>	aff. <i>saluensis</i>	10	1.00	0.0	304	0.1028487	0.0243982	301	0.7278405	0.1901579	304	1.3942101	0.0396928
<i>Aromobates</i>	<i>ericksonae</i>	8	1.00	0.0	185	0.0519730	0.0152306	185	0.0749784	0.0086640	185	13.4258887	1.4125014
<i>Aromobates</i>	<i>ornatissimus</i>	6	1.00	0.0	21	0.0890476	0.0116382	9	2.8993333	0.4837280	3	0.3184606	0.0332919
<i>Colostethus</i>	<i>argyrogaster</i>	83	1.00	0.0	29	0.1172069	0.0122951	28	1.1983333	0.1682091	1	0.8119708	0.0000000
<i>Colostethus</i>	<i>fraterdanieli</i>	81	1.00	0.0	397	0.0632494	0.0109168	390	0.5819487	0.0908494	6	1.7155691	0.0626185
<i>Colostethus</i>	<i>fraterdanieli</i>	82	1.00	0.0	869	0.0601738	0.0236399	864	0.4029410	0.0700993	11	2.2626010	0.3954921

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Notes		Middle Pulse-Note Duration (s)			Interval between Middle Pulse-Notes (s)			Middle Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	1.00	0.0	131	0.0980458	0.0082842	121	2.3206777	0.6076704	5	0.4084228	0.0770299
<i>Colostethus</i>	<i>panamansis</i>	76	1.68	0.6	119	0.0460672	0.0047241	115	0.1055391	0.0033094	71	9.5518494	0.3547548
<i>Colostethus</i>	<i>panamansis</i>	75	1.48	0.5	144	0.0361458	0.0035141	144	0.0846111	0.0062007	93	12.0377620	0.7742831
<i>Colostethus</i>	<i>pratti</i>	80	4.03	3.5	310	0.0709548	0.0093503	310	0.2003000	0.0140718	77	4.8678401	0.2949267
<i>Colostethus</i>	<i>pratti</i>	79	10.78	4.6	282	0.0596135	0.0078043	282	0.2137731	0.0648981	23	4.2335715	0.4330080
<i>Colostethus</i>	<i>pratti</i>	77	4.75	1.3	18	0.0656111	0.0070138	17	0.1864118	0.0100129	4	5.4466461	0.0534772
<i>Colostethus</i>	aff. <i>pratti</i>	78	4.81	2.7	178	0.0413090	0.0060786	178	0.1214888	0.0138332	34	8.4350387	0.4414294
<i>Dendrobates</i>	<i>auratus</i>	116	201.0	69.3	402	0.0065920	0.0016646	402	0.0159328	0.0010771	2	62.1769900	4.1550624
<i>Dendrobates</i>	<i>bombetes</i>	126	225.9	12.8	2534	0.0023331	0.0010935	2481	0.0062479	0.0021495	10	163.1214068	14.2414570
<i>Dendrobates</i>	<i>captivus</i>	125	9.56	1.2	306	0.0148333	0.0021336	300	0.0205467	0.0018382	30	48.1764976	1.2128313
<i>Dendrobates</i>	<i>castaneoticus</i>	114	325.5	0.7	651	0.0055238	0.0010171	641	0.0117223	0.0008483	2	84.6485158	0.0185249
<i>Dendrobates</i>	<i>claudiae</i>	130	67.00	5.8	268	0.0064963	0.0013533	268	0.0161530	0.0016857	4	61.8709588	5.6159408
<i>Dendrobates</i>	<i>defleri</i>	133	37.00	10.1	222	0.0053333	0.0009545	216	0.0110046	0.0045315	6	90.0854768	8.1131757
<i>Dendrobates</i>	<i>fantasticus</i>	137	12.57	1.9	88	0.0172045	0.0025105	82	0.0225610	0.0020312	7	44.6199881	1.1456677
<i>Dendrobates</i>	<i>galactonotus</i>	113	600.0	0.0	600	0.0071367	0.0015249	599	0.0162905	0.0046448	1	61.1805698	0.0000000
<i>Dendrobates</i>	<i>granuliferus</i>	119	34.21	5.0	1437	0.0037126	0.0007540	1395	0.0068337	0.0011487	42	146.7616577	9.9746382
<i>Dendrobates</i>	<i>histrionicus</i>	121	15.90	1.6	503	0.0024871	0.0007080	506	0.0032470	0.0007862	30	318.4734264	17.3725102
<i>Dendrobates</i>	<i>imitator</i>	131	21.13	4.5	1366	0.0106955	0.0032912	1363	0.0289589	0.0030136	64	34.1333311	2.6086470
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	28.25	3.6	107	0.0096075	0.0014650	113	0.0411593	0.0045602	4	24.3038674	0.3800638
<i>Dendrobates</i>	<i>leucomelas</i>	118	151.4	42.2	2575	0.0148722	0.0043468	2551	0.0601094	0.0037401	15	16.6857753	0.7465779
<i>Dendrobates</i>	<i>minutus</i>	128	89.00	0.0	89	0.0037191	0.0010870	88	0.0120909	0.0010465	1	82.7067669	0.0000000
<i>Dendrobates</i>	<i>mysteriosus</i>	124	67.56	8.1	1318	0.0103703	0.0020955	1318	0.0197200	0.0022912	19	50.6111642	3.4543031
<i>Dendrobates</i>	<i>pumilio</i>	123	9.87	1.7	1123	0.0018655	0.0004857	1095	0.0025900	0.0004921	98	391.0695293	11.3213224
<i>Dendrobates</i>	<i>pumilio</i>	122	11.50	1.3	324	0.0027932	0.0005651	293	0.0036621	0.0005538	324	272.0773565	13.2939197
<i>Dendrobates</i>	<i>reticulatus</i>	136	47.67	8.5	429	0.0015082	0.0005052	415	0.0036096	0.0015281	7	276.0033587	9.8177604
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	146.1	12.2	995	0.0032000	0.0011020	977	0.0088669	0.0005108	7	110.1398795	3.9324892
<i>Dendrobates</i>	<i>sylvaticus</i>	120	12.83	1.5	385	0.0021532	0.0008416	375	0.0028240	0.0006299	26	361.2245337	21.4423998
<i>Dendrobates</i>	<i>tinctorius</i>	117	116.3	2.6	465	0.0022065	0.0004961	461	0.0072126	0.0006241	4	138.6406915	0.4083275
<i>Dendrobates</i>	<i>truncatus</i>	115	150.2	6.4	751	0.0101944	0.0023675	746	0.0196850	0.0016158	5	50.8693331	3.3040496
<i>Dendrobates</i>	<i>uakarii</i>	138	9.20	1.1	46	0.0117826	0.0015904	41	0.0171463	0.0024755	5	58.2069162	2.6920419
<i>Dendrobates</i>	<i>variabilis</i>	135	75.50	11.9	1217	0.0014108	0.0004955	1167	0.0042348	0.0026229	13	232.4430875	19.8852139
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	102.2	15.8	520	0.0018538	0.0007863	505	0.0033248	0.0016383	3	300.0209105	23.1526362
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	71.85	8.4	935	0.0012257	0.0004182	922	0.0060531	0.0041351	13	171.9439999	42.7549137
<i>Dendrobates</i>	<i>virolinensis</i>	127	183.6	30.7	2216	0.0020108	0.0008974	2210	0.0095647	0.0044717	9	102.8063057	8.8674566
<i>Epipedobates</i>	<i>anthonyi</i>	71	54.38	5.3	435	0.0294184	0.0034747	435	0.0615747	0.0045514	8	16.2405042	0.4643159

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Genus	Species	Phy ID	Middle Pulse-Notes		Middle Pulse-Note Duration (s)			Interval between Middle Pulse-Notes (s)			Middle Pulse-Note Rate (Pulses / second)		
			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	48.43	10.5	1077	0.0258914	0.0045370	1077	0.0538505	0.0074146	22	18.7851548	0.8858066
<i>Epipedobates</i>	<i>boulengeri</i>	67	6.44	1.6	265	0.0137925	0.0021192	265	0.0236340	0.0023912	41	41.3622764	1.1933718
<i>Epipedobates</i>	<i>espinosai</i>	69	57.00	27.9	738	0.0086531	0.0033577	723	0.0220844	0.0019833	15	43.4269965	3.0046763
<i>Epipedobates</i>	<i>machalilla</i>	73	115.2	8.8	331	0.0173716	0.0038883	332	0.0515211	0.0026468	26	19.5496485	0.4136095
<i>Epipedobates</i>	<i>machalilla</i>	72	119.6	9.4	3947	0.0122716	0.0020075	3947	0.0335516	0.0017327	140	29.6897873	0.4665868
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	64.11	7.4	1295	0.0097459	0.0020472	1329	0.0288014	0.0035955	21	34.9397207	3.9907238
<i>Epipedobates</i>	<i>tricolor</i>	74	58.55	2.5	812	0.0162882	0.0022628	804	0.0345572	0.0025404	14	28.7222492	0.4451967
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	74.50	2.1	149	0.0230336	0.0044652	147	0.1261565	0.0181967	2	7.9362611	0.2923080
<i>Hyloxalus</i>	<i>awa</i>	171	19.04	6.7	478	0.0635696	0.0107643	476	0.1560966	0.0138754	25	6.4203545	0.1986079
<i>Hyloxalus</i>	<i>azureiventris</i>	165	220.3	66.3	726	0.0159683	0.0051547	722	0.0653158	0.0022020	5	15.3222169	0.1544523
<i>Hyloxalus</i>	<i>bocagei</i>	151	1.00	0.0	592	0.0287973	0.0033949	592	0.0925236	0.0036081	592	10.8232757	0.3920091
<i>Hyloxalus</i>	<i>bocagei</i>	150	1.00	0.0	716	0.0299008	0.0078102	716	0.1020196	0.0070365	716	9.8508978	0.7151813
<i>Hyloxalus</i>	<i>craspedoceph</i>	166	17.27	1.3	225	0.0054622	0.0009495	225	0.0069867	0.0006647	12	143.732994	0.9179012
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	6.31	0.6	101	0.0067228	0.0013647	85	0.0096353	0.0011736	16	103.605265	5.4213506
<i>Hyloxalus</i>	<i>delatorreae</i>	162	5.72	0.8	234	0.0067991	0.0008480	195	0.0099897	0.0010204	43	100.653729	4.8957153
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	1.00	0.0	315	0.0557238	0.0189679	309	1.1413366	0.2042063	3	0.8193312	0.0802109
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	1.00	0.0	171	0.1061754	0.0063574	167	0.8047186	0.1955958	3	1.2376683	0.0819356
<i>Hyloxalus</i>	<i>erythromos</i>	140	15.59	2.8	436	0.0045459	0.0015611	433	0.0058014	0.0018238	29	171.904451	20.9058632
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	61.83	29.0	1607	0.0612900	0.0057504	1596	0.4565796	0.1085099	25	2.1166623	0.2004152
<i>Hyloxalus</i>	<i>insulatus</i>	167	1.00	0.0	374	0.0807594	0.0083734	361	0.4099972	0.0923916	5	2.2566664	0.2257827
<i>Hyloxalus</i>	<i>italoi</i>	144	33.22	8.7	2284	0.0403682	0.0063848	2284	0.0882846	0.0084253	65	11.1384158	0.9497937
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	1.00	0.0	125	0.2975920	0.0380234	106	4.1385283	1.6539599	5	0.2058380	0.0695810
<i>Hyloxalus</i>	<i>maculosus</i>	149	1.00	0.0	334	0.0459311	0.0045180	334	0.1031138	0.0079442	334	9.7520966	0.7073425
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	25.43	4.7	171	0.0868012	0.0207989	178	0.2535393	0.0366674	7	3.9300839	0.0930332
<i>Hyloxalus</i>	<i>nexipus</i>	154	23.92	2.7	863	0.0298181	0.0027044	829	0.0730929	0.0043166	36	13.6825629	0.1922879
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	18.00	3.3	151	0.0296358	0.0036851	150	0.0845867	0.0059135	11	12.1045401	0.4790245
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	20.32	1.7	472	0.0214979	0.0041012	471	0.0738854	0.0063437	24	13.4027838	0.1942017
<i>Hyloxalus</i>	<i>pulchellus</i>	160	1.78	0.7	40	0.0677000	0.0034359	38	0.3978158	0.0380589	21	2.4600067	0.1718126
<i>Hyloxalus</i>	<i>pulchellus</i>	159	1.20	0.5	218	0.0708257	0.0205916	111	0.4398468	0.0417978	93	2.0957037	0.1922535
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	3.84	1.0	155	0.0438000	0.0043206	153	0.1146013	0.0158680	36	8.1761042	0.4166837
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	1.00	0.0	75	0.0487600	0.0041973	70	0.5537000	0.0216784	2	1.7687064	0.0630293
<i>Hyloxalus</i>	<i>sauli</i>	148	109.9	114.7	7492	0.0159945	0.0018473	7492	0.0529079	0.0032798	23	18.7358046	0.5893783
<i>Hyloxalus</i>	<i>sorditatus</i>	141	26.30	4.0	272	0.0659118	0.0107885	272	0.1085000	0.0077460	10	9.1823815	0.0936914
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	1.00	0.0	43	0.0239070	0.0046538	41	0.8524390	0.0619419	2	1.1747550	0.0130870
<i>Hyloxalus</i>	<i>toachi</i>	172	36.38	10.7	1115	0.0628897	0.0084679	1102	0.4258103	0.0914841	27	2.3274389	0.1296500

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			$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD	<i>N</i>	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	1.00	0.0	252	0.0651468	0.0039234	249	0.6202610	0.0679829	1	1.5248204	0.0000000
<i>Hyloxalus</i>	<i>vertebralis</i>	158	1.00	0.0	313	0.0541182	0.0031012	294	0.8971803	0.2504210	8	1.0036064	0.1805108
<i>Hyloxalus</i>	<i>yasuni</i>	147	14.23	2.2	1110	0.0418811	0.0042518	1032	0.0867045	0.0050330	78	11.5312167	0.1138592
<i>Hyloxalus</i>	<i>yasuni</i>	145	36.71	10.8	1950	0.0462600	0.0063723	1944	0.0897716	0.0098777	51	10.9245080	0.3593613
<i>Hyloxalus</i>	<i>yasuni</i>	146	75.85	17.1	1909	0.0294678	0.0031642	1906	0.0720210	0.0039318	23	13.9195504	0.4951597
<i>Mannophryne</i>	<i>urticans</i>	25	60.00	22.0	363	0.0182645	0.0030423	357	0.0974286	0.0039418	6	10.1564487	0.1642136
<i>Mannophryne</i>	<i>cordilleriana</i>	20	168.00	63.6	522	0.0498218	0.0131943	548	0.1315675	0.0099268	3	7.6972141	0.1988063
<i>Mannophryne</i>	<i>herminae</i>	19	1.00	0.0	427	0.0313068	0.0091332	427	0.0690703	0.0070588	427	14.5973182	1.4043799
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	1.00	0.0	116	0.0389310	0.0074129	116	0.0666207	0.0083183	116	15.2493091	1.9768736
<i>Mannophryne</i>	<i>leonardo</i>	16	3.19	0.4	402	0.0310498	0.0049770	374	0.0666390	0.0036738	402	14.5685543	0.4128308
<i>Mannophryne</i>	<i>olmonae</i>	12	1.00	0.0	123	0.0861870	0.0080870	122	0.3310902	0.0338008	123	3.0203253	0.0000000
<i>Mannophryne</i>	<i>orellana</i>	22	48.50	12.7	194	0.0428247	0.0062446	190	0.0921526	0.0042217	4	10.8614685	0.0707255
<i>Mannophryne</i>	<i>orellana</i>	21	111.33	28.7	1548	0.0482080	0.0090461	1534	0.1369863	0.0096796	14	7.2900035	0.1595593
<i>Mannophryne</i>	<i>riveroi</i>	13	36.83	5.3	257	0.1136226	0.0107755	272	0.3670257	0.0397966	8	2.6802512	0.2638645
<i>Mannophryne</i>	<i>trinitatis</i>	17	1.00	0.0	47	0.0438936	0.0039521	47	0.0726596	0.0054225	47	13.8400620	1.0626597
<i>Mannophryne</i>	<i>collaris</i>	23	113.33	22.9	643	0.0473173	0.0106871	674	0.1346602	0.0109715	6	7.4447205	0.1378575
<i>Mannophryne</i>	<i>collaris</i>	24	109.40	14.8	525	0.0375390	0.0056667	542	0.1125830	0.0091643	5	8.8856842	0.3181454
<i>Mannophryne</i>	<i>venezuelensis</i>	18	1.00	0.0	196	0.0770255	0.0091989	187	0.1651765	0.0180005	9	6.0629256	0.1333931
<i>Mannophryne</i>	<i>vulcano</i>	14	1.00	0.0	47	0.0238723	0.0029607	44	0.0600909	0.0020325	47	16.6600995	0.5646854
<i>Mannophryne</i>	<i>yustizi</i>	26	91.25	12.7	730	0.0242849	0.0032619	722	0.0873518	0.0032613	8	11.4487929	0.0661241
<i>Phyllobates</i>	<i>aurotaenia</i>	108	59.10	5.0	583	0.0291852	0.0057389	581	0.0657022	0.0033326	10	15.2187648	0.0406241
<i>Phyllobates</i>	<i>lugubris</i>	111	61.90	5.6	619	0.0220081	0.0021129	609	0.0692430	0.0074838	10	14.4296268	0.3424533
<i>Phyllobates</i>	<i>lugubris</i>	112	87.50	14.1	509	0.0215069	0.0036687	505	0.0638515	0.0024069	6	15.6508303	0.0636453
<i>Phyllobates</i>	<i>terribilis</i>	109	38.00	7.5	342	0.0466930	0.0062899	333	0.1010120	0.0042610	9	9.9049683	0.0966529
<i>Phyllobates</i>	<i>vittatus</i>	110	72.65	10.3	3704	0.0278407	0.0041983	3653	0.0716061	0.0071731	51	13.9745328	0.3603917
<i>Rheobates</i>	<i>palmatum</i>	28	160.25	51.2	1923	0.0455460	0.0060619	1912	0.1086532	0.0136605	1923	9.3767026	0.3568515
<i>Rheobates</i>	<i>palmatum</i>	27	274.25	101.3	2194	0.0435725	0.0087171	2187	0.0917531	0.0095110	2194	10.9755038	0.4814412
<i>Silverstoneia</i>	<i>flotator</i>	62	132.00	23.1	593	0.0403710	0.0071023	589	0.2975722	0.0590597	6	3.3718047	0.3554388
<i>Silverstoneia</i>	<i>flotator</i>	63	49.86	7.2	382	0.0300288	0.0076228	380	0.2000053	0.0230256	8	4.9876514	0.2140103
<i>Silverstoneia</i>	<i>nubicola</i>	66	17.90	2.5	756	0.0283479	0.0052701	754	0.1084615	0.0144757	39	9.3497839	0.4217109
<i>Silverstoneia</i>	<i>nubicola</i>	65	127.00	4.2	247	0.0880121	0.0037725	247	0.4396356	0.0277330	2	2.3356569	0.0672923
<i>Silverstoneia</i>	<i>nubicola</i>	64	96.57	51.2	729	0.0211303	0.0043568	729	0.0866941	0.0108048	9	11.4138255	0.5252124
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	6.0	1.4	150	0.0222867	0.0022654	125	0.0538320	0.0011621	23	18.5668268	0.17074307
<i>Allobates</i>	<i>goianus</i>	NA	1.00	0.0	8	0.0362500	0.0027646	7	0.3940000	0.04714870	1	2.90065264	0.0000000
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	1.00	0.0	25	0.1341200	0.0092706	22	4.0694545	0.89724827	3	0.24722956	0.01867090

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Note Rise Time (s)			Middle Pulse-Note Shape			Middle Pulse-Note Duty		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Allobates</i>	<i>algorei</i>	60	108	0.0330648	0.0116581	107	0.6634112	0.2341092	106	0.0694669	0.0212635
<i>Allobates</i>	<i>brunneus</i>	37	261	0.0118889	0.0022649	250	0.2631834	0.0487823	247	0.1174016	0.0391459
<i>Allobates</i>	<i>caeruleodactylus</i>	48	476	0.0062710	0.0027446	475	0.2198105	0.0910626	492	0.0603276	0.0190611
<i>Allobates</i>	<i>crombiei</i>	52	591	0.0110220	0.0039417	592	0.2802786	0.0872654	572	0.4331499	0.0779151
<i>Allobates</i>	<i>femorialis</i>	43	596	0.0370375	0.0123791	596	0.3512586	0.1246984	586	0.3863178	0.1038642
<i>Allobates</i>	<i>femorialis</i>	46	72	0.0320000	0.0056644	72	0.4686697	0.0799884	24	0.4825541	0.0762984
<i>Allobates</i>	<i>femorialis</i>	44	30	0.0316000	0.0050895	30	0.3605654	0.0528371	15	0.5329186	0.0270769
<i>Allobates</i>	<i>femorialis</i>	40	84	0.0172381	0.0043648	84	0.3470257	0.0800290	42	0.3474342	0.0195293
<i>Allobates</i>	<i>femorialis</i>	41	182	0.0172308	0.0034387	249	0.2075361	0.0669728	239	0.5365231	0.0529662
<i>Allobates</i>	<i>femorialis</i>	45	66	0.0472879	0.0094572	64	0.5431535	0.0863586	34	0.3924235	0.0323665
<i>Allobates</i>	<i>granti</i>	49	68	0.0091912	0.0019259	68	0.2852989	0.0591638	68	0.6236771	0.0629945
<i>Allobates</i>	<i>humilis</i>	59	21	0.0131905	0.0025616	21	0.3377197	0.0501009	20	0.1389570	0.0134131
<i>Allobates</i>	<i>insperatus</i>	54	492	0.0202053	0.0074021	490	0.5670118	0.1978257	490	0.4389565	0.0750280
<i>Allobates</i>	<i>aff. insperatus</i>	55	65	0.0183077	0.0034952	61	0.5871967	0.0751795	64	0.4071304	0.0367730
<i>Allobates</i>	<i>juanii</i>	47	215	0.0186047	0.0074355	219	0.4278530	0.1811290	218	0.1343973	0.0395504
<i>Allobates</i>	<i>kingsburyi</i>	39	992	0.0107732	0.0040121	994	0.2837240	0.1061993	990	0.4801642	0.1412065
<i>Allobates</i>	<i>marchesianus</i>	50	349	0.0114413	0.0071964	329	0.2384033	0.1489610	358	0.2123252	0.0577469
<i>Allobates</i>	<i>masniger</i>	58	481	0.0297942	0.0113938	485	0.4474982	0.1645063	496	0.2441424	0.0660015
<i>Allobates</i>	<i>midicola</i>	36	647	0.0109892	0.0077568	648	0.2836317	0.1060198	645	0.1631505	0.0679518
<i>Allobates</i>	<i>olfersioides</i>	1	260	0.0087131	0.0027694	260	0.2055701	0.0739388	258	0.1185869	0.0182534
<i>Allobates</i>	<i>ornatus</i>	51	179	0.0064413	0.0019861	188	0.1834972	0.0601687	184	0.0770337	0.0190828
<i>Allobates</i>	<i>sp. Ducke</i>	61	807	0.0144201	0.0042608	777	0.3487880	0.1214639	782	0.1680235	0.1052359
<i>Allobates</i>	<i>sp. Neblina</i>	29	8	0.0087500	0.0017525	10	0.2658014	0.0826230	8	0.0037879	0.0011470
<i>Allobates</i>	<i>sp. Negro</i>	38	974	0.0104045	0.0074231	972	0.2893316	0.2087424	1002	0.3527267	0.0654632
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	33	0.0468485	0.0041917	33	0.5840429	0.0598929	32	0.2284268	0.0345553
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	333	0.0168328	0.0056956	333	0.4753181	0.1423359	332	0.1077074	0.0566224
<i>Allobates</i>	<i>talamancae</i>	34	37	0.0160541	0.0032570	38	0.3467553	0.0799159	41	0.6457490	0.0628059
<i>Allobates</i>	<i>talamancae</i>	32	10	0.0379167	0.0133720	11	0.4363036	0.1592431	11	0.6732289	0.1073654
<i>Allobates</i>	<i>talamancae</i>	35	62	0.0191613	0.0058343	61	0.4376385	0.1221493	46	0.3750640	0.0842841
<i>Allobates</i>	<i>talamancae</i>	31	82	0.0156098	0.0071315	81	0.2471945	0.1147908	81	0.7447007	0.0868726
<i>Allobates</i>	<i>talamancae</i>	33	31	0.0221290	0.0049715	30	0.4900269	0.1111794	31	0.5533149	0.0644312
<i>Allobates</i>	<i>talamancae</i>	30	29	0.0275862	0.0073218	26	0.4763955	0.1485097	33	0.6797647	0.0596741
<i>Allobates</i>	<i>trilineatus</i>	56	132	0.0047803	0.0018340	153	0.1794854	0.0448856	153	0.7984192	0.1431858
<i>Allobates</i>	<i>zaparo</i>	42	330	0.0317485	0.0119018	332	0.3881641	0.1534548	333	0.8043987	0.1173595
<i>Ameerega</i>	<i>altamazonica</i>	103	456	0.0301579	0.0091419	439	0.5037717	0.1678136	435	0.1121452	0.0171969

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Note Rise Time (s)			Middle Pulse-Note Shape			Middle Pulse-Note Duty		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Ameerega</i>	<i>bassleri</i>	89	161	0.0687081	0.0197017	156	0.4029788	0.1630025	158	0.3792967	0.1065206
<i>Ameerega</i>	<i>bilinguis</i>	87	1806	0.0078815	0.0034106	1790	0.2773218	0.1203660	1887	0.4149509	0.0808697
<i>Ameerega</i>	<i>braccata</i>	94	79	0.0127089	0.0035775	64	0.3901309	0.0862029	78	0.1683222	0.0161633
<i>Ameerega</i>	<i>cainarachi</i>	102	375	0.0067147	0.0035729	374	0.2215235	0.1454349	435	0.2793312	0.0513741
<i>Ameerega</i>	<i>flavopicta</i>	95	484	0.0063244	0.0032520	484	0.4662159	0.2511903	424	0.7020103	0.1539324
<i>Ameerega</i>	<i>hahneli</i>	96	38	0.0089211	0.0032581	37	0.2584160	0.0789233	37	0.2332782	0.0480723
<i>Ameerega</i>	<i>hahneli</i>	97	1656	0.0050664	0.0018628	1662	0.3034801	0.1193283	1658	0.0755908	0.0181624
<i>Ameerega</i>	<i>hahneli</i>	98	126	0.0040317	0.0013968	128	0.2450064	0.0935756	134	0.1410349	0.0177896
<i>Ameerega</i>	<i>hahneli</i>	99	585	0.0032239	0.0009842	592	0.2260116	0.0670036	592	0.0980333	0.0176234
<i>Ameerega</i>	<i>ignipedis</i>	90	22	0.0368636	0.0039436	22	0.3964230	0.0678240	21	0.1603681	0.0378680
<i>Ameerega</i>	<i>parvula</i>	86	652	0.0038037	0.0014596	648	0.2955808	0.0993112	666	0.3250642	0.0831121
<i>Ameerega</i>	<i>petersi</i>	101	247	0.0228340	0.0035039	240	0.7354466	0.0904933	241	0.2680795	0.0426175
<i>Ameerega</i>	<i>picta</i>	91	46	0.0115435	0.0021365	46	0.2299342	0.0523866	45	0.1397378	0.0172178
<i>Ameerega</i>	<i>picta</i>	92	1212	0.0173218	0.0082582	1171	0.3540239	0.1708448	1210	0.1594757	0.0328317
<i>Ameerega</i>	<i>picta</i>	93	322	0.0082081	0.0026446	321	0.2991176	0.1063399	321	0.1814615	0.0212197
<i>Ameerega</i>	<i>pongoensis</i>	88	7	0.0144286	0.0052236	7	0.1860674	0.0536466	4	0.0352097	0.0072166
<i>Ameerega</i>	<i>silverstonei</i>	85	165	0.0286303	0.0090744	157	0.3529811	0.1170298	172	0.2881531	0.0519432
<i>Ameerega</i>	<i>smaragdina</i>	100	47	0.0124255	0.0091408	47	0.2150455	0.0856520	47	0.4311118	0.0579724
<i>Ameerega</i>	<i>trivittata</i>	105	92	0.0296322	0.0111283	92	0.4156166	0.1482436	91	0.3165358	0.0491300
<i>Ameerega</i>	<i>trivittata</i>	107	109	0.0281743	0.0060244	109	0.4703710	0.1114375	109	0.2986946	0.0525195
<i>Ameerega</i>	<i>trivittata</i>	106	506	0.0216245	0.0046518	506	0.3575383	0.0922566	503	0.2743670	0.0488979
<i>Ameerega</i>	<i>trivittata</i>	104	69	0.0238261	0.0063012	53	0.4608394	0.0855914	69	0.3127291	0.0612971
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	255	0.0085412	0.0030529	256	0.3271672	0.1135228	236	0.3981216	0.0480935
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	32	0.0477813	0.0163623	32	0.4398042	0.1440832	30	0.0783025	0.0075383
<i>Anomaloglossus</i>	<i>rufilus</i>	5	13	0.0168462	0.0023038	13	0.3279465	0.0468532	17	0.3181278	0.0295714
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	2144	0.0119090	0.0053866	2144	0.4332131	0.1929941	2129	0.2536950	0.0523753
<i>Aromobates</i>	<i>meridensis</i>	7	17	0.0341176	0.0102034	10	0.6029578	0.0353266	16	0.4828178	0.0366032
<i>Aromobates</i>	<i>saluensis</i>	11	273	0.0111832	0.0065240	273	0.2754576	0.1506447	271	0.4094882	0.0372127
<i>Aromobates</i>	<i>cannatellai</i>	9	149	0.0217092	0.0065493	149	0.4742687	0.1240039	147	0.2507718	0.0553440
<i>Aromobates</i>	aff. <i>saluensis</i>	10	304	0.0453984	0.0215824	304	0.4072456	0.2183427	301	0.1531705	0.0502898
<i>Aromobates</i>	<i>ericksonae</i>	8	185	0.0225000	0.0097646	185	0.4330024	0.1805378	185	0.7040179	0.2294547
<i>Aromobates</i>	<i>ornatissimus</i>	6	15	0.0280667	0.0146554	15	0.3119339	0.1418128	9	0.0296418	0.0087487
<i>Colostethus</i>	<i>argyrogaster</i>	83	27	0.0541481	0.0149324	29	0.4671425	0.1446528	27	0.0995231	0.0175930
<i>Colostethus</i>	<i>fraterdanieli</i>	81	397	0.0293622	0.0074219	386	0.4633070	0.1593409	387	0.1110402	0.0233546
<i>Colostethus</i>	<i>fraterdanieli</i>	82	869	0.0235512	0.0078424	868	0.4357842	0.1755155	870	0.1531024	0.0651150



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Genus	Species	Phy ID	Middle Pulse-Note Rise Time (s)			Middle Pulse-Note Shape			Middle Pulse-Note Duty		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Colostethus</i>	<i>fugax</i>	84	131	0.0427008	0.0109945	127	0.4377629	0.1200288	123	0.0456354	0.0147331
<i>Colostethus</i>	<i>panamansis</i>	76	118	0.0183644	0.0086397	108	0.4001342	0.1770980	111	0.4357834	0.0372315
<i>Colostethus</i>	<i>panamansis</i>	75	142	0.0177254	0.0073919	138	0.5032804	0.1904150	137	0.4293984	0.0416227
<i>Colostethus</i>	<i>pratti</i>	80	301	0.0329635	0.0054260	300	0.4702322	0.0953584	306	0.3553289	0.0518576
<i>Colostethus</i>	<i>pratti</i>	79	275	0.0318691	0.0081843	274	0.5328009	0.1416073	277	0.2929472	0.0553721
<i>Colostethus</i>	<i>pratti</i>	77	19	0.0214737	0.0082622	16	0.3337183	0.1153700	17	0.3502506	0.0288445
<i>Colostethus</i>	aff. <i>pratti</i>	78	178	0.0224326	0.0077895	178	0.5554061	0.2051669	175	0.3444335	0.0580444
<i>Dendrobates</i>	<i>auratus</i>	116	318	0.0046981	0.0024060	297	0.6803070	0.3479475	367	0.4204355	0.0775776
<i>Dendrobates</i>	<i>bombetes</i>	126	1800	0.0016244	0.0006661	1697	0.6744619	0.2709660	2268	0.4482456	0.2862875
<i>Dendrobates</i>	<i>captivus</i>	125	294	0.0062857	0.0026009	291	0.4222537	0.1674385	284	0.7294448	0.1094840
<i>Dendrobates</i>	<i>castaneoticus</i>	114	582	0.0019759	0.0008062	498	0.3959050	0.1328811	624	0.4724639	0.0886171
<i>Dendrobates</i>	<i>claudiae</i>	130	173	0.0033873	0.0022008	173	0.4570626	0.2293916	268	0.4028542	0.0765119
<i>Dendrobates</i>	<i>defleri</i>	133	205	0.0023951	0.0009777	200	0.4454762	0.1816884	192	0.5290725	0.1114048
<i>Dendrobates</i>	<i>fantasticus</i>	137	77	0.0092338	0.0026601	76	0.5323168	0.1514630	81	0.7601834	0.0937657
<i>Dendrobates</i>	<i>galactonotus</i>	113	467	0.0030578	0.0015692	416	0.4353596	0.1957725	554	0.4538214	0.1209767
<i>Dendrobates</i>	<i>granuliferus</i>	119	932	0.0035526	0.0017424	821	0.8607810	0.4134147	1395	0.5560250	0.1435498
<i>Dendrobates</i>	<i>histrionicus</i>	121	331	0.0015317	0.0005837	323	0.6104747	0.2630208	445	0.7703745	0.1868168
<i>Dendrobates</i>	<i>imitator</i>	131	1297	0.0028234	0.0011904	1229	0.2814171	0.1096499	1327	0.3718492	0.0982734
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	80	0.0026750	0.0008233	95	0.2555457	0.0993579	101	0.2362839	0.0338517
<i>Dendrobates</i>	<i>leucomelas</i>	118	2429	0.0070807	0.0033089	2416	0.4829780	0.1843199	2412	0.2538342	0.0597575
<i>Dendrobates</i>	<i>minutus</i>	128	54	0.0031111	0.0017555	26	0.4250000	0.1827111	88	0.3102941	0.1019126
<i>Dendrobates</i>	<i>mysteriosus</i>	124	1231	0.0032242	0.0011007	1226	0.3162028	0.1060814	1281	0.5317772	0.1099836
<i>Dendrobates</i>	<i>pumilio</i>	123	705	0.0014170	0.0004934	606	0.7057206	0.2481082	1112	0.7232464	0.2506915
<i>Dendrobates</i>	<i>pumilio</i>	122	324	0.0026392	0.0012324	324	0.8800469	0.3918458	293	0.7757551	0.2550365
<i>Dendrobates</i>	<i>reticulatus</i>	136	237	0.0014093	0.0004927	215	0.8441860	0.2321198	363	0.4739691	0.2210597
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	774	0.0016848	0.0007656	738	0.5554426	0.2523583	967	0.3594209	0.1200733
<i>Dendrobates</i>	<i>sylvaticus</i>	120	231	0.0015541	0.0004981	225	0.7490370	0.2513265	355	0.7717706	0.2765205
<i>Dendrobates</i>	<i>tinctorius</i>	117	240	0.0015750	0.0006226	240	0.7388889	0.3130015	345	0.3014623	0.0803668
<i>Dendrobates</i>	<i>truncatus</i>	115	541	0.0073826	0.0039604	525	0.7132043	0.3900544	694	0.5182223	0.1014080
<i>Dendrobates</i>	<i>uakarii</i>	138	37	0.0062432	0.0026709	30	0.5320109	0.1835721	29	0.6671347	0.0599082
<i>Dendrobates</i>	<i>variabilis</i>	135	627	0.0014211	0.0005205	627	0.9537480	0.3816031	1128	0.4542413	0.2308406
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	520	0.0024704	0.0012615	520	0.8691429	0.3735810	505	0.6203865	0.2179025
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	355	0.0010000	0.0000000	355	0.7415254	0.2502100	565	0.4086796	0.2187823
<i>Dendrobates</i>	<i>virelinensis</i>	127	2210	0.0011166	0.0008833	1571	0.6512913	0.3595729	2170	0.2845081	0.2662268
<i>Epipedobates</i>	<i>anthonyi</i>	71	435	0.0099908	0.0029363	435	0.3398331	0.1112966	435	0.4813956	0.0743734

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Note Rise Time (s)			Middle Pulse-Note Shape			Middle Pulse-Note Duty		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Epipedobates</i>	<i>anthonyi</i>	70	1041	0.0099885	0.0032769	1021	0.3948542	0.1160797	1077	0.4856616	0.0943870
<i>Epipedobates</i>	<i>boulengeri</i>	67	252	0.0052976	0.0026933	240	0.3989530	0.2035503	253	0.5868460	0.0920582
<i>Epipedobates</i>	<i>espinosai</i>	69	738	0.0030591	0.0016475	738	0.3748180	0.1713293	723	0.3927811	0.1368654
<i>Epipedobates</i>	<i>machalilla</i>	73	331	0.0045992	0.0021072	331	0.2463988	0.1254379	332	0.3578173	0.0586020
<i>Epipedobates</i>	<i>machalilla</i>	72	3947	0.0036018	0.0012976	3947	0.2963875	0.1069409	3947	0.3668982	0.0642383
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	1350	0.0031696	0.0015417	1257	0.3442192	0.1293911	1329	0.3397777	0.0578523
<i>Epipedobates</i>	<i>tricolor</i>	74	776	0.0063170	0.0021451	755	0.3881905	0.1352924	783	0.4706379	0.0614968
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	149	0.0112416	0.0056779	143	0.4871435	0.2062897	147	0.1849552	0.0374478
<i>Hyloxalus</i>	<i>awa</i>	171	466	0.0211481	0.0095400	467	0.3398655	0.1674328	477	0.4083662	0.0748406
<i>Hyloxalus</i>	<i>azureiventris</i>	165	712	0.0042107	0.0019139	712	0.2779189	0.1199471	716	0.2447121	0.0802164
<i>Hyloxalus</i>	<i>bocagei</i>	151	574	0.0046307	0.0033126	580	0.1670728	0.1246736	592	0.3116478	0.0375284
<i>Hyloxalus</i>	<i>bocagei</i>	150	694	0.0110704	0.0051921	695	0.3941051	0.2012171	716	0.2970620	0.0932062
<i>Hyloxalus</i>	<i>craspedocephs</i>	166	127	0.0042992	0.0022967	120	0.7036508	0.3684331	147	0.8187156	0.1128423
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	76	0.0046184	0.0022684	75	0.6405382	0.3303245	85	0.7181105	0.1787721
<i>Hyloxalus</i>	<i>delatorreae</i>	162	194	0.0040361	0.0019271	184	0.5652876	0.2663732	190	0.6875553	0.1124038
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	286	0.0172762	0.0060845	284	0.3227474	0.1147484	321	0.0506490	0.0231093
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	153	0.0537320	0.0234378	165	0.4872597	0.2449803	164	0.1399832	0.0335010
<i>Hyloxalus</i>	<i>erythromos</i>	140	436	0.0028960	0.0013583	268	0.5215935	0.1948906	433	1.0293897	0.2664426
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	1607	0.0128245	0.0066472	1607	0.2102231	0.1111281	1596	0.1406837	0.0297927
<i>Hyloxalus</i>	<i>insulatus</i>	167	347	0.0245994	0.0155390	348	0.3076355	0.1977440	364	0.2055057	0.0531726
<i>Hyloxalus</i>	<i>italoi</i>	144	2286	0.0209930	0.0095407	2257	0.5282690	0.2372464	2273	0.4642462	0.1009102
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	113	0.1744867	0.0370049	114	0.5755009	0.1086809	106	0.0849689	0.0324374
<i>Hyloxalus</i>	<i>maculosus</i>	149	334	0.0144281	0.0070816	334	0.3157129	0.1567098	334	0.4482397	0.0572235
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	170	0.0391941	0.0175426	171	0.4498063	0.1675173	172	0.3458441	0.0894154
<i>Hyloxalus</i>	<i>nexipus</i>	154	827	0.0127074	0.0052577	806	0.4344829	0.1729922	829	0.4103654	0.0476349
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	151	0.0111854	0.0068444	126	0.3799853	0.2190058	150	0.3524227	0.0513674
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	472	0.0100983	0.0036252	472	0.4771532	0.1498212	471	0.2962881	0.0751507
<i>Hyloxalus</i>	<i>pulchellus</i>	160	41	0.0289512	0.0026547	38	0.4288477	0.0388004	39	0.1686456	0.0211704
<i>Hyloxalus</i>	<i>pulchellus</i>	159	215	0.0236744	0.0129216	216	0.3340474	0.1646552	150	0.1523539	0.0331105
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	160	0.0200063	0.0098316	149	0.4551098	0.2058757	152	0.3868192	0.0614877
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	73	0.0186027	0.0055521	74	0.3810879	0.1118532	73	0.0876784	0.0083101
<i>Hyloxalus</i>	<i>sauli</i>	148	7484	0.0040218	0.0014513	7483	0.2494545	0.0784443	7476	0.3037792	0.0413595
<i>Hyloxalus</i>	<i>sorditatus</i>	141	270	0.0281111	0.0134143	269	0.4311209	0.1919032	271	0.6091136	0.1074789
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	43	0.0088974	0.0022454	37	0.3545067	0.0942627	39	0.0275960	0.0045747
<i>Hyloxalus</i>	<i>toachi</i>	172	1115	0.0205112	0.0085844	1101	0.3321714	0.1395326	1108	0.1534447	0.0370988

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Pulse-Note Rise Time (s)			Middle Pulse-Note Shape			Middle Pulse-Note Duty		
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
<i>Hyloxalus</i>	<i>vertebralis</i>	157	246	0.0254553	0.0095445	243	0.3887869	0.1561679	245	0.1063271	0.0138274
<i>Hyloxalus</i>	<i>vertebralis</i>	158	300	0.0097700	0.0049082	301	0.1826414	0.0949628	295	0.0647460	0.0178695
<i>Hyloxalus</i>	<i>yasuni</i>	147	1110	0.0207838	0.0089411	1033	0.5186828	0.1664566	1032	0.4840162	0.0643395
<i>Hyloxalus</i>	<i>yasuni</i>	145	1943	0.0148188	0.0090733	1938	0.3383471	0.2312449	1927	0.5229896	0.1646768
<i>Hyloxalus</i>	<i>yasuni</i>	146	1899	0.0213802	0.0056058	1898	0.7261041	0.1773796	1905	0.4105204	0.0507083
<i>Mannophryne</i>	<i>urticans</i>	25	336	0.0070655	0.0025360	334	0.3988260	0.1405884	332	0.1886968	0.0257223
<i>Mannophryne</i>	<i>cordilleriana</i>	20	522	0.0085339	0.0041602	516	0.2220114	0.1727558	548	0.3771569	0.1009642
<i>Mannophryne</i>	<i>herminae</i>	19	427	0.0096492	0.0050342	427	0.3122038	0.1657710	427	0.4681340	0.1577356
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	116	0.0150948	0.0083385	116	0.3912028	0.1596673	116	0.5898703	0.0809944
<i>Mannophryne</i>	<i>leonardoi</i>	16	402	0.0091547	0.0045316	402	0.3008077	0.1548908	374	0.4630670	0.0800055
<i>Mannophryne</i>	<i>olmonae</i>	12	123	0.0509643	0.0099040	123	0.5930804	0.1092226	122	0.2623772	0.0337258
<i>Mannophryne</i>	<i>orellana</i>	22	194	0.0173196	0.0056834	182	0.4155466	0.1341204	176	0.4680275	0.0578802
<i>Mannophryne</i>	<i>orellana</i>	21	1548	0.0256658	0.0072095	1517	0.5323269	0.1415630	1498	0.3588589	0.0724711
<i>Mannophryne</i>	<i>riveroi</i>	13	251	0.0300996	0.0128041	256	0.2642270	0.1249779	272	0.3148628	0.0477743
<i>Mannophryne</i>	<i>trinitatis</i>	17	47	0.0241702	0.0069854	47	0.5366207	0.0987678	47	0.5967261	0.0455252
<i>Mannophryne</i>	<i>collaris</i>	23	680	0.0197897	0.0073454	646	0.4342811	0.1254702	648	0.3539728	0.0843142
<i>Mannophryne</i>	<i>collaris</i>	24	520	0.0182481	0.0064085	518	0.4821053	0.1509634	525	0.3356973	0.0514813
<i>Mannophryne</i>	<i>venezuelensis</i>	18	177	0.0241356	0.0080343	177	0.3116804	0.1067731	187	0.4740485	0.0658528
<i>Mannophryne</i>	<i>vulcano</i>	14	47	0.0099333	0.0035123	47	0.3938879	0.1170875	44	0.3920457	0.0360098
<i>Mannophryne</i>	<i>yustizi</i>	26	730	0.0062027	0.0026641	691	0.2590719	0.1024935	722	0.2790286	0.0361725
<i>Phyllobates</i>	<i>aurotaenia</i>	108	566	0.0150141	0.0035213	567	0.5166973	0.1386937	555	0.4478024	0.0873701
<i>Phyllobates</i>	<i>lugubris</i>	111	619	0.0123344	0.0024454	619	0.5596942	0.0927847	609	0.3195446	0.0384263
<i>Phyllobates</i>	<i>lugubris</i>	112	525	0.0112876	0.0038576	525	0.5307633	0.1753462	519	0.3388395	0.0699175
<i>Phyllobates</i>	<i>terribilis</i>	109	309	0.0199094	0.0100630	303	0.4377032	0.2055819	333	0.4623317	0.0650089
<i>Phyllobates</i>	<i>vittatus</i>	110	3704	0.0149104	0.0051660	3665	0.5436793	0.1778246	3653	0.3899438	0.0589196
<i>Rheobates</i>	<i>palmatus</i>	28	1885	0.0122318	0.0074812	1892	0.2685416	0.1563149	1912	0.4221010	0.0627023
<i>Rheobates</i>	<i>palmatus</i>	27	2194	0.0204434	0.0072812	2194	0.4752307	0.1594321	2187	0.4762717	0.0928472
<i>Silverstoneia</i>	<i>flotator</i>	62	593	0.0152142	0.0061010	586	0.3855525	0.1589454	589	0.1406392	0.0351323
<i>Silverstoneia</i>	<i>flotator</i>	63	372	0.0091048	0.0040111	379	0.3120902	0.1495699	378	0.1511110	0.0301316
<i>Silverstoneia</i>	<i>nubicola</i>	66	749	0.0107023	0.0048668	748	0.3711628	0.1422967	749	0.2658650	0.0592286
<i>Silverstoneia</i>	<i>nubicola</i>	65	243	0.0657695	0.0081583	242	0.7386071	0.1199067	243	0.2006989	0.0130564
<i>Silverstoneia</i>	<i>nubicola</i>	64	725	0.0070910	0.0032739	718	0.3471548	0.1643157	721	0.2496712	0.0641221
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	129	0.0092093	0.00233410	139	0.4084548	0.1214462	123	0.4073510	0.03694984
<i>Allobates</i>	<i>goianus</i>	NA	7	0.0230000	0.00412311	6	0.60970742	0.14554611	7	0.0929524	0.00668119
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	12	0.0697500	0.01763326	18	0.54047963	0.10193034	20	0.0340411	0.00612586

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Genus	Species	Phy ID	Initial Q1 (Hz)			Initial Peak Frequency (Hz)			Initial Q3 (Hz)			Initial Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Allobates</i>	<i>algorei</i>	60	65	4641.248	29.265	65	4997.162	120.777	65	5011.373	29.895	370.125
<i>Allobates</i>	<i>brunneus</i>	37	261	5315.127	69.603	261	5383.111	83.325	261	5493.356	60.232	178.230
<i>Allobates</i>	<i>caeruleodactylus</i>	48	488	6048.718	231.419	488	6083.891	170.529	488	6459.993	298.436	411.275
<i>Allobates</i>	<i>crombiei</i>	52	47	4827.066	25.133	47	4893.053	85.470	47	5017.694	68.317	190.628
<i>Allobates</i>	<i>femorialis</i>	43	192	3199.403	120.897	192	3292.474	150.348	192	3324.442	161.303	125.039
<i>Allobates</i>	<i>femorialis</i>	46	24	3445.300	0.000	24	3567.346	80.000	24	3631.950	48.617	186.650
<i>Allobates</i>	<i>femorialis</i>	44	15	2885.400	0.000	15	2932.092	22.193	15	3011.017	12.413	125.617
<i>Allobates</i>	<i>femorialis</i>	40	42	3327.587	34.413	42	3407.973	45.653	42	3647.365	112.801	319.779
<i>Allobates</i>	<i>femorialis</i>	41	249	3298.883	63.581	249	3406.543	60.219	249	3475.447	61.061	176.563
<i>Allobates</i>	<i>femorialis</i>	45	38	2758.994	24.698	38	2835.416	72.154	38	2895.135	21.426	136.142
<i>Allobates</i>	<i>granti</i>	49	51	5915.296	74.992	51	6064.776	120.502	51	6115.435	108.617	200.139
<i>Allobates</i>	<i>humilis</i>	59	21	4505.581	21.447	21	4542.476	22.006	21	4638.857	38.850	133.276
<i>Allobates</i>	<i>insperatus</i>	54	17	4663.835	241.106	17	4861.968	347.779	17	4907.178	324.132	243.342
<i>Allobates</i>	<i>aff. insperatus</i>	55	7	5371.000	192.134	7	5672.457	188.895	7	5679.388	168.284	308.388
<i>Allobates</i>	<i>juanii</i>	47	42	4096.433	240.672	44	4337.943	273.386	38	4401.837	287.980	305.404
<i>Allobates</i>	<i>kingsburyi</i>	39	56	4470.441	38.019	56	4572.725	51.356	56	4617.341	39.155	146.900
<i>Allobates</i>	<i>marchesianus</i>	50	326	5678.458	32.493	362	5681.402	189.681	120	6125.501	85.920	447.043
<i>Allobates</i>	<i>masniger</i>	58	98	4327.721	86.841	96	4528.692	145.654	97	4599.660	109.201	271.938
<i>Allobates</i>	<i>nidicola</i>	36	648	4477.318	183.482	648	4572.078	164.458	648	4631.220	147.350	153.902
<i>Allobates</i>	<i>olfersioides</i>	1	258	4892.547	75.777	258	4948.065	75.174	258	5002.040	86.648	109.493
<i>Allobates</i>	<i>ornatus</i>	51	60	5394.063	65.202	60	5438.560	60.434	60	5566.907	63.838	172.844
<i>Allobates</i>	<i>sp. Ducke</i>	61	801	5978.320	97.634	801	6261.783	121.810	800	6379.185	35.654	400.865
<i>Allobates</i>	<i>sp. Neblina</i>	29	7	4423.514	115.847	7	4626.543	102.074	9	4675.100	43.648	251.586
<i>Allobates</i>	<i>sp. Negro</i>	38	34	4307.894	83.128	41	4462.085	163.671	32	4581.175	141.262	273.281
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	11	4431.918	44.972	10	4776.070	68.693	11	4815.609	89.942	383.691
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	341	5402.860	99.279	341	5568.087	149.643	341	5653.471	80.772	250.611
<i>Allobates</i>	<i>talamancae</i>	34	34	3806.300	84.148	34	4055.818	168.123	33	4189.170	56.229	382.870
<i>Allobates</i>	<i>talamancae</i>	32	15	3864.500	55.122	15	4039.613	142.087	13	4164.177	163.410	299.677
<i>Allobates</i>	<i>talamancae</i>	35	22	3969.941	57.391	21	4253.314	101.838	22	4306.632	91.126	336.691
<i>Allobates</i>	<i>talamancae</i>	31	33	4130.458	125.726	33	4285.758	148.058	33	4370.582	110.395	240.124
<i>Allobates</i>	<i>talamancae</i>	33	27	3890.630	73.541	28	4118.300	197.517	27	4258.678	110.063	368.048
<i>Allobates</i>	<i>talamancae</i>	30	43	4266.698	179.949	43	4428.051	110.346	43	4683.149	242.248	416.451
<i>Allobates</i>	<i>trilineatus</i>	56	153	5031.611	21.843	153	5185.933	94.006	153	5276.842	30.001	245.231
<i>Allobates</i>	<i>zaparo</i>	42	30	2883.997	52.412	30	2952.900	67.551	30	3125.163	156.587	241.167
<i>Ameerega</i>	<i>altamazonica</i>	103	447	4464.265	193.868	447	4587.365	260.568	447	4662.892	184.192	198.627

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Q1 (Hz)			Initial Peak Frequency (Hz)			Initial Q3 (Hz)			Initial Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Ameerega</i>	<i>bassleri</i>	89	7	2610.971	62.560	7	2845.957	64.682	7	2839.271	53.138	228.300
<i>Ameerega</i>	<i>bilinguis</i>	87	1882	5145.864	58.950	1882	5229.779	90.421	1882	5352.494	98.009	206.630
<i>Ameerega</i>	<i>braccata</i>	94	79	3940.278	28.339	79	3979.547	38.726	79	4057.486	29.801	117.208
<i>Ameerega</i>	<i>cainarachi</i>	102	32	3582.584	44.352	32	3654.479	36.523	32	3730.421	62.430	147.836
<i>Ameerega</i>	<i>flavopicta</i>	95	59	3058.431	12.633	59	3108.677	24.411	59	3127.490	21.046	69.059
<i>Ameerega</i>	<i>hahneli</i>	96	40	3776.880	81.713	40	3867.745	86.798	40	3906.103	44.900	129.223
<i>Ameerega</i>	<i>hahneli</i>	97	1650	4263.090	231.408	1650	4296.196	228.141	1650	4403.805	238.830	140.715
<i>Ameerega</i>	<i>hahneli</i>	98	146	4466.799	32.294	146	4535.637	40.499	146	4590.624	36.592	123.826
<i>Ameerega</i>	<i>hahneli</i>	99	594	4452.344	21.871	594	4487.172	18.757	594	4520.111	13.348	67.766
<i>Ameerega</i>	<i>ignipedis</i>	90	20	4526.280	33.930	22	4651.200	0.000	22	4784.264	73.862	257.984
<i>Ameerega</i>	<i>parvula</i>	86	91	3867.435	123.869	91	3933.753	97.251	91	4056.773	112.724	189.337
<i>Ameerega</i>	<i>petersi</i>	101	21	3314.052	187.952	21	3469.914	82.375	21	3547.114	101.713	233.061
<i>Ameerega</i>	<i>picta</i>	91	46	4096.922	14.676	46	4119.409	20.755	46	4213.941	15.652	117.020
<i>Ameerega</i>	<i>picta</i>	92	1212	4096.159	80.946	1212	4155.137	87.481	1212	4282.587	69.540	186.428
<i>Ameerega</i>	<i>picta</i>	93	322	4558.149	24.310	322	4589.328	24.394	322	4613.916	27.049	55.767
<i>Ameerega</i>	<i>pongoensis</i>	88	7	4146.686	40.954	7	4214.371	57.931	7	4269.743	76.344	123.057
<i>Ameerega</i>	<i>silverstonei</i>	85	27	2412.859	26.698	27	2438.804	13.883	27	2467.911	19.396	55.052
<i>Ameerega</i>	<i>smaragdina</i>	100	47	3448.060	43.457	47	3514.026	27.885	47	3592.828	47.311	144.768
<i>Ameerega</i>	<i>trivittata</i>	105	3	2354.300	89.664	3	2454.767	74.594	3	2526.567	124.304	172.267
<i>Ameerega</i>	<i>trivittata</i>	107	6	2519.383	70.772	6	2555.300	80.198	6	2598.350	70.313	78.967
<i>Ameerega</i>	<i>trivittata</i>	106	38	2523.929	52.545	38	2569.271	63.563	38	2611.208	50.477	87.279
<i>Ameerega</i>	<i>trivittata</i>	104	4	2444.025	41.265	4	2487.125	21.550	4	2584.000	35.191	139.975
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	19	5313.037	74.884	19	5378.758	73.051	19	5419.553	73.570	106.516
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	32	4605.409	66.482	32	4641.734	61.622	32	4668.659	54.533	63.250
<i>Anomaloglossus</i>	<i>rufulus</i>	5	2	3079.250	152.240	2	3294.550	30.476	3	3258.700	138.433	179.450
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	22	4153.950	80.547	22	4189.186	78.837	22	4224.405	82.901	70.455
<i>Aromobates</i>	<i>meridensis</i>	7	3	2655.767	89.608	3	2684.467	108.367	3	2756.233	74.594	100.467
<i>Aromobates</i>	<i>saltuensis</i>	11	113	3885.868	50.166	113	3919.021	48.369	113	3937.042	46.080	51.174
<i>Aromobates</i>	<i>cannatellai</i>	9	122	3201.034	33.897	122	3219.048	23.873	122	3239.150	30.927	38.116
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	304	3450.775	50.430	304	3474.021	63.785	304	3582.024	64.964	131.249
<i>Aromobates</i>	<i>ericksonae</i>	8	185	4019.165	56.347	185	4051.465	80.639	185	4150.508	89.217	131.343
<i>Aromobates</i>	<i>ornatissimus</i>	6	21	3086.410	102.221	21	3100.776	107.244	21	3129.505	106.663	43.095
<i>Colostethus</i>	<i>argyrogaster</i>	83	23	4932.043	38.657	29	5086.450	189.115	26	5330.296	87.250	398.253
<i>Colostethus</i>	<i>fraterdanieli</i>	81	260	3438.852	61.791	260	3501.936	67.065	260	3547.490	34.981	108.638
<i>Colostethus</i>	<i>fraterdanieli</i>	82	430	4096.017	49.990	430	4169.304	49.360	430	4185.633	35.432	89.616

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Initial Q1 (Hz)			Initial Peak Frequency (Hz)			Initial Q3 (Hz)			Initial Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Colostethus</i>	<i>fugax</i>	84	169	4693.209	129.361	169	4838.923	180.455	169	4930.967	149.430	237.758
<i>Colostethus</i>	<i>panamansis</i>	76	40	3492.665	43.389	40	3539.366	55.624	40	3636.468	47.220	143.803
<i>Colostethus</i>	<i>panamansis</i>	75	43	3847.900	65.701	43	3912.023	70.284	43	4027.719	45.844	179.819
<i>Colostethus</i>	<i>pratti</i>	80	22	4153.735	60.049	22	4257.705	104.894	22	4310.559	100.265	156.824
<i>Colostethus</i>	<i>pratti</i>	79	9	4066.714	60.171	9	4277.911	98.671	9	4359.256	90.782	292.541
<i>Colostethus</i>	<i>pratti</i>	77	4	3919.050	60.905	4	4134.400	0.000	4	4155.900	55.590	236.850
<i>Colostethus</i>	aff. <i>pratti</i>	78	34	4494.103	47.276	34	4838.818	132.194	34	4837.374	83.302	343.271
<i>Dendrobates</i>	<i>auratus</i>	116	5	2816.540	165.653	10	3092.160	387.239	7	3420.686	277.824	604.146
<i>Dendrobates</i>	<i>bombetes</i>	126	30	4243.470	146.460	30	4443.252	148.356	30	4708.586	125.784	465.116
<i>Dendrobates</i>	<i>captivus</i>	125	71	5422.735	298.177	76	5780.234	142.986	76	5867.528	122.094	444.793
<i>Dendrobates</i>	<i>castaneoticus</i>	114	31	3989.890	109.847	35	4247.563	150.298	33	4426.688	80.411	436.798
<i>Dendrobates</i>	<i>claudiae</i>	130	4	5727.850	586.315	4	5994.860	373.459	4	6201.540	243.616	473.690
<i>Dendrobates</i>	<i>defleri</i>	133	24	5203.850	143.475	24	5452.846	228.236	24	5719.220	263.149	515.370
<i>Dendrobates</i>	<i>fantasticus</i>	137	11	3116.427	143.174	14	3273.007	67.562	9	3617.567	227.884	501.139
<i>Dendrobates</i>	<i>galactonotus</i>	113	35	2625.000	0.000	35	2700.000	152.190	35	3042.857	121.051	417.857
<i>Dendrobates</i>	<i>granuliferus</i>	119	950	3816.616	160.019	950	3997.386	79.495	950	4055.255	54.665	238.639
<i>Dendrobates</i>	<i>histrionicus</i>	121	357	2433.926	197.530	357	2694.898	90.953	357	2787.035	75.005	353.109
<i>Dendrobates</i>	<i>imitator</i>	131	61	5289.403	157.155	61	5452.960	106.014	61	5621.137	98.993	331.734
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	7	4435.829	218.197	11	4702.073	106.915	5	4849.280	78.218	413.451
<i>Dendrobates</i>	<i>leucomelas</i>	118	110	2717.064	72.494	113	2794.327	96.946	108	2893.402	80.779	176.338
<i>Dendrobates</i>	<i>minutus</i>	128	2	5469.450	60.882	2	5706.300	152.311	2	5727.850	121.834	258.400
<i>Dendrobates</i>	<i>mysteriosus</i>	124	21	3082.576	129.137	21	3355.832	88.779	21	3470.721	76.314	388.145
<i>Dendrobates</i>	<i>pumilio</i>	123	585	4766.597	223.979	585	5094.362	230.894	566	5340.523	148.337	573.926
<i>Dendrobates</i>	<i>pumilio</i>	122	144	3664.719	185.830	144	4014.973	39.788	144	4157.674	89.909	492.955
<i>Dendrobates</i>	<i>reticulatus</i>	136	34	3784.753	107.988	36	4225.275	112.647	55	4422.511	81.591	637.758
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	33	5361.115	170.948	32	5717.059	154.299	32	6002.375	139.141	641.260
<i>Dendrobates</i>	<i>sylvaticus</i>	120	314	3030.001	143.111	314	3388.061	147.440	314	3524.995	89.364	494.994
<i>Dendrobates</i>	<i>tinctorius</i>	117	25	2368.668	54.193	25	2911.276	128.603	25	3006.024	49.725	637.356
<i>Dendrobates</i>	<i>truncatus</i>	115	17	3141.994	110.710	17	3303.312	186.658	20	3510.920	152.766	368.926
<i>Dendrobates</i>	<i>uakarii</i>	138	4	3585.275	162.584	4	3919.025	126.792	4	3972.875	95.493	387.600
<i>Dendrobates</i>	<i>variabilis</i>	135	97	4546.399	84.544	161	4803.237	265.096	128	5201.612	131.583	655.213
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	54	4402.341	196.677	54	4637.762	228.030	54	4909.557	220.206	507.216
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	148	3962.096	98.819	166	4366.828	208.892	132	4554.924	94.565	592.828
<i>Dendrobates</i>	<i>virolinensis</i>	127	127	4420.576	272.994	150	4678.733	438.215	77	5132.171	192.273	711.596
<i>Epipedobates</i>	<i>anthonyi</i>	71	50	3972.434	98.648	50	4031.008	99.590	50	4092.184	83.631	119.750

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Genus	Species	Phy ID	Initial Q1 (Hz)			Initial Peak Frequency (Hz)			Initial Q3 (Hz)			Initial Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Epipedobates</i>	<i>anthonyi</i>	70	106	3977.133	298.851	121	4136.151	267.595	120	4224.807	150.994	247.674
<i>Epipedobates</i>	<i>boulengeri</i>	67	36	4895.214	119.615	36	5002.032	111.760	36	5094.992	102.339	199.778
<i>Epipedobates</i>	<i>espinosai</i>	69	106	5198.021	378.635	106	5400.700	173.682	106	5498.983	265.753	300.963
<i>Epipedobates</i>	<i>machalilla</i>	73	51	5730.359	86.309	51	5794.156	83.093	51	5844.118	76.982	113.759
<i>Epipedobates</i>	<i>machalilla</i>	72	42	5637.595	108.372	47	5700.345	104.124	55	5790.714	141.967	153.119
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	37	4427.692	286.904	37	4550.971	384.338	37	4727.629	245.870	299.937
<i>Epipedobates</i>	<i>tricolor</i>	74	14	3826.757	281.077	14	3922.107	220.548	14	3995.936	204.928	169.179
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	12	6061.600	211.094	12	6176.442	156.314	12	6294.867	106.807	233.267
<i>Hyloxalus</i>	<i>awa</i>	171	11	4435.800	0.000	11	4545.455	22.456	11	4565.000	0.000	129.200
<i>Hyloxalus</i>	<i>azureiventris</i>	165	10	3992.260	29.069	14	4106.686	46.586	14	4291.257	465.255	298.997
<i>Hyloxalus</i>	<i>bocagei</i>	151	43	4518.979	426.595	43	4638.147	86.405	43	4760.333	104.370	241.353
<i>Hyloxalus</i>	<i>bocagei</i>	150	40	4441.203	31.125	40	4481.053	41.312	40	4593.020	35.918	151.818
<i>Hyloxalus</i>	<i>craspedocephs</i>	166	100	5364.774	198.188	100	5397.080	184.742	100	5451.350	193.107	86.576
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	16	4236.338	44.862	16	4291.988	41.820	16	4315.431	57.964	79.094
<i>Hyloxalus</i>	<i>delatorreae</i>	162	43	4183.879	67.935	43	4216.574	68.580	43	4269.986	93.074	86.107
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	323	4635.855	22.281	323	4759.092	95.560	323	4812.749	45.062	176.894
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	78	4500.438	44.854	78	4937.115	124.582	78	4949.268	51.224	448.829
<i>Hyloxalus</i>	<i>erythromos</i>	140	81	4132.258	59.330	81	4179.041	65.467	81	4327.941	83.439	195.683
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	19	4431.300	62.406	20	4500.435	113.088	17	4565.041	69.784	133.741
<i>Hyloxalus</i>	<i>insulatus</i>	167	202	4180.850	41.717	202	4268.237	123.148	202	4361.612	74.832	180.762
<i>Hyloxalus</i>	<i>italoi</i>	144	30	3260.117	54.416	30	3349.110	74.732	30	3402.223	39.175	142.107
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	92	2764.670	323.992	92	3114.242	92.226	92	3718.645	539.012	953.975
<i>Hyloxalus</i>	<i>maculosus</i>	149	55	3930.775	74.809	60	4056.865	86.442	60	4120.042	48.023	189.267
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	10	4431.530	91.814	10	4534.880	121.886	10	4593.742	123.641	162.212
<i>Hyloxalus</i>	<i>nexipus</i>	154	42	5200.786	157.958	39	5406.487	211.404	38	5580.495	181.520	379.709
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	7	5176.357	168.681	18	5378.900	167.615	18	5478.500	80.947	302.143
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	43	5587.623	226.158	43	5636.688	226.946	43	5682.615	232.822	94.992
<i>Hyloxalus</i>	<i>pulchellus</i>	160	26	4278.465	20.893	26	4350.538	59.828	26	4390.277	22.224	111.812
<i>Hyloxalus</i>	<i>pulchellus</i>	159	66	4019.978	93.746	66	4079.310	82.889	66	4118.055	97.853	98.076
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	14	3992.879	31.289	14	4031.677	33.052	14	4096.688	27.621	103.809
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	80	4088.069	22.506	80	4156.976	41.086	80	4204.873	33.754	116.804
<i>Hyloxalus</i>	<i>sauli</i>	148	19	3445.300	49.729	19	3499.695	77.098	19	3563.731	65.785	118.431
<i>Hyloxalus</i>	<i>sorditatus</i>	141	9	2635.680	56.700	9	2661.500	44.453	9	2691.650	24.884	55.970
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	25	4594.320	38.767	25	4627.060	33.097	25	4651.172	32.880	56.852
<i>Hyloxalus</i>	<i>toachi</i>	172	10	4151.610	146.670	10	4194.670	205.230	9	4368.833	127.588	217.223

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			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Hyloxalus</i>	<i>vertebralis</i>	157	247	3795.753	38.955	247	3850.872	38.062	247	3879.141	44.078	83.388
<i>Hyloxalus</i>	<i>vertebralis</i>	158	126	4407.133	20.351	126	4444.016	22.931	126	4476.506	18.331	69.372
<i>Hyloxalus</i>	<i>yasuni</i>	147	110	3255.028	72.486	132	3349.975	88.071	132	3365.599	88.052	110.571
<i>Hyloxalus</i>	<i>yasuni</i>	145	45	3447.202	113.932	45	3533.340	72.866	45	3647.236	150.547	200.033
<i>Hyloxalus</i>	<i>yasuni</i>	146	55	3769.838	130.097	55	3840.604	160.124	55	3937.816	133.841	167.979
<i>Mannophryne</i>	<i>urticans</i>	25	37	3403.389	74.943	37	3445.300	40.611	37	3664.573	108.699	261.184
<i>Mannophryne</i>	<i>cordilleriana</i>	20	20	2825.140	141.385	20	2859.580	86.602	20	2954.345	170.247	129.205
<i>Mannophryne</i>	<i>herminae</i>	19	424	4015.415	123.572	424	4070.172	124.022	424	4126.736	117.510	111.320
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	110	4142.195	236.549	110	4293.456	248.213	110	4625.935	152.692	483.741
<i>Mannophryne</i>	<i>leonardoi</i>	16	126	4066.346	72.349	126	4170.945	82.437	126	4225.625	58.065	159.279
<i>Mannophryne</i>	<i>olmonae</i>	12	73	3867.516	45.619	73	3982.135	23.883	73	3995.427	27.531	127.910
<i>Mannophryne</i>	<i>orellana</i>	22	70	3161.057	119.675	70	3238.339	116.690	70	3281.900	103.786	120.843
<i>Mannophryne</i>	<i>orellana</i>	21	307	3038.772	116.306	307	3085.565	120.346	307	3158.459	117.086	119.687
<i>Mannophryne</i>	<i>riveroi</i>	13	112	2793.139	133.690	112	2858.982	116.233	112	2971.576	133.861	178.437
<i>Mannophryne</i>	<i>trinitatis</i>	17	38	3906.658	114.441	38	4150.805	94.331	38	4164.677	69.334	258.019
<i>Mannophryne</i>	<i>collaris</i>	23	133	3058.022	81.351	133	3095.341	94.909	133	3160.397	62.400	102.375
<i>Mannophryne</i>	<i>collaris</i>	24	82	3071.359	67.622	82	3133.855	69.443	82	3184.823	63.419	113.464
<i>Mannophryne</i>	<i>venezuelensis</i>	18	9	4163.089	113.945	9	4282.722	169.708	9	4316.222	126.989	153.133
<i>Mannophryne</i>	<i>vulcano</i>	14	46	4342.204	97.489	46	4420.852	117.411	46	4462.404	95.696	120.200
<i>Mannophryne</i>	<i>yustizi</i>	26	84	3560.167	111.353	84	3639.867	124.063	84	3720.490	114.376	160.324
<i>Phyllobates</i>	<i>aurotaenia</i>	108	31	3345.255	97.205	31	3450.855	104.169	31	3539.784	97.851	194.529
<i>Phyllobates</i>	<i>lugubris</i>	111	19	4270.368	219.249	19	4460.763	139.443	17	4529.576	146.261	259.208
<i>Phyllobates</i>	<i>lugubris</i>	112	12	4076.958	112.207	12	4183.586	125.091	12	4270.859	107.563	193.901
<i>Phyllobates</i>	<i>terribilis</i>	109	9	1914.044	57.433	9	2009.767	86.150	9	2220.356	57.433	306.311
<i>Phyllobates</i>	<i>vittatus</i>	110	104	3330.185	204.528	104	3472.669	199.501	104	3558.494	178.088	228.310
<i>Rheobates</i>	<i>palmatus</i>	28	33	2522.661	71.450	33	2552.700	71.647	33	2563.142	71.520	40.482
<i>Rheobates</i>	<i>palmatus</i>	27	45	2328.482	53.860	45	2348.114	49.568	45	2364.833	53.386	36.351
<i>Silverstoneia</i>	<i>flotator</i>	62	13	6175.062	100.282	14	6244.629	140.307	14	6318.457	97.653	143.396
<i>Silverstoneia</i>	<i>flotator</i>	63	23	6392.561	64.712	22	6477.605	82.642	23	6547.987	65.555	155.426
<i>Silverstoneia</i>	<i>nubicola</i>	66	14	4878.821	39.369	14	4946.507	55.657	14	4992.621	35.719	113.800
<i>Silverstoneia</i>	<i>nubicola</i>	65	7	5850.886	67.773	7	6010.843	78.065	7	6017.000	59.415	166.114
<i>Silverstoneia</i>	<i>nubicola</i>	64	15	5808.227	138.014	13	5916.654	81.603	14	5992.386	84.215	184.159
<i>Anomaloglossus</i>	<i>stephensi</i>	NA	25	4168.124	84.428	25	4205.636	87.200	25	4228.140	86.648	60.016
<i>Allobates</i>	<i>goianus</i>	NA	8	4941.863	71.891	8	5119.525	122.774	8	5189.488	32.533	247.625
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	13	3735.569	29.567	13	3894.238	86.572	13	3951.931	29.567	216.362



Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Q1 (Hz)			Middle Peak Frequency (Hz)			Middle Q3 (Hz)			Middle Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Allobates</i>	<i>algorei</i>	60	65	4641.248	29.265	65	4997.162	120.777	65	5011.373	29.895	370.125
<i>Allobates</i>	<i>brunneus</i>	37	261	5315.127	69.603	261	5383.111	83.325	261	5493.356	60.232	178.230
<i>Allobates</i>	<i>caeruleodactylus</i>	48	488	6048.718	231.419	488	6083.891	170.529	488	6459.993	298.436	411.275
<i>Allobates</i>	<i>crombiei</i>	52	615	4901.005	85.795	615	4909.690	86.779	615	5232.960	98.410	331.955
<i>Allobates</i>	<i>femorialis</i>	43	586	3364.729	32.865	586	3436.965	39.204	586	3580.058	54.184	215.329
<i>Allobates</i>	<i>femorialis</i>	46	48	3560.167	82.083	48	3707.290	106.520	48	3840.054	79.144	279.888
<i>Allobates</i>	<i>femorialis</i>	44	30	2932.092	12.168	30	2993.096	47.509	30	3161.775	50.670	229.683
<i>Allobates</i>	<i>femorialis</i>	40	84	3390.747	96.957	84	3652.020	204.090	84	3786.519	98.905	395.773
<i>Allobates</i>	<i>femorialis</i>	41	249	3392.173	41.830	249	3505.587	129.243	249	3779.783	59.510	387.610
<i>Allobates</i>	<i>femorialis</i>	45	76	2859.039	37.984	76	3071.597	120.479	76	3143.845	56.701	284.806
<i>Allobates</i>	<i>granti</i>	49	51	6025.082	73.219	51	6150.902	103.604	51	6204.102	80.525	179.020
<i>Allobates</i>	<i>humilis</i>	59	21	4505.581	21.447	21	4542.476	22.006	21	4638.857	38.850	133.276
<i>Allobates</i>	<i>insperatus</i>	54	65	5028.851	23.807	65	5338.798	109.859	65	5423.729	32.186	394.878
<i>Allobates</i>	<i>aff. insperatus</i>	55	43	5765.891	23.428	43	5990.244	86.031	43	6061.367	37.698	295.477
<i>Allobates</i>	<i>juanii</i>	47	64	4313.705	334.991	64	4463.417	327.563	64	4582.114	362.831	268.409
<i>Allobates</i>	<i>kingsburyi</i>	39	56	4525.054	50.518	56	4594.544	54.751	56	4658.225	52.904	133.172
<i>Allobates</i>	<i>marchesianus</i>	50	326	5678.458	32.493	326	5681.402	189.681	326	6125.501	85.920	447.043
<i>Allobates</i>	<i>masniger</i>	58	479	4332.791	58.035	479	4552.946	198.989	479	4732.441	50.669	399.651
<i>Allobates</i>	<i>nidicola</i>	36	648	4477.318	183.482	648	4572.078	164.458	648	4631.220	147.350	153.902
<i>Allobates</i>	<i>olfersioides</i>	1	258	4892.547	75.777	258	4948.065	75.174	258	5002.040	86.648	109.493
<i>Allobates</i>	<i>ornatus</i>	51	60	5394.063	65.202	60	5438.560	60.434	60	5566.907	63.838	172.844
<i>Allobates</i>	<i>sp. Ducke</i>	61	801	5978.320	97.634	801	6261.783	121.810	800	6379.185	35.654	400.865
<i>Allobates</i>	<i>sp. Neblina</i>	29	7	4423.514	115.847	7	4626.543	102.074	9	4675.100	43.648	251.586
<i>Allobates</i>	<i>sp. Negro</i>	38	985	4502.598	92.011	987	4705.666	259.899	965	4953.082	193.538	450.484
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	34	4494.109	29.782	32	4849.019	71.611	32	4898.159	42.807	404.050
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	341	5402.860	99.279	341	5568.087	149.643	341	5653.471	80.772	250.611
<i>Allobates</i>	<i>talamancae</i>	34	33	3998.648	45.830	34	4126.762	71.498	34	4252.174	59.336	253.525
<i>Allobates</i>	<i>talamancae</i>	32	14	3934.414	46.597	14	4214.357	113.134	13	4266.877	90.439	332.463
<i>Allobates</i>	<i>talamancae</i>	35	8	4010.550	35.923	7	4183.586	84.052	8	4242.025	51.479	231.475
<i>Allobates</i>	<i>talamancae</i>	31	33	4139.582	87.964	32	4297.222	156.127	30	4468.863	76.446	329.282
<i>Allobates</i>	<i>talamancae</i>	33	28	3970.986	110.363	29	4137.928	185.346	31	4271.671	127.920	300.685
<i>Allobates</i>	<i>talamancae</i>	30	41	4441.700	212.948	41	4650.924	299.867	40	4908.985	258.905	467.285
<i>Allobates</i>	<i>trilineatus</i>	56	153	5248.111	34.400	153	5451.472	198.402	153	5589.050	38.665	340.939
<i>Allobates</i>	<i>zaparo</i>	42	30	2934.247	40.374	30	3001.707	99.984	30	3232.823	122.832	298.577
<i>Ameerega</i>	<i>altamazonica</i>	103	447	4464.265	193.868	447	4587.365	260.568	447	4662.892	184.192	198.627

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Q1 (Hz)			Middle Peak Frequency (Hz)			Middle Q3 (Hz)			Middle Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Ameerega</i>	<i>bassleri</i>	89	67	2758.211	17.533	67	2894.342	55.532	67	2899.225	47.043	141.015
<i>Ameerega</i>	<i>bilinguis</i>	87	1882	5182.090	75.028	1873	5250.792	109.247	1882	5405.154	152.431	223.063
<i>Ameerega</i>	<i>braccata</i>	94	79	3940.278	28.339	79	3979.547	38.726	79	4057.486	29.801	117.208
<i>Ameerega</i>	<i>cainarachi</i>	102	435	3622.519	37.897	435	3681.961	80.639	435	3792.810	60.286	170.291
<i>Ameerega</i>	<i>flavopicta</i>	95	483	3280.075	103.651	483	3315.118	104.217	483	3340.765	100.975	60.691
<i>Ameerega</i>	<i>hahneli</i>	96	40	3776.880	81.713	40	3867.745	86.798	40	3906.103	44.900	129.223
<i>Ameerega</i>	<i>hahneli</i>	97	1650	4263.090	231.408	1650	4296.196	228.141	1650	4403.805	238.830	140.715
<i>Ameerega</i>	<i>hahneli</i>	98	146	4466.799	32.294	146	4535.637	40.499	146	4590.624	36.592	123.826
<i>Ameerega</i>	<i>hahneli</i>	99	594	4452.344	21.871	594	4487.172	18.757	594	4520.111	13.348	67.766
<i>Ameerega</i>	<i>ignipedis</i>	90	20	4526.280	33.930	22	4651.200	0.000	22	4784.264	73.862	257.984
<i>Ameerega</i>	<i>parvula</i>	86	666	3968.309	44.888	666	4003.752	73.824	666	4124.480	40.166	156.171
<i>Ameerega</i>	<i>petersi</i>	101	244	3436.120	38.776	244	3582.580	69.478	244	3609.195	37.191	173.075
<i>Ameerega</i>	<i>picta</i>	91	46	4096.922	14.676	46	4119.409	20.755	46	4213.941	15.652	117.020
<i>Ameerega</i>	<i>picta</i>	92	1212	4096.159	80.946	1212	4155.137	87.481	1212	4282.587	69.540	186.428
<i>Ameerega</i>	<i>picta</i>	93	322	4558.149	24.310	322	4589.328	24.394	322	4613.916	27.049	55.767
<i>Ameerega</i>	<i>pongoensis</i>	88	7	4146.686	40.954	7	4214.371	57.931	7	4269.743	76.344	123.057
<i>Ameerega</i>	<i>silverstonei</i>	85	160	2413.970	29.342	172	2436.337	29.667	172	2472.554	31.139	58.584
<i>Ameerega</i>	<i>smaragdina</i>	100	47	3515.860	32.887	47	3566.234	89.631	47	3685.377	69.978	169.517
<i>Ameerega</i>	<i>trivittata</i>	105	92	2389.748	55.841	92	2447.784	57.555	92	2496.930	56.017	107.183
<i>Ameerega</i>	<i>trivittata</i>	107	109	2589.931	25.879	109	2653.135	29.875	109	2679.601	27.084	89.670
<i>Ameerega</i>	<i>trivittata</i>	106	514	2581.322	38.519	514	2623.134	39.550	514	2678.168	37.065	96.846
<i>Ameerega</i>	<i>trivittata</i>	104	69	2451.678	23.725	69	2510.358	24.584	69	2560.197	28.347	108.519
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	255	5459.300	51.401	255	5507.940	56.177	255	5543.401	55.618	84.101
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	32	4605.409	66.482	32	4641.734	61.622	32	4668.659	54.533	63.250
<i>Anomaloglossus</i>	<i>rufulus</i>	5	12	3265.833	60.452	13	3326.054	43.631	18	3347.222	28.828	81.389
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	1476	4298.840	44.968	1476	4331.791	47.481	1476	4354.319	40.983	55.478
<i>Aromobates</i>	<i>meridensis</i>	7	17	2801.835	18.479	17	2834.794	16.936	17	2842.394	15.220	40.559
<i>Aromobates</i>	<i>saltuensis</i>	11	112	3929.410	34.798	112	3950.565	35.161	112	3970.723	36.359	41.313
<i>Aromobates</i>	<i>cannatellai</i>	9	122	3201.034	33.897	122	3219.048	23.873	122	3239.150	30.927	38.116
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	304	3450.775	50.430	304	3474.021	63.785	304	3582.024	64.964	131.249
<i>Aromobates</i>	<i>ericksonae</i>	8	185	4220.493	99.450	185	4307.718	97.765	185	4354.000	102.659	133.508
<i>Aromobates</i>	<i>ornatissimus</i>	6	21	3086.410	102.221	21	3100.776	107.244	21	3129.505	106.663	43.095
<i>Colostethus</i>	<i>argyrogaster</i>	83	23	4932.043	38.657	29	5086.450	189.115	26	5330.296	87.250	398.253
<i>Colostethus</i>	<i>fraterdanieli</i>	81	260	3438.852	61.791	260	3501.936	67.065	260	3547.490	34.981	108.638
<i>Colostethus</i>	<i>fraterdanieli</i>	82	430	4096.017	49.990	430	4169.304	49.360	430	4185.633	35.432	89.616

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Genus	Species	Phy ID	Middle Q1 (Hz)			Middle Peak Frequency (Hz)			Middle Q3 (Hz)			Middle Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Colostethus</i>	<i>fugax</i>	84	169	4693.209	129.361	169	4838.923	180.455	169	4930.967	149.430	237.758
<i>Colostethus</i>	<i>panamansis</i>	76	66	3813.980	55.075	66	3851.182	62.314	66	3965.581	48.901	151.600
<i>Colostethus</i>	<i>panamansis</i>	75	55	4144.545	112.417	55	4282.531	158.802	55	4399.652	113.236	255.107
<i>Colostethus</i>	<i>pratti</i>	80	60	4168.406	59.460	60	4247.579	68.089	60	4318.843	62.987	150.437
<i>Colostethus</i>	<i>pratti</i>	79	127	4079.091	75.941	127	4260.115	95.773	127	4318.161	92.787	239.071
<i>Colostethus</i>	<i>pratti</i>	77	19	3907.700	42.665	19	4134.373	74.577	19	4138.905	47.383	231.205
<i>Colostethus</i>	aff. <i>pratti</i>	78	164	4544.124	49.510	164	4734.930	145.166	164	4806.054	81.793	261.930
<i>Dendrobates</i>	<i>auratus</i>	116	251	2828.639	164.654	251	3016.355	147.481	251	3167.508	106.061	338.869
<i>Dendrobates</i>	<i>bombetes</i>	126	2533	4604.525	126.822	2533	4797.654	156.330	2533	4980.304	135.054	375.779
<i>Dendrobates</i>	<i>captivus</i>	125	165	5395.558	144.868	275	5492.067	370.632	275	5665.707	132.527	270.150
<i>Dendrobates</i>	<i>castaneoticus</i>	114	621	3991.788	78.460	649	4198.731	127.150	629	4442.467	129.509	450.679
<i>Dendrobates</i>	<i>claudiae</i>	130	144	6365.431	51.244	144	6492.256	80.142	144	6562.851	82.316	197.420
<i>Dendrobates</i>	<i>defleri</i>	133	210	5314.793	157.368	210	5479.661	267.084	210	5835.496	343.205	520.703
<i>Dendrobates</i>	<i>fantasticus</i>	137	210	2775.071	65.800	212	3051.986	237.488	265	3280.814	92.092	505.743
<i>Dendrobates</i>	<i>galactonotus</i>	113	600	2624.375	15.309	600	2998.125	40.495	593	3197.934	187.367	573.559
<i>Dendrobates</i>	<i>granuliferus</i>	119	1432	3914.521	75.804	1432	4035.620	54.479	1432	4140.841	106.364	226.320
<i>Dendrobates</i>	<i>histrionicus</i>	121	498	2618.225	95.659	498	2746.211	112.731	498	2887.639	87.936	269.413
<i>Dendrobates</i>	<i>imitator</i>	131	521	5483.071	50.284	521	5588.986	64.703	521	5715.077	54.339	232.005
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	95	4624.417	305.511	95	4766.025	181.015	95	4927.427	209.119	303.010
<i>Dendrobates</i>	<i>leucomelas</i>	118	2566	2765.340	78.950	2566	2845.173	105.226	2555	2936.457	83.411	171.117
<i>Dendrobates</i>	<i>minutus</i>	128	84	5849.856	165.496	84	6001.712	104.743	84	6101.889	59.359	252.033
<i>Dendrobates</i>	<i>mysteriosus</i>	124	284	3244.436	145.481	284	3422.378	95.124	284	3505.307	74.863	260.872
<i>Dendrobates</i>	<i>pumilio</i>	123	1154	4980.476	140.881	1154	5199.322	133.036	1152	5346.048	98.410	365.571
<i>Dendrobates</i>	<i>pumilio</i>	122	333	3825.317	147.056	333	4046.674	61.077	333	4123.464	42.925	298.147
<i>Dendrobates</i>	<i>reticulatus</i>	136	332	3798.643	142.380	303	4180.989	142.884	417	4411.965	101.741	613.322
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	925	5306.147	232.478	946	5752.313	493.830	526	6102.650	194.117	796.503
<i>Dendrobates</i>	<i>sylvaticus</i>	120	377	3139.604	188.418	377	3529.852	153.655	377	3617.584	97.599	477.980
<i>Dendrobates</i>	<i>tinctorius</i>	117	337	2415.695	48.271	337	2948.690	118.545	337	3099.493	36.521	683.798
<i>Dendrobates</i>	<i>truncatus</i>	115	306	2986.523	89.742	396	3330.668	391.737	395	3445.709	356.923	459.186
<i>Dendrobates</i>	<i>uakarii</i>	138	26	3642.415	87.133	26	3808.058	137.906	26	3955.477	79.596	313.062
<i>Dendrobates</i>	<i>variabilis</i>	135	1166	4875.886	218.541	1166	5304.276	240.126	1166	5524.679	140.261	648.792
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	514	4488.031	141.575	514	4873.980	253.227	514	5101.842	157.272	613.812
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	607	4231.428	55.844	789	4605.266	290.596	801	4885.320	141.379	653.892
<i>Dendrobates</i>	<i>virolinensis</i>	127	2201	4836.812	250.008	2197	5167.903	169.537	2170	5583.146	311.786	746.334
<i>Epipedobates</i>	<i>anthonyi</i>	71	435	4068.911	26.373	435	4117.247	35.100	435	4156.843	27.599	87.933

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Q1 (Hz)			Middle Peak Frequency (Hz)			Middle Q3 (Hz)			Middle Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Epipedobates</i>	<i>anthonyi</i>	70	1084	4262.018	125.737	1084	4336.539	80.830	1084	4388.570	70.320	126.552
<i>Epipedobates</i>	<i>boulengeri</i>	67	259	5283.033	103.604	259	5370.164	103.175	259	5464.852	117.777	181.820
<i>Epipedobates</i>	<i>espinosai</i>	69	728	5443.813	106.003	728	5544.236	114.928	728	5636.183	131.335	192.370
<i>Epipedobates</i>	<i>machalilla</i>	73	263	5802.832	64.535	263	5854.401	64.698	263	5892.108	61.484	89.276
<i>Epipedobates</i>	<i>machalilla</i>	72	96	6013.896	54.743	96	6074.160	45.015	96	6121.647	48.544	107.752
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	1339	4815.959	134.959	1339	4904.644	130.117	1339	4978.535	145.158	162.575
<i>Epipedobates</i>	<i>tricolor</i>	74	812	4515.281	101.267	812	4592.719	101.538	812	4646.229	105.280	130.948
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	144	6153.115	118.890	144	6423.484	183.732	144	6488.977	106.695	335.863
<i>Hyloxalus</i>	<i>awa</i>	171	122	4454.877	22.199	122	4545.252	29.354	122	4642.339	50.730	187.462
<i>Hyloxalus</i>	<i>azureiventris</i>	165	398	3994.580	63.675	398	4042.489	33.749	398	4087.187	31.811	92.607
<i>Hyloxalus</i>	<i>bocagei</i>	151	592	4652.058	82.129	592	4692.425	59.565	592	4792.021	76.285	139.963
<i>Hyloxalus</i>	<i>bocagei</i>	150	716	4444.423	19.996	716	4478.900	9.760	716	4565.008	16.886	120.585
<i>Hyloxalus</i>	<i>craspedocephs</i>	166	167	5902.161	114.509	167	5942.650	127.803	167	6002.993	129.359	100.832
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	101	4367.250	94.231	101	4454.514	93.165	101	4514.864	72.314	147.615
<i>Hyloxalus</i>	<i>delatorreae</i>	162	246	4339.933	111.553	246	4409.100	111.578	246	4478.088	95.619	138.154
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	323	4635.855	22.281	323	4759.092	95.560	323	4812.749	45.062	176.894
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	78	4500.438	44.854	78	4937.115	124.582	78	4949.268	51.224	448.829
<i>Hyloxalus</i>	<i>erythromos</i>	140	433	4198.775	79.881	433	4300.905	113.928	433	4399.661	87.045	200.886
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	944	4499.468	56.510	944	4566.040	87.005	944	4684.796	64.508	185.328
<i>Hyloxalus</i>	<i>insulatus</i>	167	202	4180.850	41.717	202	4268.237	123.148	202	4361.612	74.832	180.762
<i>Hyloxalus</i>	<i>italoi</i>	144	844	3496.732	44.247	844	3592.107	112.183	844	3684.211	49.759	187.479
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	92	2764.670	323.992	92	3114.242	92.226	92	3718.645	539.012	953.975
<i>Hyloxalus</i>	<i>maculosus</i>	149	57	3962.100	0.000	60	4125.785	37.869	60	4131.528	22.244	169.428
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	110	4680.918	86.674	119	4820.538	199.239	112	5021.079	122.431	340.161
<i>Hyloxalus</i>	<i>nexipus</i>	154	797	5521.353	184.296	797	5630.070	210.159	797	5746.800	168.719	225.448
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	151	5422.543	41.580	151	5510.287	67.579	151	5563.140	53.640	140.598
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	373	5786.263	61.302	373	5867.199	85.350	373	5938.427	78.073	152.165
<i>Hyloxalus</i>	<i>pulchellus</i>	160	38	4280.284	23.429	38	4349.129	49.047	38	4390.218	20.553	109.934
<i>Hyloxalus</i>	<i>pulchellus</i>	159	110	4050.379	99.592	110	4089.737	107.550	110	4119.489	93.820	69.110
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	51	4081.161	49.920	51	4118.926	69.188	51	4181.976	51.823	100.816
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	80	4088.069	22.506	80	4156.976	41.086	80	4204.873	33.754	116.804
<i>Hyloxalus</i>	<i>sauli</i>	148	1848	3411.568	40.355	1848	3438.705	45.720	1848	3496.546	63.730	84.978
<i>Hyloxalus</i>	<i>sorditatus</i>	141	264	2690.255	34.709	264	2708.121	35.151	264	2746.207	40.298	55.952
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	25	4594.320	38.767	25	4627.060	33.097	25	4651.172	32.880	56.852
<i>Hyloxalus</i>	<i>toachi</i>	172	178	4369.313	53.603	179	4469.283	114.454	178	4662.297	89.126	292.984

Table S1 (Cont.) Temporal, spectral, and scaling variables from calls of poison frogs including phylogeny identifier (Phy ID), locality, call behavior, habit, temperature, size, number of recordings, multinote call features, units of repetition (UR), initial pulse-note, and middle pulse-note parameters.

Genus	Species	Phy ID	Middle Q1 (Hz)			Middle Peak Frequency (Hz)			Middle Q3 (Hz)			Middle Modulation (Q1 – Q3)
			N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	
<i>Hyloxalus</i>	<i>vertebralis</i>	157	247	3795.753	38.955	247	3850.872	38.062	247	3879.141	44.078	83.388
<i>Hyloxalus</i>	<i>vertebralis</i>	158	126	4407.133	20.351	126	4444.016	22.931	126	4476.506	18.331	69.372
<i>Hyloxalus</i>	<i>yasuni</i>	147	1090	3373.508	74.261	1090	3462.933	87.006	1090	3525.999	92.037	152.491
<i>Hyloxalus</i>	<i>yasuni</i>	145	617	3643.605	45.357	617	3673.834	96.473	617	3882.597	54.108	238.992
<i>Hyloxalus</i>	<i>yasuni</i>	146	792	3877.158	82.191	792	3957.735	82.861	792	4028.368	33.017	151.210
<i>Mannophryne</i>	<i>urticans</i>	25	363	3444.825	15.678	363	3447.199	18.012	363	3610.954	47.451	166.129
<i>Mannophryne</i>	<i>cordilleriana</i>	20	550	2888.089	77.381	550	2892.094	74.876	550	3049.737	102.606	161.648
<i>Mannophryne</i>	<i>herminae</i>	19	418	4126.333	136.926	418	4167.648	138.761	418	4231.693	129.908	105.360
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	111	4445.156	155.986	111	4548.350	169.518	111	4625.935	152.692	180.779
<i>Mannophryne</i>	<i>leonardoi</i>	16	402	4357.950	96.382	402	4411.628	77.153	402	4493.363	75.721	135.413
<i>Mannophryne</i>	<i>olmonae</i>	12	73	3867.516	45.619	73	3982.135	23.883	73	3995.427	27.531	127.910
<i>Mannophryne</i>	<i>orellana</i>	22	194	3335.854	60.763	194	3383.348	55.259	194	3421.778	61.073	85.924
<i>Mannophryne</i>	<i>orellana</i>	21	1548	3159.761	56.064	1548	3238.836	52.603	1548	3275.214	47.362	115.453
<i>Mannophryne</i>	<i>riveroi</i>	13	280	2931.577	30.792	280	3004.189	85.666	280	3108.795	36.298	177.218
<i>Mannophryne</i>	<i>trinitatis</i>	17	40	4217.605	32.680	40	4325.398	31.840	40	4342.436	30.024	124.831
<i>Mannophryne</i>	<i>collaris</i>	23	680	3205.524	47.297	680	3244.723	47.351	680	3288.231	43.956	82.707
<i>Mannophryne</i>	<i>collaris</i>	24	536	3293.676	40.100	536	3348.129	42.568	536	3380.171	41.708	86.495
<i>Mannophryne</i>	<i>venezuelensis</i>	18	196	4323.331	45.593	196	4378.279	51.037	196	4499.789	42.628	176.458
<i>Mannophryne</i>	<i>vulcano</i>	14	47	4551.281	58.957	47	4598.938	49.959	47	4649.328	58.158	98.047
<i>Mannophryne</i>	<i>yustizi</i>	26	730	3671.619	79.955	730	3785.554	26.723	730	3809.863	59.555	138.244
<i>Phyllobates</i>	<i>aurotaenia</i>	108	591	3555.202	118.362	591	3676.726	142.403	591	3769.999	111.712	214.797
<i>Phyllobates</i>	<i>lugubris</i>	111	619	4378.978	104.363	619	4467.766	145.618	619	4513.694	139.956	134.716
<i>Phyllobates</i>	<i>lugubris</i>	112	525	4143.235	116.962	525	4221.648	86.174	525	4270.859	107.563	127.624
<i>Phyllobates</i>	<i>terribilis</i>	109	342	2032.438	72.921	342	2109.010	132.222	342	2264.673	73.842	232.235
<i>Phyllobates</i>	<i>vittatus</i>	110	3681	3481.292	198.503	3681	3577.207	181.084	3681	3666.988	183.377	185.696
<i>Rheobates</i>	<i>palmatus</i>	28	319	2559.184	67.621	319	2571.746	65.295	319	2600.862	69.230	41.678
<i>Rheobates</i>	<i>palmatus</i>	27	1149	2368.931	34.679	1149	2393.542	26.708	1149	2408.017	33.676	39.087
<i>Silverstoneia</i>	<i>flotator</i>	62	593	6276.391	103.638	593	6437.077	37.038	593	6456.200	38.266	179.809
<i>Silverstoneia</i>	<i>flotator</i>	63	382	6425.063	50.138	382	6500.719	74.769	382	6616.703	49.541	191.640
<i>Silverstoneia</i>	<i>nubicola</i>	66	121	4984.666	39.533	121	5043.393	57.185	121	5116.350	36.735	131.684
<i>Silverstoneia</i>	<i>nubicola</i>	65	123	5922.860	68.276	123	6094.430	67.838	123	6099.682	51.802	176.822
<i>Silverstoneia</i>	<i>nubicola</i>	64	199	5903.777	73.682	199	5968.706	82.354	199	6100.499	92.888	196.722
<i>Anomaloglossus</i>	<i>stepheni</i>	NA	150	4226.883	85.654	150	4265.012	81.816	150	4290.629	84.408	63.745
<i>Allobates</i>	<i>goianus</i>	NA	8	4941.863	71.891	8	5119.525	122.774	8	5189.488	32.533	247.625
<i>Hyloxalus</i>	<i>anthracinus</i>	NA	13	3735.569	29.567	13	3894.238	86.572	13	3951.931	29.567	216.362

Table S1 (Cont.) Sequences for the species used in the comparative analyses. Gene accession numbers from published sequences. Please review the references for the voucher information.

Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Adenomera</i>	<i>andreae</i>	NA	HQ290944	(1)	--	--	--	--
<i>Bufo</i>	<i>nebulifer</i>	NA	HQ290945	(1)	--	--	--	--
<i>Centrolene</i>	<i>grandisonae</i>	NA	HQ290946	(1)	--	--	--	--
<i>Ceratophrys</i>	<i>cornuta</i>	NA	HQ290947	(1)	--	--	--	--
<i>Crossodactylus</i>	<i>schmidti</i>	NA	HQ290948	(1)	--	--	--	--
<i>Lithodytes</i>	<i>lineatus</i>	NA	HQ290949	(1)	--	--	--	--
<i>Allobates</i>	<i>algorei</i>	60	HQ290950	(1)	--	--	--	--
<i>Allobates</i>	<i>brunneus</i>	37	EU342522	(2)	--	--	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	EU342542	(2)	--	--	--	--
<i>Allobates</i>	<i>crombiei</i>	52	EU342552	(2)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	43	HQ290951	(1)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	46	EU342537	(2)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	44	EU342536	(2)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	40	AY326026	(2)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	41	EU342532	(2)	--	--	--	--
<i>Allobates</i>	<i>femorialis</i>	45	DQ502246	(3)	--	--	--	--
<i>Allobates</i>	<i>granti</i>	49	EU342547	(2)	--	--	--	--
<i>Allobates</i>	<i>humilis</i>	59	KJ940454	--	CVULA 5690	Venezuela: Barinas: On the road to San Ramón, Calderas	8.8678	-70.4861
<i>Allobates</i>	<i>insperatus</i>	54	HQ290959	(1)	--	--	--	--
<i>Allobates</i>	<i>aff. insperatus</i>	55	EU342553	(2)	--	--	--	--
<i>Allobates</i>	<i>juanii</i>	47	HQ290960	(1)	--	--	--	--
<i>Allobates</i>	<i>kingsburyi</i>	39	HQ290963	(1)	--	--	--	--
<i>Allobates</i>	<i>marchesianus</i>	50	EU342543	(2)	--	--	--	--
<i>Allobates</i>	<i>masniger</i>	58	EU342565	(2)	--	--	--	--
<i>Allobates</i>	<i>nidicola</i>	36	EU342518	(2)	--	--	--	--
<i>Allobates</i>	<i>olferstoides</i>	1	DQ502126	(2)	--	--	--	--
<i>Allobates</i>	<i>ornatus</i>	51	EU342549	(2)	--	--	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	DQ502115	(3)	--	--	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	DQ502074	(3)	--	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	EU342525	(2)	--	--	--	--
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	EU342555	(2)	--	--	--	--
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	EU342563	(2)	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	34	EU342516	(2)	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	32	EU342510	(2)	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	35	EU342517	(2)	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	31	HQ290974	(1)	--	--	--	--

Table S1 (Cont.) Sequences for the species used in the comparative analyses. Gene accession numbers from published sequences. Please review the references for the voucher information.

Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Allobates</i>	<i>talamancae</i>	33	EU342512	(2)	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	30	EU342509	(2)	--	--	--	--
<i>Allobates</i>	<i>trilineatus</i>	56	EU342560	(2)	--	--	--	--
<i>Allobates</i>	<i>zaparo</i>	42	HQ291003	(1)	--	--	--	--
<i>Ameerega</i>	<i>altamazonica</i>	103	EU342623	(2)	--	--	--	--
<i>Ameerega</i>	<i>bassleri</i>	89	EU342609	(2)	--	--	--	--
<i>Ameerega</i>	<i>bilinguis</i>	87	HQ290996	(1)	--	--	--	--
<i>Ameerega</i>	<i>braccata</i>	94	DQ502125	(3)	--	--	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	EU342620	(2)	--	--	--	--
<i>Ameerega</i>	<i>flavopicta</i>	95	DQ502124	(3)	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	96	DQ502270	(3)	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	97	HQ290998	(1)	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	98	EU342615	(2)	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	99	EU342616	(2)	--	--	--	--
<i>Ameerega</i>	<i>ignipedis</i>	90	FJ752371 FJ752294	(4)	--	--	--	--
<i>Ameerega</i>	<i>parvula</i>	86	HQ290999	(1)	--	--	--	--
<i>Ameerega</i>	<i>petersi</i>	101	DQ502116	(3)	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	91	EU342613	(2)	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	92	KJ940455	--	TNHCFS 5642	Venezuela: Delta Amacuro: El Palmar, Sierra de Imataca, Reserva Forestal Rio Grande	8.3333	-61.6667
<i>Ameerega</i>	<i>picta</i>	93	DQ502252	(3)	--	--	--	--
<i>Ameerega</i>	<i>pongoensis</i>	88	DQ522973 DQ523044	(5)	--	--	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	DQ283073	(3)	--	--	--	--
<i>Ameerega</i>	<i>smaragdina</i>	100	DQ502114	(3)	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	105	HQ291002	(1)	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	107	DQ502021	(3)	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	106	EU342633	(2)	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	104	EU342626	(2)	--	--	--	--
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	DQ501980	(3)	--	--	--	--
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	DQ502257	(3)	--	--	--	--
<i>Anomaloglossus</i>	<i>rufulus</i>	5	KJ940456	--	CLBA- Voucher	Venezuela: Bolivar: summit of Churi-tepui	5.3	-62.1667
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	HQ290952	(1)	--	--	--	--
<i>Aromobates</i>	<i>meridensis</i>	7	JX035992	--	CVULA 7399	Venezuela: Merida: Finca El Cedral (Caño Seco)	8.65	-71.43
<i>Aromobates</i>	<i>saltuensis</i>	11	HQ290970	(1)	--	--	--	--
<i>Aromobates</i>	<i>cannatellai</i>	9	JX035995	--	CVULA 8325	Venezuela: Tachira: Parque Cascada de la Escalera, en la entrada a Mesa de Perez, municipio Uribante	8.00308	-71.7316

Table S1 (Cont.) Sequences for the species used in the comparative analyses. Gene accession numbers from published sequences. Please review the references for the voucher information.

Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Aromobates</i>	<i>aff. saltuensis</i>	10	JX035993	--	CVULA 7180	Venezuela: Tachira: From a stream that flows into Rio Negro, near Parque Nacional El Tama	7.57872	-72.179
<i>Aromobates</i>	<i>ericksonae</i>	8	HQ290953	(1)	--	--	--	--
<i>Aromobates</i>	<i>ornatissimus</i>	6	DQ502242	(3)	--	--	--	--
<i>Colostethus</i>	<i>argyrogastrer</i>	83	EU342605	(2)	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	EU342602	(2)	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	EU342603	(2)	--	--	--	--
<i>Colostethus</i>	<i>fugax</i>	84	HQ290958	(1)	--	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	76	DQ502169	(3)	--	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	75	HQ290968	(1)	--	--	--	--
<i>Colostethus</i>	<i>pratti</i>	80	DQ502163	(3)	--	--	--	--
<i>Colostethus</i>	<i>pratti</i>	79	EU342595	(2)	--	--	--	--
<i>Colostethus</i>	<i>pratti</i>	77	HQ290969	(1)	--	--	--	--
<i>Colostethus</i>	<i>aff. pratti</i>	78	EU342591	(2)	--	--	--	--
<i>Dendrobates</i>	<i>auratus</i>	116	HQ290980	(1)	--	--	--	--
<i>Dendrobates</i>	<i>bombetes</i>	126	HQ290981	(1)	--	--	--	--
<i>Dendrobates</i>	<i>captivus</i>	125	HQ290982	(1)	--	--	--	--
<i>Dendrobates</i>	<i>castaneoticus</i>	114	EU342642	(2)	--	--	--	--
<i>Dendrobates</i>	<i>claudiae</i>	130	HQ290983	(1)	--	--	--	--
<i>Dendrobates</i>	<i>defleri</i>	133	HQ290979	(1)	--	--	--	--
<i>Dendrobates</i>	<i>fantasticus</i>	137	EU342682	(2)	--	--	--	--
<i>Dendrobates</i>	<i>galactonotus</i>	113	HQ290984	(1)	--	--	--	--
<i>Dendrobates</i>	<i>granuliferus</i>	119	EU342659	(2)	--	--	--	--
<i>Dendrobates</i>	<i>histrionicus</i>	121	HQ290985	(1)	--	--	--	--
<i>Dendrobates</i>	<i>imitator</i>	131	EU342672	(2)	--	--	--	--
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	HQ290986	(1)	--	--	--	--
<i>Dendrobates</i>	<i>leucomelas</i>	118	HQ290987	(1)	--	--	--	--
<i>Dendrobates</i>	<i>minutus</i>	128	DQ502168	(3)	--	--	--	--
<i>Dendrobates</i>	<i>mysteriosus</i>	124	DQ371303 DQ371314	(6)	--	--	--	--
<i>Dendrobates</i>	<i>pumilio</i>	123	HQ290988	(1)	--	--	--	--
<i>Dendrobates</i>	<i>pumilio</i>	122	EU342664	(2)	--	--	--	--
<i>Dendrobates</i>	<i>reticulatus</i>	136	EU342686	(2)	--	--	--	--
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	HQ290989	(1)	--	--	--	--
<i>Dendrobates</i>	<i>sylvaticus</i>	120	HQ290990	(1)	--	--	--	--
<i>Dendrobates</i>	<i>tinctorius</i>	117	HQ290991	(1)	--	--	--	--
<i>Dendrobates</i>	<i>truncatus</i>	115	HQ290992	(1)	--	--	--	--



Table S1 (Cont.) Sequences for the species used in the comparative analyses. Gene accession numbers from published sequences. Please review the references for the voucher information.

Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Dendrobates</i>	<i>uakarii</i>	138	DQ502266	(3)	--	--	--	--
<i>Dendrobates</i>	<i>variabilis</i>	135	EU342679	(2)	--	--	--	--
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	EU342678	(2)	--	--	--	--
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	HQ290993	(1)	--	--	--	--
<i>Dendrobates</i>	<i>virolinensis</i>	127	HQ290994	(1)	--	--	--	--
<i>Epipedobates</i>	<i>anthonyi</i>	71	HQ290995	(1)	--	--	--	--
<i>Epipedobates</i>	<i>anthonyi</i>	70	EU342574	(2)	--	--	--	--
<i>Epipedobates</i>	<i>boulengeri</i>	67	HQ290997	(1)	--	--	--	--
<i>Epipedobates</i>	<i>espinosai</i>	69	EU342571	(2)	--	--	--	--
<i>Epipedobates</i>	<i>machalilla</i>	73	AY364551	(2)	--	--	--	--
<i>Epipedobates</i>	<i>machalilla</i>	72	HQ290964	(1)	--	--	--	--
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	HQ291000	(1)	--	--	--	--
<i>Epipedobates</i>	<i>tricolor</i>	74	HQ291001	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	EU342692	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>awa</i>	171	HQ290954	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>azureiventris</i>	165	HQ290977	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>bocagei</i>	151	HQ290955	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>bocagei</i>	150	AY364545	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>craspedoiceps</i>	166	EU342725	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	EU342719	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>delatorreae</i>	162	KJ940457	--	JCS-voucher	Ecuador: Carchi: A swamp close to El Moran	0.77109	-78.05596
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	HQ290956	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	EU342737	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>erythromos</i>	140	KJ940458	--	QCAZ 37750	Ecuador: Los Rios: Centro Cientifico Rio Palenque (CCRP)	-0.5833	-79.35
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	AY364548	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>insulatus</i>	167	EU342733	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	HQ290972	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	KJ940459	--	QCAZ 37742	Ecuador: Pichincha Cabeceras del Rio Pita	-0.43978	-78.417
<i>Hyloxalus</i>	<i>maculosus</i>	149	HQ286384	(7)	--	--	--	--
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	EU342723	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>nexipus</i>	154	HQ290965	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	EU342712	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	EU342711	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	160	EU342721	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	159	AY364554	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	EU342716	(2)	--	--	--	--

Table S1 (Cont.) Sequences for the species used in the comparative analyses. Gene accession numbers from published sequences. Please review the references for the voucher information.

Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	EU342707	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	HQ290971	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>sorditatus</i>	141	EU342690	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	HQ290973	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>toachi</i>	172	HQ290975	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	157	EU342715	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	158	HQ290976	(1)	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	147	HQ286388	(7)	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	145	EU342697	(2)	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	146	AY364559	(2)	--	--	--	--
<i>Mannophryne</i>	<i>urticans</i>	25	KJ940467	--	TNHCFS 5520	Venezuela: Merida: On a stream along a stream near San Juan de Lagunillas	8.520867	-71.35668
<i>Mannophryne</i>	<i>cordilleriana</i>	20	KJ940460	--	TNHCFS 5589	Venezuela: Merida: A stream near the road to Pueblo Llano	8.87835	-70.65482
<i>Mannophryne</i>	<i>herminae</i>	19	KJ940461	--	TNHCFS 5676	Venezuela: Aragua: Near Estacion Biologica Rancho Grande	10.34958	-67.68432
<i>Mannophryne</i>	sp. Guatopo	15	KJ940462	--	TNHCFS 5666	Venezuela: Miranda: On road to Altigracia, Guatopo National Park	10.08495	-66.48908
<i>Mannophryne</i>	<i>leonardo</i>	16	KJ940463	--	TNHCFS 5659	Venezuela: Monagas: Near the Cueva del Guacharo, proximity to Caripe River	10.17088	-63.5536
<i>Mannophryne</i>	<i>olmonae</i>	12	AY191230 AY206717	(8)	--	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	22	KJ940464	--	CVULA 7165	Venezuela: Tachira: A stream along the road from Pregonero to La Trampa	8.03252	-71.7277
<i>Mannophryne</i>	<i>orellana</i>	21	KJ940465	--	CVULA 7231	Venezuela: Tachira: From a stream that flows into Rio Negro, near Parque Nacional El Tama	7.57872	-72.17898
<i>Mannophryne</i>	<i>riveroi</i>	13	EU342503	(2)	--	--	--	--
<i>Mannophryne</i>	<i>trinitatis</i>	17	EU342504	(2)	--	--	--	--
<i>Mannophryne</i>	<i>collaris</i>	23	KJ940466	--	TNHCFS 5515	Venezuela: Merida: On a stream along the autopista El Vija to Merida near sector Trujillana	8.543683	-71.58303
<i>Mannophryne</i>	<i>collaris</i>	24	HQ291004	(1)	--	--	--	--
<i>Mannophryne</i>	<i>venezuelensis</i>	18	KJ940468	--	TNHCFS 5649	Venezuela: Sucre: Peninsula de Paria National Park	10.68992	-62.61023
<i>Mannophryne</i>	<i>vulcano</i>	14	KJ940469	--	TNHCFS 5679	Venezuela: Miranda: Northern slope of Cerro El Volcan, Baruta	10.42317	-66.85782
<i>Mannophryne</i>	<i>yustizi</i>	26	KJ940470	--	TNHCFS 5604	Venezuela: Lara: Stream along the road to Guarico, near Sabana Grande	9.58228	-69.8498
<i>Phyllobates</i>	<i>aurotaenia</i>	108	HQ291005	(1)	--	--	--	--
<i>Phyllobates</i>	<i>lugubris</i>	111	EU342636	(2)	--	--	--	--
<i>Phyllobates</i>	<i>lugubris</i>	112	DQ283043	(3)	--	--	--	--

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Genus	Species	Phy ID	12S-16S	Ref	Voucher	Locality	Latitude	Longitude
<i>Phyllobates</i>	<i>terribilis</i>	109	HQ291006	(1)	--	--	--	--
<i>Phyllobates</i>	<i>vittatus</i>	110	EU342635	(2)	--	--	--	--
<i>Rheobates</i>	<i>palmatus</i>	28	HQ290967	(1)	--	--	--	--
<i>Rheobates</i>	<i>palmatus</i>	27	EU342506	(2)	--	--	--	--
<i>Silverstoneia</i>	<i>flotator</i>	62	HQ290957	(1)	--	--	--	--
<i>Silverstoneia</i>	<i>flotator</i>	63	EU342587	(2)	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	66	EU342581	(2)	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	65	EU342580	(2)	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	64	HQ290966	(1)	--	--	--	--

Table S1 (Cont.) Metabolic variables from poison frogs including phylogeny identifier (Phy ID).

Genus	Species	Phy ID	N	Body Mass (g)		RMR (VO <sub>2rest</sub> mL/ h)		AMR (VO <sub>2active</sub> mL/ h)		Scope: AMR – RMR (VO <sub>2Scope</sub> mL/ h)
				$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
<i>Allobates</i>	<i>algorei</i>	60	6	0.585	0.013	0.168	0.019	0.593	0.071	0.425
<i>Allobates</i>	<i>brunneus</i>	37	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>crombiei</i>	52	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>femoralis</i>	43	6	1.246	0.103	0.223	0.031	1.104	0.228	0.881
<i>Allobates</i>	<i>femoralis</i>	46	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>femoralis</i>	44	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>femoralis</i>	40	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>femoralis</i>	41	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>femoralis</i>	45	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>granti</i>	49	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>humilis</i>	59	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>insperatus</i>	54	4	0.551	0.041	0.082	0.018	0.609	0.03	0.527
<i>Allobates</i>	<i>aff. insperatus</i>	55	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>juanii</i>	47	2	0.685	0.085	0.147	0.064	0.766	0.008	0.619
<i>Allobates</i>	<i>kingsburyi</i>	39	8	0.875	0.102	0.126	0.016	0.644	0.032	0.518
<i>Allobates</i>	<i>marchesianus</i>	50	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>masniger</i>	58	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>nidicola</i>	36	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>olfersioides</i>	1	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>ornatus</i>	51	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	34	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	32	5	0.88	0.087	0.08	0.014	0.714	0.05	0.634
<i>Allobates</i>	<i>talamancae</i>	35	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	31	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	33	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>talamancae</i>	30	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>trilineatus</i>	56	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>zaparo</i>	42	10	1.615	0.133	0.299	0.029	1.919	0.108	1.62
<i>Ameerega</i>	<i>altamazonica</i>	103	--	--	--	--	--	--	--	--

Table S1 (Cont.) Metabolic variables from poison frogs including phylogeny identifier (Phy ID).

Genus	Species	Phy ID	N	Body Mass (g)		RMR (VO <sub>2rest</sub> mL/h)		AMR (VO <sub>2active</sub> mL/h)		Scope: AMR – RMR (VO <sub>2Scope</sub> mL/h)
				$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
<i>Ameerega</i>	<i>bassleri</i>	89	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>bilinguis</i>	87	11	0.949	0.077	0.18	0.011	0.974	0.051	0.794
<i>Ameerega</i>	<i>braccata</i>	94	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>flavopicta</i>	95	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	96	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	97	6	0.343	0.02	0.1	0.011	0.516	0.013	0.416
<i>Ameerega</i>	<i>hahneli</i>	98	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>hahneli</i>	99	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>ignipedis</i>	90	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>parvula</i>	86	8	1.569	0.049	0.293	0.033	1.497	0.17	1.204
<i>Ameerega</i>	<i>petersi</i>	101	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	91	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	92	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>picta</i>	93	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>pongoensis</i>	88	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>smaragdina</i>	100	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	105	3	5.512	0.994	0.964	0.178	6.632	0.924	5.668
<i>Ameerega</i>	<i>trivittata</i>	107	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	106	--	--	--	--	--	--	--	--
<i>Ameerega</i>	<i>trivittata</i>	104	--	--	--	--	--	--	--	--
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	--	--	--	--	--	--	--	--
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	--	--	--	--	--	--	--	--
<i>Anomaloglossus</i>	<i>rufulus</i>	5	--	--	--	--	--	--	--	--
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	11	0.808	0.051	0.202	0.022	0.73	0.068	0.528
<i>Aromobates</i>	<i>meridensis</i>	7	--	--	--	--	--	--	--	--
<i>Aromobates</i>	<i>saltuensis</i>	11	6	1.498	0.138	0.212	0.046	1.249	0.202	1.037
<i>Aromobates</i>	<i>cannatellai</i>	9	--	--	--	--	--	--	--	--
<i>Aromobates</i>	aff. <i>saltuensis</i>	10	--	--	--	--	--	--	--	--
<i>Aromobates</i>	<i>ericksonae</i>	8	17	1.312	0.114	0.248	0.022	0.916	0.093	0.668
<i>Aromobates</i>	<i>ornatissimus</i>	6	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>argyrogastrer</i>	83	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	--	--	--	--	--	--	--	--

Table S6 (Cont.) Metabolic variables from poison frogs including phylogeny identifier (Phy ID).

Genus	Species	Phy ID	N	Body Mass (g)		RMR (VO <sub>2rest</sub> mL/h)		AMR (VO <sub>2active</sub> mL/h)		Scope: AMR – RMR (VO <sub>2Scope</sub> mL/h)
				$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
<i>Colostethus</i>	<i>fugax</i>	84	4	0.959	0.089	0.124	0.013	0.667	0.054	0.543
<i>Colostethus</i>	<i>panamansis</i>	76	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>panamansis</i>	75	5	0.973	0.093	0.096	0.004	1.159	0.085	1.063
<i>Colostethus</i>	<i>pratti</i>	80	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>pratti</i>	79	--	--	--	--	--	--	--	--
<i>Colostethus</i>	<i>pratti</i>	77	12	0.806	0.031	0.111	0.008	1.133	0.051	1.022
<i>Colostethus</i>	aff. <i>pratti</i>	78	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>auratus</i>	116	15	1.996	0.071	0.306	0.039	2.81	0.124	2.504
<i>Dendrobates</i>	<i>bombetes</i>	126	8	0.528	0.036	0.085	0.007	0.885	0.056	0.8
<i>Dendrobates</i>	<i>captivus</i>	125	6	0.484	0.025	0.087	0.014	0.602	0.039	0.515
<i>Dendrobates</i>	<i>castaneoticus</i>	114	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>claudiae</i>	130	1	0.217		0.06		0.652		0.592
<i>Dendrobates</i>	<i>defleri</i>	133	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>fantasticus</i>	137	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>galactonotus</i>	113	4	3.589	0.293	0.323	0.009	4.97	0.225	4.647
<i>Dendrobates</i>	<i>granuliferus</i>	119	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>histrionicus</i>	121	4	3.32	0.119	0.205	0.021	2.496	0.301	2.291
<i>Dendrobates</i>	<i>imitator</i>	131	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	2	0.39	0.07	0.068	0.015	1.074	0.062	1.006
<i>Dendrobates</i>	<i>leucomelas</i>	118	12	2.243	0.138	0.414	0.055	3.167	0.273	2.753
<i>Dendrobates</i>	<i>minutus</i>	128	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>mysteriosus</i>	124	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>pumilio</i>	123	17	0.538	0.017	0.067	0.003	0.698	0.026	0.631
<i>Dendrobates</i>	<i>pumilio</i>	122	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>reticulatus</i>	136	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	sp. Quibdo	129	3	0.16	0.01	0.051	0.019	0.577	0.263	0.526
<i>Dendrobates</i>	<i>sylvaticus</i>	120	11	2.889	0.133	0.4	0.054	3.328	0.188	2.928
<i>Dendrobates</i>	<i>tinctorius</i>	117	8	5.037	0.358	0.549	0.051	5.983	0.767	5.434
<i>Dendrobates</i>	<i>truncatus</i>	115	12	1.573	0.115	0.188	0.016	1.926	0.111	1.738
<i>Dendrobates</i>	<i>uakarii</i>	138	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>variabilis</i>	135	--	--	--	--	--	--	--	--
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	7	0.414	0.03	0.095	0.012	0.686	0.06	0.591
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	7	0.345	0.056	0.134	0.044	0.661	0.098	0.527
<i>Dendrobates</i>	<i>virolinensis</i>	127	8	0.475	0.051	0.094	0.006	0.639	0.03	0.545
<i>Epipedobates</i>	<i>anthonyi</i>	71	10	1.062	0.052	0.197	0.009	1.207	0.036	1.01

Table S1 (Cont.) Metabolic variables from poison frogs including phylogeny identifier (Phy ID).

Genus	Species	Phy ID	N	Body Mass (g)		RMR (VO <sub>2rest</sub> mL/h)		AMR (VO <sub>2active</sub> mL/h)		Scope: AMR – RMR (VO <sub>2Scope</sub> mL/h)
				$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
<i>Epipedobates</i>	<i>anthonyi</i>	70	--	--	--	--	--	--	--	--
<i>Epipedobates</i>	<i>boulengeri</i>	67	16	0.427	0.018	0.097	0.012	0.329	0.023	0.232
<i>Epipedobates</i>	<i>espinosai</i>	69	--	--	--	--	--	--	--	--
<i>Epipedobates</i>	<i>machalilla</i>	73	11	0.323	0.022	0.083	0.009	0.385	0.049	0.302
<i>Epipedobates</i>	<i>machalilla</i>	72	--	--	--	--	--	--	--	--
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	10	0.457	0.026	0.065	0.005	0.596	0.036	0.531
<i>Epipedobates</i>	<i>tricolor</i>	74	4	0.801	0.051	0.164	0.022	0.836	0.089	0.672
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>awa</i>	171	10	0.915	0.05	0.121	0.005	0.653	0.038	0.532
<i>Hyloxalus</i>	<i>azureiventris</i>	165	4	1.018	0.063	0.208	0.026	1.309	0.017	1.101
<i>Hyloxalus</i>	<i>bocagei</i>	151	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>bocagei</i>	150	11	1.514	0.141	0.288	0.029	2.307	0.22	2.019
<i>Hyloxalus</i>	<i>craspedocephs</i>	166	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>delatorreae</i>	162	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	28	0.958	0.054	0.248	0.019	0.84	0.06	0.592
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>erythromos</i>	140	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>insulatus</i>	167	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>maculosus</i>	149	20	2.3	0.144	0.34	0.03	2.003	0.152	1.663
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>nexipus</i>	154	3	1.066	0.181	0.264	0.092	1.236	0.084	0.972
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	160	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	159	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	3	1.703	0.313	0.331	0.093	2.365	0.206	2.034
<i>Hyloxalus</i>	<i>sorditatus</i>	141	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	7	0.799	0.07	0.151	0.013	0.901	0.059	0.75
<i>Hyloxalus</i>	<i>toachi</i>	172	5	0.68	0.082	0.117	0.017	0.872	0.074	0.755

Table S1 (Cont.) Metabolic variables from poison frogs including phylogeny identifier (Phy ID).

Genus	Species	Phy ID	N	Body Mass (g)		RMR (VO <sub>2rest</sub> mL/h)		AMR (VO <sub>2active</sub> mL/h)		Scope: AMR – RMR (VO <sub>2Scope</sub> mL/h)
				$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
<i>Hyloxalus</i>	<i>vertebralis</i>	157	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>vertebralis</i>	158	8	0.698	0.051	0.127	0.021	0.567	0.052	0.44
<i>Hyloxalus</i>	<i>yasuni</i>	147	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	145	--	--	--	--	--	--	--	--
<i>Hyloxalus</i>	<i>yasuni</i>	146	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>urticans</i>	25	35	1.833	0.144	0.362	0.042	1.502	0.159	1.14
<i>Mannophryne</i>	<i>cordilleriana</i>	20	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>herminae</i>	19	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>leonardo</i>	16	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>olmonae</i>	12	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	22	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>orellana</i>	21	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>riveroi</i>	13	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>trinitatis</i>	17	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>collaris</i>	23	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>collaris</i>	24	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>venezuelensis</i>	18	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>vulcano</i>	14	--	--	--	--	--	--	--	--
<i>Mannophryne</i>	<i>yustizi</i>	26	--	--	--	--	--	--	--	--
<i>Phyllobates</i>	<i>aurotaenia</i>	108	3	2.017	0.447	0.184	0.074	1.347	0.252	1.163
<i>Phyllobates</i>	<i>lugubris</i>	111	--	--	--	--	--	--	--	--
<i>Phyllobates</i>	<i>lugubris</i>	112	--	--	--	--	--	--	--	--
<i>Phyllobates</i>	<i>terribilis</i>	109	5	6.013	0.125	0.787	0.113	5.092	0.101	4.305
<i>Phyllobates</i>	<i>vittatus</i>	110	--	--	--	--	--	--	--	--
<i>Rheobates</i>	<i>palmatus</i>	28	15	1.78	0.181	0.368	0.037	1.563	0.154	1.195
<i>Rheobates</i>	<i>palmatus</i>	27	--	--	--	--	--	--	--	--
<i>Silverstoneia</i>	<i>flotator</i>	62	10	0.327	0.013	0.054	0.005	0.491	0.027	0.437
<i>Silverstoneia</i>	<i>flotator</i>	63	--	--	--	--	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	66	--	--	--	--	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	65	--	--	--	--	--	--	--	--
<i>Silverstoneia</i>	<i>nubicola</i>	64	7	0.371	0.032	0.043	0.003	0.636	0.048	0.593



Table S1 (Cont.) Coloration and lipophilic alkaloid scores used in the logistic regressions of poison frogs. Coloration score is based on color contrast thresholds to binary state (0, 1) based on the species  $\Sigma S_i$  (Table S3). Alka Score is the evidence of presence or ability to sequester lipophilic alkaloids (i.e., 1 = yes or 0 = no).

Genus	Species	Phy ID	Color Contrast Threshold						$\Sigma S_i$	Alka Score	Alka Ref
			3	4	5	6	7	8			
<i>Allobates</i>	<i>algorei</i>	60	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>brunneus</i>	37	1	1	0	0	0	0	4	--	--
<i>Allobates</i>	<i>caeruleodactylus</i>	48	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>crombiei</i>	52	1	0	0	0	0	0	3	--	--
<i>Allobates</i>	<i>femoralis</i>	43	1	1	1	0	0	0	5	0	(9)
<i>Allobates</i>	<i>femoralis</i>	46	1	1	1	0	0	0	5	0	(9)
<i>Allobates</i>	<i>femoralis</i>	44	1	1	1	0	0	0	5	0	(9)
<i>Allobates</i>	<i>femoralis</i>	40	1	1	1	1	0	0	6	0	(9)
<i>Allobates</i>	<i>femoralis</i>	41	1	1	1	1	0	0	6	0	(9)
<i>Allobates</i>	<i>femoralis</i>	45	1	1	1	1	0	0	6	0	(9)
<i>Allobates</i>	<i>granti</i>	49	0	0	0	0	0	0	1	--	--
<i>Allobates</i>	<i>humilis</i>	59	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>insperatus</i>	54	0	0	0	0	0	0	2	0	(10)
<i>Allobates</i>	<i>aff. insperatus</i>	55	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>juanii</i>	47	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>kingsburyi</i>	39	0	0	0	0	0	0	2	0	(1)
<i>Allobates</i>	<i>marchesianus</i>	50	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>masniger</i>	58	0	0	0	0	0	0	1	--	--
<i>Allobates</i>	<i>nidicola</i>	36	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>olfersioides</i>	1	1	0	0	0	0	0	3	--	--
<i>Allobates</i>	<i>ornatus</i>	51	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>sp. Ducke</i>	61	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>sp. Neblina</i>	29	--	--	--	--	--	--	--	--	--
<i>Allobates</i>	<i>sp. Negro</i>	38	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>talamancae</i>	34	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>talamancae</i>	32	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>talamancae</i>	35	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>talamancae</i>	31	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>talamancae</i>	33	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>talamancae</i>	30	0	0	0	0	0	0	1	0	(11)
<i>Allobates</i>	<i>trilineatus</i>	56	0	0	0	0	0	0	2	--	--
<i>Allobates</i>	<i>zaparo</i>	42	1	1	1	1	0	0	6	0	(9)
<i>Ameerega</i>	<i>altamazonica</i>	103	1	1	1	0	0	0	5	--	--

Table S1 (Cont.) Coloration and lipophilic alkaloid scores used in the logistic regressions of poison frogs. Coloration score is based on color contrast thresholds to binary state (0, 1) based on the species  $\Sigma S_i$  (Table S3). Alka Score is the evidence of presence or ability to sequester lipophilic alkaloids (i.e., 1 = yes or 0 = no).

Genus	Species	Phy ID	Color Contrast Threshold						$\Sigma S_i$	Alka Score	Alka Ref
			3	4	5	6	7	8			
<i>Ameerega</i>	<i>bassleri</i>	89	1	1	1	1	0	0	6	1	(12)
<i>Ameerega</i>	<i>bilinguis</i>	87	1	1	1	1	1	0	7	1	(12)
<i>Ameerega</i>	<i>braccata</i>	94	1	1	1	1	1	1	8	--	--
<i>Ameerega</i>	<i>cainarachi</i>	102	1	1	1	1	1	1	8	1	(12)
<i>Ameerega</i>	<i>flavopicta</i>	95	1	1	1	1	1	1	8	1	(13)
<i>Ameerega</i>	<i>hahneli</i>	96	1	1	1	0	0	0	5	1	(14)
<i>Ameerega</i>	<i>hahneli</i>	97	1	1	1	0	0	0	5	1	(14)
<i>Ameerega</i>	<i>hahneli</i>	98	1	1	1	0	0	0	5	1	(14)
<i>Ameerega</i>	<i>hahneli</i>	99	1	1	1	0	0	0	5	1	(14)
<i>Ameerega</i>	<i>ignipedis</i>	90	1	1	1	1	0	0	6	--	--
<i>Ameerega</i>	<i>parvula</i>	86	1	1	1	1	0	0	6	1	(14)
<i>Ameerega</i>	<i>petersi</i>	101	1	1	1	0	0	0	5	1	(12)
<i>Ameerega</i>	<i>picta</i>	91	1	1	1	0	0	0	5	1	(15)
<i>Ameerega</i>	<i>picta</i>	92	1	1	1	0	0	0	5	1	(12)
<i>Ameerega</i>	<i>picta</i>	93	1	1	1	0	0	0	5	1	(12)
<i>Ameerega</i>	<i>pongoensis</i>	88	1	1	1	1	1	0	7	--	--
<i>Ameerega</i>	<i>silverstonei</i>	85	1	1	1	1	0	0	6	1	(12)
<i>Ameerega</i>	<i>smaragdina</i>	100	1	1	1	1	1	0	7	--	--
<i>Ameerega</i>	<i>trivittata</i>	105	1	1	1	1	0	0	6	1	(12)
<i>Ameerega</i>	<i>trivittata</i>	107	1	1	1	1	0	0	6	1	(12)
<i>Ameerega</i>	<i>trivittata</i>	106	1	1	1	1	0	0	6	1	(12)
<i>Ameerega</i>	<i>trivittata</i>	104	1	1	1	1	0	0	6	1	(12)
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	0	0	0	0	0	0	2	--	--
<i>Anomaloglossus</i>	<i>degranvillei</i>	4	0	0	0	0	0	0	2	--	--
<i>Anomaloglossus</i>	<i>rufulus</i>	5	0	0	0	0	0	0	1	--	--
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	1	0	0	0	0	0	3	--	--
<i>Aromobates</i>	<i>meridensis</i>	7	0	0	0	0	0	0	1	--	--
<i>Aromobates</i>	<i>saluensis</i>	11	1	1	1	0	0	0	5	--	--
<i>Aromobates</i>	<i>cannatellai</i>	9	1	1	0	0	0	0	4	--	--
<i>Aromobates</i>	aff. <i>saluensis</i>	10	1	0	0	0	0	0	3	--	--
<i>Aromobates</i>	<i>ericksonae</i>	8	1	1	0	0	0	0	4	--	--
<i>Aromobates</i>	<i>ornatissimus</i>	6	0	0	0	0	0	0	2	--	--
<i>Colostethus</i>	<i>argyrogaster</i>	83	1	1	0	0	0	0	4	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	81	1	1	1	0	0	0	5	--	--
<i>Colostethus</i>	<i>fraterdanieli</i>	82	1	1	1	0	0	0	5	--	--

Table S1 (Cont.) Coloration and lipophilic alkaloid scores used in the logistic regressions of poison frogs. Coloration score is based on color contrast thresholds to binary state (0, 1) based on the species  $\Sigma S_i$  (Table S3). Alka Score is the evidence of presence or ability to sequester lipophilic alkaloids (i.e., 1 = yes or 0 = no).

Genus	Species	Phy ID	Color Contrast Threshold						$\Sigma S_i$	Alka Score	Alka Ref
			3	4	5	6	7	8			
<i>Colostethus</i>	<i>fugax</i>	84	1	0	0	0	0	0	3	0	(1)
<i>Colostethus</i>	<i>panamansis</i>	76	1	1	1	0	0	0	5	0	(11)
<i>Colostethus</i>	<i>panamansis</i>	75	1	1	1	0	0	0	5	0	(11)
<i>Colostethus</i>	<i>pratti</i>	80	1	0	0	0	0	0	3	0	(11)
<i>Colostethus</i>	<i>pratti</i>	79	1	0	0	0	0	0	3	0	(11)
<i>Colostethus</i>	<i>pratti</i>	77	1	0	0	0	0	0	3	0	(11)
<i>Colostethus</i>	<i>aff. pratti</i>	78	1	0	0	0	0	0	3	0	(11)
<i>Dendrobates</i>	<i>auratus</i>	116	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>bombetes</i>	126	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>captivus</i>	125	1	1	1	1	0	0	6	1	(1)
<i>Dendrobates</i>	<i>castaneoticus</i>	114	1	1	1	1	1	1	8	1	(12)
<i>Dendrobates</i>	<i>claudiae</i>	130	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>defleri</i>	133	1	1	1	1	1	0	7	--	--
<i>Dendrobates</i>	<i>fantasticus</i>	137	1	1	1	1	0	0	6	1	(16)
<i>Dendrobates</i>	<i>galactonotus</i>	113	1	1	1	1	0	0	6	1	(12)
<i>Dendrobates</i>	<i>granuliferus</i>	119	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>histrionicus</i>	121	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>imitator</i>	131	1	1	1	1	0	0	6	1	(16)
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	1	1	1	1	1	1	8	--	--
<i>Dendrobates</i>	<i>leucomelas</i>	118	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>minutus</i>	128	1	1	1	1	1	1	9	1	(14)
<i>Dendrobates</i>	<i>mysteriosus</i>	124	1	1	1	1	0	0	6	--	--
<i>Dendrobates</i>	<i>pumilio</i>	123	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>pumilio</i>	122	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>reticulatus</i>	136	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	1	1	1	1	1	1	9	1	(14)
<i>Dendrobates</i>	<i>sylvaticus</i>	120	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>tinctorius</i>	117	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>truncatus</i>	115	1	1	1	1	0	0	6	1	(14)
<i>Dendrobates</i>	<i>uakarii</i>	138	1	1	1	1	1	1	8	--	--
<i>Dendrobates</i>	<i>variabilis</i>	135	1	1	1	1	0	0	6	1	(16)
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	1	1	1	1	1	0	7	--	--
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	1	1	1	1	1	0	7	1	(14)
<i>Dendrobates</i>	<i>virolinensis</i>	127	1	1	1	1	0	0	6	--	--
<i>Epipedobates</i>	<i>anthonyi</i>	71	1	1	1	1	1	1	9	1	(14)

Table S1 (Cont.) Coloration and lipophilic alkaloid scores used in the logistic regressions of poison frogs. Coloration score is based on color contrast thresholds to binary state (0, 1) based on the species  $\Sigma S_i$  (Table S3). Alka Score is the evidence of presence or ability to sequester lipophilic alkaloids (i.e., 1 = yes or 0 = no).

Genus	Species	Phy ID	Color Contrast Threshold						$\Sigma S_i$	Alka Score	Alka Ref
			3	4	5	6	7	8			
<i>Epipedobates</i>	<i>anthonyi</i>	70	1	1	1	1	1	1	11	1	(14)
<i>Epipedobates</i>	<i>boulengeri</i>	67	1	1	0	0	0	0	4	0	(10)
<i>Epipedobates</i>	<i>espinosai</i>	69	1	1	0	0	0	0	4	1	(14)
<i>Epipedobates</i>	<i>machalilla</i>	73	1	1	0	0	0	0	4	0	(1)
<i>Epipedobates</i>	<i>machalilla</i>	72	1	1	0	0	0	0	4	0	(1)
<i>Epipedobates</i>	<i>sp. F (darwinwallacei)</i>	68	1	1	1	1	1	0	7	1	(14)
<i>Epipedobates</i>	<i>tricolor</i>	74	1	1	1	1	1	1	10	--	--
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>awa</i>	171	1	0	0	0	0	0	3	0	(17)
<i>Hyloxalus</i>	<i>azureiventris</i>	165	1	1	1	1	1	1	8	1	(18)
<i>Hyloxalus</i>	<i>bocagei</i>	151	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>bocagei</i>	150	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>craspedocephs</i>	166	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>aff. delatorreae</i>	163	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>delatorreae</i>	162	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	1	0	0	0	0	0	3	0	(11)
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	1	0	0	0	0	0	3	0	(11)
<i>Hyloxalus</i>	<i>erythromos</i>	140	0	0	0	0	0	0	2	1	(19)
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>insulatus</i>	167	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>italoi</i>	144	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	0	0	0	0	0	0	1	--	--
<i>Hyloxalus</i>	<i>maculosus</i>	149	0	0	0	0	0	0	1	0	(9)
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	1	0	0	0	0	0	3	--	--
<i>Hyloxalus</i>	<i>nexipus</i>	154	1	1	1	1	0	0	6	0	(1)
<i>Hyloxalus</i>	<i>aff. nexipus</i>	156	1	1	1	1	0	0	6	0	(1)
<i>Hyloxalus</i>	<i>aff. nexipus</i>	155	1	1	1	1	0	0	6	0	(1)
<i>Hyloxalus</i>	<i>pulchellus</i>	160	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>pulchellus</i>	159	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>aff. pulchellus</i>	161	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>cf. pulcherrimus</i>	153	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>sauli</i>	148	1	1	0	0	0	0	4	0	(10)
<i>Hyloxalus</i>	<i>sorditatus</i>	141	0	0	0	0	0	0	0	--	--
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	0	0	0	0	0	0	2	--	--
<i>Hyloxalus</i>	<i>toachi</i>	172	1	0	0	0	0	0	3	--	--

Table S1 (Cont.) Coloration and lipophilic alkaloid scores used in the logistic regressions of poison frogs. Coloration score is based on color contrast thresholds to binary state (0, 1) based on the species  $\Sigma S_i$  (Table S3). Alka Score is the evidence of presence or ability to sequester lipophilic alkaloids (i.e., 1 = yes or 0 = no).

Genus	Species	Phy ID	Color Constrast Threshold						$\Sigma S_i$	Alka Score	Alka Ref
			3	4	5	6	7	8			
<i>Hyloxalus</i>	<i>vertebralis</i>	157	0	0	0	0	0	0	1	0	(1)
<i>Hyloxalus</i>	<i>vertebralis</i>	158	0	0	0	0	0	0	1	0	(1)
<i>Hyloxalus</i>	<i>yasuni</i>	147	0	0	0	0	0	0	1	0	(10)
<i>Hyloxalus</i>	<i>yasuni</i>	145	0	0	0	0	0	0	1	0	(10)
<i>Hyloxalus</i>	<i>yasuni</i>	146	0	0	0	0	0	0	1	0	(10)
<i>Mannophryne</i>	<i>urticans</i>	25	0	0	0	0	0	0	2	0	(11)
<i>Mannophryne</i>	<i>cordilleriana</i>	20	0	0	0	0	0	0	2	--	--
<i>Mannophryne</i>	<i>herminae</i>	19	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>leonardo</i>	16	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>olmonae</i>	12	0	0	0	0	0	0	2	0	(20)
<i>Mannophryne</i>	<i>orellana</i>	22	0	0	0	0	0	0	2	--	--
<i>Mannophryne</i>	<i>orellana</i>	21	0	0	0	0	0	0	2	--	--
<i>Mannophryne</i>	<i>riveroi</i>	13	0	0	0	0	0	0	2	0	(20)
<i>Mannophryne</i>	<i>trinitatis</i>	17	0	0	0	0	0	0	2	0	(20)
<i>Mannophryne</i>	<i>collaris</i>	23	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>collaris</i>	24	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>venezuelensis</i>	18	0	0	0	0	0	0	2	--	--
<i>Mannophryne</i>	<i>vulcano</i>	14	1	0	0	0	0	0	3	--	--
<i>Mannophryne</i>	<i>yusttizi</i>	26	1	0	0	0	0	0	3	--	--
<i>Phyllobates</i>	<i>aurotaenia</i>	108	1	1	1	1	0	0	6	1	(14)
<i>Phyllobates</i>	<i>lugubris</i>	111	1	1	1	1	0	0	6	1	(14)
<i>Phyllobates</i>	<i>lugubris</i>	112	1	1	1	1	0	0	6	1	(14)
<i>Phyllobates</i>	<i>terribilis</i>	109	1	1	1	1	0	0	6	1	(14)
<i>Phyllobates</i>	<i>vittatus</i>	110	1	1	1	1	1	0	7	1	(14)
<i>Rheobates</i>	<i>palmatus</i>	28	1	0	0	0	0	0	3	--	--
<i>Rheobates</i>	<i>palmatus</i>	27	1	0	0	0	0	0	3	--	--
<i>Silverstoneia</i>	<i>flotator</i>	62	1	0	0	0	0	0	3	0	(21)
<i>Silverstoneia</i>	<i>flotator</i>	63	1	0	0	0	0	0	3	0	(21)
<i>Silverstoneia</i>	<i>nubicola</i>	66	0	0	0	0	0	0	2	0	(21)
<i>Silverstoneia</i>	<i>nubicola</i>	65	0	0	0	0	0	0	2	0	(21)
<i>Silverstoneia</i>	<i>nubicola</i>	64	0	0	0	0	0	0	2	0	(21)

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Genus	Species	Phy ID	Dorsal Background (a)		Dorsal Stripe (b)		Dorsolateral Stripe (c)		Lateral Background (d)		Ventrolateral Stripe (e)		Oblique Lateral Stripe (f)		Arm Dorsal (g)		Flash Mark (h)		Thigh Dorsal (i)		Throat (j)		Abdomen (k)		$\Sigma S_i$	Ref			
			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S			Color	S	
<i>Allobates</i>	<i>algorei</i>	60	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	Br	0	--	0	D-Br	0	Gray	0	Cr	1	2	(1), Obs			
<i>Allobates</i>	<i>brunneus</i>	37	Br	0	--	0	--	0	D-Br	0	Cr	1	Or	Br	1	L-Br	0	--	0	D-Br	0	Y	1	Y	1	4	(2, 3), Obs		
<i>Allobates</i>	<i>caeruleodactylus</i>	48	L-Br	0	--	0	--	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Cr	1	2	(4), Obs			
<i>Allobates</i>	<i>crombiei</i>	52	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	--	0	Br	0	--	0	Br	0	Wh	1	Wh	1	3	(3)			
<i>Allobates</i>	<i>femorialis</i>	43	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	0	Bl	0	Wh	Bl	1	5	(5, 6), Obs	
<i>Allobates</i>	<i>femorialis</i>	46	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	0	Bl	0	Wh	Bl	1	5	(6-8)	
<i>Allobates</i>	<i>femorialis</i>	44	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	0	Bl	0	Wh	Bl	1	5	(6-8)	
<i>Allobates</i>	<i>femorialis</i>	40	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	Y	1	Bl	0	Wh	Bl	1	6	(6, 7)
<i>Allobates</i>	<i>femorialis</i>	41	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	Y	1	Bl	0	Wh	Bl	1	6	(6-8)
<i>Allobates</i>	<i>femorialis</i>	45	Bl	0	--	0	Y	1	Bl	0	Wh	1	Wh	1	L-Br	Y	1	--	0	D-Br	Y	1	Bl	0	Wh	Bl	1	6	(6-8)
<i>Allobates</i>	<i>granti</i>	49	Br	0	--	0	Br	0	D-Br	0	Cr	1	L-Br	0	Br	0	--	0	Br	0	Gray	0	Gray	0	1	(9)			
<i>Allobates</i>	<i>humilis</i>	59	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	--	0	Br	0	--	0	D-Br	0	Gray	0	Cr	1	2	(1, 10), Obs			
<i>Allobates</i>	<i>insperatus</i>	54	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	(5), Obs			
<i>Allobates</i>	<i>aff. insperatus</i>	55	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	Obs			
<i>Allobates</i>	<i>juanii</i>	47	Br	0	--	0	L-Br	0	Bl	0	Cr	1	L-Br	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	(11), Obs			
<i>Allobates</i>	<i>kingsburyi</i>	39	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	(12, 13), Obs			
<i>Allobates</i>	<i>marchesianus</i>	50	L-Br	0	--	0	--	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Cr	1	2	(3, 14)			
<i>Allobates</i>	<i>masniger</i>	58	D-Br	0	--	0	Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	D-Br	0	Gray	0	Gray	0	1	(3)			
<i>Allobates</i>	<i>nidicola</i>	36	Br	0	--	0	--	0	D-Br	0	Wh	1	Wh	1	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	2	(15)			
<i>Allobates</i>	<i>olfersioides</i>	1	D-Br	0	--	0	--	0	Bl	0	Wh	1	Wh	1	Br	0	--	0	Br	0	L-Br	0	Cr	1	3	(13, 16)			
<i>Allobates</i>	<i>ornatus</i>	51	L-Br	0	D-Br	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	(17), Obs			
<i>Allobates</i>	<i>sp. Ducke</i>	61	L-Br	0	D-Br	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	(18), Obs			
<i>Allobates</i>	<i>sp. Neblina</i>	29	--	-	--	-	--	-	--	-	--	-	--	-	--	-	--	-	--	-	--	-	--	-	--	--			

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).



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Genus	Species	Phy ID	Dorsal Background (a)		Dorsal Stripe (b)		Dorsolateral Stripe (c)		Lateral Background (d)		Ventrolateral Stripe (e)		Oblique Lateral Stripe (f)		Arm Dorsal (g)		Flash Mark (h)		Thigh Dorsal (i)		Throat (j)		Abdomen (k)		$\sum S_i$	Ref			
			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S			Color	S	
<i>Allobates</i>	<i>sp. Negro</i>	38	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	Obs			
<i>Allobates</i>	<i>sp. Shushufindi</i>	53	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	Obs			
<i>Allobates</i>	<i>sp. Treviso (sp. small)</i>	57	L-Br	0	D-Br	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	Obs			
<i>Allobates</i>	<i>talamancae</i>	34	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>talamancae</i>	32	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>talamancae</i>	35	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>talamancae</i>	31	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>talamancae</i>	33	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>talamancae</i>	30	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	--	0	L-Br	0	--	0	L-Br	0	Bl	0	Gray	0	1	(12, 13, 19, 20), Obs			
<i>Allobates</i>	<i>trilineatus</i>	56	D-Br	0	L-Br	0	Br	0	D-Br	0	Wh	1	--	0	L-Br	0	--	0	D-Br	0	Gray	0	Cr	1	2	(13, 21)			
<i>Allobates</i>	<i>zaparo</i>	42	R	1	--	0	R	Cr	1	Bl	0	Bl	0	B	1	L-Br	Y	1	Y	1	Gray	0	Bl	0	Wh	Bl	1	6	(6, 22, 23), Obs
<i>Ameerega</i>	<i>altamazonica</i>	103	D-Br	0	--	0	Bl	0	Bl	0	B	1	Cr	1	D-Br	0	Y	1	D-Br	0	B	Bl	1	B	Bl	1	5	(24), Obs	
<i>Ameerega</i>	<i>bassleri</i>	89	Y/Or	1	--	0	Y/Or	1	Bl	0	Cr	1	Y/Or	1	Y	1	--	0	Y	1	Bl	0	Bl	0	6	(6, 22, 25, 26), Obs			
<i>Ameerega</i>	<i>bilinguis</i>	87	R	1	--	0	Bl	0	Bl	0	B	1	B	1	Gray	Y	1	Y	1	Gray	0	B	Bl	1	B	Bl	1	7	(22, 23), Obs
<i>Ameerega</i>	<i>braccata</i>	94	Bl	0	L-Y	1	Or	1	Bl	0	L-Y	1	L-Y	1	L-Y	1	Or	1	Bl	L-Br	0	L-Y	1	L-Y	Gray	1	8	(22, 27), Obs	
<i>Ameerega</i>	<i>cainarachi</i>	102	R/Or	1	--	0	Bl	0	Bl	0	B	1	Y	1	Gray	Y	1	Y	1	Gray	B	1	B	1	B	1	8	(22, 23, 28), Obs	
<i>Ameerega</i>	<i>flavopicta</i>	95	Bl	0	Cr	1	Or	1	Bl	0	Y	1	Or	1	Y	1	Or	1	Bl	L-Br	0	Y	Gray	1	Y	Gray	1	8	(22, 27)
<i>Ameerega</i>	<i>hahneli</i>	96	D-Br	0	--	0	Bl	0	Bl	0	B	1	Cr	1	D-Br	0	Y	1	D-Br	0	B	Bl	1	B	Bl	1	5	(5, 22, 27), Obs	
<i>Ameerega</i>	<i>hahneli</i>	97	D-Br	0	--	0	Bl	0	Bl	0	B	1	Cr	1	D-Br	0	Y	1	D-Br	0	B	Bl	1	B	Bl	1	5	(5, 22, 27), Obs	
<i>Ameerega</i>	<i>hahneli</i>	98	D-Br	0	--	0	Bl	0	Bl	0	B	1	Cr	1	D-Br	0	Y	1	D-Br	0	B	Bl	1	B	Bl	1	5	(5, 22, 27), Obs	
<i>Ameerega</i>	<i>hahneli</i>	99	D-Br	0	--	0	Bl	0	Bl	0	B	1	Cr	1	D-Br	0	Y	1	D-Br	0	B	Bl	1	B	Bl	1	5	(5, 22, 27), Obs	
<i>Ameerega</i>	<i>ignipedis</i>	90	D-Br	0	--	0	Bl	0	Bl	0	Cr	1	Y	1	L-Br	Y	1	Y	1	L-Br	0	B	Bl	1	B	Bl	1	6	(25, 28)
<i>Ameerega</i>	<i>parvula</i>	86	R	1	--	0	Bl	0	Bl	0	B	1	B	1	Gray	0	B	1	Gray	0	B	Bl	1	B	Bl	1	6	(5, 6, 22, 23, 29), Obs	

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			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S						
<i>Ameerega</i>	<i>petersi</i>	101	Br	0	--	0	Bl	0	Bl	0	L-Gr	1	L-Gr	1	Br	0	L-Gr	1	Br	0	L-Gr	1	L-Gr	Bl	1	5	(22, 25, 28)			
<i>Ameerega</i>	<i>picta</i>	91	D-Br	0	--	0	Bl	0	Bl	0	Cr	1	Y	1	Br	Y	1	Or	1	Br	0	Bl	0	Bl	Y	1	5	(22, 27, 28)		
<i>Ameerega</i>	<i>picta</i>	92	D-Br	0	--	0	Bl	0	Bl	0	Cr	1	Y	1	Br	Y	1	Or	1	Br	0	Bl	0	Bl	Y	1	5	(22, 27, 28), Obs		
<i>Ameerega</i>	<i>picta</i>	93	D-Br	0	--	0	Bl	0	Bl	0	Cr	1	Y	1	Br	Y	1	Or	1	Br	0	Bl	0	Bl	Y	1	5	(22, 27, 28)		
<i>Ameerega</i>	<i>pongoensis</i>	88	Bl	L-Gr	1	--	0	Bl	0	L-Gr	1	L-Gr	1	Bl	0	Gray	0	B	1	Gray	B	1	B	1	Gray	B	1	7	(22, 28), Obs	
<i>Ameerega</i>	<i>silverstonei</i>	85	Or	Bl	1	--	0	--	0	Or	Bl	1	Bl	0	--	0	Or	1	--	0	Or	Bl	1	Or	Bl	1	6	(22, 28, 30)		
<i>Ameerega</i>	<i>smaragdina</i>	100	Br	L-Gr	1	--	0	Bl	0	L-Gr	1	L-Gr	1	Bl	0	L-Gr	1	--	0	Gray	L-Gr	1	Gray	L-Gr	1	Gray	L-Gr	1	7	(6, 22, 28)
<i>Ameerega</i>	<i>trivittata</i>	105	Bl	0	L-Gr	1	L-Gr	1	Bl	0	L-Gr	1	L-Gr	1	L-Gr	1	--	0	L-Gr	1	Bl	0	Bl	0	Bl	0	6	(6, 22, 28), Obs		
<i>Ameerega</i>	<i>trivittata</i>	107	L-Gr	1	--	0	L-Gr	1	Bl	0	L-Gr	1	L-Gr	1	L-Gr	1	--	0	L-Gr	1	Bl	0	Bl	0	Bl	0	6	(6, 22, 28), Obs		
<i>Ameerega</i>	<i>trivittata</i>	106	L-Gr	1	L-Gr	1	L-Gr	1	Bl	0	L-Gr	1	--	0	L-Gr	1	--	0	L-Gr	1	Bl	0	Bl	0	Bl	0	6	(6, 22, 28), Obs		
<i>Ameerega</i>	<i>trivittata</i>	104	Bl	0	L-Gr	1	L-Gr	1	Bl	0	L-Gr	1	L-Gr	1	L-Gr	1	--	0	L-Gr	1	Bl	0	Bl	0	Bl	0	6	(6, 22, 28), Obs		
<i>Anomaloglossus</i>	<i>baeobatrachus</i>	3	Br	0	--	0	D-Br	0	D-Br	0	Wh	1	Wh	1	Br	0	--	0	D-Br	0	Gray	0	Gray	0	Gray	0	2	(31)		
<i>Anomaloglossus</i>	<i>degravellei</i>	4	Br	0	--	0	D-Br	0	D-Br	0	Wh	1	Cr	1	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	Gray	0	2	(31)		
<i>Anomaloglossus</i>	<i>rufulus</i>	5	D-Br	0	--	0	--	0	D-Br	0	--	0	--	0	D-Br	0	--	0	D-Br	0	D-Br	0	D-Br	0	Gray	Y	1	1	(22, 32), Obs	
<i>Anomaloglossus</i>	<i>verbeeksnyderorum</i>	2	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	Y	1	L-Br	0	Gray	0	Gray	0	Gray	0	3	(33), Obs		
<i>Aromobates</i>	<i>meridensis</i>	7	Bl	0	Bl	0	--	0	Bl	0	--	0	--	0	Bl	0	--	0	Bl	0	Gray	0	Y	1	Y	1	1	(34), Obs		
<i>Aromobates</i>	<i>saluensis</i>	11	D-Br	0	--	0	Cr	1	D-Br	0	Wh	1	Wh	1	Br	0	Y	1	D-Br	0	Gray	0	Gray	0	Cr	1	5	Obs		
<i>Aromobates</i>	<i>cannatellai</i>	9	Br	0	--	0	Cr	1	Br	0	Cr	1	Wh	1	L-Br	0	Y	1	Br	0	Gray	0	Gray	0	Gray	0	4	Obs		
<i>Aromobates</i>	aff. <i>saluensis</i>	10	Br	0	--	0	Cr	1	Br	0	Cr	1	Wh	1	L-Br	0	--	0	Br	0	Gray	0	Gray	0	Gray	0	3	Obs		
<i>Aromobates</i>	<i>ericksonae</i>	8	Br	0	--	0	Cr	1	D-Br	0	Wh	1	Wh	1	L-Br	0	--	0	L-Br	0	Gray	0	Gray	0	Cr	1	4	Obs		
<i>Aromobates</i>	<i>ornatissimus</i>	6	Br	0	Bl	0	Bl	0	Br	0	Wh	1	--	0	L-Br	0	--	0	Br	0	Gray	0	Gray	0	Cr	1	2	(35), Obs		
<i>Colostethus</i>	<i>argyrogaster</i>	83	D-Br	0	--	0	Bl	0	Bl	0	Cr	1	Cr	1	L-Br	0	--	0	D-Br	0	Cr	1	Cr	1	Cr	1	4	(17), Obs		
<i>Colostethus</i>	<i>fraterdanieli</i>	81	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	Y	1	Br	0	Cr	1	Cr	1	Cr	1	5	(36), Obs		

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

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			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	C	S	Color	S	Color	S	Color	S							
<i>Colostethus</i>	<i>fraterdanieli</i>	82	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	Y	1	Br	0	Cr	1	Cr	1	5	(36), Obs					
<i>Colostethus</i>	<i>fugax</i>	84	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	Obs					
<i>Colostethus</i>	<i>panamansis</i>	76	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Y	1	L-Br	0	Y	1	Br	0	Cr	1	Cr	1	5	(20), Obs					
<i>Colostethus</i>	<i>panamansis</i>	75	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Y	1	L-Br	0	Y	1	Br	0	Cr	1	Cr	1	5	(20), Obs					
<i>Colostethus</i>	<i>pratti</i>	80	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(19), Obs					
<i>Colostethus</i>	<i>pratti</i>	79	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(19), Obs					
<i>Colostethus</i>	<i>pratti</i>	77	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(19), Obs					
<i>Colostethus</i>	aff. <i>pratti</i>	78	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	Obs					
<i>Dendrobates</i>	<i>auratus</i>	116	Bl	L-Gr	1	--	0	--	0	Bl	L-Gr	1	--	0	Bl	L-Gr	1	--	0	Bl	L-Gr	1	Bl	B	1	Bl	B	1	6	(19, 20, 22, 37), Obs	
<i>Dendrobates</i>	<i>bombetes</i>	126	R	Gray	1	Gray	0	R	1	Gray	0	Cr	1	--	0	Bl	R	1	--	0	Bl	Wh	1	Bl	Wh	1	6	(22, 38), Obs			
<i>Dendrobates</i>	<i>captivus</i>	125	Bl	Or	1	--	0	Or	1	Bl	0	--	0	--	0	Bl	Y	1	Y	1	Bl	Y	1	Bl	Y	1	6	Obs			
<i>Dendrobates</i>	<i>castaneoticus</i>	114	Bl	Cr	1	Cr	1	Bl	0	--	0	Cr	1	Bl	Or	1	Or	1	Bl	Or	1	Bl	Cr	1	Bl	Or	1	8	(22, 39)		
<i>Dendrobates</i>	<i>claudiae</i>	130	Bl	--	0	Or	1	Bl	0	Cr	1	Cr	1	Y	1	Y	1	Bl	0	Bl	0	Bl	B	1	6	(22, 40), Obs					
<i>Dendrobates</i>	<i>defleri</i>	133	Bl	Y	1	Bl	0	Bl	0	L-Gr	1	Y	1	Bl	Y	B	1	--	0	Bl	B	1	Bl	Y	1	Bl	B	1	7	(28, 41)	
<i>Dendrobates</i>	<i>fantasticus</i>	137	Bl	Or	B	1	--	0	--	0	Bl	L-Gr	1	--	0	Bl	L-Gr	1	--	0	Bl	L-Gr	1	Bl	Or	1	Bl	B	1	6	(22, 28, 41), Obs
<i>Dendrobates</i>	<i>galactonotus</i>	113	Or	1	--	0	Or	1	Or	1	--	0	--	0	Bl	Or	1	Or	1	Bl	Or	1	Bl	0	Bl	0	6	(22, 37), Obs			
<i>Dendrobates</i>	<i>granuliferus</i>	119	R	L-Gr	1	--	0	--	0	L-Gr	1	--	0	--	0	L-Gr	Gray	1	--	0	L-Gr	Gray	1	L-Gr	1	L-Gr	Gray	1	6	(22, 37, 42), Obs	
<i>Dendrobates</i>	<i>histrionicus</i>	121	Bl	R	1	--	0	--	0	Bl	R	1	--	0	Bl	R	1	--	0	Bl	R	1	Bl	R	1	Bl	R	1	6	(22, 28, 37, 43), Obs	
<i>Dendrobates</i>	<i>imitator</i>	131	Bl	Y	1	--	0	--	0	Bl	Y	1	--	0	Bl	B	1	--	0	Bl	B	1	Bl	Or	1	Bl	Or	1	6	(22, 28, 41, 44), Obs	
<i>Dendrobates</i>	<i>lamasi (sirensis)</i>	132	Bl	0	L-Gr	1	Y	1	Bl	0	L-Gr	1	Y	1	Bl	L-Gr	1	--	0	Bl	L-Gr	1	Bl	L-Gr	1	Bl	L-Gr	1	8	(22, 28, 41, 45), Obs	
<i>Dendrobates</i>	<i>leucomelas</i>	118	Bl	Y	1	Bl	Y	1	--	0	Bl	Y	1	--	0	Bl	Y	1	Y	1	Bl	Y	1	Bl	0	Bl	0	6	(22, 37), Obs		
<i>Dendrobates</i>	<i>minutus</i>	128	Or	Gray	1	Gray	0	Or	1	Bl	0	B	1	Or	1	Y	1	Or	1	Bl	B	1	Bl	B	1	Bl	B	1	9	(20, 22, 37), Obs	
<i>Dendrobates</i>	<i>mysteriosus</i>	124	R	Wh	1	--	0	--	0	R	Wh	1	--	0	R	Wh	1	--	0	R	Wh	1	R	Wh	1	R	Wh	1	6	(22, 28, 46), Obs	

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

Table S2 (Cont.) Binary coloration classification and composite conspicuousness (i.e., total contrast score TCS or  $\Sigma S_i$  measured as the sum of all binary  $S_i$  points) of the species of poison frogs included in the analysis. Description of coloration is based on specimen descriptions from the literature, as well as from scoring of photographs of live animals. Nomenclature of the regions in the male frog's body is provided in the Fig. S3.

Genus	Species	Phy ID	Dorsal Background (a)		Dorsal Stripe (b)		Dorsolateral Stripe (c)		Lateral Background (d)		Ventrolateral Stripe (e)		Oblique Lateral Stripe (f)		Arm Dorsal (g)		Flash Mark (h)		Thigh Dorsal (i)		Throat (j)		Abdomen (k)		$\Sigma S_i$	Ref						
			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	C	S	Color	S	Color	S	Color	S								
<i>Dendrobates</i>	<i>pumilio</i>	123	R	1	--	0	--	0	R	1	--	0	--	0	R	1	--	0	R	1	R	1	R	1	6	(22, 37), Obs						
<i>Dendrobates</i>	<i>pumilio</i>	122	R	1	--	0	--	0	R	1	--	0	--	0	R	1	--	0	R	1	R	1	R	1	6	(22, 37), Obs						
<i>Dendrobates</i>	<i>reticulatus</i>	136	R	1	--	0	--	0	Bl	B	1	--	0	--	0	Bl	B	1	Bl	B	1	R	1	Bl	B	1	6	(22, 28, 41), Obs				
<i>Dendrobates</i>	<i>sp. Quibdo</i>	129	Or	Gray	1	Gray	0	Or	1	Bl	0	B	1	Or	1	Or	1	Y	1	Or	1	Bl	B	1	Bl	B	1	9	Obs			
<i>Dendrobates</i>	<i>sylvaticus</i>	120	Bl	R	1	--	0	--	0	Bl	R	1	--	0	--	0	Bl	R	1	Bl	R	1	Bl	R	1	Bl	R	1	6	(22, 43, 47), Obs		
<i>Dendrobates</i>	<i>tinctorius</i>	117	Bl	Y	B	1	--	0	--	0	Bl	Y	B	1	--	0	--	0	Bl	B	1	Bl	B	1	Bl	B	1	6	(22, 37), Obs			
<i>Dendrobates</i>	<i>truncatus</i>	115	Bl	0	--	0	Y	1	Bl	0	Y	1	--	0	Bl	0	Y	1	Bl	0	Y	1	Bl	0	Y	1	6	(22, 37), Obs				
<i>Dendrobates</i>	<i>uakarii</i>	138	Bl	0	R	1	R	1	Bl	0	Y	1	--	0	Bl	Y	B	1	Y	1	Bl	B	1	Bl	Y	1	Bl	B	1	8	(22, 28, 48)	
<i>Dendrobates</i>	<i>variabilis</i>	135	Bl	Y	1	--	0	--	0	Bl	Y	1	--	0	--	0	Bl	B	1	--	0	Bl	B	1	Bl	Y	1	Bl	Y	1	6	(22, 28, 41), Obs
<i>Dendrobates</i>	<i>ventrimaculatus</i>	134	Bl	0	Y	1	Y	1	Bl	0	Y	1	--	0	Bl	Y	B	1	--	0	Bl	B	1	Bl	Y	1	Bl	B	1	7	(5, 22, 28, 29, 41), Obs	
<i>Dendrobates</i>	<i>ventrimaculatus</i>	139	Bl	0	Y	1	Y	1	Bl	0	Y	1	--	0	Bl	Y	B	1	--	0	Bl	B	1	Bl	Y	1	Bl	B	1	7	(5, 22, 28, 29, 41), Obs	
<i>Dendrobates</i>	<i>virolinensis</i>	127	R	1	--	0	--	0	R	1	Cr	1	--	0	Bl	R	1	--	0	Bl	0	Bl	Wh	1	Bl	Wh	1	6	(22, 49), Obs			
<i>Epipedobates</i>	<i>anthonyi</i>	71	L-Gr	1	L-Gr	1	Br	0	Br	0	L-Gr	1	L-Gr	1	L-Gr	Br	1	Or	1	L-Gr	R	1	L-Gr	R	1	L-Gr	R	1	9	(6, 22, 28, 50), Obs		
<i>Epipedobates</i>	<i>anthonyi</i>	70	L-Gr	1	L-Gr	1	R	1	R	1	L-Gr	1	L-Gr	1	L-Gr	R	1	Or	1	L-Gr	R	1	L-Gr	R	1	L-Gr	R	1	11	(6, 22, 28, 50), Obs		
<i>Epipedobates</i>	<i>boulengeri</i>	67	Br	0	--	0	Bl	0	Bl	0	Wh	1	Cr	1	Br	0	--	0	Br	0	Gray	Wh	1	Bl	Wh	1	4	(6, 22), Obs				
<i>Epipedobates</i>	<i>espinosai</i>	69	Br	0	--	0	Bl	0	Bl	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Gray	Wh	1	Bl	Wh	1	4	(6), Obs				
<i>Epipedobates</i>	<i>machalilla</i>	73	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	Y	1	Br	0	Gray	0	Cr	1	4	(12, 22), Obs						
<i>Epipedobates</i>	<i>machalilla</i>	72	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	Y	1	Br	0	Gray	0	Cr	1	4	(12, 22), Obs						
<i>Epipedobates</i>	<i>sp. F darwinwallacei</i>	68	Br	Y	1	--	0	Br	0	D-Br	0	Y	1	Y	1	Br	Y	1	--	0	Br	Y	1	Br	Y	1	Br	Y	1	7	(6, 51), Obs	
<i>Epipedobates</i>	<i>tricolor</i>	74	L-Gr	1	L-Gr	1	Br	0	L-Gr	1	L-Gr	1	L-Gr	1	L-Gr	Br	1	Or	1	L-Gr	Br	1	L-Gr	Br	1	L-Gr	Br	1	10	(6, 22), Obs		
<i>Hyloxalus</i>	<i>sp. Agua Azul</i>	142	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	Br	0	--	0	Br	0	Gray	0	Cr	1	2	Obs						
<i>Hyloxalus</i>	<i>awa</i>	171	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Gray	Wh	1	3	(12), Obs					

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

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Genus	Species	Phy ID	Dorsal Background (a)		Dorsal Stripe (b)		Dorsolateral Stripe (c)		Lateral Background (d)		Ventrolateral Stripe (e)		Oblique Lateral Stripe (f)		Arm Dorsal (g)		Flash Mark (h)		Thigh Dorsal (i)		Throat (j)		Abdomen (k)		$\sum S_i$	Ref			
			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Col	S	Color	S	Color	S	Color	S			Color	S	
<i>Hyloxalus</i>	<i>azureiventris</i>	165	Bl	0	--	0	Or	1	Bl	0	B	1	Or	1	Or	B	1	B	1	Bl	B	1	Bl	B	1	8	(28, 52), Obs		
<i>Hyloxalus</i>	<i>bocagei</i>	151	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	Cr	1	D-Br	Y	1	--	0	D-Br	0	Gray	0	Cr	1	3	(12, 53), Obs		
<i>Hyloxalus</i>	<i>bocagei</i>	150	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	Cr	1	D-Br	Y	1	--	0	D-Br	0	Gray	0	Cr	1	3	(12, 53), Obs		
<i>Hyloxalus</i>	<i>craspedoiceps</i>	166	L-Br	0	--	0	D-Br	0	L-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(17), Obs			
<i>Hyloxalus</i>	aff. <i>delatorreae</i>	163	Br	0	--	0	D-Br	0	Bl	0	Cr	1	Cr	1	L-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(54), Obs			
<i>Hyloxalus</i>	<i>delatorreae</i>	162	Br	0	--	0	D-Br	0	Bl	0	Cr	1	Cr	1	L-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(12, 54), Obs			
<i>Hyloxalus</i>	<i>elachyhistus</i>	169	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	D-Br	0	Gray	0	Cr	1	3	(12, 13), Obs			
<i>Hyloxalus</i>	<i>elachyhistus</i>	168	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	D-Br	0	Gray	0	Cr	1	3	(12, 13), Obs			
<i>Hyloxalus</i>	<i>erythromos</i>	140	D-Br	0	--	0	Br	0	D-Br	0	D-Br	0	L-Br	0	L-Br	0	--	0	D-Br	0	Bl	Wh	1	Bl	Wh	1	2	(22, 55, 56), Obs	
<i>Hyloxalus</i>	<i>infraguttatus</i>	170	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(12, 13), Obs			
<i>Hyloxalus</i>	<i>insulatus</i>	167	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	3	(17), Obs			
<i>Hyloxalus</i>	<i>italoi</i>	144	L-Br	0	--	0	--	0	L-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	2	(12, 53), Obs			
<i>Hyloxalus</i>	<i>jacobuspetersi</i>	152	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	D-Br	0	Gray	0	Gray	0	1	(12, 13), Obs			
<i>Hyloxalus</i>	<i>maculosus</i>	149	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	D-Br	0	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	1	(12, 53), Obs			
<i>Hyloxalus</i>	<i>sp. Negro</i>	164	D-Br	0	--	0	Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	Obs			
<i>Hyloxalus</i>	<i>nexipus</i>	154	Gray	0	--	0	Or	1	Gray	0	Gray	Cr	1	Or	1	Gray	B	1	--	0	Gray	B	1	Gray	0	Cr	1	6	(12, 17), Obs
<i>Hyloxalus</i>	aff. <i>nexipus</i>	156	Gray	0	--	0	Or	1	Gray	0	Gray	Cr	1	Or	1	Gray	B	1	--	0	Gray	B	1	Gray	0	Cr	1	6	(12, 17), Obs
<i>Hyloxalus</i>	aff. <i>nexipus</i>	155	Gray	0	--	0	Or	1	Gray	0	Gray	Cr	1	Or	1	Gray	B	1	--	0	Gray	B	1	Gray	0	Cr	1	6	(12, 17), Obs
<i>Hyloxalus</i>	<i>pulchellus</i>	160	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	(12, 13, 57), Obs			
<i>Hyloxalus</i>	<i>pulchellus</i>	159	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	(12, 13, 57), Obs			
<i>Hyloxalus</i>	aff. <i>pulchellus</i>	161	D-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	L-Br	0	L-Br	0	--	0	Br	0	Gray	0	Cr	1	2	Obs			
<i>Hyloxalus</i>	cf. <i>pulcherrimus</i>	153	Gray	0	--	0	D-Br	0	D-Br	0	D-Br	0	Wh	1	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	2	(17)			
<i>Hyloxalus</i>	<i>sauli</i>	148	D-Br	0	--	0	--	0	D-Br	0	Cr	1	Cr	1	D-Br	Y	1	--	0	D-Br	0	Gray	0	Cr	1	4	(5, 12, 53), Obs		

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

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			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S			Color
<i>Hyloxalus</i>	<i>sorditatus</i>	141	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	--	0	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	0	(17), Obs	
<i>Hyloxalus</i>	<i>subpunctatus</i>	143	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	L-Br	0	Br	0	--	0	Br	0	Gray	0	Cr	1	2	(13), Obs	
<i>Hyloxalus</i>	<i>toachi</i>	172	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Gray	0	Cr	1	3	(12), Obs	
<i>Hyloxalus</i>	<i>vertebralis</i>	157	Br	0	L-Br	0	L-Br	0	D-Br	0	D-Br	0	L-Br	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	1	(12, 13), Obs	
<i>Hyloxalus</i>	<i>vertebralis</i>	158	Br	0	L-Br	0	L-Br	0	D-Br	0	D-Br	0	L-Br	0	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	1	(12, 13), Obs	
<i>Hyloxalus</i>	<i>yasuni</i>	147	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	L-Br	0	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	1	(12, 53), Obs	
<i>Hyloxalus</i>	<i>yasuni</i>	145	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	L-Br	0	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	1	(12, 53), Obs	
<i>Hyloxalus</i>	<i>yasuni</i>	146	D-Br	0	--	0	--	0	D-Br	0	D-Br	0	L-Br	0	D-Br	0	--	0	D-Br	0	Gray	0	Cr	1	1	(12, 53), Obs	
<i>Mannophryne</i>	<i>urticans</i>	25	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Gray	0	2	(13, 58), Obs	
<i>Mannophryne</i>	<i>cordilleriana</i>	20	Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	Y	1	Br	0	--	0	D-Br	0	Gray	0	Gray	0	2	(58), Obs
<i>Mannophryne</i>	<i>herminae</i>	19	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	Wh	1	L-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(13, 58), Obs	
<i>Mannophryne</i>	<i>sp. Guatopo</i>	15	Br	0	--	0	L-Br	0	D-Br	0	Cr	1	Wh	1	L-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(13, 58), Obs	
<i>Mannophryne</i>	<i>leonardo</i>	16	L-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(59), Obs	
<i>Mannophryne</i>	<i>olmonae</i>	12	Br	0	--	0	D-Br	0	Br	0	Cr	1	Wh	1	L-Br	0	--	0	L-Br	0	Gray	0	Gray	0	2	(13, 58, 60)	
<i>Mannophryne</i>	<i>orellana</i>	22	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	Wh	1	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	2	(61), Obs	
<i>Mannophryne</i>	<i>orellana</i>	21	D-Br	0	--	0	L-Br	0	Bl	0	Cr	1	Wh	1	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	2	(61), Obs	
<i>Mannophryne</i>	<i>riveroi</i>	13	D-Br	0	--	0	D-Br	0	D-Br	0	--	0	--	0	D-Br	0	Or	1	D-Br	0	Gray	0	Y/Or	1	2	(13, 62), Obs	
<i>Mannophryne</i>	<i>trinitatis</i>	17	D-Br	0	--	0	D-Br	0	Bl	0	Cr	1	Wh	1	L-Br	0	--	0	Br	0	Gray	0	Bl	0	2	(13, 58, 63)	
<i>Mannophryne</i>	<i>collaris</i>	23	D-Br	0	--	0	Bl	0	D-Br	0	Cr	1	Cr	Y	1	L-Br	0	Y	1	L-Br	0	Gray	0	Gray	0	3	(61), Obs
<i>Mannophryne</i>	<i>collaris</i>	24	D-Br	0	--	0	Bl	0	D-Br	0	Cr	1	Cr	Y	1	L-Br	0	Y	1	L-Br	0	Gray	0	Gray	0	3	(61), Obs
<i>Mannophryne</i>	<i>venezuelensis</i>	18	D-Br	0	--	0	L-Br	0	D-Br	0	Cr	1	Wh	1	D-Br	0	--	0	D-Br	0	Gray	0	Gray	0	2	(13, 64), Obs	
<i>Mannophryne</i>	<i>vulcano</i>	14	L-Br	0	--	0	D-Br	0	D-Br	0	Cr	1	Cr	1	L-Br	0	--	0	L-Br	0	Gray	0	Cr	1	3	(13, 61), Obs	
<i>Mannophryne</i>	<i>yustizi</i>	26	Bl	0	--	0	D-Br	0	Bl	0	Y	1	Cr	Y	1	D-Br	0	Y	1	D-Br	0	Gray	0	Gray	0	3	Obs

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

Table S2 (Cont.) Binary coloration classification and composite conspicuousness (i.e., total contrast score TCS or  $\Sigma S_i$  measured as the sum of all binary  $S_i$  points) of the species of poison frogs included in the analysis. Description of coloration is based on specimen descriptions from the literature, as well as from scoring of photographs of live animals. Nomenclature of the regions in the male frog's body is provided in the Fig. S3.

Genus	Species	Phy ID	Dorsal Background (a)		Dorsal Stripe (b)		Dorsolateral Stripe (c)			Lateral Background (d)		Ventrolateral Stripe (e)		Oblique Lateral Stripe (f)		Arm Dorsal (g)			Flash Mark (h)		Thigh Dorsal (i)		Throat (j)		Abdomen (k)		$\Sigma S_i$	Ref		
			Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Color	S	Col	S	Color	S	Color	S	Color	S			Color	S
<i>Phyllobates</i>	<i>aurotaenia</i>	108	Bl	0	--	0	L-Gr	Or	1	Bl	0	B	1	--	0	Bl	B	1	L-Gr	1	Bl	B	1	Bl	0	Bl	B	1	6	(6, 22), Obs
<i>Phyllobates</i>	<i>lugubris</i>	111	Bl	0	--	0	Y		1	Bl	0	B	1	--	0	Bl	Wh	1	B	1	Bl	B	1	Bl	0	Bl	B	1	6	(6, 22), Obs
<i>Phyllobates</i>	<i>lugubris</i>	112	Bl	0	--	0	Y		1	Bl	0	B	1	--	0	Bl	Wh	1	B	1	Bl	B	1	Bl	0	Bl	B	1	6	(6, 22), Obs
<i>Phyllobates</i>	<i>terribilis</i>	109	Wh	1	--	0	--		0	Wh	1	--	0	--	0	Wh		1	--	0	Wh		1	Wh	1	Wh		1	6	(22, 65), Obs
<i>Phyllobates</i>	<i>vittatus</i>	110	Bl	0	Or	1	Or		1	Bl	0	B	1	--	0	Bl	B	1	B	1	Bl	B	1	Bl	0	Bl	B	1	7	(6, 22), Obs
<i>Rheobates</i>	<i>palmatus</i>	28	D-Br	0	--	0	--		0	D-Br	0	Wh	1	Wh	1	D-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(13, 66), Obs			
<i>Rheobates</i>	<i>palmatus</i>	27	D-Br	0	--	0	--		0	D-Br	0	Wh	1	Wh	1	D-Br	0	--	0	Br	0	Gray	0	Cr	1	3	(13, 66), Obs			
<i>Silverstoneia</i>	<i>flotator</i>	62	Br	0	--	0	L-Br		0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Gray	0	Cr	1	3	(20, 67), Obs			
<i>Silverstoneia</i>	<i>flotator</i>	63	Br	0	--	0	L-Br		0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Gray	0	Cr	1	3	(20, 67), Obs			
<i>Silverstoneia</i>	<i>nubicola</i>	66	Br	0	L-Br	0	D-Br		0	Bl	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Bl	0	Bl	0	2	(13, 67)			
<i>Silverstoneia</i>	<i>nubicola</i>	65	Br	0	L-Br	0	D-Br		0	Bl	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Bl	0	Bl	0	2	(13, 67)			
<i>Silverstoneia</i>	<i>nubicola</i>	64	D-Br	0	--	0	Br		0	D-Br	0	Cr	1	Cr	1	Br	0	--	0	Br	0	Gray	0	Gray	0	2	Obs			

Color codes: Black (Bl), blue (B), brown (Br), cream (Cr), dark brown (D-Br), gray (Gray), green (Gr), light brown (L-Br), light green (L-Gr), light yellow (L-Y), orange (Or), red (R), yellow (Y), and white (Wh).

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Table S3. Phylogenetic signal and model character evolution of the poison frog call parameters, and the three principal components summarizing the call parameters. Lambda ( $\lambda$ ) estimates for color variables (TCS3, TCS4, ..., TCS8) and ability to sequester alkaloids in poison frogs.

Trait ( $N = 169$ )	Lambda ( $\lambda$ )		Blomberg <i>et al.</i> 's $K$		White Noise Model		BM Model		OU Model		Lambda Model		Best Model
	Estimate	$P$ -value <sup>b</sup>	Estimate	$P$ -value <sup>c</sup>	$ln$ -L	AICc	$ln$ -L	AICc	$ln$ -L	AICc	$ln$ -L	AICc	
SVL	0.864	<0.001	0.263	0.001	147.091	-290.110	173.399	-342.726	193.224	-380.301	186.714	-367.282	OU
Temperature	0.433	<0.001	0.055	0.367	190.041	-376.009	80.659	-157.246	191.036	-375.925	203.975	-401.804	Lambda
Initial Pulse-Note Duration	0.909	<0.001	0.325	0.001	196.683	-389.293	240.374	-476.674	255.803	-505.459	256.984	-507.821	Lambda/OU
Interval between Initial Pulse-Notes	0.938	<0.001	0.340	0.001	-281.180	566.433	-235.322	474.717	-222.780	451.707	-220.567	447.280	Lambda
Middle Pulse-Note Duration	0.921	<0.001	0.319	0.001	192.492	-380.912	235.085	-466.096	250.925	-495.704	251.841	-497.535	Lambda/OU
Interval between Middle Pulse-Notes	0.987	<0.001	0.437	0.001	-270.999	546.071	-203.277	410.626	-196.768	399.682	-200.601	407.347	OU
Middle Pulse-Note Rise Time	0.775	<0.001	0.208	0.001	263.996	-523.920	270.349	-536.625	295.831	-585.516	297.195	-588.243	Lambda/OU
Middle Pulse-Note Shape	0.506	<0.001	0.090	0.004	124.182	-244.292	58.541	-113.009	125.376	-244.606	140.433	-274.721	Lambda
Middle Pulse-Note Duty	0.916	<0.001	0.239	0.001	56.023	-107.974	73.390	-142.707	88.923	-171.699	79.791	-153.436	OU
Middle Pulse-Note Rate	0.990	<0.001	0.476	0.001	-162.223	328.519	-87.055	178.182	-81.288	168.723	-84.739	175.624	OU
Initial Q1	0.895	<0.001	0.254	0.001	-227.623	459.319	-204.389	412.851	-187.339	380.824	-184.548	375.242	Lambda
Initial Peak Frequency	0.897	<0.001	0.261	0.001	-230.746	465.565	-204.941	413.955	-188.307	382.760	-186.309	378.764	Lambda
Initial Q3	0.901	<0.001	0.269	0.001	-233.305	470.683	-205.157	414.387	-189.345	384.836	-188.180	382.506	Lambda/OU
Initial Modulation (Q1 – Q3)	0.731	<0.001	0.152	0.001	-25.060	54.192	-53.296	110.665	-12.018	30.181	27.689	-49.232	Lambda
Middle Q1	0.915	<0.001	0.286	0.001	-232.873	469.819	-199.509	403.091	-185.384	376.915	-186.410	378.966	Lambda/OU
Middle Peak Frequency	0.917	<0.001	0.293	0.001	-235.089	474.251	-199.664	403.401	-185.790	377.727	-187.113	380.373	Lambda/OU
Middle Q3	0.918	<0.001	0.298	0.001	-238.051	480.174	-201.184	406.441	-187.730	381.607	-188.915	383.976	Lambda/OU
Middle Modulation (Q1 – Q3)	0.806	<0.001	0.256	0.001	-27.957	59.987	-12.609	29.290	8.874	-11.601	32.109	-58.072	Lambda
PC1-Size-Spectral (Morphology)	0.913	<0.001	0.284	0.001	-239.299	482.671	-206.554	417.182	-192.138	390.422	-192.473	391.093	Lambda/OU
PC2-Fine-Temporal (Physiology)	0.949	<0.001	0.317	0.001	-239.299	482.671	-197.151	398.375	-182.935	372.017	-181.462	369.071	Lambda/OU
PC3-Temperature-Modulation (Environment)	0.772	<0.001	0.183	0.001	-239.299	482.671	-253.210	510.493	-218.335	442.816	-198.461	403.068	Lambda
Color3 (Discrete) $\Sigma S_i \geq 3$	1.000	<0.001	--	--	--	--	--	--	--	--	--	--	--
Color4 (Discrete) $\Sigma S_i \geq 4$	1.000	<0.001	--	--	--	--	--	--	--	--	--	--	--
Color5 (Discrete) $\Sigma S_i \geq 5$	0.938	<0.001	--	--	--	--	--	--	--	--	--	--	--
Color6 (Discrete) $\Sigma S_i \geq 6$	0.906	<0.001	--	--	--	--	--	--	--	--	--	--	--
Color7 (Discrete) $\Sigma S_i \geq 7$	0.000	1.000	--	--	--	--	--	--	--	--	--	--	--
Color8 (Discrete) $\Sigma S_i \geq 8$	0.000	1.000	--	--	--	--	--	--	--	--	--	--	--
Alkaloid Presence <sup>a</sup> ( $N = 96$ ; Discrete)	1.000	<0.001	--	--	--	--	--	--	--	--	--	--	--

<sup>a</sup> The number of taxa with information about presence of alkaloids is 96 of the 169 species in the long dataset.

<sup>b</sup>  $P$ -value of rejecting  $H_0: \lambda = 0$  (no phylogenetic signal).

<sup>c</sup>  $P$ -value of the observed  $K$  is significantly higher than the random values.

Table S3 (Cont.) Correlations between discrete binary variables: Alkaloid presence and conspicuousness variables.

Color Binary Variables	Phylogenetic Logistic Regression with Firth Correction											Pagel's 1994 Correlation of Two Binary Characters							
	Phylogenetic Signal		Intercept ( $b_0$ )				Alkaloid ( $b_1$ )					BayesTraits Method Alkaloid				Midford and Maddison Method Alkaloid			
	$a$	$P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	Odds %	BTSP $\bar{X}$	BTSP $P$ -value	Dependent log-LH	Independent log-LH	$2^*\Delta LH$	$P$ -value	Dependent log-LH	Independent log-LH	$2^*\Delta LH$	$P$ -value
TCS3	0.409	0.066	0.556 $\pm$ 0.930	0.551	0.320	0.820	0.763 $\pm$ 0.320	<b>0.019</b>	↑114.39	0.853	<b>0.032</b>	-40.34302	-44.05065	7.41525	0.116	-40.43380	-44.06675	7.26590	0.122
TCS4	-0.821	0.137	1.173 $\pm$ 0.494	0.020	1.158	0.012	1.928 $\pm$ 0.440	<b>&lt;0.001</b>	↑587.57	1.947	<b>&lt;0.001</b>	-38.75321	-44.73237	11.95833	<b>0.018</b>	-38.75888	-44.76257	12.00738	<b>0.017</b>
TCS5	-0.617	0.167	0.834 $\pm$ 0.496	0.096	0.853	0.084	1.967 $\pm$ 0.411	<b>&lt;0.001</b>	↑614.85	2.019	<b>&lt;0.001</b>	-37.98090	-50.41314	24.86447	<b>&lt;0.001</b>	-40.47500	-50.42091	19.89181	<b>0.001</b>
TCS6	-0.782	0.148	-0.016 $\pm$ 0.408	0.968	0.001	0.976	1.703 $\pm$ 0.344	<b>&lt;0.001</b>	↑448.82	1.746	<b>&lt;0.001</b>	-52.96357	-67.35238	28.77761	<b>&lt;0.001</b>	-54.25038	-67.35463	26.20849	<b>&lt;0.001</b>
TCS7	-2.524	0.291	-2.896 $\pm$ 0.794	<b>&lt;0.001</b>	-2.541	<b>&lt;0.001</b>	1.779 $\pm$ 0.808	<b>0.030</b>	↑492.27	1.469	<b>&lt;0.001</b>	-45.63354	-55.39872	19.53036	<b>0.001</b>	-47.14687	-55.83869	17.38363	<b>0.002</b>
TCS8	-2.378	0.276	-3.076 $\pm$ 0.810	<b>&lt;0.001</b>	-2.676	<b>&lt;0.001</b>	1.611 $\pm$ 0.822	0.053	↑400.73	1.299	<b>&lt;0.001</b>	-41.29217	-48.34157	14.09879	<b>0.007</b>	-42.34318	-48.40178	12.11720	<b>0.017</b>

\*BTSP are  $P$ -values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S3 (Cont.) Correlations between discrete binary variables: Call behavior (exposed/concealed), alkaloid sequestration ability (able/unable), and conspicuousness (yes/no) variables.

		Pagel's 1994 Correlation of Two Binary Characters			
Binary Variables	<i>N</i>	Midford and Maddison Method Call Behavior			
		Dependent log- <i>LH</i>	Independent log- <i>LH</i>	$2*\Delta LH$	<i>P</i> -value*
Alkaloid	83	-61.99066	-66.76505	9.54877	<b>0.015</b>
TCS3	146	-123.56906	-134.54857	10.97951	<b>&lt;0.001</b>
TCS4	146	-119.53305	-119.53305	12.94026	<b>0.020</b>
TCS5	146	-116.82326	-123.34971	13.05291	<b>0.006</b>
TCS6	146	-126.26347	-133.44236	14.35778	<b>&lt;0.001</b>
TCS7	146	-115.55913	-122.48985	13.86145	<b>&lt;0.001</b>
TCS8	146	-105.10623	-108.91964	7.62682	0.060

\* *P*-value from 1000 simulations.

Table S3 (Cont.) Correlation matrices for the long (169 taxa) dataset of call and other life history traits of poison frogs used for the Phylogenetic Principal Component Analyses (PPCAs) of the poison frog call.

Best-IC model for each pairwise correlation (Independent Contrasts,  $N = 168$ )

Model	OU	$\lambda$	$\lambda$	$\lambda$	$\lambda$	OU	$\lambda$	$\lambda$	OU	OU	$\lambda$	$\lambda$	$\lambda$	$\lambda$	OU	OU	OU	$\lambda$
Variables <sup>a</sup>	SVL	Temp	IniDur	IniInt	MidDur	MidInt	MidRise	MidShape	MidDuty	MidRate	IniQ1	IniPeak	IniQ3	IniFreq	MidQ1	MidPeak	MidQ3	MidFreq
SVL	1.0000																	
Temp	-0.1217	1.0000																
IniDur	0.2099	-0.0947	1.0000															
IniInt	0.0057	-0.1896	0.6737	1.0000														
MidDur	0.2355	-0.0934	0.9558	0.6956	1.0000													
MidInt	-0.0208	-0.1988	0.6609	0.9322	0.6918	1.0000												
MidRise	0.2037	-0.0435	0.8562	0.5567	0.8494	0.5620	1.0000											
MidShape	0.0444	0.0801	0.0160	-0.1732	-0.0418	-0.1695	0.4069	1.0000										
MidDuty	0.2216	0.1462	-0.1606	-0.6855	-0.1731	-0.7426	-0.1514	0.1296	1.0000									
MidRate	0.0112	0.1885	-0.6659	-0.9257	-0.7017	-0.9960	-0.5672	0.1904	0.7273	1.0000								
IniQ1	-0.7431	0.1908	-0.2762	-0.0685	-0.3026	-0.0424	-0.2691	-0.1067	-0.2051	0.0469	1.0000							
IniPeak	-0.7499	0.2068	-0.2646	-0.0859	-0.2968	-0.0589	-0.2467	-0.0670	-0.1921	0.0651	0.9934	1.0000						
IniQ3	-0.7422	0.2091	-0.2726	-0.0866	-0.3029	-0.0523	-0.2578	-0.0673	-0.2026	0.0585	0.9893	0.9938	1.0000					
IniFreq	-0.1044	0.1978	0.0424	-0.0738	0.0248	-0.0217	0.0837	0.1891	0.0238	0.0267	0.1053	0.1724	0.2307	1.0000				
MidQ1	-0.7175	0.1748	-0.3205	-0.1303	-0.3357	-0.1193	-0.2842	-0.0854	-0.1765	0.1251	0.9516	0.9477	0.9426	0.0966	1.0000			
MidPeak	-0.7255	0.1995	-0.3147	-0.1444	-0.3318	-0.1294	-0.2597	-0.0323	-0.1725	0.1368	0.9466	0.9504	0.9471	0.1518	0.9932	1.0000		
MidQ3	-0.7267	0.2094	-0.3188	-0.1478	-0.3323	-0.1261	-0.2747	-0.0458	-0.1782	0.1332	0.9430	0.9462	0.9494	0.1870	0.9881	0.9949	1.0000	
MidFreq	-0.1622	0.2517	0.0530	-0.0604	0.0725	-0.0005	0.1067	0.2148	0.0074	0.0114	0.1223	0.1669	0.2162	0.7701	0.0989	0.1715	0.2264	1.0000
IC-Std	0.0444	0.0134	0.0152	0.2739	0.0161	0.3716	0.0099	0.0203	0.0818	0.1852	0.2014	0.2043	0.2079	0.0467	0.3885	0.3885	0.3905	0.0491

<sup>a</sup> Snout Vent Length: SVL, Temperature: Temp, Initial Pulse-Note Duration: IniDur, Interval between Initial Pulse-Notes: IniInt, Middle Pulse-Note Duration: MidDur, Interval between Middle Pulse-Notes: MidInt, Middle Pulse-Note Rise Time: MidRise, Middle Pulse-Note Shape: MidShape, Middle Pulse-Note Duty: MidDuty, Middle Pulse-Note Rate: MidRate, Initial Q1: IniQ1, Initial Peak Frequency: IniPeak, Initial Q3: IniQ3, Initial Modulation (Q1 – Q3): IniFreq, Middle Q1: MidQ1, Middle Peak Frequency: MidPeak, Middle Q3: MidQ3, Middle Modulation (Q1 – Q3): MidFreq, and IC-Standard Deviations: IC-Std.

Table S3 (Cont.) Correlation matrices for the long (169 taxa) dataset of call and other life history traits of poison frogs used for the Phylogenetic Principal Component Analyses (PPCAs) of the poison frog call.

Lambda-IC model for each pairwise correlation (Independent Contrasts,  $N = 168$ )

Variables <sup>a</sup>	SVL	Temp	IniDur	IniInt	MidDur	MidInt	MidRise	MidShape	MidDuty	MidRate	IniQ1	IniPeak	IniQ3	IniFreq	MidQ1	MidPeak	MidQ3	MidFreq
SVL	1.0000																	
Temp	-0.1165	1.0000																
IniDur	0.2433	-0.0947	1.0000															
IniInt	0.0274	-0.1896	0.6737	1.0000														
MidDur	0.2747	-0.0934	0.9558	0.6956	1.0000													
MidInt	0.0076	-0.1688	0.6649	0.9480	0.6992	1.0000												
MidRise	0.2366	-0.0435	0.8562	0.5567	0.8494	0.5646	1.0000											
MidShape	0.0359	0.0801	0.0160	-0.1732	-0.0418	-0.1596	0.4069	1.0000										
MidDuty	0.2115	0.1312	-0.1562	-0.6933	-0.1710	-0.7428	-0.1323	0.1449	1.0000									
MidRate	-0.0185	0.1596	-0.6697	-0.9401	-0.7093	-0.9956	-0.5697	0.1813	0.7242	1.0000								
IniQ1	-0.7585	0.1908	-0.2762	-0.0685	-0.3026	-0.0457	-0.2691	-0.1067	-0.1958	0.0508	1.0000							
IniPeak	-0.7655	0.2068	-0.2646	-0.0859	-0.2968	-0.0624	-0.2467	-0.0670	-0.1859	0.0693	0.9934	1.0000						
IniQ3	-0.7565	0.2091	-0.2726	-0.0866	-0.3029	-0.0548	-0.2578	-0.0673	-0.1955	0.0616	0.9893	0.9938	1.0000					
IniFreq	-0.1000	0.1978	0.0424	-0.0738	0.0248	-0.0079	0.0837	0.1891	0.0068	0.0122	0.1053	0.1724	0.2307	1.0000				
MidQ1	-0.7314	0.1721	-0.3236	-0.1293	-0.3434	-0.1089	-0.2944	-0.0737	-0.1469	0.1161	0.9820	0.9781	0.9734	0.1172	1.0000			
MidPeak	-0.7390	0.1975	-0.3150	-0.1437	-0.3370	-0.1187	-0.2653	-0.0167	-0.1431	0.1281	0.9758	0.9806	0.9774	0.1735	0.9923	1.0000		
MidQ3	-0.7399	0.2055	-0.3200	-0.1477	-0.3386	-0.1179	-0.2826	-0.0336	-0.1474	0.1273	0.9737	0.9773	0.9807	0.2049	0.9882	0.9951	1.0000	
MidFreq	-0.1640	0.2517	0.0530	-0.0604	0.0725	0.0033	0.1067	0.2148	0.0188	0.0076	0.1223	0.1669	0.2162	0.7701	0.1152	0.1904	0.2426	1.0000
IC Std	0.0213	0.0134	0.0152	0.2739	0.0161	0.2892	0.0099	0.0203	0.0440	0.1475	0.2014	0.2043	0.2079	0.0467	0.2116	0.2133	0.2162	0.0491

<sup>a</sup> Snout Vent Length: SVL, Temperature: Temp, Initial Pulse-Note Duration: IniDur, Interval between Initial Pulse-Notes: IniInt, Middle Pulse-Note Duration: MidDur, Interval between Middle Pulse-Notes: MidInt, Middle Pulse-Note Rise Time: MidRise, Middle Pulse-Note Shape: MidShape, Middle Pulse-Note Duty: MidDuty, Middle Pulse-Note Rate: MidRate, Initial Q1: IniQ1, Initial Peak Frequency: IniPeak, Initial Q3: IniQ3, Initial Modulation (Q1 – Q3): IniFreq, Middle Q1: MidQ1, Middle Peak Frequency: MidPeak, Middle Q3: MidQ3, Middle Modulation (Q1 – Q3): MidFreq, and IC-Standard Deviations: IC-Std.



Table S3 (Cont.) Component loadings, communalities ( $h^2$ ), and percent of variance explained of non-phylogenetic principal component analysis (PCA), phylogenetic principal component analysis using independent contrasts estimated with models of character evolution (PPCA-Best Model PICs), and phylogenetic principal component analysis using independent contrasts estimated with lambda-model of character evolution (PPCA-Lambda PICs).

Variables	PCA				PPCA-Best Model PICs				PPCA-Lambda PICs			
	Comp-1	Comp-2	Comp-3	$h^2$	Comp-1	Comp-2	Comp-3	$h^2$	Comp-1	Comp-2	Comp-3	$h^2$
SVL	<b>-0.860</b>	0.112	-0.083	0.759	<b>-0.801</b>	-0.008	-0.026	0.643	<b>-0.808</b>	0.023	-0.015	0.653
Temp	0.096	-0.087	<b>0.571</b>	0.342	0.178	-0.160	<b>0.423</b>	0.236	0.176	-0.145	<b>0.413</b>	0.222
IniDur	-0.196	<b>0.929</b>	-0.094	0.909	-0.285	<b>0.822</b>	0.194	0.794	-0.289	<b>0.819</b>	0.196	0.793
IniInt	0.032	<b>0.907</b>	-0.356	0.951	-0.005	<b>0.929</b>	-0.204	0.905	-0.006	<b>0.936</b>	-0.209	0.920
MidDur	-0.206	<b>0.934</b>	-0.088	0.922	-0.301	<b>0.838</b>	0.169	0.821	-0.308	<b>0.837</b>	0.170	0.824
MidInt	0.052	<b>0.925</b>	-0.335	0.971	0.026	<b>0.954</b>	-0.175	0.942	0.025	<b>0.959</b>	-0.162	0.946
MidRise	-0.246	<b>0.883</b>	0.102	0.850	-0.280	<b>0.741</b>	0.368	0.762	-0.289	<b>0.734</b>	0.374	0.763
MidShape	-0.173	-0.288	<b>0.560</b>	0.427	-0.134	-0.069	<b>0.552</b>	0.328	-0.130	-0.072	<b>0.558</b>	0.333
MidDuty	-0.296	<b>-0.579</b>	0.361	0.553	-0.323	<b>-0.637</b>	0.303	0.602	-0.305	<b>-0.636</b>	0.313	0.596
MidRate	-0.053	<b>-0.925</b>	0.335	0.970	-0.018	<b>-0.953</b>	0.180	0.941	-0.016	<b>-0.957</b>	0.166	0.943
IniQ1	<b>0.992</b>	0.008	0.002	0.984	<b>0.977</b>	-0.054	0.012	0.957	<b>0.984</b>	-0.050	0.012	0.972
IniPeak	<b>0.990</b>	-0.017	0.078	0.986	<b>0.974</b>	-0.057	0.079	0.959	<b>0.982</b>	-0.053	0.078	0.974
IniQ3	<b>0.987</b>	-0.045	0.119	0.990	<b>0.975</b>	-0.054	0.113	0.966	<b>0.982</b>	-0.050	0.112	0.980
IniFreq	0.232	-0.237	<b>0.826</b>	0.793	0.148	0.051	<b>0.780</b>	0.632	0.154	0.057	<b>0.773</b>	0.625
MidQ1	<b>0.985</b>	-0.044	0.012	0.973	<b>0.965</b>	-0.116	0.013	0.945	<b>0.973</b>	-0.111	0.027	0.960
MidPeak	<b>0.983</b>	-0.061	0.091	0.979	<b>0.964</b>	-0.116	0.087	0.951	<b>0.971</b>	-0.110	0.105	0.966
MidQ3	<b>0.981</b>	-0.075	0.130	0.985	<b>0.965</b>	-0.115	0.115	0.958	<b>0.972</b>	-0.111	0.129	0.974
MidFreq	0.235	-0.132	<b>0.859</b>	0.811	0.164	0.077	<b>0.803</b>	0.679	0.167	0.075	<b>0.803</b>	0.678
Variance explained (%)	38.676	30.960	14.567		37.456	28.342	12.084		38.011	28.361	12.076	

**Bold** indicates component loadings > 0.400 and < -0.400. Variable identification; Snout Vent Length: SVL, Temperature: Temp, Initial Pulse-Note Duration: IniDur, Interval between Initial Pulse-Notes: IniInt, Middle Pulse-Note Duration: MidDur, Interval between Middle Pulse-Notes: MidInt, Middle Pulse-Note Rise Time: MidRise, Middle Pulse-Note Shape: MidShape, Middle Pulse-Note Duty: MidDuty, Middle Pulse-Note Rate: MidRate, Initial Q1: IniQ1, Initial Peak Frequency: IniPeak, Initial Q3: IniQ3, Initial Modulation (Q1 – Q3): IniFreq, Middle Q1: MidQ1, Middle Peak Frequency: MidPeak, Middle Q3: MidQ3, and Middle Modulation (Q1 – Q3): MidFreq

Table S3 (Cont.) Phylogenetic signal and model of character evolution of the poison frog call parameters with metabolic data.

Trait ( $N = 52$ )	Lambda ( $\lambda$ )		Blomberg <i>et al.</i> 's $K$		White Noise Model		BM Model		OU Model		Lambda Model		Best Model
	Estimate	$P$ -value <sup>a</sup>	Estimate	$P$ -value <sup>b</sup>	$\ln$ -L	AICc	$\ln$ -L	AICc	$\ln$ -L	AICc	$\ln$ -L	AICc	
RMR-Mass Specific	0.525	0.100	0.318	0.017	24.003	-43.757	16.409	-28.569	26.883	-47.255	25.354	-44.197	OU
AMR-Mass Specific	0.676	<0.001	0.441	0.001	23.267	-42.284	21.823	-39.396	29.577	-52.643	31.220	-55.929	Lambda
Scope (AMR - RMR) -Mass Specific	0.644	<0.001	0.427	0.001	17.007	-29.765	14.475	-24.699	22.546	-38.582	25.217	-43.923	Lambda
Body Mass	0.631	0.001	0.331	0.011	-19.418	42.836	-26.653	57.555	-15.708	37.926	-13.954	34.418	Lambda
SVL	0.600	0.003	0.277	0.052	39.264	-74.278	27.688	-51.127	41.169	-75.828	43.697	-80.883	Lambda
Temperature	0.293	0.069	0.218	0.255	55.130	-106.011	37.549	-70.848	56.067	-105.624	56.783	-107.056	No Signal
Initial Pulse-Note Duration	0.977	<0.001	0.976	<0.001	60.281	-116.312	79.983	-155.716	80.835	-155.160	80.286	-154.062	BM
Interval between Initial Pulse-Notes	0.934	<0.001	0.836	<0.001	-90.259	184.768	-74.754	153.757	-73.020	152.550	-73.235	152.981	BM
Middle Pulse-Note Duration	0.989	<0.001	1.065	<0.001	60.072	-115.894	82.121	-159.991	82.763	-159.016	82.190	-157.869	BM
Interval between Middle Pulse-Notes	0.991	<0.001	0.980	<0.001	-85.871	175.992	-65.865	135.981	-65.235	136.981	-65.798	138.107	BM
Middle Pulse-Note Rise Time	0.981	<0.001	0.873	<0.001	85.469	-166.688	102.668	-201.085	103.737	-200.964	102.908	-199.305	BM
Middle Pulse-Note Shape	0.830	<0.001	0.593	<0.001	39.061	-73.871	46.916	-89.582	51.560	-96.610	51.670	-96.829	Lambda/OU
Middle Pulse-Note Duty	0.821	0.007	0.421	0.002	16.109	-27.968	15.592	-26.935	20.878	-35.245	19.710	-32.909	Lambda/OU
Middle Pulse-Note Rate	0.986	<0.001	1.040	<0.001	-53.026	110.302	-31.605	67.460	-30.947	68.404	-31.451	69.414	BM
Initial Q1	0.597	0.004	0.255	0.078	-71.905	148.059	-85.612	175.475	-71.409	149.328	-67.793	142.096	Lambda
Initial Peak Frequency	0.614	0.007	0.262	0.070	-72.557	149.365	-85.782	175.814	-72.085	150.681	-68.951	144.413	Lambda
Initial Q3	0.610	0.007	0.261	0.063	-72.511	149.272	-85.998	176.246	-72.060	150.632	-68.894	144.299	Lambda
Initial Modulation (Q1 – Q3)	0.791	<0.001	0.626	<0.001	-9.990	24.229	-3.536	11.322	-0.247	7.004	2.655	1.200	Lambda
Middle Q1	0.654	0.001	0.317	0.013	-74.496	153.241	-82.669	169.588	-71.721	149.952	-69.076	144.662	Lambda
Middle Peak Frequency	0.666	0.002	0.320	0.013	-74.402	153.053	-82.611	169.473	-71.735	149.980	-69.385	145.281	Lambda
Middle Q3	0.675	0.001	0.322	0.012	-74.667	153.584	-82.899	170.048	-71.948	150.407	-69.395	145.300	Lambda
Middle Modulation (Q1 – Q3)	0.738	<0.001	0.543	<0.001	-11.867	27.983	-8.774	21.798	-4.339	15.188	-1.123	8.757	Lambda
PC1-Scale (Spectral Features)	0.648	0.001	0.291	0.029	-76.294	156.839	-86.650	177.550	-74.525	155.560	-71.102	148.715	Lambda
PC2 -Temporal Features	0.999	<0.001	1.005	<0.001	-73.484	151.217	-52.362	108.973	-51.903	110.318	-52.361	111.234	BM
PC3-Temperature and Modulation	0.872	<0.001	0.636	<0.001	-78.709	161.669	-70.139	144.529	-68.100	142.710	-67.299	141.109	Lambda/OU

<sup>a</sup>  $P$ -value of rejecting  $H_0: \lambda = 0$  (no phylogenetic signal).

<sup>b</sup>  $P$ -value of the observed  $K$  is significantly higher than the random values.

Table S3 (Cont.) Phylogenetic regressions of mass-specific metabolic rates on poison frog call parameters, body size (snout vent length, SVL), and principal components. In bold, traits with significant values.

Traits	Body Mass						RMR-Mass Specific						AMR-Mass Specific					
	<i>N</i>	$\lambda^a$	$\beta_1 \pm SE$	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>N</i>	$\lambda^a$	$\beta_1 \pm SE$	<i>P</i> -value	<i>r</i>	<i>P</i> -value	<i>N</i>	$\lambda^a$	$\beta_1 \pm SE$	<i>P</i> -value	<i>r</i>	<i>P</i> -value
SVL	51	0.029 <sup>NS</sup>	<b>2.905 ± 0.142</b>	<b>&lt;0.001</b>	<b>0.946</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>-0.634 ± 0.167</b>	<b>&lt;0.001</b>	<b>-0.473</b>	<b>&lt;0.001</b>	52	0.550 <sup>***</sup>	<b>-0.465 ± 0.168</b>	<b>0.008</b>	<b>-0.364</b>	<b>0.001</b>
Initial Pulse-Note Duration	51	0.628 <sup>**</sup>	1.413 ± 0.771	0.073	0.253	0.043	52	0.511 <sup>*</sup>	-0.451 ± 0.362	0.219	-0.174	0.222	51	0.605 <sup>*</sup>	-0.549 ± 0.331	0.104	-0.230	0.074
Interval between Initial Pulse-Notes	51	0.621 <sup>**</sup>	-0.012 ± 0.043	0.773	-0.041	0.919	52	0.539 <sup>NS</sup>	0.011 ± 0.020	0.583	0.078	0.739	52	0.652 <sup>**</sup>	-0.007 ± 0.018	0.722	-0.051	0.880
Middle Pulse-Note Duration	51	0.638 <sup>***</sup>	1.413 ± 0.799	0.083	0.245	0.053	52	0.519 <sup>*</sup>	-0.454 ± 0.373	0.230	-0.169	0.238	51	0.580 <sup>*</sup>	-0.599 ± 0.336	0.081	-0.247	0.050
Interval between Middle Pulse-Notes	51	0.621 <sup>**</sup>	-0.019 ± 0.047	0.691	-0.057	0.852	52	0.551 <sup>NS</sup>	0.020 ± 0.022	0.360	0.130	0.432	52	0.640 <sup>**</sup>	-0.012 ± 0.020	0.540	-0.087	0.685
Middle Pulse-Note Rise Time	51	0.640 <sup>***</sup>	2.164 ± 1.208	0.079	0.248	0.042	52	0.493 <sup>NS</sup>	-0.683 ± 0.565	0.233	-0.168	0.242	51	0.599 <sup>*</sup>	-0.929 ± 0.511	0.075	-0.252	0.045
Middle Pulse-Note Shape	51	0.625 <sup>**</sup>	0.311 ± 0.490	0.529	0.090	0.671	52	0.510 <sup>NS</sup>	-0.037 ± 0.229	0.874	-0.023	0.975	52	0.714 <sup>***</sup>	-0.230 ± 0.206	0.270	-0.156	0.300
Middle Pulse-Note Duty	52	0.640 <sup>***</sup>	0.471 ± 0.260	0.077	0.248	0.046	52	0.456 <sup>NS</sup>	<b>-0.284 ± 0.118</b>	<b>0.020</b>	<b>-0.321</b>	<b>0.006</b>	51	0.718 <sup>***</sup>	-0.169 ± 0.118	0.159	-0.200	0.140
Middle Pulse-Note Rate	51	0.621 <sup>**</sup>	0.035 ± 0.092	0.704	0.054	0.865	52	0.545 <sup>NS</sup>	-0.039 ± 0.042	0.361	-0.129	0.433	52	0.647 <sup>**</sup>	0.019 ± 0.039	0.626	0.069	0.787
Initial Q1	52	0.560 <sup>**</sup>	<b>-0.301 ± 0.027</b>	<b>&lt;0.001</b>	<b>-0.845</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.062 ± 0.021</b>	<b>0.004</b>	<b>0.390</b>	<b>&lt;0.001</b>	52	0.603 <sup>***</sup>	0.041 ± 0.020	0.051	0.272	0.024
Initial Peak Frequency	52	0.444 <sup>NS</sup>	<b>-0.294 ± 0.027</b>	<b>&lt;0.001</b>	<b>-0.842</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.060 ± 0.020</b>	<b>0.005</b>	<b>0.387</b>	<b>&lt;0.001</b>	52	0.587 <sup>***</sup>	<b>0.042 ± 0.020</b>	<b>0.041</b>	<b>0.285</b>	<b>0.017</b>
Initial Q3	52	0.427 <sup>NS</sup>	<b>-0.296 ± 0.026</b>	<b>&lt;0.001</b>	<b>-0.847</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.060 ± 0.020</b>	<b>0.005</b>	<b>0.385</b>	<b>&lt;0.001</b>	52	0.572 <sup>***</sup>	<b>0.045 ± 0.020</b>	<b>0.025</b>	<b>0.310</b>	<b>0.008</b>
Initial Modulation (Q1 – Q3)	51	0.609 <sup>**</sup>	-0.066 ± 0.190	0.730	-0.050	0.886	52	0.526 <sup>NS</sup>	0.002 ± 0.089	0.980	0.001	0.999	52	0.614 <sup>*</sup>	0.137 ± 0.078	0.090	0.239	0.057
Middle Q1	52	0.350 <sup>NS</sup>	<b>-0.295 ± 0.026</b>	<b>&lt;0.001</b>	<b>-0.851</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.059 ± 0.020</b>	<b>0.004</b>	<b>0.390</b>	<b>&lt;0.001</b>	52	0.594 <sup>***</sup>	0.039 ± 0.020	0.056	0.266	0.029
Middle Peak Frequency	52	0.190 <sup>NS</sup>	<b>-0.297 ± 0.025</b>	<b>&lt;0.001</b>	<b>-0.860</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.056 ± 0.020</b>	<b>0.006</b>	<b>0.374</b>	<b>&lt;0.001</b>	52	0.576 <sup>***</sup>	<b>0.041 ± 0.020</b>	<b>0.043</b>	<b>0.281</b>	<b>0.019</b>
Middle Q3	52	0.000 <sup>NS</sup>	<b>-0.304 ± 0.023</b>	<b>&lt;0.001</b>	<b>-0.881</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.057 ± 0.020</b>	<b>0.006</b>	<b>0.378</b>	<b>&lt;0.001</b>	52	0.559 <sup>***</sup>	<b>0.043 ± 0.019</b>	<b>0.032</b>	<b>0.298</b>	<b>0.012</b>
Middle Modulation (Q1 – Q3)	51	0.606 <sup>**</sup>	-0.128 ± 0.179	0.477	-0.102	0.602	52	0.476 <sup>NS</sup>	-0.061 ± 0.083	0.461	-0.104	0.580	51	0.636 <sup>**</sup>	0.059 ± 0.076	0.443	0.110	0.554
PC1-Size-Spectral (Morphology)	52	0.469 <sup>*</sup>	<b>-0.293 ± 0.022</b>	<b>&lt;0.001</b>	<b>-0.880</b>	<b>&lt;0.001</b>	52	0.000 <sup>NS</sup>	<b>0.063 ± 0.019</b>	<b>0.001</b>	<b>0.431</b>	<b>&lt;0.001</b>	52	0.585 <sup>***</sup>	<b>0.044 ± 0.019</b>	<b>0.024</b>	<b>0.312</b>	<b>0.008</b>
PC2-Fine-Temporal (Physiology)	51	0.618 <sup>**</sup>	0.017 ± 0.060	0.777	0.041	0.922	52	0.519 <sup>NS</sup>	-0.003 ± 0.028	0.906	-0.017	0.968	52	0.637 <sup>**</sup>	-0.019 ± 0.025	0.464	-0.104	0.583
PC3-Temperature-Modulation (Environment)	51	0.630 <sup>**</sup>	0.036 ± 0.049	0.459	0.106	0.577	52	0.327 <sup>NS</sup>	-0.032 ± 0.022	0.146	-0.204	0.124	51	0.673 <sup>***</sup>	0.002 ± 0.021	0.927	0.013	0.992

<sup>a</sup> Significance of rejecting  $H_0: \lambda = 0$  (no phylogenetic signal). Significance is given by <sup>NS</sup>,  $P > 0.05$ ; <sup>\*</sup>,  $P < 0.05$ ; <sup>\*\*</sup>,  $P < 0.01$ ; <sup>\*\*\*</sup>,  $P < 0.001$ .

Table S4. Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and principal components.

Standard Logistic Regression with Firth Correction																					
Binary Var.	Model Fit		Intercept ( $b_0$ )				PC1→Morphology ( $b_1$ )					PC2→Physiology ( $b_2$ )					PC3→Environmental ( $b_3$ )				
	$\chi^2$	<i>P</i> -value	Value ± SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value
Alkaloid	53.03	<0.001	-0.371 ± 0.282	0.190	-0.363	0.182	-1.200 ± 0.341	<b>0.001</b>	↓ 69.869	-1.207	<0.001	-2.244 ± 0.503	<0.001	↓ 89.397	-2.229	<0.001	-0.376 ± 0.318	0.240	↓ 31.347	-0.386	0.228
TCS3	18.66	<0.001	0.831 ± 0.178	<0.001	0.845	<0.001	-0.300 ± 0.174	0.086	↓ 25.936	-0.308	0.074	-0.679 ± 0.188	<0.001	↓ 49.294	-0.674	<0.001	0.103 ± 0.179	0.564	↑ 10.872	0.101	0.570
TCS4	37.38	<0.001	-0.017 ± 0.170	0.921	-0.009	0.940	-0.459 ± 0.175	<b>0.010</b>	↓ 36.837	-0.464	<b>0.002</b>	-0.889 ± 0.200	<0.001	↓ 58.893	-0.884	<0.001	0.451 ± 0.186	<b>0.016</b>	↑ 57.007	0.456	<b>0.012</b>
TCS5	45.16	<0.001	-0.286 ± 0.176	0.106	-0.282	0.110	-0.669 ± 0.189	<b>0.001</b>	↓ 48.803	-0.681	<0.001	-0.894 ± 0.207	<0.001	↓ 59.108	-0.892	<0.001	0.575 ± 0.195	<b>0.004</b>	↑ 77.679	0.576	<b>0.002</b>
TCS6	67.87	<0.001	-0.919 ± 0.210	<0.001	-0.914	<0.001	-0.757 ± 0.225	<b>0.001</b>	↓ 53.081	-0.766	<0.001	-1.347 ± 0.271	<0.001	↓ 73.988	-1.344	<0.001	0.976 ± 0.244	<0.001	↑ 165.28	0.984	<0.001
TCS7	14.09	<b>0.003</b>	-2.324 ± 0.312	<0.001	-2.330	<0.001	0.128 ± 0.252	0.613	↑ 13.650	0.126	0.568	-0.973 ± 0.303	<b>0.002</b>	↓ 62.221	-0.967	<0.001	-0.103 ± 0.251	0.682	↑ 9.817	-0.104	0.692
TCS8	11.42	<b>0.010</b>	-2.923 ± 0.426	<0.001	-2.920	<0.001	0.079 ± 0.310	0.800	↑ 8.193	0.069	0.852	-1.114 ± 0.395	<b>0.005</b>	↓ 67.189	-1.097	<0.001	-0.327 ± 0.307	0.288	↓ 27.868	-0.315	0.292

Phylogenetic Logistic Regression with Firth Correction																					
Binary Var.	Phyl. Signal		Intercept ( $b_0$ )				PC1→Morphology ( $b_1$ )					PC2→Physiology ( $b_2$ )					PC3→Environmental ( $b_3$ )				
	<i>a</i>	<i>P</i> -value	Value ± SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value ± SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value
Alkaloid	0.932	0.067	-0.339 ± 0.849	0.691	-0.395	0.690	-0.806 ± 0.247	<b>0.002</b>	↓ 55.314	-0.951	<b>0.024</b>	-1.583 ± 0.388	<0.001	↓ 79.456	-1.867	<b>0.018</b>	0.152 ± 0.256	0.553	↑ 16.443	0.196	0.568
TCS3	-0.354	<b>0.002</b>	0.745 ± 0.594	0.211	0.614	0.294	0.003 ± 0.178	0.984	↑ 0.348	0.011	0.924	-0.481 ± 0.204	<b>0.019</b>	↓ 38.196	-0.492	<b>0.016</b>	0.045 ± 0.173	0.798	↑ 4.550	0.049	0.760
TCS4	0.648	<b>0.028</b>	-0.280 ± 0.790	0.723	-0.406	0.776	-0.219 ± 0.143	0.128	↓ 19.685	-0.285	0.158	-0.573 ± 0.175	<b>0.001</b>	↓ 43.617	-0.748	<b>0.008</b>	0.232 ± 0.150	0.124	↑ 26.154	0.300	0.138
TCS5	0.315	<b>0.038</b>	-0.912 ± 0.756	0.230	-0.863	0.404	-0.603 ± 0.201	<b>0.003</b>	↓ 45.260	-0.721	<b>0.008</b>	-0.542 ± 0.206	<b>0.009</b>	↓ 41.818	-0.650	<b>0.012</b>	0.090 ± 0.170	0.598	↑ 9.405	0.092	0.614
TCS6	-0.039	<b>0.034</b>	-1.309 ± 0.676	0.055	-1.187	0.094	-0.883 ± 0.246	<0.001	↓ 58.642	-0.922	<b>0.002</b>	-0.745 ± 0.246	<b>0.003</b>	↓ 52.524	-0.801	<b>0.004</b>	0.404 ± 0.210	0.056	↑ 49.816	0.431	0.064
TCS7	-2.438	0.135	-2.415 ± 0.361	<0.001	-2.557	<b>0.002</b>	-0.050 ± 0.278	0.857	↓ 4.899	-0.033	0.890	-0.937 ± 0.324	<b>0.004</b>	↓ 60.831	-0.980	<b>0.004</b>	-0.084 ± 0.271	0.756	↓ 8.093	-0.121	0.774
TCS8	-3.176	0.265	-2.956 ± 0.439	<0.001	-3.022	<0.001	-0.038 ± 0.320	0.907	↓ 3.685	-0.019	0.864	-1.084 ± 0.396	<b>0.007</b>	↓ 66.176	-1.058	<b>0.014</b>	-0.291 ± 0.311	0.350	↓ 25.232	-0.299	0.354

\*BTSP are *P*-values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

Standard Logistic Regression with Firth Correction																				
Binary Variables	Call Variables	Model Fit		Call Variable ( $b_1$ )				Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )				
		$\chi^2$	<i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value
Alkaloid	IniDur	57.614	<0.001	-2.302 $\pm$ 0.482	<0.001	↓ 89.989	-2.306	<0.001	-0.405 $\pm$ 0.305	0.188	-0.401	0.182	1.545 $\pm$ 0.376	<0.001	1.567	<0.001	0.039 $\pm$ 0.365	0.915	0.034	0.910
	IniInt	42.021	<0.001	-1.953 $\pm$ 0.471	<0.001	↓ 85.815	-1.941	<0.001	-0.571 $\pm$ 0.307	0.066	-0.569	0.038	0.981 $\pm$ 0.297	0.001	0.989	<0.001	0.003 $\pm$ 0.319	0.993	-0.003	0.986
	MidDur	63.393	<0.001	-2.505 $\pm$ 0.526	<0.001	↓ 91.829	-2.506	<0.001	-0.411 $\pm$ 0.312	0.190	-0.408	0.188	1.704 $\pm$ 0.424	<0.001	1.724	<0.001	0.075 $\pm$ 0.376	0.843	0.068	0.848
	MidRise	58.742	<0.001	-2.494 $\pm$ 0.524	<0.001	↓ 91.739	-2.504	<0.001	-0.487 $\pm$ 0.305	0.114	-0.476	0.124	1.601 $\pm$ 0.383	<0.001	1.633	<0.001	0.211 $\pm$ 0.324	0.515	0.210	0.492
	MidShape	11.348	0.010	0.448 $\pm$ 0.214	0.039	↑ 56.560	0.458	0.022	-0.126 $\pm$ 0.223	0.574	-0.125	0.602	0.412 $\pm$ 0.200	0.042	0.426	0.032	0.201 $\pm$ 0.238	0.401	0.189	0.420
	MidDuty	6.744	0.081	0.134 $\pm$ 0.234	0.568	↑ 14.331	0.133	0.576	-0.092 $\pm$ 0.219	0.676	-0.087	0.686	0.393 $\pm$ 0.197	0.049	0.405	0.038	0.223 $\pm$ 0.232	0.340	0.214	0.366
	MidRate	43.637	<0.001	2.013 $\pm$ 0.505	<0.001	↑ 64.424	1.996	<0.001	-0.447 $\pm$ 0.291	0.128	-0.448	0.108	1.019 $\pm$ 0.310	0.001	1.022	<0.001	0.038 $\pm$ 0.327	0.907	0.036	0.956
	IniPeak	6.558	0.087	-0.162 $\pm$ 0.382	0.672	↓ 14.990	-0.165	0.672	-0.076 $\pm$ 0.217	0.727	-0.072	0.722	0.271 $\pm$ 0.365	0.460	0.282	0.458	0.249 $\pm$ 0.224	0.269	0.241	0.286
	IniFreq	12.819	0.005	0.602 $\pm$ 0.256	0.021	↑ 82.666	0.610	0.014	-0.185 $\pm$ 0.230	0.422	-0.179	0.462	0.543 $\pm$ 0.219	0.015	0.559	0.008	0.165 $\pm$ 0.243	0.498	0.151	0.540
	MidPeak	6.613	0.085	-0.182 $\pm$ 0.372	0.627	↓ 16.601	-0.181	0.594	-0.077 $\pm$ 0.217	0.724	-0.074	0.696	0.256 $\pm$ 0.358	0.476	0.271	0.484	0.248 $\pm$ 0.223	0.269	0.239	0.294
MidFreq	6.576	0.087	0.105 $\pm$ 0.246	0.671	↑ 11.059	0.112	0.658	-0.091 $\pm$ 0.219	0.679	-0.088	0.692	0.418 $\pm$ 0.201	0.040	0.433	0.034	0.230 $\pm$ 0.232	0.325	0.219	0.344	
TCS3	IniDur	21.834	<0.001	-0.740 $\pm$ 0.199	<0.001	↓ 52.292	-0.735	<0.001	0.858 $\pm$ 0.181	<0.001	0.871	<0.001	0.602 $\pm$ 0.210	0.005	0.611	<0.001	0.164 $\pm$ 0.184	0.376	0.169	0.366
	IniInt	20.143	<0.001	-0.672 $\pm$ 0.191	0.001	↓ 48.930	-0.664	<0.001	0.832 $\pm$ 0.178	<0.001	0.843	<0.001	0.420 $\pm$ 0.192	0.030	0.425	0.016	0.073 $\pm$ 0.187	0.698	0.083	0.702
	MidDur	23.476	<0.001	-0.791 $\pm$ 0.205	<0.001	↓ 54.674	-0.784	<0.001	0.873 $\pm$ 0.183	<0.001	0.885	<0.001	0.635 $\pm$ 0.215	0.004	0.643	<0.001	0.175 $\pm$ 0.186	0.348	0.180	0.354
	MidRise	23.109	<0.001	-0.753 $\pm$ 0.196	<0.001	↓ 52.925	-0.747	<0.001	0.853 $\pm$ 0.181	<0.001	0.870	<0.001	0.616 $\pm$ 0.213	0.004	0.624	0.002	0.214 $\pm$ 0.185	0.249	0.220	0.240
	MidShape	6.091	0.107	0.117 $\pm$ 0.167	0.484	↑ 12.446	0.121	0.510	0.769 $\pm$ 0.168	<0.001	0.784	<0.001	0.347 $\pm$ 0.181	0.058	0.355	0.040	0.208 $\pm$ 0.173	0.231	0.212	0.228
	MidDuty	6.551	0.088	0.167 $\pm$ 0.169	0.326	↑ 18.133	0.166	0.352	0.771 $\pm$ 0.168	<0.001	0.780	<0.001	0.322 $\pm$ 0.183	0.079	0.328	0.050	0.187 $\pm$ 0.175	0.286	0.192	0.296
	MidRate	21.352	<0.001	0.720 $\pm$ 0.201	<0.001	↑ 105.363	0.719	<0.001	0.847 $\pm$ 0.180	<0.001	0.859	<0.001	0.429 $\pm$ 0.194	0.028	0.434	0.014	0.088 $\pm$ 0.188	0.641	0.095	0.638
	IniPeak	5.663	0.129	-0.098 $\pm$ 0.296	0.740	↓ 9.370	-0.104	0.724	0.767 $\pm$ 0.167	<0.001	0.781	<0.001	0.266 $\pm$ 0.309	0.390	0.266	0.390	0.232 $\pm$ 0.173	0.181	0.235	0.180
	IniFreq	6.914	0.075	0.212 $\pm$ 0.186	0.257	↑ 23.642	0.214	0.234	0.774 $\pm$ 0.168	<0.001	0.786	<0.001	0.405 $\pm$ 0.191	0.035	0.409	0.014	0.148 $\pm$ 0.183	0.419	0.151	0.410
	MidPeak	5.553	0.135	-0.005 $\pm$ 0.292	0.986	↓ 0.524	-0.011	0.968	0.767 $\pm$ 0.167	<0.001	0.780	<0.001	0.345 $\pm$ 0.305	0.260	0.344	0.276	0.224 $\pm$ 0.172	0.196	0.225	0.204
MidFreq	6.260	0.100	0.156 $\pm$ 0.189	0.411	↑ 16.825	0.160	0.394	0.771 $\pm$ 0.168	<0.001	0.783	<0.001	0.394 $\pm$ 0.192	0.041	0.402	0.014	0.167 $\pm$ 0.184	0.366	0.170	0.364	
TCS4	IniDur	57.830	<0.001	-1.185 $\pm$ 0.241	<0.001	↓ 69.438	-1.177	<0.001	-0.003 $\pm$ 0.181	0.987	0.003	0.966	1.027 $\pm$ 0.244	<0.001	1.033	<0.001	0.808 $\pm$ 0.223	<0.001	0.817	<0.001
	IniInt	54.658	<0.001	-1.085 $\pm$ 0.230	<0.001	↓ 66.203	-1.074	<0.001	-0.057 $\pm$ 0.180	0.753	-0.051	0.784	0.729 $\pm$ 0.210	0.001	0.740	<0.001	0.641 $\pm$ 0.211	0.003	0.653	<0.001
	MidDur	57.138	<0.001	-1.175 $\pm$ 0.240	<0.001	↓ 69.124	-1.171	<0.001	0.016 $\pm$ 0.181	0.930	0.018	0.924	1.041 $\pm$ 0.247	<0.001	1.046	<0.001	0.814 $\pm$ 0.220	<0.001	0.824	<0.001
	MidRise	54.632	<0.001	-1.127 $\pm$ 0.241	<0.001	↓ 67.590	-1.120	<0.001	-0.017 $\pm$ 0.179	0.923	-0.010	0.942	0.998 $\pm$ 0.242	<0.001	1.008	<0.001	0.837 $\pm$ 0.219	<0.001	0.847	<0.001
	MidShape	25.816	<0.001	0.227 $\pm$ 0.167	0.175	↑ 25.478	0.231	0.156	-0.025 $\pm$ 0.164	0.878	-0.017	0.884	0.498 $\pm$ 0.180	0.006	0.506	0.004	0.701 $\pm$ 0.193	<0.001	0.708	<0.001
	MidDuty	24.716	<0.001	0.154 $\pm$ 0.171	0.367	↑ 16.697	0.149	0.394	-0.028 $\pm$ 0.164	0.866	-0.018	0.882	0.476 $\pm$ 0.180	0.009	0.485	0.004	0.690 $\pm$ 0.194	<0.001	0.697	<0.001
	MidRate	49.213	<0.001	0.967 $\pm$ 0.222	<0.001	↑ 162.917	0.958	<0.001	-0.031 $\pm$ 0.176	0.859	-0.025	0.888	0.693 $\pm$ 0.204	0.001	0.700	<0.001	0.683 $\pm$ 0.209	0.001	0.691	<0.001
	IniPeak	25.002	<0.001	-0.311 $\pm$ 0.299	0.300	↓ 26.730	-0.310	0.332	-0.026 $\pm$ 0.164	0.872	-0.017	0.886	0.237 $\pm$ 0.307	0.441	0.245	0.430	0.745 $\pm$ 0.193	<0.001	0.752	<0.001
	IniFreq	30.224	<0.001	0.461 $\pm$ 0.192	0.018	↑ 58.537	0.462	0.012	-0.027 $\pm$ 0.166	0.874	-0.022	0.868	0.645 $\pm$ 0.200	0.002	0.659	<0.001	0.596 $\pm$ 0.201	0.004	0.603	0.004
	MidPeak	24.352	<0.001	-0.200 $\pm$ 0.291	0.494	↓ 18.102	-0.197	0.530	-0.027 $\pm$ 0.163	0.871	-0.018	0.884	0.331 $\pm$ 0.303	0.275	0.341	0.260	0.734 $\pm$ 0.192	<0.001	0.741	<0.001
MidFreq	26.054	<0.001	0.269 $\pm$ 0.188	0.155	↑ 30.881	0.271	0.146	-0.024 $\pm$ 0.164	0.882	-0.017	0.926	0.583 $\pm$ 0.193	0.003	0.594	<0.001	0.633 $\pm$ 0.201	0.002	0.637	0.002	

\*BTSP are *P*-values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

Standard Logistic Regression with Firth Correction																				
Binary Variables	Call Variables	Model Fit		Call Variable ( $b_1$ )				Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )				
		$\chi^2$	<i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value
TCS5	IniDur	59.428	<0.001	-1.230 $\pm$ 0.249	<0.001	↓ 70.777	-1.233	<0.001	-0.292 $\pm$ 0.184	0.114	-0.290	0.116	1.209 $\pm$ 0.256	<0.001	1.213	<0.001	0.693 $\pm$ 0.222	0.002	0.705	<0.001
	IniInt	57.697	<0.001	-1.178 $\pm$ 0.246	<0.001	↓ 69.208	-1.176	<0.001	-0.356 $\pm$ 0.186	0.057	-0.352	0.066	0.931 $\pm$ 0.222	<0.001	0.942	<0.001	0.523 $\pm$ 0.210	0.014	0.538	0.004
	MidDur	59.601	<0.001	-1.237 $\pm$ 0.249	<0.001	↓ 70.963	-1.239	<0.001	-0.272 $\pm$ 0.183	0.141	-0.270	0.148	1.234 $\pm$ 0.261	<0.001	1.241	<0.001	0.701 $\pm$ 0.220	0.002	0.715	0.002
	MidRise	55.879	<0.001	-1.179 $\pm$ 0.252	<0.001	↓ 69.235	-1.175	<0.001	-0.303 $\pm$ 0.182	0.099	-0.297	0.130	1.176 $\pm$ 0.252	<0.001	1.181	<0.001	0.721 $\pm$ 0.217	0.001	0.732	<0.001
	MidShape	29.148	<0.001	0.354 $\pm$ 0.171	0.040	↑ 42.417	0.358	0.044	-0.263 $\pm$ 0.167	0.117	-0.254	0.120	0.640 $\pm$ 0.186	0.001	0.646	<0.001	0.594 $\pm$ 0.194	0.003	0.601	<0.001
	MidDuty	25.530	<0.001	0.166 $\pm$ 0.173	0.340	↑ 18.007	0.161	0.360	-0.262 $\pm$ 0.165	0.115	-0.251	0.142	0.610 $\pm$ 0.184	0.001	0.615	<0.001	0.589 $\pm$ 0.193	0.003	0.600	<0.001
	MidRate	52.289	<0.001	1.044 $\pm$ 0.233	<0.001	↑ 183.942	1.043	<0.001	-0.314 $\pm$ 0.180	0.084	-0.310	0.096	0.880 $\pm$ 0.215	<0.001	0.886	<0.001	0.570 $\pm$ 0.209	0.007	0.581	<0.001
	IniPeak	26.108	<0.001	-0.368 $\pm$ 0.304	0.227	↓ 30.799	-0.377	0.226	-0.264 $\pm$ 0.166	0.113	-0.256	0.134	0.328 $\pm$ 0.309	0.291	0.330	0.314	0.649 $\pm$ 0.191	0.001	0.658	<0.001
	IniFreq	38.291	<0.001	0.717 $\pm$ 0.211	0.001	↑ 104.754	0.715	<0.001	-0.275 $\pm$ 0.172	0.111	-0.268	0.112	0.892 $\pm$ 0.219	<0.001	0.905	<0.001	0.443 $\pm$ 0.206	0.032	0.453	0.014
	MidPeak	25.421	<0.001	-0.268 $\pm$ 0.296	0.365	↓ 23.542	-0.275	0.370	-0.262 $\pm$ 0.165	0.114	-0.253	0.114	0.411 $\pm$ 0.304	0.179	0.415	0.198	0.638 $\pm$ 0.190	0.001	0.646	<0.001
	MidFreq	33.272	<0.001	0.566 $\pm$ 0.204	0.006	↑ 76.054	0.567	0.004	-0.264 $\pm$ 0.169	0.120	-0.261	0.106	0.833 $\pm$ 0.210	<0.001	0.846	<0.001	0.449 $\pm$ 0.204	0.029	0.458	0.018
TCS6	IniDur	64.754	<0.001	-1.594 $\pm$ 0.294	<0.001	↓ 79.681	-1.600	<0.001	-0.959 $\pm$ 0.212	<0.001	-0.960	<0.001	1.160 $\pm$ 0.261	<0.001	1.178	<0.001	0.526 $\pm$ 0.229	0.023	0.540	0.014
	IniInt	75.155	<0.001	-1.948 $\pm$ 0.358	<0.001	↓ 85.746	-1.950	<0.001	-1.171 $\pm$ 0.243	<0.001	-1.171	<0.001	1.053 $\pm$ 0.256	<0.001	1.061	<0.001	0.396 $\pm$ 0.229	0.085	0.406	0.074
	MidDur	61.764	<0.001	-1.495 $\pm$ 0.278	<0.001	↓ 77.573	-1.504	<0.001	-0.912 $\pm$ 0.206	<0.001	-0.914	<0.001	1.119 $\pm$ 0.255	<0.001	1.139	<0.001	0.519 $\pm$ 0.223	0.021	0.534	0.010
	MidRise	55.255	<0.001	-1.437 $\pm$ 0.291	<0.001	↓ 76.236	-1.438	<0.001	-0.934 $\pm$ 0.207	<0.001	-0.934	<0.001	1.063 $\pm$ 0.246	<0.001	1.072	<0.001	0.550 $\pm$ 0.214	0.011	0.567	0.010
	MidShape	26.919	<0.001	0.560 $\pm$ 0.182	0.002	↑ 75.020	0.566	<0.001	-0.760 $\pm$ 0.178	<0.001	-0.757	<0.001	0.492 $\pm$ 0.176	0.006	0.494	0.006	0.468 $\pm$ 0.197	0.019	0.473	0.024
	MidDuty	25.217	<0.001	0.544 $\pm$ 0.195	0.006	↑ 72.273	0.538	0.004	-0.767 $\pm$ 0.178	<0.001	-0.768	<0.001	0.429 $\pm$ 0.174	0.015	0.429	0.008	0.429 $\pm$ 0.193	0.028	0.438	0.014
	MidRate	69.457	<0.001	1.739 $\pm$ 0.327	<0.001	↑ 469.279	1.733	<0.001	-1.036 $\pm$ 0.221	<0.001	-1.035	<0.001	0.968 $\pm$ 0.241	<0.001	0.976	<0.001	0.477 $\pm$ 0.228	0.038	0.487	0.018
	IniPeak	17.460	0.001	-0.320 $\pm$ 0.316	0.313	↓ 27.410	-0.327	0.298	-0.722 $\pm$ 0.171	<0.001	-0.721	<0.001	0.219 $\pm$ 0.307	0.477	0.216	0.494	0.537 $\pm$ 0.187	0.005	0.544	0.002
	IniFreq	54.831	<0.001	1.399 $\pm$ 0.275	<0.001	↑ 305.196	1.411	<0.001	-0.925 $\pm$ 0.205	<0.001	-0.921	<0.001	0.985 $\pm$ 0.242	<0.001	1.005	<0.001	0.191 $\pm$ 0.222	0.392	0.192	0.398
	MidPeak	16.751	0.001	-0.183 $\pm$ 0.308	0.552	↓ 16.748	-0.191	0.566	-0.718 $\pm$ 0.171	<0.001	-0.715	<0.001	0.331 $\pm$ 0.302	0.274	0.329	0.286	0.526 $\pm$ 0.186	0.005	0.531	0.002
	MidFreq	37.081	<0.001	0.961 $\pm$ 0.239	<0.001	↑ 161.363	0.967	<0.001	-0.815 $\pm$ 0.187	<0.001	-0.810	<0.001	0.806 $\pm$ 0.210	<0.001	0.821	<0.001	0.219 $\pm$ 0.212	0.304	0.223	0.288

\*BTSP are *P*-values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

Standard Logistic Regression with Firth Correction																				
Binary Variables	Call Variables	Model Fit		Call Variable ( $b_1$ )				Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )				
		$\chi^2$	<i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	Odds %	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value	Value $\pm$ SE	<i>P</i> -value	BTSP $\bar{X}$	BTSP <i>P</i> -value
TCS7	IniDur	14.155	<b>0.003</b>	-0.916 $\pm$ 0.295	<b>0.002</b>	↓ 59.978	-0.903	<0.001	-2.314 $\pm$ 0.306	<0.001	-2.323	<0.001	-0.168 $\pm$ 0.261	0.522	-0.175	0.538	-0.113 $\pm$ 0.244	0.643	-0.109	0.618
	IniInt	12.933	<b>0.005</b>	-0.800 $\pm$ 0.271	<b>0.004</b>	↓ 55.072	-0.782	0.004	-2.253 $\pm$ 0.289	<0.001	-2.254	<0.001	-0.266 $\pm$ 0.266	0.319	-0.268	0.272	-0.132 $\pm$ 0.246	0.590	-0.129	0.580
	MidDur	15.273	<b>0.002</b>	-0.956 $\pm$ 0.293	<b>0.001</b>	↓ 61.550	-0.945	0.002	-2.342 $\pm$ 0.311	<0.001	-2.350	<0.001	-0.162 $\pm$ 0.259	0.533	-0.164	0.532	-0.116 $\pm$ 0.241	0.632	-0.109	0.616
	MidRise	19.206	<b>&lt;0.001</b>	-1.292 $\pm$ 0.384	<b>0.001</b>	↓ 72.533	-1.272	<0.001	-2.536 $\pm$ 0.370	<0.001	-2.535	<0.001	-0.107 $\pm$ 0.260	0.681	-0.115	0.680	-0.113 $\pm$ 0.237	0.634	-0.113	0.652
	MidShape	2.973	0.396	-0.061 $\pm$ 0.238	0.797	↓ 5.943	-0.059	0.832	-2.044 $\pm$ 0.248	<0.001	-2.057	<0.001	-0.410 $\pm$ 0.275	0.138	-0.400	0.130	0.040 $\pm$ 0.253	0.876	0.054	0.828
	MidDuty	4.533	0.209	0.309 $\pm$ 0.249	0.216	↑ 36.242	0.308	0.202	-2.078 $\pm$ 0.255	<0.001	-2.087	<0.001	-0.460 $\pm$ 0.279	0.101	-0.451	0.084	-0.037 $\pm$ 0.254	0.885	-0.024	0.930
	MidRate	11.562	<b>0.009</b>	0.709 $\pm$ 0.246	<b>0.004</b>	↑ 103.147	0.694	0.008	-2.218 $\pm$ 0.280	<0.001	-2.223	<0.001	-0.295 $\pm$ 0.261	0.259	-0.296	0.220	-0.114 $\pm$ 0.241	0.637	-0.107	0.638
	IniPeak	5.963	0.113	-0.733 $\pm$ 0.433	0.092	↓ 51.956	-0.724	0.104	-2.108 $\pm$ 0.261	<0.001	-2.117	<0.001	-1.030 $\pm$ 0.454	0.025	-1.019	0.024	0.079 $\pm$ 0.246	0.747	0.081	0.734
	IniFreq	6.002	0.112	0.480 $\pm$ 0.282	0.091	↑ 61.532	0.463	0.106	-2.107 $\pm$ 0.261	<0.001	-2.114	<0.001	-0.279 $\pm$ 0.275	0.312	-0.278	0.292	-0.126 $\pm$ 0.273	0.645	-0.116	0.674
	MidPeak	5.086	0.166	-0.601 $\pm$ 0.411	0.145	↓ 45.191	-0.591	0.154	-2.091 $\pm$ 0.258	<0.001	-2.098	<0.001	-0.920 $\pm$ 0.441	0.038	-0.904	0.044	0.064 $\pm$ 0.245	0.795	0.072	0.768
MidFreq	3.516	0.319	0.215 $\pm$ 0.278	0.440	↑ 23.991	0.214	0.420	-2.053 $\pm$ 0.250	<0.001	-2.063	<0.001	-0.341 $\pm$ 0.283	0.230	-0.331	0.226	-0.041 $\pm$ 0.269	0.878	-0.027	0.932	
TCS8	IniDur	9.042	<b>0.029</b>	-0.876 $\pm$ 0.354	<b>0.014</b>	↓ 58.337	-0.845	0.016	-2.779 $\pm$ 0.376	<0.001	-2.784	<0.001	-0.155 $\pm$ 0.310	0.617	-0.166	0.666	-0.054 $\pm$ 0.291	0.854	-0.035	0.904
	IniInt	8.207	<b>0.042</b>	-0.759 $\pm$ 0.324	<b>0.020</b>	↓ 53.202	-0.732	0.018	-2.717 $\pm$ 0.353	<0.001	-2.717	<0.001	-0.249 $\pm$ 0.319	0.435	-0.250	0.442	-0.072 $\pm$ 0.294	0.807	-0.057	0.846
	MidDur	10.209	<b>0.017</b>	-0.944 $\pm$ 0.352	<b>0.008</b>	↓ 61.109	-0.917	0.010	-2.829 $\pm$ 0.388	<0.001	-2.836	<0.001	-0.144 $\pm$ 0.306	0.639	-0.156	0.694	-0.062 $\pm$ 0.286	0.827	-0.049	0.842
	MidRise	12.132	<b>0.007</b>	-1.226 $\pm$ 0.462	<b>0.009</b>	↓ 70.642	-1.197	<0.001	-2.988 $\pm$ 0.454	<0.001	-2.978	<0.001	-0.100 $\pm$ 0.306	0.745	-0.102	0.804	-0.056 $\pm$ 0.282	0.843	-0.047	0.848
	MidShape	2.785	0.426	-0.226 $\pm$ 0.303	0.455	↓ 20.267	-0.229	0.460	-2.523 $\pm$ 0.307	<0.001	-2.532	<0.001	-0.399 $\pm$ 0.342	0.246	-0.376	0.250	0.108 $\pm$ 0.317	0.732	0.120	0.712
	MidDuty	3.397	0.334	0.339 $\pm$ 0.305	0.267	↑ 40.422	0.330	0.266	-2.548 $\pm$ 0.313	<0.001	-2.556	<0.001	-0.455 $\pm$ 0.341	0.184	-0.445	0.170	0.004 $\pm$ 0.313	0.989	0.017	0.922
	MidRate	7.413	0.060	0.680 $\pm$ 0.293	<b>0.021</b>	↑ 97.305	0.657	0.024	-2.686 $\pm$ 0.343	<0.001	-2.691	<0.001	-0.277 $\pm$ 0.312	0.376	-0.282	0.374	-0.058 $\pm$ 0.288	0.841	-0.041	0.890
	IniPeak	4.659	0.199	-0.812 $\pm$ 0.517	0.118	↓ 55.591	-0.803	0.128	-2.590 $\pm$ 0.322	<0.001	-2.603	<0.001	-1.084 $\pm$ 0.539	0.046	-1.076	0.052	0.123 $\pm$ 0.300	0.682	0.137	0.650
	IniFreq	2.524	0.471	0.226 $\pm$ 0.336	0.503	↑ 25.300	0.219	0.532	-2.513 $\pm$ 0.303	<0.001	-2.521	<0.001	-0.330 $\pm$ 0.343	0.337	-0.317	0.354	0.005 $\pm$ 0.330	0.988	0.019	0.944
	MidPeak	4.187	0.242	-0.711 $\pm$ 0.487	0.146	↓ 50.903	-0.705	0.156	-2.576 $\pm$ 0.318	<0.001	-2.581	<0.001	-1.002 $\pm$ 0.522	0.057	-0.991	0.080	0.108 $\pm$ 0.299	0.720	0.125	0.682
MidFreq	2.241	0.524	-0.146 $\pm$ 0.330	0.658	↓ 13.612	-0.148	0.634	-2.508 $\pm$ 0.303	<0.001	-2.514	<0.001	-0.443 $\pm$ 0.356	0.215	-0.423	0.210	0.128 $\pm$ 0.326	0.696	0.146	0.616	

\*BTSP are *P*-values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

Phylogenetic Logistic Regression with Firth Correction																				
Binary Variables	Call Variables	Phyl. Signal		Call Variable ( $b_1$ )					Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )			
		$a$	$P$ -value	Value $\pm$ SE	$P$ -value	Odds %	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value
Alkaloid	IniDur	0.049	<b>0.038</b>	-1.184 $\pm$ 0.335	<b>0.001</b>	↓ 69.389	-1.351	0.012	-0.627 $\pm$ 0.706	0.376	-0.681	0.446	0.918 $\pm$ 0.271	0.001	1.028	0.016	-0.137 $\pm$ 0.229	0.552	-0.162	0.536
	IniInt	0.944	0.052	-1.229 $\pm$ 0.340	<b>&lt;0.001</b>	↓ 70.730	-1.557	0.012	-0.273 $\pm$ 0.852	0.749	-0.287	0.724	0.665 $\pm$ 0.220	0.003	0.850	0.020	-0.083 $\pm$ 0.198	0.676	-0.079	0.640
	MidDur	0.515	0.061	-1.346 $\pm$ 0.354	<b>&lt;0.001</b>	↓ 73.962	-1.555	0.006	-0.832 $\pm$ 0.824	0.315	-0.774	0.474	1.110 $\pm$ 0.293	<b>&lt;0.001</b>	1.288	0.004	-0.128 $\pm$ 0.230	0.580	-0.112	0.608
	MidRise	0.496	<b>0.048</b>	-1.187 $\pm$ 0.316	<b>&lt;0.001</b>	↓ 69.474	-1.414	0.010	-0.007 $\pm$ 0.787	0.993	-0.098	0.944	0.948 $\pm$ 0.278	0.001	1.114	0.014	-0.093 $\pm$ 0.201	0.646	-0.061	0.708
	MidShape	0.892	<b>0.037</b>	0.006 $\pm$ 0.141	0.967	↑ 0.580	0.065	0.971	-0.492 $\pm$ 1.074	0.648	-0.907	0.748	0.334 $\pm$ 0.169	0.052	0.533	0.068	-0.023 $\pm$ 0.133	0.863	-0.032	0.796
	MidDuty	1.056	<b>0.030</b>	0.064 $\pm$ 0.150	0.672	↑ 6.559	0.048	0.726	-0.343 $\pm$ 1.177	0.771	-0.569	0.829	0.237 $\pm$ 0.155	0.129	0.314	0.121	-0.057 $\pm$ 0.123	0.642	-0.046	0.611
	MidRate	0.907	0.053	1.447 $\pm$ 0.382	<b>&lt;0.001</b>	↑ 324.907	1.756	0.012	-0.105 $\pm$ 0.849	0.902	-0.176	0.762	0.649 $\pm$ 0.222	0.004	0.808	0.026	-0.158 $\pm$ 0.217	0.468	-0.187	0.458
	IniPeak	0.784	<b>0.029</b>	-0.262 $\pm$ 0.288	0.366	↓ 23.022	-0.373	0.383	-0.712 $\pm$ 1.052	0.500	-1.705	0.622	0.151 $\pm$ 0.269	0.575	0.181	0.568	0.024 $\pm$ 0.136	0.862	0.018	0.921
	IniFreq	1.029	<b>0.021</b>	0.345 $\pm$ 0.190	0.073	↑ 41.137	0.536	0.092	-0.459 $\pm$ 1.044	0.661	-0.506	0.768	0.304 $\pm$ 0.163	0.065	0.437	0.078	-0.078 $\pm$ 0.127	0.541	-0.097	0.495
	MidPeak	0.845	<b>0.030</b>	-0.270 $\pm$ 0.267	0.314	↓ 23.699	-0.323	0.344	-0.708 $\pm$ 1.054	0.503	-0.957	0.622	0.153 $\pm$ 0.251	0.545	0.200	0.590	0.031 $\pm$ 0.132	0.817	0.010	0.837
MidFreq	1.091	<b>0.038</b>	-0.051 $\pm$ 0.191	0.791	↓ 4.952	-0.033	0.808	-0.201 $\pm$ 1.182	0.865	-0.163	0.931	0.247 $\pm$ 0.153	0.109	0.335	0.129	-0.034 $\pm$ 0.112	0.760	-0.053	0.687	
TCS3	IniDur	-0.120	<b>0.008</b>	-0.452 $\pm$ 0.198	<b>0.024</b>	↓ 36.359	-0.470	0.030	0.620 $\pm$ 0.694	0.373	0.507	0.480	0.076 $\pm$ 0.174	0.664	0.079	0.692	-0.021 $\pm$ 0.136	0.878	-0.011	0.902
	IniInt	-0.204	<b>0.009</b>	-0.365 $\pm$ 0.193	0.060	↓ 30.587	-0.375	0.050	0.704 $\pm$ 0.688	0.308	0.521	0.398	-0.030 $\pm$ 0.165	0.856	-0.042	0.842	-0.092 $\pm$ 0.137	0.504	-0.095	0.566
	MidDur	-0.228	<b>0.004</b>	-0.455 $\pm$ 0.201	<b>0.025</b>	↓ 36.529	-0.474	0.034	0.705 $\pm$ 0.651	0.280	0.535	0.380	0.104 $\pm$ 0.181	0.568	0.107	0.610	-0.028 $\pm$ 0.130	0.831	-0.034	0.884
	MidRise	-0.093	<b>0.002</b>	-0.370 $\pm$ 0.168	<b>0.029</b>	↓ 30.901	-0.379	0.016	0.517 $\pm$ 0.708	0.467	0.397	0.574	0.072 $\pm$ 0.165	0.664	0.072	0.676	0.002 $\pm$ 0.124	0.985	0.016	0.946
	MidShape	-0.080	<b>0.001</b>	-0.035 $\pm$ 0.096	0.718	↓ 3.422	-0.086	0.676	0.248 $\pm$ 0.817	0.762	0.211	0.820	-0.038 $\pm$ 0.123	0.756	-0.062	0.742	-0.039 $\pm$ 0.093	0.678	-0.064	0.730
	MidDuty	0.076	<b>0.002</b>	0.140 $\pm$ 0.123	0.255	↑ 15.063	0.146	0.298	0.225 $\pm$ 0.857	0.793	0.127	0.850	-0.088 $\pm$ 0.133	0.506	-0.103	0.490	-0.052 $\pm$ 0.100	0.603	-0.055	0.650
	MidRate	-0.415	<b>0.006</b>	0.543 $\pm$ 0.215	<b>0.013</b>	↑ 72.125	0.566	0.010	0.687 $\pm$ 0.557	0.219	0.597	0.300	0.004 $\pm$ 0.179	0.983	0.008	0.960	-0.082 $\pm$ 0.148	0.578	-0.084	0.624
	IniPeak	-0.075	<b>&lt;0.001</b>	0.003 $\pm$ 0.181	0.985	↑ 0.337	0.006	0.952	0.274 $\pm$ 0.829	0.742	0.217	0.798	-0.038 $\pm$ 0.177	0.829	-0.045	0.788	-0.041 $\pm$ 0.093	0.659	-0.026	0.698
	IniFreq	-0.030	<b>&lt;0.001</b>	-0.063 $\pm$ 0.118	0.595	↓ 6.075	-0.078	0.618	0.277 $\pm$ 0.843	0.743	0.200	0.782	-0.046 $\pm$ 0.126	0.716	-0.040	0.716	-0.033 $\pm$ 0.091	0.716	-0.067	0.752
	MidPeak	-0.068	<b>&lt;0.001</b>	0.052 $\pm$ 0.183	0.778	↑ 5.319	0.043	0.790	0.317 $\pm$ 0.828	0.702	0.319	0.746	-0.009 $\pm$ 0.175	0.959	-0.002	0.914	-0.050 $\pm$ 0.097	0.609	-0.042	0.644
MidFreq	-0.082	<b>&lt;0.001</b>	-0.025 $\pm$ 0.125	0.842	↓ 2.467	-0.020	0.872	0.269 $\pm$ 0.823	0.744	0.177	0.792	-0.043 $\pm$ 0.122	0.728	-0.057	0.680	-0.033 $\pm$ 0.091	0.720	-0.011	0.760	
TCS4	IniDur	0.609	<b>0.029</b>	-0.550 $\pm$ 0.196	<b>0.006</b>	↓ 42.328	-0.684	0.012	-0.678 $\pm$ 0.789	0.391	-0.624	0.536	0.530 $\pm$ 0.180	0.004	0.672	0.010	0.284 $\pm$ 0.142	0.047	0.371	0.066
	IniInt	0.674	<b>0.029</b>	-0.623 $\pm$ 0.181	<b>0.001</b>	↓ 46.350	-0.787	0.014	-0.296 $\pm$ 0.741	0.690	-0.446	0.722	0.374 $\pm$ 0.152	0.015	0.445	0.030	0.192 $\pm$ 0.131	0.144	0.249	0.162
	MidDur	0.618	<b>0.018</b>	-0.570 $\pm$ 0.185	<b>0.002</b>	↓ 43.455	-0.786	0.008	-0.410 $\pm$ 0.750	0.585	-0.555	0.718	0.566 $\pm$ 0.174	0.001	0.701	0.006	0.272 $\pm$ 0.135	0.045	0.287	0.062
	MidRise	0.702	<b>0.022</b>	-0.485 $\pm$ 0.162	<b>0.003</b>	↓ 38.406	-0.594	0.032	-0.419 $\pm$ 0.785	0.595	-0.413	0.698	0.514 $\pm$ 0.168	0.003	0.661	0.020	0.261 $\pm$ 0.131	0.048	0.341	0.060
	MidShape	0.571	<b>0.004</b>	-0.092 $\pm$ 0.087	0.290	↓ 8.833	-0.110	0.372	0.043 $\pm$ 0.956	0.964	-0.243	0.970	0.201 $\pm$ 0.130	0.123	0.161	0.168	0.147 $\pm$ 0.102	0.152	0.164	0.214
	MidDuty	0.628	<b>0.014</b>	0.155 $\pm$ 0.126	0.220	↑ 16.815	0.127	0.242	-0.470 $\pm$ 0.912	0.607	-0.715	0.692	0.256 $\pm$ 0.150	0.091	0.353	0.106	0.169 $\pm$ 0.109	0.124	0.202	0.188
	MidRate	0.562	<b>0.020</b>	0.547 $\pm$ 0.186	<b>0.004</b>	↑ 72.803	0.697	0.010	-0.521 $\pm$ 0.775	0.502	-0.523	0.628	0.315 $\pm$ 0.151	0.038	0.385	0.050	0.217 $\pm$ 0.134	0.108	0.273	0.136
	IniPeak	0.304	<b>0.003</b>	0.041 $\pm$ 0.202	0.839	↑ 4.186	0.034	0.842	-0.241 $\pm$ 0.889	0.787	-0.262	0.850	0.247 $\pm$ 0.206	0.232	0.312	0.250	0.134 $\pm$ 0.108	0.217	0.173	0.240
	IniFreq	0.539	<b>0.007</b>	-0.054 $\pm$ 0.112	0.631	↓ 5.249	-0.088	0.691	-0.102 $\pm$ 1.071	0.924	-0.304	0.953	0.103 $\pm$ 0.115	0.375	0.188	0.416	0.086 $\pm$ 0.093	0.357	0.136	0.406
	MidPeak	0.317	<b>0.003</b>	0.048 $\pm$ 0.195	0.805	↑ 4.954	0.049	0.800	-0.288 $\pm$ 0.895	0.748	-0.472	0.788	0.242 $\pm$ 0.194	0.214	0.310	0.228	0.145 $\pm$ 0.110	0.189	0.105	0.208
MidFreq	0.733	<b>0.011</b>	-0.103 $\pm$ 0.126	0.415	↓ 9.819	-0.183	0.504	-0.092 $\pm$ 1.079	0.932	-0.422	0.952	0.131 $\pm$ 0.117	0.263	0.172	0.368	0.100 $\pm$ 0.096	0.295	0.129	0.338	

\*BTSP are  $P$ -values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.



Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

Phylogenetic Logistic Regression with Firth Correction																				
Binary Variables	Call Variables	Phyl. Signal		Call Variable ( $b_1$ )				Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )				
		$a$	$P$ -value	Value $\pm$ SE	$P$ -value	Odds %	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value
TCS5	IniDur	0.261	<b>0.035</b>	-0.574 $\pm$ 0.231	<b>0.014</b>	↓ 43.663	-0.618	0.044	-1.216 $\pm$ 0.810	0.135	-1.152	0.274	0.757 $\pm$ 0.241	0.002	0.822	0.016	-0.033 $\pm$ 0.162	0.836	-0.042	0.800
	IniInt	0.303	<b>0.030</b>	-0.595 $\pm$ 0.224	<b>0.009</b>	↓ 44.822	-0.670	0.024	-1.024 $\pm$ 0.797	0.201	-1.255	0.356	0.582 $\pm$ 0.203	0.005	0.507	0.020	-0.095 $\pm$ 0.148	0.523	-0.067	0.606
	MidDur	0.089	<b>0.045</b>	-0.598 $\pm$ 0.248	<b>0.017</b>	↓ 45.035	-0.676	0.036	-1.418 $\pm$ 0.791	0.075	-1.496	0.168	0.789 $\pm$ 0.254	0.002	0.799	0.018	-0.033 $\pm$ 0.171	0.848	-0.011	0.844
	MidRise	0.462	<b>0.045</b>	-0.526 $\pm$ 0.208	<b>0.012</b>	↓ 40.898	-0.662	0.036	-1.168 $\pm$ 0.817	0.155	-1.350	0.336	0.737 $\pm$ 0.234	0.002	0.804	0.022	-0.020 $\pm$ 0.149	0.893	0.024	0.908
	MidShape	0.624	<b>0.042</b>	-0.035 $\pm$ 0.126	0.782	↓ 3.438	0.021	0.842	-0.892 $\pm$ 0.903	0.325	-1.108	0.468	0.490 $\pm$ 0.189	0.010	0.636	0.022	0.031 $\pm$ 0.123	0.799	0.005	0.846
	MidDuty	0.654	<b>0.040</b>	0.147 $\pm$ 0.133	0.273	↑ 15.787	0.208	0.342	-0.841 $\pm$ 0.906	0.355	-1.103	0.478	0.421 $\pm$ 0.182	0.022	0.538	0.036	-0.014 $\pm$ 0.123	0.911	-0.073	0.874
	MidRate	0.226	<b>0.031</b>	0.545 $\pm$ 0.235	<b>0.022</b>	↑ 72.394	0.611	0.032	-1.244 $\pm$ 0.832	0.137	-1.221	0.262	0.519 $\pm$ 0.209	0.014	0.584	0.012	-0.108 $\pm$ 0.155	0.485	-0.119	0.564
	IniPeak	0.665	<b>0.044</b>	-0.157 $\pm$ 0.233	0.503	↓ 14.497	-0.246	0.496	-0.783 $\pm$ 0.854	0.361	-1.376	0.496	0.383 $\pm$ 0.248	0.124	0.487	0.178	0.066 $\pm$ 0.118	0.578	0.099	0.612
	IniFreq	0.425	<b>0.026</b>	0.030 $\pm$ 0.162	0.852	↑ 3.075	0.122	0.848	-1.015 $\pm$ 0.874	0.247	-1.589	0.404	0.531 $\pm$ 0.202	0.009	0.533	0.032	0.059 $\pm$ 0.134	0.662	0.102	0.762
	MidPeak	0.596	<b>0.043</b>	-0.097 $\pm$ 0.233	0.679	↓ 9.214	-0.113	0.660	-0.923 $\pm$ 0.874	0.292	-0.993	0.434	0.436 $\pm$ 0.252	0.086	0.577	0.106	0.057 $\pm$ 0.122	0.642	0.068	0.666
	MidFreq	0.623	<b>0.041</b>	-0.022 $\pm$ 0.166	0.894	↓ 2.191	0.066	0.950	-0.875 $\pm$ 0.892	0.328	-1.186	0.476	0.500 $\pm$ 0.190	0.009	0.559	0.034	0.046 $\pm$ 0.128	0.721	0.060	0.744
TCS6	IniDur	-0.135	<b>0.018</b>	-0.602 $\pm$ 0.231	<b>0.010</b>	↓ 45.212	-0.655	0.016	-1.108 $\pm$ 0.639	0.085	-0.958	0.192	0.933 $\pm$ 0.238	<0.001	0.981	0.006	-0.057 $\pm$ 0.172	0.743	-0.031	0.746
	IniInt	0.059	<b>0.031</b>	-0.994 $\pm$ 0.289	<b>0.001</b>	↓ 62.986	-1.096	0.008	-1.334 $\pm$ 0.726	0.068	-1.300	0.114	0.931 $\pm$ 0.249	<0.001	1.022	0.006	-0.117 $\pm$ 0.174	0.501	-0.108	0.542
	MidDur	-0.142	<b>0.024</b>	-0.515 $\pm$ 0.223	<b>0.022</b>	↓ 40.239	-0.595	0.034	-1.052 $\pm$ 0.641	0.102	-0.930	0.216	0.870 $\pm$ 0.230	<0.001	0.919	0.006	-0.036 $\pm$ 0.169	0.831	-0.032	0.812
	MidRise	0.070	<b>0.027</b>	-0.497 $\pm$ 0.201	<b>0.015</b>	↓ 39.135	-0.549	0.032	-0.804 $\pm$ 0.680	0.239	-0.721	0.434	0.836 $\pm$ 0.218	<0.001	0.914	0.006	-0.031 $\pm$ 0.154	0.842	-0.015	0.862
	MidShape	0.444	<b>0.025</b>	-0.021 $\pm$ 0.129	0.874	↓ 2.031	-0.018	0.902	-0.579 $\pm$ 0.791	0.466	-0.635	0.608	0.564 $\pm$ 0.178	0.002	0.707	0.010	0.001 $\pm$ 0.124	0.997	-0.010	0.962
	MidDuty	0.263	<b>0.027</b>	0.203 $\pm$ 0.151	0.180	↑ 22.459	0.215	0.178	-0.827 $\pm$ 0.787	0.295	-0.760	0.462	0.500 $\pm$ 0.191	0.010	0.595	0.006	-0.053 $\pm$ 0.138	0.703	-0.109	0.652
	MidRate	-0.420	<b>0.025</b>	0.941 $\pm$ 0.277	<b>0.001</b>	↑ 156.288	0.988	0.008	-1.349 $\pm$ 0.565	0.018	-1.248	0.048	0.858 $\pm$ 0.234	<0.001	0.869	0.008	-0.138 $\pm$ 0.186	0.460	-0.117	0.502
	IniPeak	0.463	<b>0.023</b>	-0.254 $\pm$ 0.229	0.268	↓ 22.466	-0.259	0.318	-0.515 $\pm$ 0.782	0.511	-0.593	0.598	0.363 $\pm$ 0.238	0.129	0.449	0.182	0.028 $\pm$ 0.111	0.801	0.038	0.844
	IniFreq	0.219	<b>0.024</b>	0.590 $\pm$ 0.219	0.008	↑ 80.424	0.740	0.034	-1.127 $\pm$ 0.751	0.135	-1.324	0.270	0.835 $\pm$ 0.233	<0.001	0.940	0.010	-0.050 $\pm$ 0.162	0.758	-0.053	0.728
	MidPeak	0.485	<b>0.025</b>	-0.148 $\pm$ 0.226	0.512	↓ 13.785	-0.196	0.528	-0.509 $\pm$ 0.785	0.518	-0.480	0.638	0.429 $\pm$ 0.234	0.069	0.509	0.096	0.009 $\pm$ 0.121	0.939	0.019	0.956
	MidFreq	0.450	<b>0.021</b>	0.359 $\pm$ 0.182	0.050	↑ 43.135	0.425	0.070	-0.739 $\pm$ 0.755	0.329	-0.709	0.480	0.724 $\pm$ 0.197	<0.001	0.875	0.008	-0.024 $\pm$ 0.142	0.868	-0.029	0.846

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Table S4 (Cont.) Standard and phylogenetic logistic regression analyses between discrete binary variables (TCS3, TCS4, ..., TCS8 for coloration conspicuousness and ability to sequester alkaloids) and continuous variables of call, body size (snout vent length, SVL), and external temperature.

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Binary Variables	Call Variables	Phyl. Signal		Call Variable ( $b_1$ )					Intercept ( $b_0$ )				SVL ( $b_2$ )				Temperature ( $b_3$ )			
		$a$	$P$ -value	Value $\pm$ SE	$P$ -value	Odds %	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value	Value $\pm$ SE	$P$ -value	BTSP $\bar{X}$	BTSP $P$ -value
TCS7	IniDur	-2.357	0.134	-0.957 $\pm$ 0.327	<b>0.004</b>	↓ 61.604	-0.909	0.006	-2.456 $\pm$ 0.366	<0.001	-2.446	0.006	-0.050 $\pm$ 0.291	0.864	-0.012	0.872	-0.331 $\pm$ 0.265	0.212	-0.315	0.196
	IniInt	-2.580	0.147	-0.858 $\pm$ 0.294	<b>0.004</b>	↓ 57.593	-0.843	0.004	-2.339 $\pm$ 0.335	<0.001	-2.242	0.008	-0.152 $\pm$ 0.283	0.592	-0.150	0.640	-0.321 $\pm$ 0.259	0.217	-0.317	0.198
	MidDur	-2.975	0.218	-0.999 $\pm$ 0.310	<b>0.002</b>	↓ 63.173	-0.988	0.006	-2.435 $\pm$ 0.344	<0.001	-2.394	<0.001	-0.070 $\pm$ 0.274	0.797	-0.070	0.812	-0.250 $\pm$ 0.254	0.327	-0.246	0.322
	MidRise	-2.488	0.159	-1.326 $\pm$ 0.413	<b>0.002</b>	↓ 73.441	-1.286	0.004	-2.703 $\pm$ 0.425	<0.001	-2.609	0.006	0.013 $\pm$ 0.287	0.963	-0.009	0.994	-0.282 $\pm$ 0.259	0.277	-0.263	0.308
	MidShape	-2.890	0.157	-0.026 $\pm$ 0.247	0.916	↓ 2.570	-0.033	0.946	-2.096 $\pm$ 0.280	<0.001	-2.065	<0.001	-0.241 $\pm$ 0.287	0.401	-0.217	0.472	-0.199 $\pm$ 0.258	0.442	-0.192	0.504
	MidDuty	-2.380	0.094	0.352 $\pm$ 0.266	0.187	↑ 42.172	0.355	0.206	-2.159 $\pm$ 0.311	<0.001	-2.190	0.002	-0.280 $\pm$ 0.303	0.357	-0.247	0.358	-0.343 $\pm$ 0.264	0.196	-0.354	0.198
	MidRate	-2.698	0.136	0.768 $\pm$ 0.268	<b>0.005</b>	↑ 115.457	0.723	0.010	-2.295 $\pm$ 0.321	<0.001	-2.346	0.012	-0.160 $\pm$ 0.275	0.563	-0.120	0.608	-0.308 $\pm$ 0.255	0.229	-0.308	0.190
	IniPeak	-3.341	0.304	-0.847 $\pm$ 0.454	0.064	↓ 57.113	-0.794	0.074	-2.152 $\pm$ 0.281	<0.001	-2.114	<0.001	-1.027 $\pm$ 0.464	0.028	-0.962	0.052	-0.035 $\pm$ 0.252	0.888	-0.015	0.942
	IniFreq	-2.606	0.129	0.593 $\pm$ 0.301	0.050	↑ 80.975	0.586	0.066	-2.237 $\pm$ 0.315	<0.001	-2.266	0.004	-0.168 $\pm$ 0.293	0.568	-0.163	0.624	-0.371 $\pm$ 0.289	0.200	-0.357	0.246
	MidPeak	-3.450	0.335	-0.697 $\pm$ 0.432	0.109	↓ 50.191	-0.653	0.128	-2.130 $\pm$ 0.275	<0.001	-2.073	0.004	-0.909 $\pm$ 0.450	0.045	-0.849	0.074	-0.039 $\pm$ 0.251	0.876	-0.022	0.924
TCS8	MidFreq	-2.462	0.120	0.485 $\pm$ 0.314	0.124	↑ 62.390	0.423	0.122	-2.209 $\pm$ 0.316	<0.001	-2.308	0.008	-0.167 $\pm$ 0.305	0.583	-0.197	0.626	-0.381 $\pm$ 0.292	0.194	-0.361	0.232
	IniDur	-2.723	0.150	-0.911 $\pm$ 0.376	<b>0.016</b>	↓ 59.799	-0.875	0.036	-2.884 $\pm$ 0.422	<0.001	-3.000	0.008	-0.032 $\pm$ 0.330	0.924	-0.005	0.986	-0.210 $\pm$ 0.306	0.493	-0.198	0.532
	IniInt	-3.279	0.293	-0.806 $\pm$ 0.336	<b>0.017</b>	↓ 55.352	-0.758	0.020	-2.792 $\pm$ 0.382	<0.001	-2.705	<0.001	-0.159 $\pm$ 0.323	0.624	-0.134	0.738	-0.179 $\pm$ 0.300	0.553	-0.155	0.594
	MidDur	-3.419	0.320	-1.011 $\pm$ 0.367	<b>0.007</b>	↓ 63.611	-0.959	0.018	-2.944 $\pm$ 0.420	<0.001	-2.840	0.010	-0.061 $\pm$ 0.316	0.847	-0.018	0.931	-0.163 $\pm$ 0.297	0.583	-0.156	0.607
	MidRise	-3.096	0.225	-1.283 $\pm$ 0.476	<b>0.008</b>	↓ 72.282	-1.276	0.014	-3.122 $\pm$ 0.490	<0.001	-3.607	0.008	0.011 $\pm$ 0.321	0.973	0.009	0.893	-0.166 $\pm$ 0.297	0.575	-0.230	0.565
	MidShape	-3.167	0.192	-0.128 $\pm$ 0.301	0.671	↓ 12.008	-0.118	0.718	-2.551 $\pm$ 0.328	<0.001	-2.696	0.002	-0.240 $\pm$ 0.339	0.480	-0.147	0.620	-0.064 $\pm$ 0.311	0.837	-0.034	0.878
	MidDuty	-3.160	0.224	0.352 $\pm$ 0.310	0.258	↑ 42.195	0.381	0.302	-2.572 $\pm$ 0.334	<0.001	-2.618	0.004	-0.328 $\pm$ 0.341	0.337	-0.274	0.430	-0.161 $\pm$ 0.309	0.602	-0.137	0.616
	MidRate	-3.401	0.313	0.733 $\pm$ 0.305	<b>0.017</b>	↑ 108.077	0.726	0.036	-2.768 $\pm$ 0.371	<0.001	-2.814	0.002	-0.180 $\pm$ 0.317	0.570	-0.175	0.674	-0.168 $\pm$ 0.296	0.571	-0.145	0.574
	IniPeak	-3.659	0.382	-0.913 $\pm$ 0.536	0.091	↑ 59.881	-0.881	0.104	-2.646 $\pm$ 0.340	<0.001	-2.893	<0.001	-1.090 $\pm$ 0.545	0.047	-0.990	0.074	0.045 $\pm$ 0.300	0.881	0.062	0.880
	IniFreq	-3.583	0.358	0.347 $\pm$ 0.335	0.302	↑ 41.513	0.311	0.332	-2.573 $\pm$ 0.326	<0.001	-2.566	<0.001	-0.213 $\pm$ 0.333	0.523	-0.186	0.607	-0.129 $\pm$ 0.326	0.693	-0.143	0.755
MidPeak	-3.616	0.370	-0.822 $\pm$ 0.509	0.108	↓ 56.062	-0.714	0.136	-2.634 $\pm$ 0.337	<0.001	-2.727	0.002	-1.010 $\pm$ 0.526	0.057	-0.953	0.078	0.034 $\pm$ 0.300	0.910	0.027	0.901	
MidFreq	-3.469	0.297	0.085 $\pm$ 0.341	0.803	↑ 8.885	0.043	0.870	-2.535 $\pm$ 0.318	<0.001	-2.752	0.002	-0.257 $\pm$ 0.344	0.456	-0.258	0.552	-0.078 $\pm$ 0.327	0.812	-0.080	0.806	

\*BTSP are  $P$ -values estimated from bootstraps using a statistic derived from 1000 simulated data sets. See Ives and Garland (2010) Syst Biol 59:9-26.

Table S4 (Cont.) Phylogenetic regression analyses between continuous scoring of coloration (Total Contrast Score or  $\Sigma S_i$ ) and call, body size (snout vent length, SVL), external temperature, and principal components.

Dependent Conspicuousness (Total Contrast Score $\Sigma S_i$ )			Call Variable ( $b_1$ )		Intercept ( $b_0$ )		SVL ( $b_2$ )		Temperature ( $b_3$ )			
Call Variable	<i>N</i>	$\lambda^a$	$\beta_1 \pm SE$	<i>P</i> -value	$\beta_0 \pm SE$	<i>P</i> -value	$\beta_2 \pm SE$	<i>P</i> -value	$\beta_3 \pm SE$	<i>P</i> -value	<i>R</i> <sup>2</sup>	<i>P</i> -value
Initial Pulse-Note Duration (IniDur)	169	<b>0.780***</b>	<b>-4.668 ± 2.059</b>	<b>0.025</b>	-1.291 ± 2.428	0.596	<b>2.796 ± 1.368</b>	<b>0.043</b>	-1.648 ± 1.430	0.251	<b>0.051</b>	<b>0.021</b>
Interval between Initial Pulse-Notes (IniInt)	169	<b>0.775***</b>	<b>-0.292 ± 0.118</b>	<b>0.015</b>	-2.243 ± 2.477	0.367	2.074 ± 1.323	0.119	-2.042 ± 1.448	0.160	<b>0.056</b>	<b>0.012</b>
Middle Pulse-Note Duration (MidDur)	169	<b>0.782***</b>	<b>-4.434 ± 2.014</b>	<b>0.029</b>	-1.430 ± 2.435	0.558	<b>2.878 ± 1.381</b>	<b>0.039</b>	-1.646 ± 1.430	0.251	<b>0.050</b>	<b>0.024</b>
Interval between Middle Pulse-Notes (MidInt)	169	<b>0.779***</b>	<b>-0.300 ± 0.128</b>	<b>0.020</b>	-2.129 ± 2.474	0.391	2.030 ± 1.326	0.128	-1.964 ± 1.443	0.176	<b>0.053</b>	<b>0.017</b>
Middle Pulse-Note Rise Time (MidRise)	168	<b>0.774***</b>	<b>-6.550 ± 2.603</b>	<b>0.013</b>	-1.210 ± 2.405	0.615	<b>3.029 ± 1.358</b>	<b>0.027</b>	-1.240 ± 1.422	0.384	<b>0.059</b>	<b>0.011</b>
Middle Pulse-Note Shape (MidShape)	168	<b>0.797***</b>	-1.132 ± 1.007	0.263	-0.345 ± 2.551	0.893	2.107 ± 1.351	0.121	-1.477 ± 1.442	0.307	0.030	0.149
Middle Pulse-Note Duty (MidDuty)	168	<b>0.793***</b>	1.085 ± 0.728	0.138	-1.529 ± 2.467	0.536	1.677 ± 1.384	0.227	-1.822 ± 1.453	0.212	0.037	0.085
Middle Pulse-Note Rate (MidRate)	169	<b>0.779***</b>	<b>0.593 ± 0.251</b>	<b>0.019</b>	-2.118 ± 2.472	0.393	2.067 ± 1.325	0.121	-1.934 ± 1.441	0.181	<b>0.054</b>	<b>0.016</b>
Initial Q1 (IniQ1)	169	<b>0.816***</b>	<b>-0.529 ± 0.230</b>	<b>0.023</b>	6.269 ± 4.086	0.127	-1.537 ± 2.058	0.456	-1.177 ± 1.428	0.411	<b>0.055</b>	<b>0.014</b>
Initial Peak Frequency (IniPeak)	169	<b>0.815***</b>	<b>-0.516 ± 0.232</b>	<b>0.027</b>	6.335 ± 4.194	0.133	-1.518 ± 2.091	0.469	-1.107 ± 1.436	0.442	<b>0.053</b>	<b>0.017</b>
Initial Q3 (IniQ3)	169	<b>0.816***</b>	<b>-0.479 ± 0.226</b>	<b>0.035</b>	5.827 ± 4.144	0.162	-1.253 ± 2.058	0.543	-1.142 ± 1.437	0.428	<b>0.051</b>	<b>0.022</b>
Initial Modulation Q1 – Q3 (IniFreq)	169	<b>0.796***</b>	0.269 ± 0.531	0.613	-1.877 ± 2.918	0.521	2.112 ± 1.353	0.120	-1.657 ± 1.455	0.256	0.025	0.241
Middle Q1 (MidQ1)	169	<b>0.813***</b>	-0.402 ± 0.218	0.067	4.382 ± 3.911	0.264	-0.639 ± 1.985	0.748	-1.358 ± 1.430	0.344	<b>0.044</b>	<b>0.041</b>
Middle Peak Frequency (MidPeak)	168	<b>0.817***</b>	<b>-0.436 ± 0.218</b>	<b>0.047</b>	4.427 ± 3.979	0.267	-0.609 ± 1.987	0.759	-1.469 ± 1.420	0.302	<b>0.055</b>	<b>0.015</b>
Middle Q3 (MidQ3)	169	<b>0.812***</b>	-0.380 ± 0.219	0.084	4.392 ± 4.062	0.281	-0.556 ± 2.019	0.783	-1.246 ± 1.442	0.389	0.042	0.051
Middle Modulation Q1 – Q3 (MidFreq)	169	<b>0.799***</b>	0.097 ± 0.558	0.862	-1.426 ± 3.075	0.643	2.090 ± 1.364	0.127	-1.623 ± 1.472	0.272	0.023	0.265

Dependent Continuous	<i>N</i>	$\lambda^a$	Intercept		PC1- Morphology		PC2- Physiology		PC3- Environment		Overall	
Conspicuousness (Total Contrast Score $\Sigma S_i$ )	169	<b>0.785***</b>	$\beta_0 \pm SE$	<i>P</i> -value	$\beta_1 \pm SE$	<i>P</i> -value	$\beta_2 \pm SE$	<i>P</i> -value	$\beta_3 \pm SE$	<i>P</i> -value	<i>R</i> <sup>2</sup>	<i>P</i> -value
			<b>3.531 ± 0.677</b>	<b>&lt;0.001</b>	<b>-0.373 ± 0.137</b>	<b>0.007</b>	<b>-0.370 ± 0.156</b>	<b>0.019</b>	-0.025 ± 0.145	0.861	<b>0.076</b>	<b>0.002</b>

<sup>a</sup> Significance of rejecting  $H_0: \lambda = 0$  (no phylogenetic signal). Significance is given by <sup>NS</sup>,  $P > 0.05$ ; \*,  $P < 0.05$ ; \*\*,  $P < 0.01$ ; \*\*\*,  $P < 0.001$ .