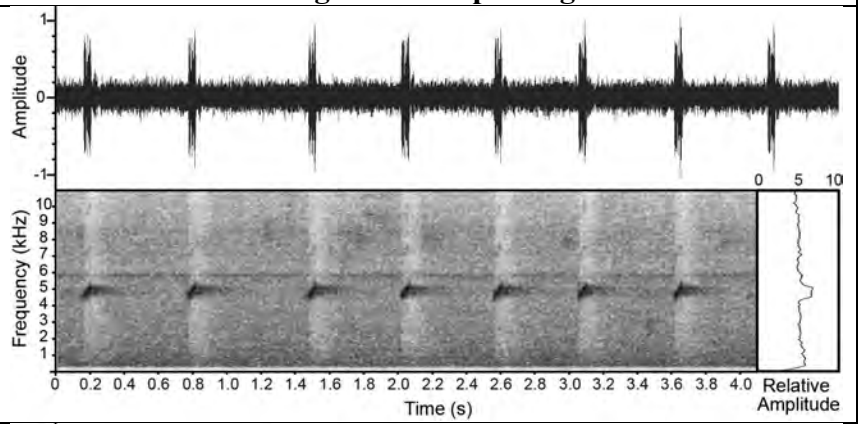
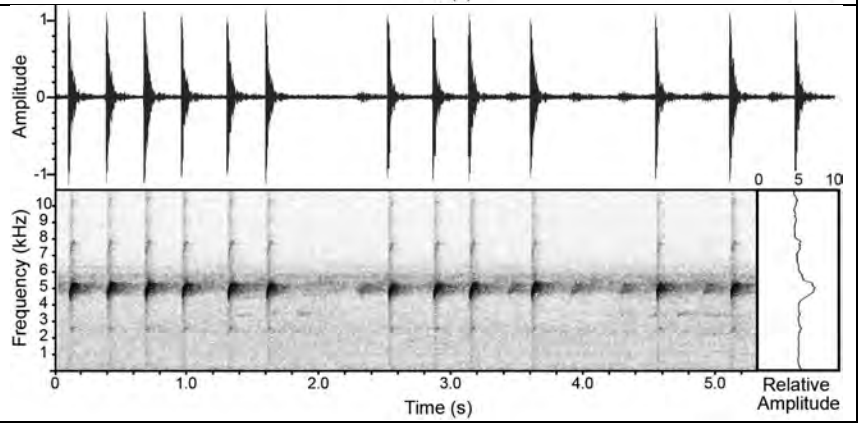
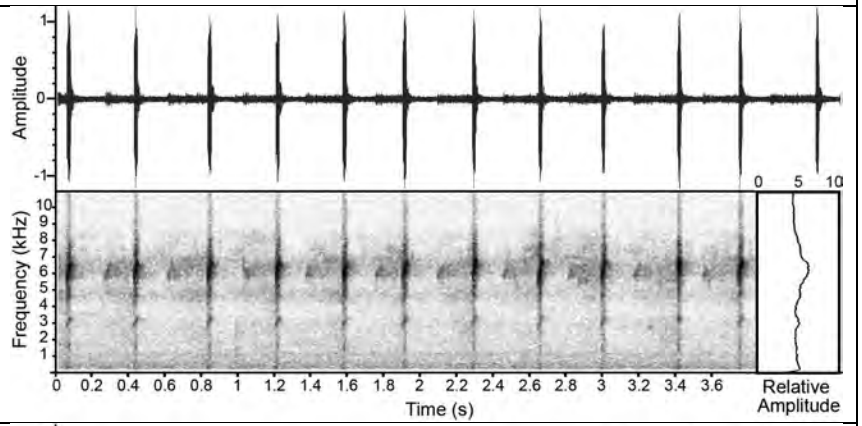
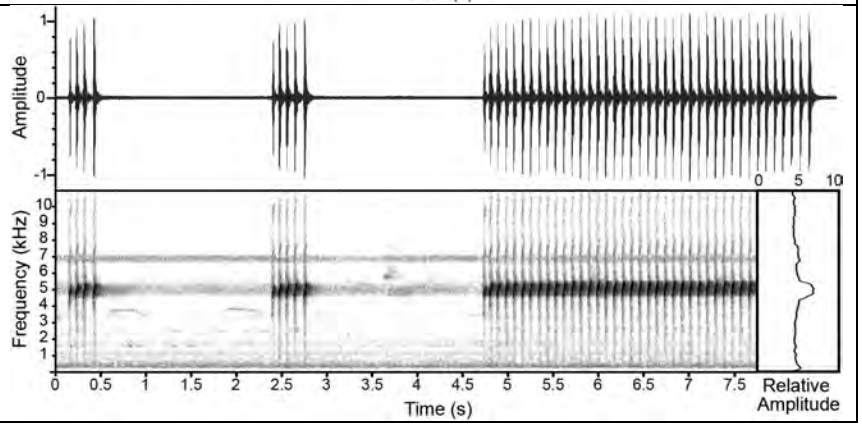
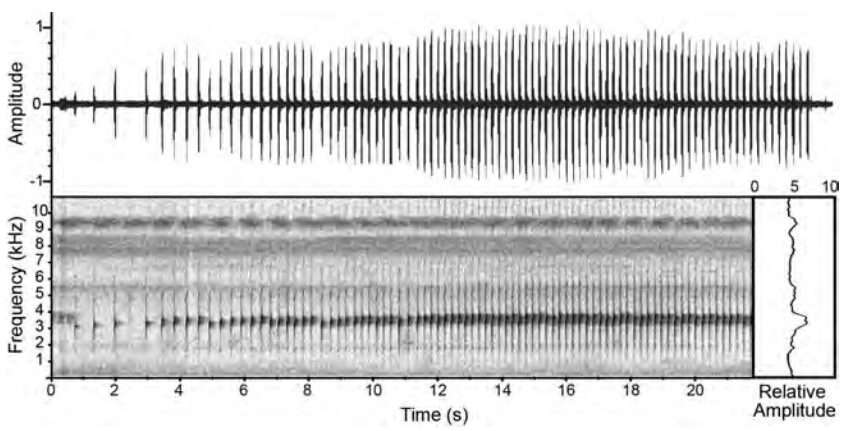
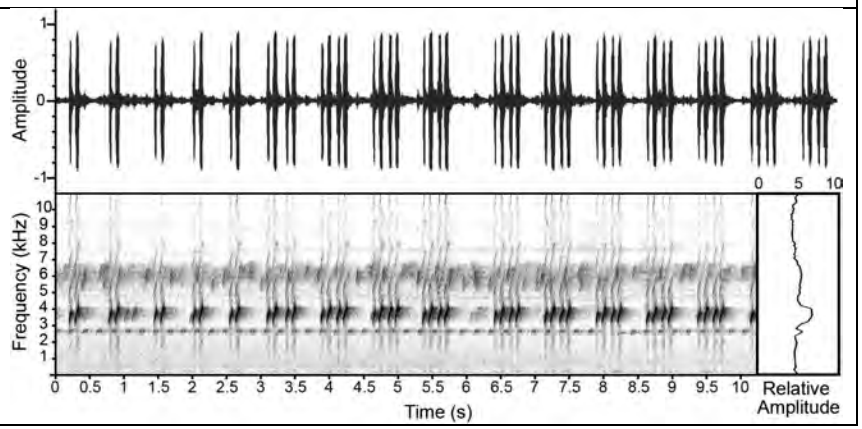
Dataset S1. Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*algorei*	**Venezuela:** Táchira: On a secondary forest near Parque Nacional "El Tama" **Latitude, Longitude:** 7.5787167, -72.178983 **Notes:** 0.5-1.0 m from several males calling (some not collected) from leaf litter surrounded by shrubs **Calling behavior:** males vocalized from concealed places on leaf litter next to tree roots at ground level **Phylogeny number:** 60	**Time:** 12h00-17h00 **Temperature:** 23.5°C leaf litter **Voucher(s):** EBRG 5560-64 **SVL (mm):** $n = 8$, $\bar{X} = 18.9 \pm 0.7$ **SVL (ref.):** Species description (Barrio-Amoros & Santos 2009) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*brunneus*	**Brazil:** Mato Grosso: Road from Chapada dos Guimarães **Latitude, Longitude:** -15.2667, -55.5311 **Notes:** 0.9-1.0 m from a calling male **Calling behavior:** NA **Phylogeny number:** 37	**Time:** 7h09 **Temperature:** 25.5-28.1°C leaf litter **Voucher(s):** APL 113 **SVL (mm):** 16.13 **SVL (ref.):** Species description (Lima *et al.* 2009), measured by APL **Collectors (Call):** APL **Recorder:** Sony WM-D6C **Microphone:** AKG D-190-E	

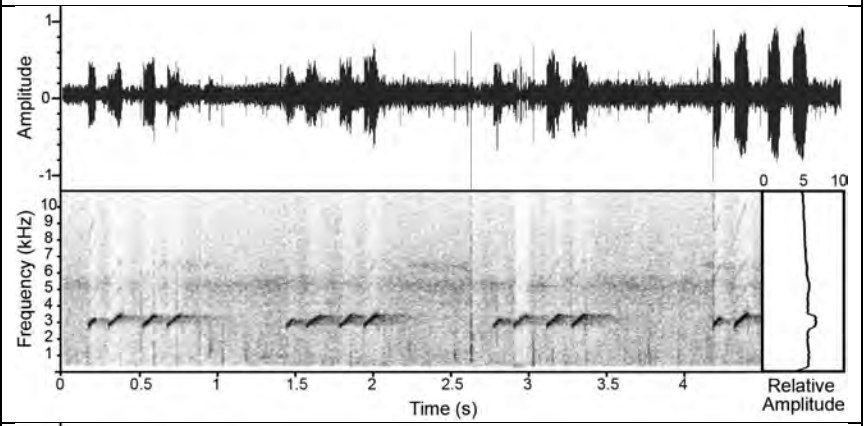
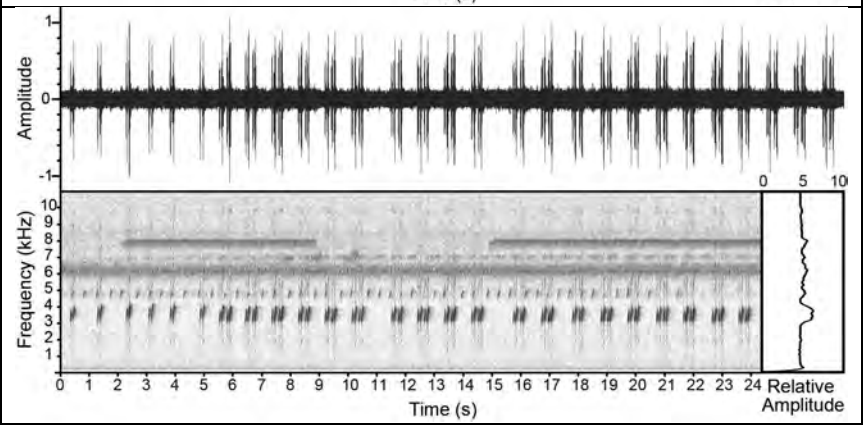
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*caeruleodactylus*	**Brazil:** Amazonas: Borba (Río Madeira) **Latitude, Longitude:** -4.398593, -59.60251 **Notes:** NA **Calling behavior:** males called exposed from the tops of leaves in leaf litter, small twigs, and other low vegetation at ground level (Lima & Caldwell 2001) **Phylogeny number:** 48	**Time:** 17h05 **Temperature:** 25.5-25.7°C air **Voucher(s):** APL 12752 12 15.5 0.4 **SVL (mm):** n = 12, $\bar{X}$ = 15.5 ± 0.4 **SVL (ref.):** Species description (Lima & Caldwell 2001) **Collectors (Call):** APL **Recorder:** Sony WM-D6C **Microphone:** NA	
Allobates	*crombiei*	**Brazil:** Pará: 54 km SE Altamira, Cachoeira do Espelho (Río Xingu) **Latitude, Longitude:** -3.65, -52.38 **Notes:** NA **Calling behavior:** males called concealed above leaf litter at ground level (picture provided) (Lima *et al.* 2012) **Phylogeny number:** 52	**Time:** 20h40 (Brasilia) **Temperature:** 24.1 °C air **Voucher(s):** APL 13457 **SVL (mm):** n = 2, $\bar{X}$ = 18.1 ± 0.04 **SVL (ref.):** measured APL **Collectors (Call):** APL **Recorder:** Sony WM-D6C **Microphone:** AKG D-190-E	

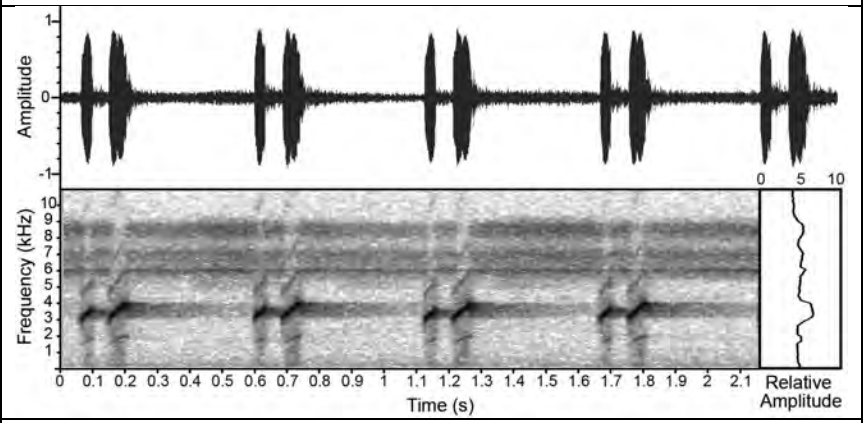
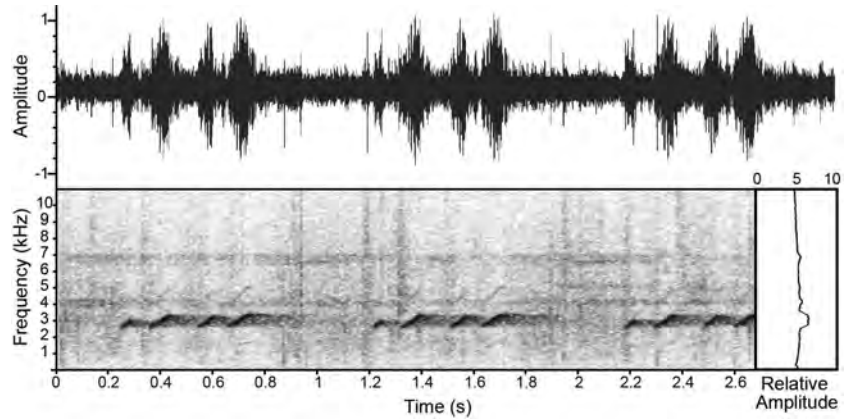
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*femoralis*	**Ecuador:** Francisco de Orellana: Primary forest near ECY station, Parque Nacional Yasuní **Latitude, Longitude:** -0.633, -76.5 **Notes:** 0.5-1.0 m from a male calling on leaf litter **Calling behavior:** males called from concealed places at tree roots, fallen trees and leaf litter at ground level **Phylogeny number:** 43	**Time:** 16h00-18h00 **Temperature:** 25.6 °C leaf litter **Voucher(s):** not collected **SVL (mm):** n = 20, $\bar{X}$ = 23.58 ± 1.27 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*femoralis*	**Brazil:** Acre: Igarapé, Porongaba, Río Jurua **Latitude, Longitude:** -8.67, -72.78 **Notes:** male on leaf litter, terra firme **Calling behavior:** males called above leaf litter at ground level **Phylogeny number:** 46	**Time:** 16h55 **Temperature:** 25.0°C air **Voucher(s):** INPA 4219 **SVL (mm):** 25.38 **SVL (ref.):** measured by JCS from USNM specimen **Collectors (Call):** Claude Gascon. Tape from USNM **Recorder:** NA **Microphone:** NA	

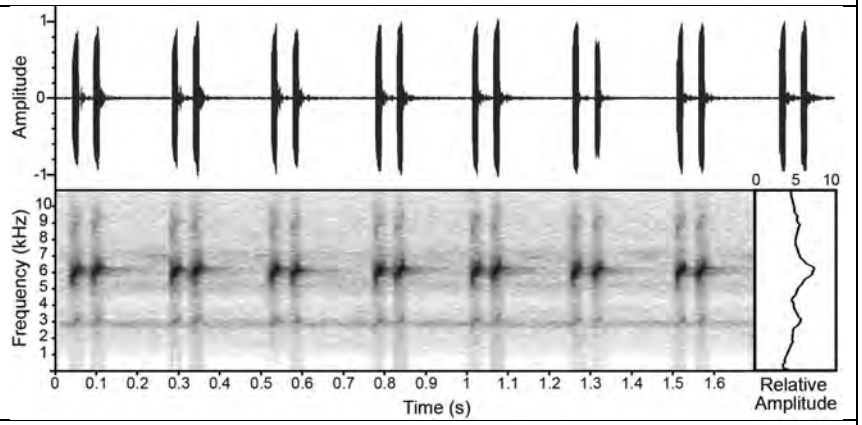
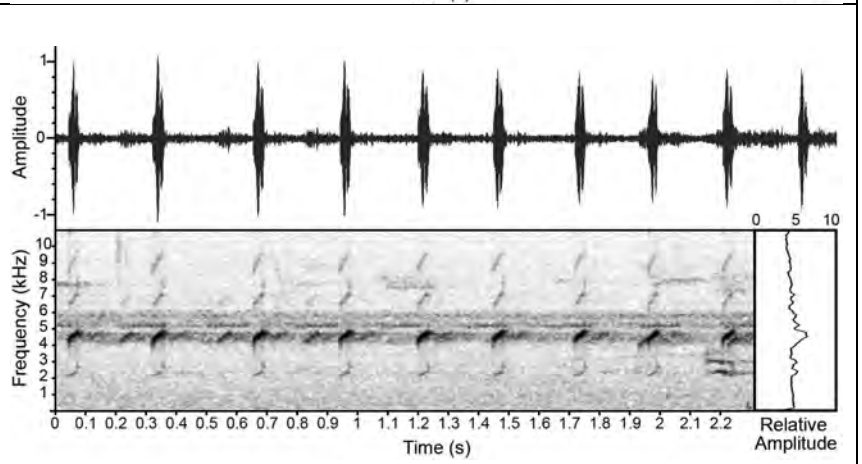
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*femoralis*	**Colombia:** Amazonas: Near Leticia in recently cleared forest **Latitude, Longitude:** -4.2153, -69.9406 **Notes:** 0.5-1.0 m from a male calling on leaf litter **Calling behavior:** male called above leaf litter at ground level **Phylogeny number:** 44	**Time:** 14h00-16h00 **Temperature:** 25.5°C leaf litter **Voucher(s):** TNHCFS 4963 **SVL (mm):** 20.9 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*femoralis*	**Perú:** Madre de Dios: Albergue Amazonia near Atalaya **Latitude, Longitude:** -12.8773, -71.3865 **Notes:** 0.8 m from calling male on leaf litter **Calling behavior:** male called above leaf litter at ground level **Phylogeny number:** 40	**Time:** 16h00-18h00 **Temperature:** 26.0°C air **Voucher(s):** NA **SVL (mm):** $n = 6$, $\bar{X} = 21.98 \pm 2.18$ **SVL (ref.):** measured by JCS from USNM specimens **Collectors (Call):** Víctor R. Morales. Tape from USNM **Recorder:** NA **Microphone:** NA	

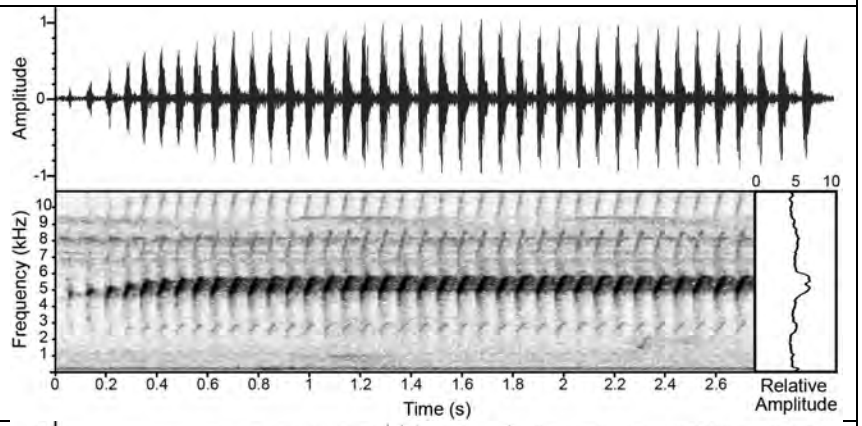
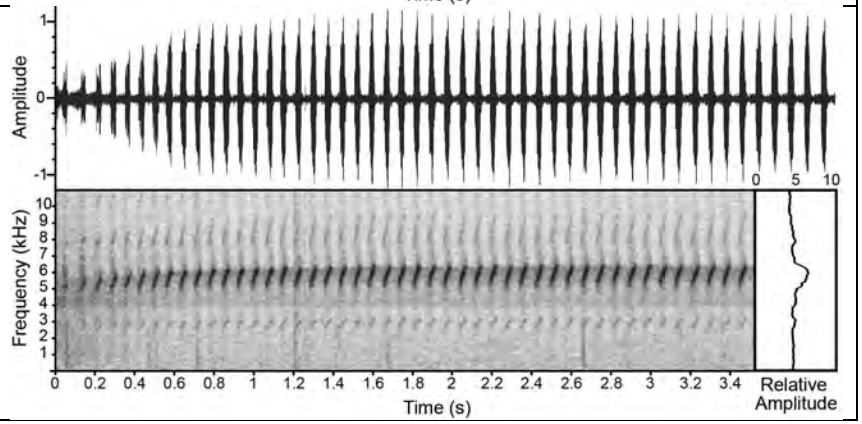
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*femoralis*	**Perú:** Perú: Madre de Dios: Reserva Cusco Amazónico, 15 km E Puerto Maldonado **Latitude, Longitude:** -12.6, -70.08 **Notes:** 3.0 m from calling male on leaf litter **Calling behavior:** male called above leaf litter at ground level **Phylogeny number:** 41	**Time:** 14h00 **Temperature:** 26.0°C air **Voucher(s):** not collected **SVL (mm):** n = 12, $\bar{X}$ = 22.43 ± 1.06 **SVL (ref.):** literature reference (Duellman 2005) **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	
Allobates	*femoralis*	**Venezuela:** Delta Amacuro: El Palmar, Sierra de Imataca (Reserva Forestal Río Grande) **Latitude, Longitude:** 8.3333, -61.6667 **Notes:** 1.0-2.0 m from a calling male on leaf litter **Calling behavior:** males called from concealed places under tree trunks and above leaf litter at ground level **Phylogeny number:** 45	**Time:** 16h00-18h00 **Temperature:** 24.0°C leaf litter **Voucher(s):** not collected **SVL (mm):** n = 27, $\bar{X}$ = 25.50 ± 0.76 **SVL (ref.):** literature reference (Gasser *et al.* 2009) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

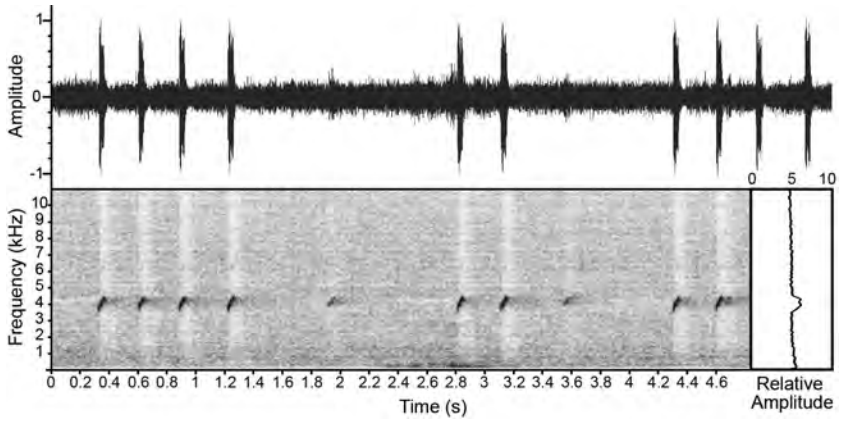
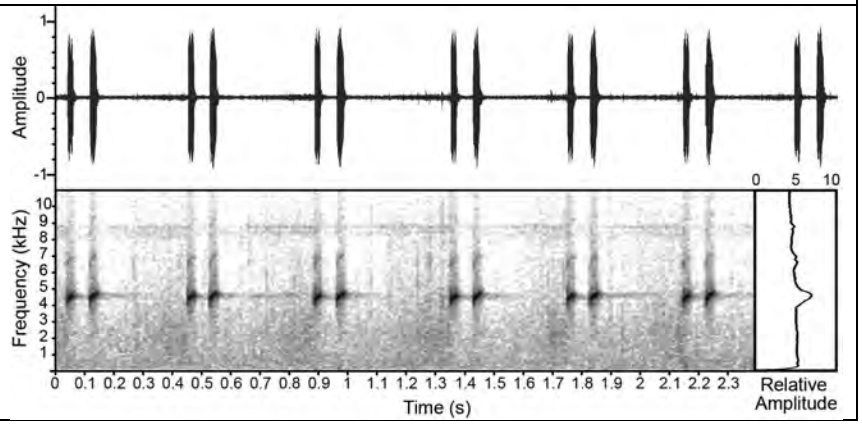
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*granti*	**French Guiana:** NA **Latitude, Longitude:** 3.62, -53.17 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000). See notes on (Kok *et al.* 2006) **Calling behavior:** male called above leaf litter at ground level (Kok *et al.* 2006) **Phylogeny number:** 49	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** $n = 8$, $\bar{X} = 16.15 \pm 0.55$ **SVL (ref.):** literature reference (Kok *et al.* 2006) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	
Allobates	*humilis*	**Venezuela:** Barinas: On the road to San Ramón, Calderas **Latitude, Longitude:** 8.8678, -70.4861 **Notes:** Two males recorded and one of those antiphonally. Specimens were very difficult to observe while calling (concealed) **Calling behavior:** males called concealed at ground level or under shrubs (La Marca *et al.* 2002) **Phylogeny number:** 59	**Time:** evening **Temperature:** 19.5°C leaf litter **Voucher(s):** CVULA 5690 **SVL (mm):** 21.8 **SVL (ref.):** literature reference (La Marca *et al.* 2002) **Collectors (Call):** CBLA **Recorder:** NA **Microphone:** NA	

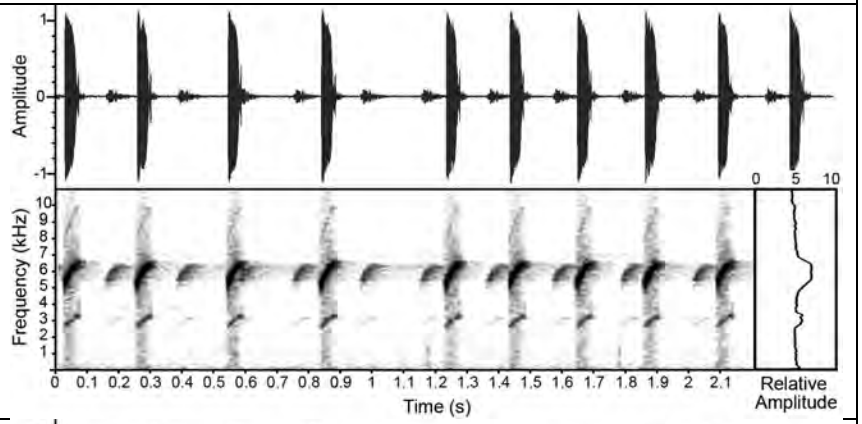
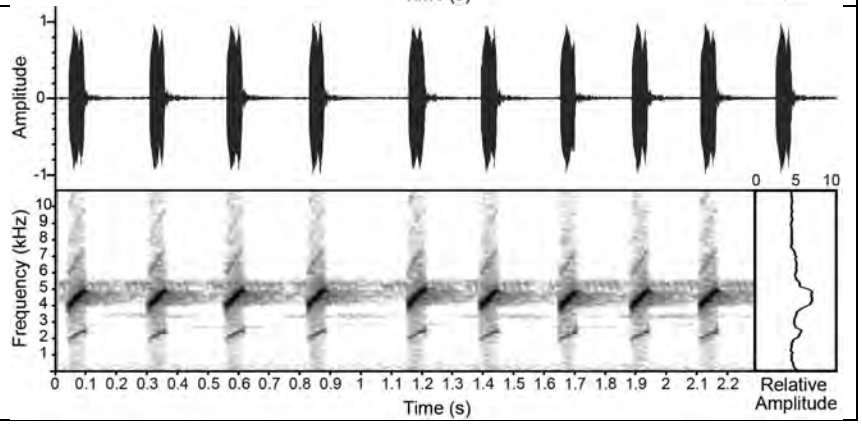
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*insperatus*	**Ecuador:** Francisco de Orellana: Primary forest near ECY station, Parque Nacional Yasuní **Latitude, Longitude:** -0.633, -76.4005 **Notes:** 0.5-1.0 m from several males calling from leaf litter **Calling behavior:** males called above leaf litter at ground level **Phylogeny number:** 54	**Time:** 16h00-18h00 **Temperature:** 24.6°C leaf litter **Voucher(s):** QCAZ 32850 **SVL (mm):** n = 18, $\overline{X}$ = 16.64 ± 0.93 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	aff. *insperatus*	**Colombia:** Amazonas: Near Leticia in recently cleared forest **Latitude, Longitude:** -4.2153, -69.9406 **Notes:** 0.5-1.0 m from a calling male **Calling behavior:** males called above leaf litter at ground level **Phylogeny number:** 55	**Time:** 14h00-16h00 **Temperature:** 25.5°C leaf litter **Voucher(s):** TNHCFS 4966 **SVL (mm):** 18.57 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

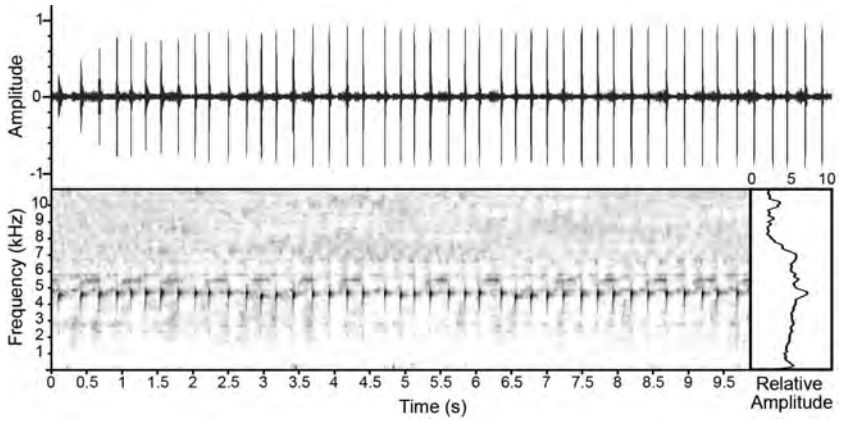
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*juanii*	**Colombia:** Meta: On a secondary forest on the side of the road from Villavicencio to Restrepo **Latitude, Longitude:** 4.1903, -73.603 **Notes:** 0.5-1.0 m from several males calling from leaf litter. **Calling behavior:** males called concealed above leaf litter or from tree roots at ground level **Phylogeny number:** 47	**Time:** 14h00-16h00 **Temperature:** 24.0°C leaf litter **Voucher(s):** TNHCFS 4944 **SVL (mm):** $n = 3$, $\bar{X} = 18.50 \pm 0.22$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*kingsburyi*	**Ecuador:** Zamora Chinchipe: Secondary forest near Panguitza **Latitude, Longitude:** -3.8986, -78.8125 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called above leaf litter, under tree trunks or concealed on grass at the edge of the forest **Phylogeny number:** 39	**Time:** 18h20 **Temperature:** 21.7°C gravel **Voucher(s):** QCAZ 27255 **SVL (mm):** $n = 16$, $\bar{X} = 20.02 \pm 0.93$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** DCC, LAC, JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

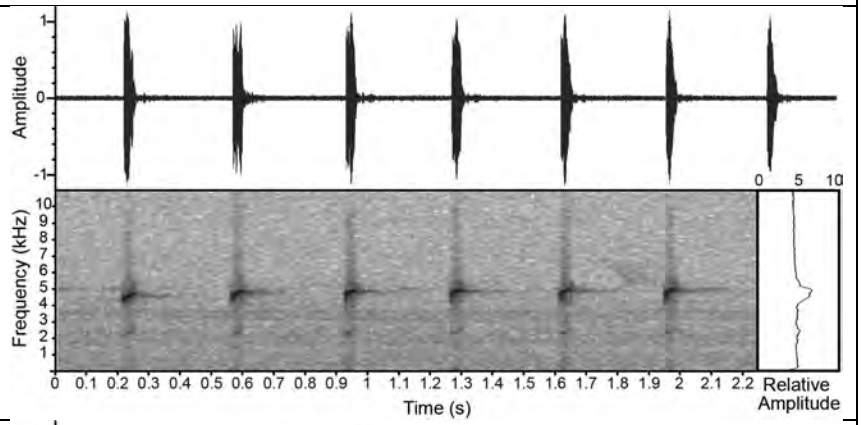
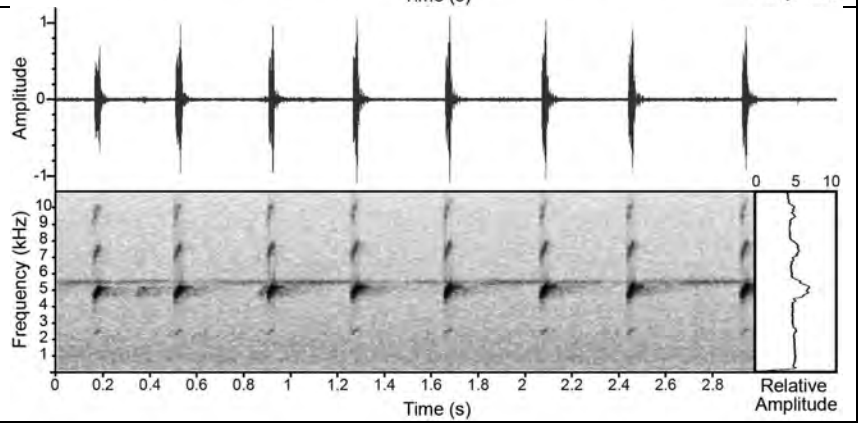
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*marchesianus*	**Brazil:** Amazonas: Río Uaupés, missão de Taracuá (AM-jpc27) **Latitude, Longitude:** 0.1322, -68.5508 **Notes:** Another male is calling antiphonally **Calling behavior:** males called above leaf litter (Caldwell *et al.* 2002) **Phylogeny number:** 50	**Time:** NA **Temperature:** 25.5°C air **Voucher(s):** INPA 7971 **SVL (mm):** $n = 18$, $\bar{X} = 15.80 \pm 0.5$ **SVL (ref.):** literature reference (Caldwell *et al.* 2002) **Collectors (Call):** APL **Recorder:** Sony WM-D6C **Microphone:** NA	
Allobates	*masniger*	**Brazil:** Para: Municipio de Itaituba, Parna Amazônas (Parque Nacional da Amazônia) **Latitude, Longitude:** -4.43944, -56.84028 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 58	**Time:** 6h12 **Temperature:** 23.7-24.5°C air **Voucher(s):** APL 12810-12811 **SVL (mm):** $n = 2$, $\bar{X} = 18.59 \pm 0.09$ **SVL (ref.):** measured by APL **Collectors (Call):** APL **Recorder:** NA **Microphone:** NA	

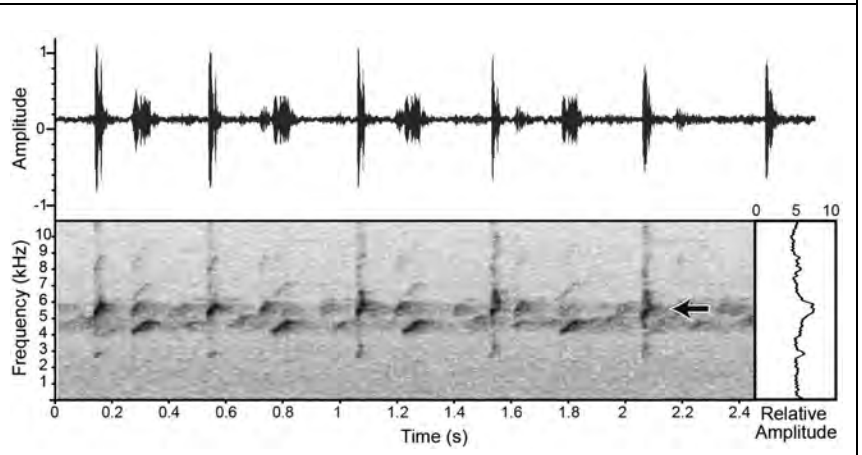
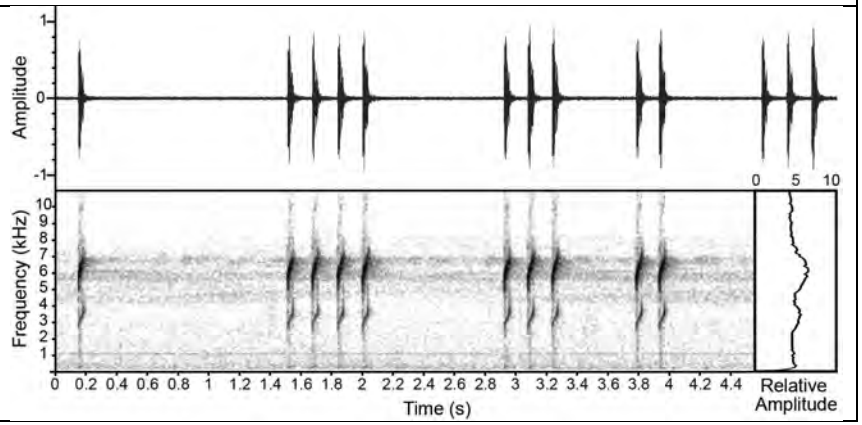
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*nidicola*	**Brazil:** Amazonas: Approximately 40 km S Manaus in the municipality of Castanho, at Km 12 on the road to Autazes **Latitude, Longitude:** -3.6194, -59.1455 **Notes:** in leaf litter in lowland terra firme forest. See species description (Caldwell & Lima 2003) **Call behavior:** Males were calling exposed from a vine near the forest floor; a small log 10 cm above the ground; and while sitting 3 cm above ground on the rib of a fallen palm leaf (Caldwell & Lima 2003) **Phylogeny number:** 36	**Time:** 16h00-17h00 **Temperature:** 26.5°C leaf litter **Voucher(s):** INPA (unknown) **SVL (mm):** n = 20, $\bar{X}$ = 19.60 ± 0.60 **SVL (ref.):** literature reference (Caldwell & Lima 2003) **Collectors (Call):** APL **Recorder:** Sony WM-D6C **Microphone:** NA	

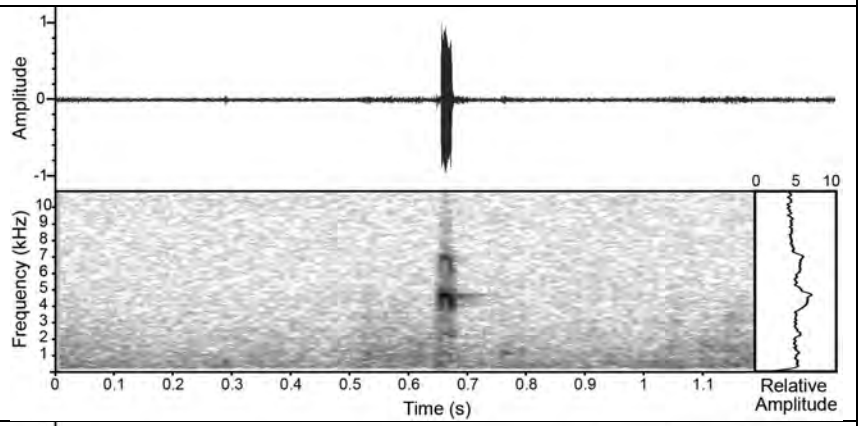
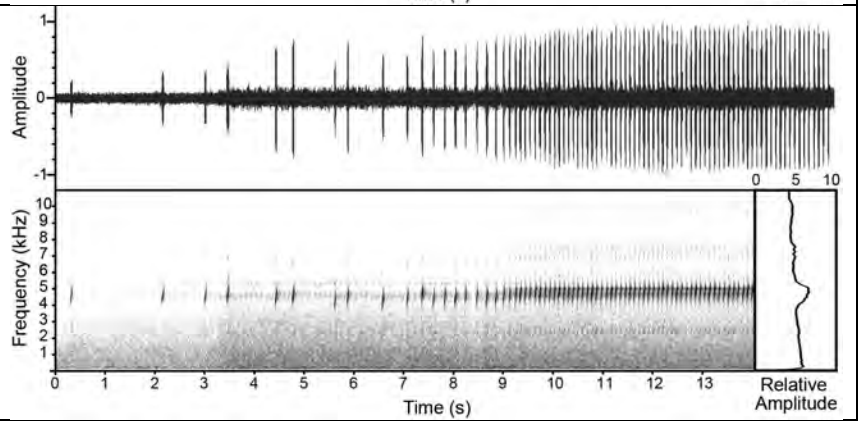
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*olfersioides*	**Brazil:** Río de Janeiro: Teresópolis, near 2-5 km NE JCT 116 and Teresópolis Bypass (Alto do Soberbo) **Latitude, Longitude:** -22.4333, -42.9833 **Notes:** as *Colostethus carioca* **Calling behavior:** males called above leaf litter (notes of Ronald W. Heyer) **Phylogeny number:** 1	**Time:** 10h02 **Temperature:** 18°C air **Voucher(s):** USNM 208398 **SVL (mm):** 16.15 **SVL (ref.):** measured by JCS from USNM voucher **Collectors (Call):** Ronald W. Heyer. Tape from USNM **Recorder:** NA **Microphone:** NA	
Allobates	*goianus*	**Brazil:** Goias: Floresta Nacional de Silvânia **Latitude, Longitude:** -16.643, -48.6041 **Notes:** A single male vocalizing **Calling behavior:** males amidst (concealed) the leaf litter in a gallery forest (Bastos *et al.* 2011) **Phylogeny number:** Not included	**Time:** NA **Temperature:** NA **Voucher(s):** Voucher deposited at the Coleção Zoológica da Universidade Federal de Goiás (ZUFG) see (Bastos *et al.* 2011) **SVL (mm):** NA **SVL (ref.):** NA **Collectors (Call):** see (Bastos *et al.* 2011) **Recorder:** DAT recorder Sony TCD-D100/ Marantz PDM-22 **Microphone:** Sennheiser ME66	

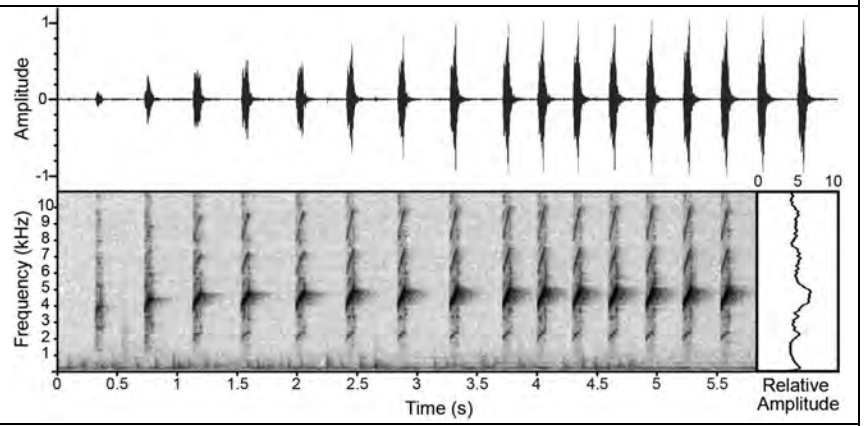
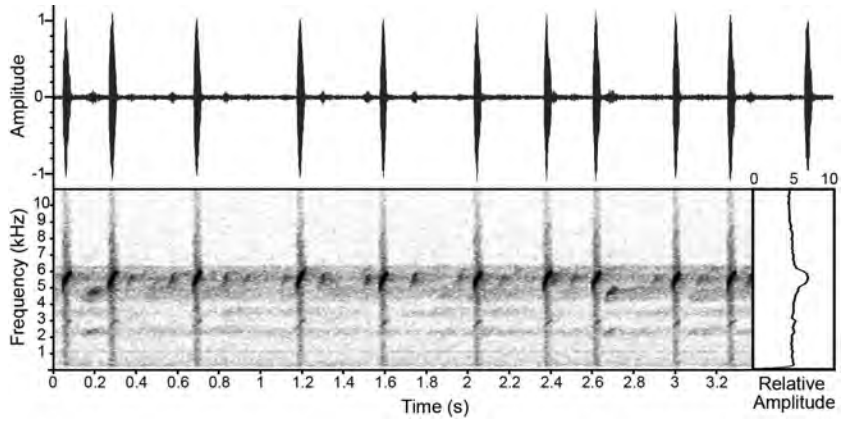
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*ornatus*	**Perú:** San Martín: On a stream close to Maceda and Río Mayo at 17 km W from Tarapoto **Latitude, Longitude:** -6.47889, -76.5125 **Notes:** 0.5 m from a male calling, other calls from several males with QCAZ field series SC-16155-16160. *Ameerega altamazonica* is calling in the background. **Calling behavior:** males called concealed in leaf litter **Phylogeny number:** 51	**Time:** 14h00-16h00 **Temperature:** 24.9°C leaf litter **Voucher(s):** MHNSM 22646 **SVL (mm):** $n = 7$, $\bar{X} = 16.92 \pm 0.87$ **SVL (ref.):** measured by JCS from voucher and other specimens **Collectors (Call):** JCS, DCC, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	sp. Ducke	**Brazil:** Amazonas: 25 km NE Manaus, Reserva Forestal Adolpho Ducke **Latitude, Longitude:** -2.933, -59.95 **Notes:** NA **Calling behavior:** males called above leaf litter **Phylogeny number:** 61	**Time:** NA **Temperature:** 27.5-28.0°C air **Voucher(s):** APL 13231 and 13244 **SVL (mm):** $n = 2$, $\bar{X} = 15.15 \pm 0.45$ **SVL (ref.):** measured by APL **Collectors (Call):** APL **Recorder:** NA **Microphone:** NA	

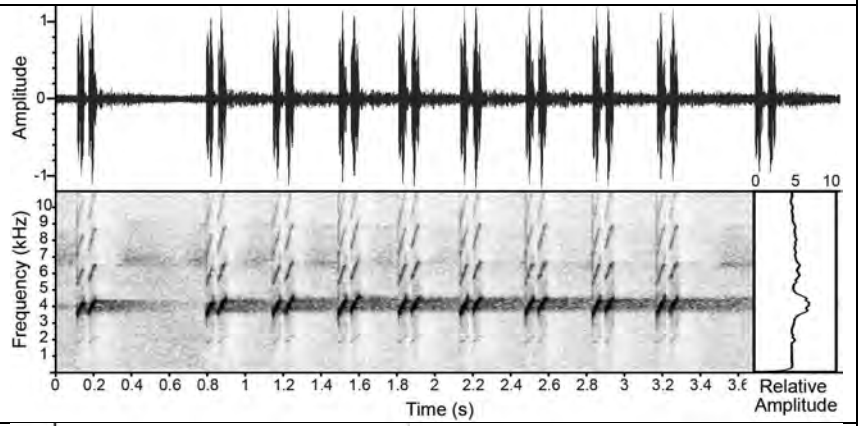
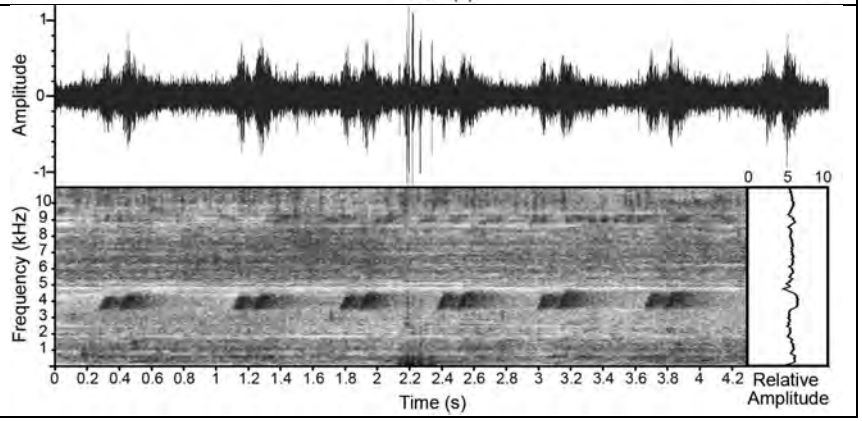
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	sp. Neblina	**Venezuela:** Amazonas: Neblina Base Camp on Río Mawarinuma **Latitude, Longitude:** 0.833, -66.167 **Notes:** Male calling in a bag, collector voice in the background **Calling behavior:** NA **Phylogeny number:** 29	**Time:** NA **Temperature:** 27.8°C air **Voucher(s):** RWM 17754 **SVL (mm):** NA **SVL (ref.):** NA **Collectors (Call):** Reginald B. Cocroft. Tape from USNM **Recorder:** NA **Microphone:** NA	
Allobates	sp. Negro	**Ecuador:** Morona Santiago: On secondary forest next to a small recreational park near the junction of Río Negro and Paute **Latitude, Longitude:** -2.7454, -78.3034 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called above leaf litter on slopes along rivulets **Phylogeny number:** 38	**Time:** 16h00-18h00 **Temperature:** 24.3°C leaf litter **Voucher(s):** QCAZ 27365 **SVL (mm):** $n = 6$, $\bar{X} = 19.88 \pm 1.90$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** DCC, LAC, JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

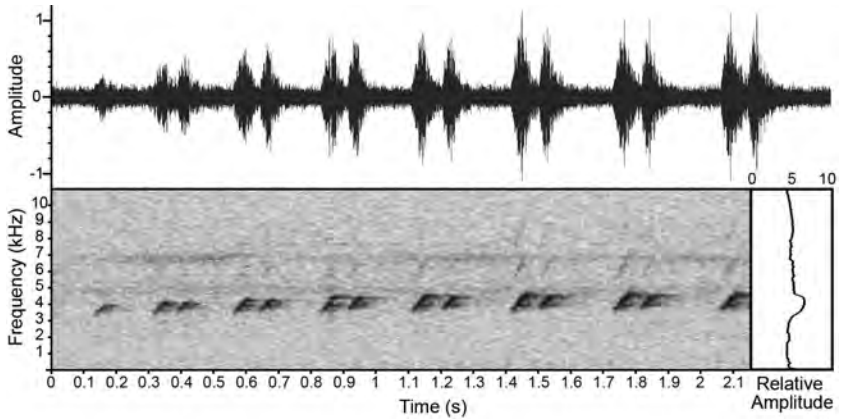
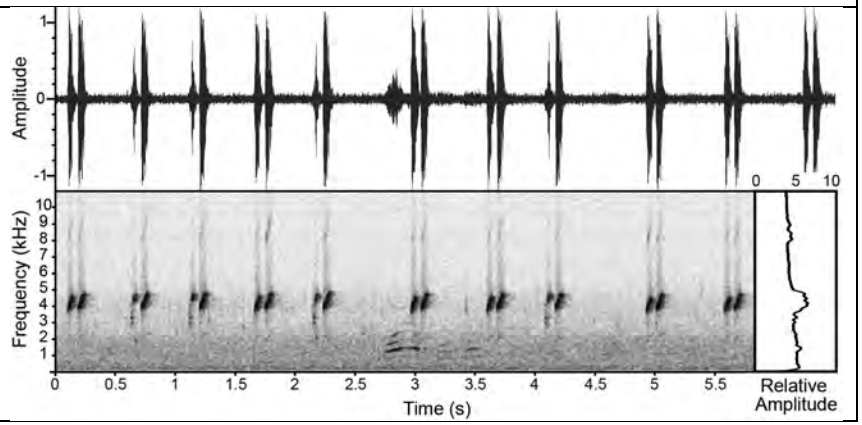
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	sp. Shushufindi	**Ecuador:** Sucumbíos: Near Paradise Huts Jungle Lodge, Río Aguarico close to San Pablo de Kantesiya **Latitude, Longitude:** -0.25, -76.4333 **Notes:** Two specimens collected from the base of the Lodge's building **Calling behavior:** males called above leaf litter **Phylogeny number:** 53	**Time:** NA **Temperature:** 25.0°C air **Voucher(s):** QCAZ 10171 **SVL (mm):** $n = 2$, $\bar{X} = 16.39 \pm 0.43$ **SVL (ref.):** measured by JCS **Collectors (Call):** Morley Read **Recorder:** NA **Microphone:** NA	
Allobates	sp. Treviso	**Brazil:** Para: Agropecuária Treviso, 101 km S and 18 km E of Santarém, close to Curuá-Una River **Latitude, Longitude:** -3.15, -54.83 **Notes:** Undescribed species also known as *Allobates* sp. small in molecular studies (Santos *et al.* 2009). Another male is calling antiphonally in the background **Calling behavior:** NA **Phylogeny number:** 57	**Time:** NA **Temperature:** 25.0°C air **Voucher(s):** APL 208 **SVL (mm):** 14.39 **SVL (ref.):** measured by APL **Collectors (Call):** APL **Recorder:** NA **Microphone:** NA	

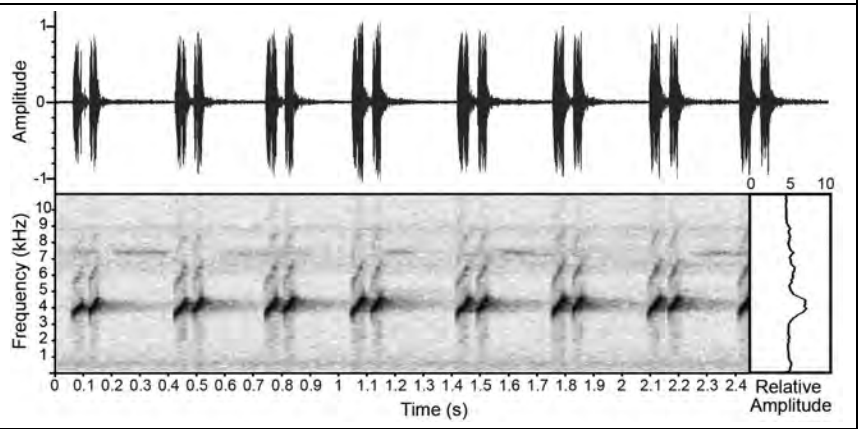
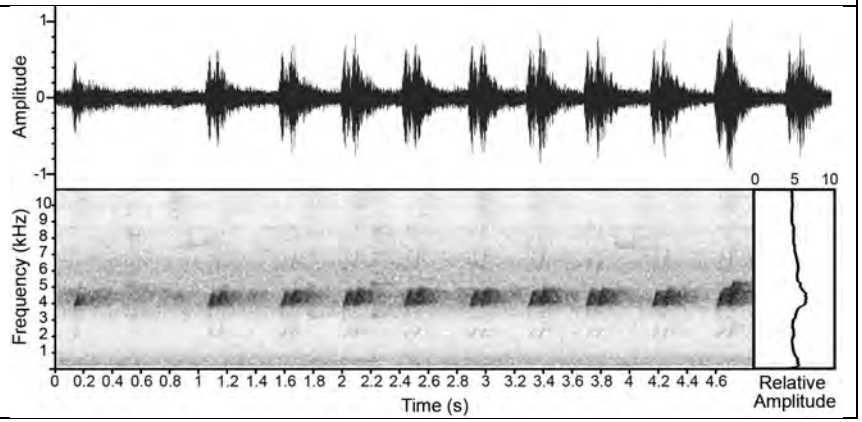
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*talamancae*	**Panamá:** Panamá: On leaf litter near Pipeline road from Gamboa, Parque Nacional Soberanía **Latitude, Longitude:** 9.14778, -79.72997 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 34	**Time:** 14h00-16h00 **Temperature:** 25.5°C leaf litter **Voucher(s):** TNHCFS 4830 **SVL (mm):** 20.33 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*talamancae*	**Colombia:** Chocó: On leaf litter near a stream La Troje, Quibdó **Latitude, Longitude:** 5.728, -76.591 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter and concealed from diverse fallen branches **Phylogeny number:** 32	**Time:** 14h00-16h00 **Temperature:** 26.0°C leaf litter **Voucher(s):** TNHCFS 4993 **SVL (mm):** 21.0 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

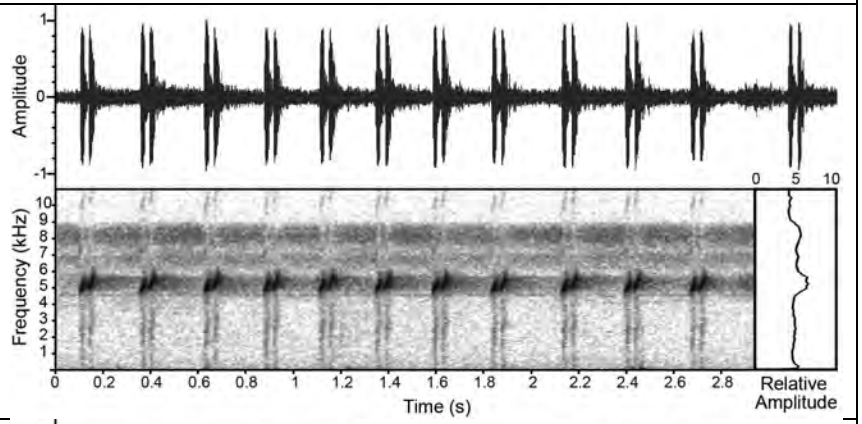
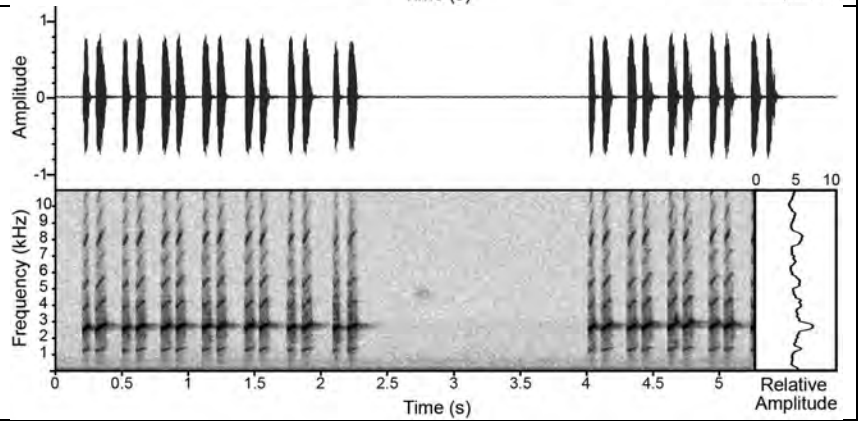
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*talamancae*	**Panamá:** Bocas del Toro: Isla Colón, Bocas del Drago (Dragomar); Isla Bastimentos, Cayo Nancy **Latitude, Longitude:** 9.42479, -82.32038; 9.2999997, -82.133335 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 35	**Time:** 12h00-14h00 **Temperature:** 26.3-26.7°C leaf litter **Voucher(s):** TNHCFS 4818, KU 477 (sound recording) with possible vouchers KU 94768-94769, 94792-94794. **SVL (mm):** $n = 3$, $\bar{X} = 20.94 \pm 1.03$ **SVL (ref.):** measured by JCS from voucher and other USNM specimens from both localities **Collectors (Call):** JCS, Natalia Biani. Others from William E. Duellman. **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Allobates	*talamancae*	**Colombia:** Valle del Cauca: Road Cali to Buenaventura, Quebrada La Guinea, 2 km E Cisneros **Latitude, Longitude:** 3.82306, -76.7664 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 31	**Time:** 17h15 **Temperature:** 29.0°C air **Voucher(s):** SRE 36 (sound recording) with KU voucher (number unknown) **SVL (mm):** $n = 71$, $\bar{X} = 20.23 \pm 1.35$ **SVL (ref.):** measured by Stephen R. Edwards provided on (Edwards 1974) **Collectors (Call):** Stephen R. Edwards **Recorder:** Uher 4000-S **Microphone:** NA	

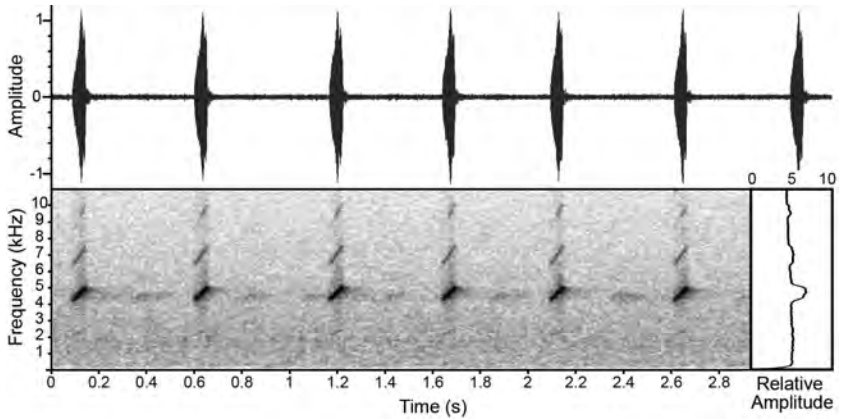
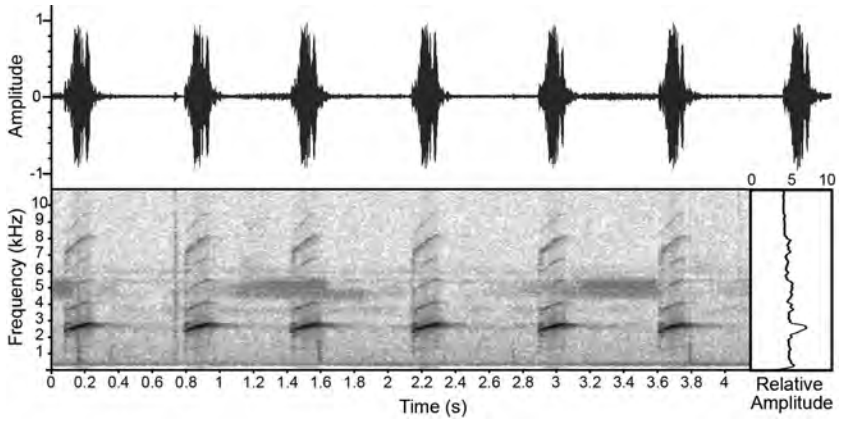
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*talamancae*	**Costa Rica:** Limón: Puerto Limón (southeast of) **Latitude, Longitude:** 9.9627, -83.0658 **Notes:** On a second growth lowland tropical rainforest. Tape from Borror Laboratory of Bioacoustics (Ohio State University) **Calling behavior:** NA **Phylogeny number:** 33	**Time:** 15h41 **Temperature:** 26°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** BLB 23646 (sound recording) **SVL (mm):** $n = 71$, $\bar{X} = 20.23 \pm 1.35$ **SVL (ref.):** measured by Stephen R. Edwards provided on (Edwards 1974) **Collectors (Call):** NA **Recorder:** NA **Microphone:** NA	
Allobates	*talamancae*	**Panamá:** Panamá: A stream along the road to Darién from Panamá, near Lago Bayano **Latitude, Longitude:** 9.1333, -78.5833 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 30	**Time:** 14h00-16h00 **Temperature:** 26.7°C leaf litter **Voucher(s):** not collected **SVL (mm):** 18.95 **SVL (ref.):** measured by JCS used in physiology **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

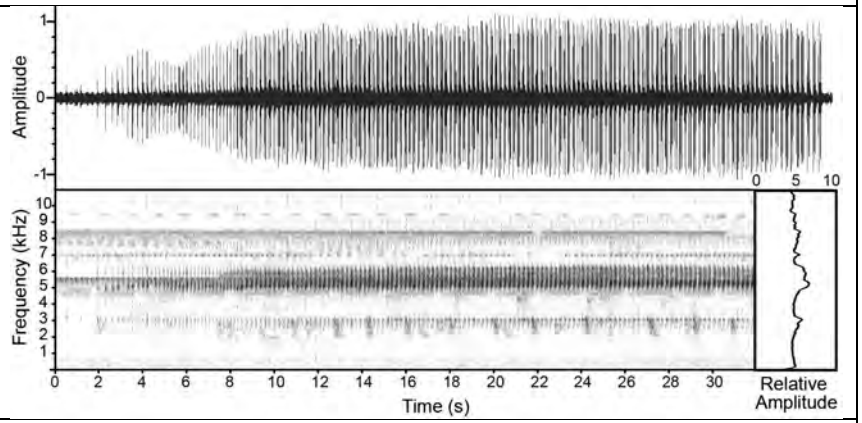
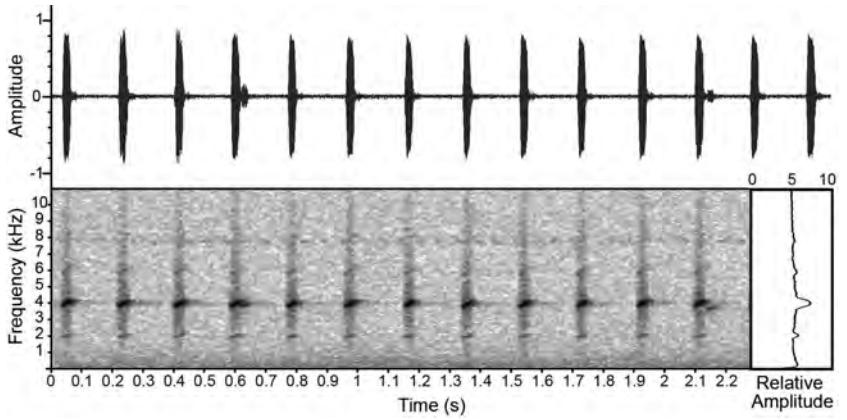
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Allobates	*trilineatus*	**Perú:** Madre de Dios: Reserva Cusco Amazónico, 15 km E Puerto Maldonado **Latitude, Longitude:** -12.6, -70.08 **Notes:** 2.0-3.0 m from calling male **Calling behavior:** males called above leaf litter **Phylogeny number:** 56	**Time:** 15h30 **Temperature:** 26.0°C air **Voucher(s):** Not collected **SVL (mm):** n = 24, $\bar{X}$ = 15.2 ± 1.73 **SVL (ref.):** literature reference (Duellman 2005) **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	
Allobates	*zaparo*	**Ecuador:** Morona Santiago: ~2 km E Santiago in secondary forest **Latitude, Longitude:** -3.03237, -77.98476 **Notes:** 0.5 m from calling male **Calling behavior:** males called concealed above leaf litter and from boulder crevices **Phylogeny number:** 42	**Time:** 16h00-18h00 **Temperature:** 25.8°C leaf litter **Voucher(s):** QCAZ (maintained in terraria) **SVL (mm):** n = 22, $\bar{X}$ = 25.37 ± 1.52 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

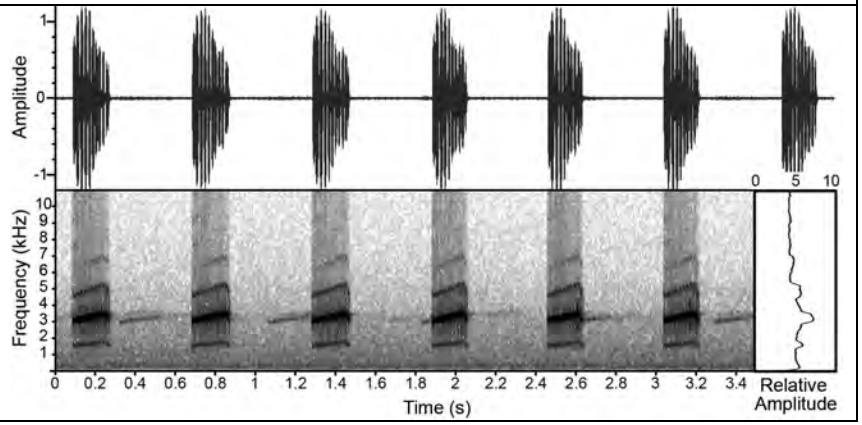
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*altamazonica*	**Perú:** San Martín: Stream along the road to Moyobamba from Tarapoto, 17 km from Tarapoto by road across from San Miguel de Río Mayo **Latitude, Longitude:** -6.47889, -76.5125 **Notes:** 0.5-1.0 m from several males vocalizing **Calling behavior:** males called above leaf litter **Phylogeny number:** 103	**Time:** 16h00-17h30 **Temperature:** 25.6°C leaf litter **Voucher(s):** QCAZSC 16161 **SVL (mm):** $n = 9$, $\bar{X} = 22.46 \pm 0.84$ **SVL (ref.):** measured by JCS from QCAZSC specimens **Collectors (Call):** JCS, DCC, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Ameerega	*bassleri*	**Perú:** San Martín: Road to Tarapoto to Yurimaguas to 19.5 Km from Tarapoto; on a creek along the road from Shapaja to Chazuta 15.5 Km **Latitude, Longitude:** -6.4466, -76.2958; -6.61735, -76.17211 **Notes:** 0.5-1.0 m from several males calling **Calling behavior:** males called concealed above leaf litter **Phylogeny number:** 89	**Time:** 16h00-18h00 **Temperature:** 20.2-25.5°C leaf litter **Voucher(s):** MHNSM 22600 **SVL (mm):** $n = 3$, $\bar{X} = 35.51 \pm 1.27$ **SVL (ref.):** measured by JCS from voucher and QCAZSC specimens **Collectors (Call):** JCS, DCC, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

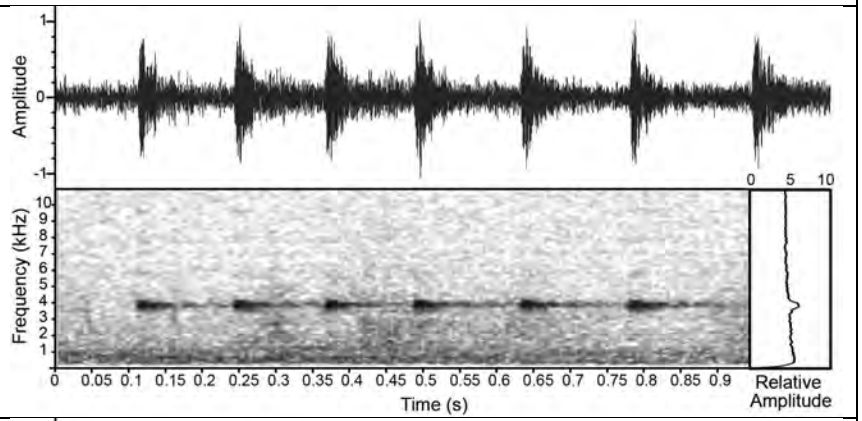
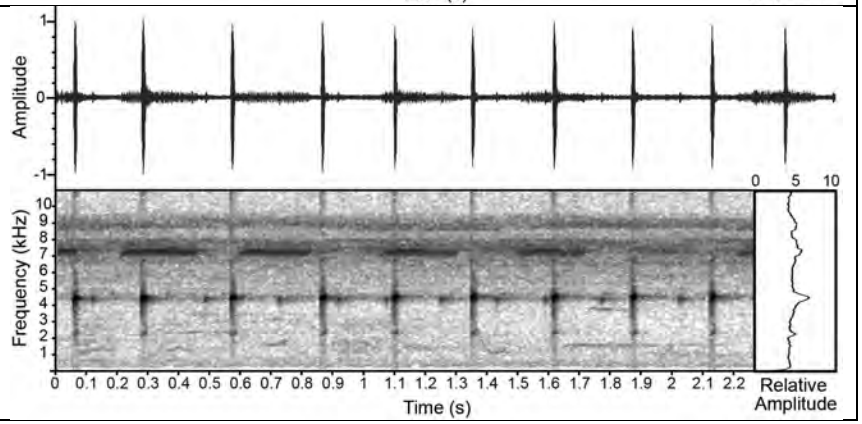
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*bilinguis*	**Ecuador:** Francisco de Orellana: Parque Nacional Yasuní, Estación Científica Yasuní PUCE **Latitude, Longitude:** -0.633, -76.5 **Notes:** 1.0-2.0 m from several calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 87	**Time:** 15h00-17h00 **Temperature:** 25.6°C leaf litter **Voucher(s):** QCAZ 18404-18409 **SVL (mm):** n = 27, $\bar{X}$ = 19.63 ± 0.68 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Ameerega	*braccata*	**Brazil:** Mato Grosso: Cuiabá municipality, near Chapada dos Guimarães **Latitude, Longitude:** -15.4, -55.83 **Notes:** Call provided by L. Forti. See original paper (Forti *et al.* 2010) **Calling behavior:** males called mostly above leaves of herbaceous plants (59% of time) at an average height $\bar{X}$ = 31.4 ± 12.2 cm above the ground (Forti *et al.* 2010) **Phylogeny number:** 94	**Time:** NA **Temperature:** 24.5°C air **Voucher(s):** UFMT 7695 **SVL (mm):** 22.40 **SVL (ref.):** See original paper (Forti *et al.* 2010) **Collectors (Call):** Call provided by L. Forti. See original paper (Forti *et al.* 2010) **Recorder:** Sony TCM 5000EV **Microphone:** YOGA EM 9600	

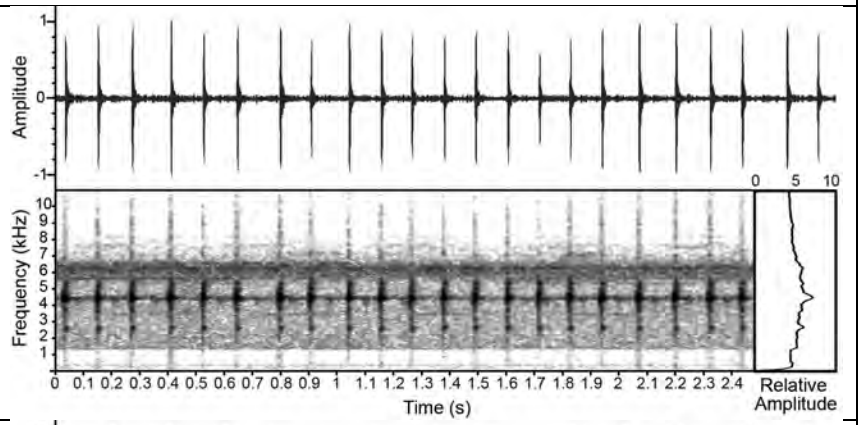
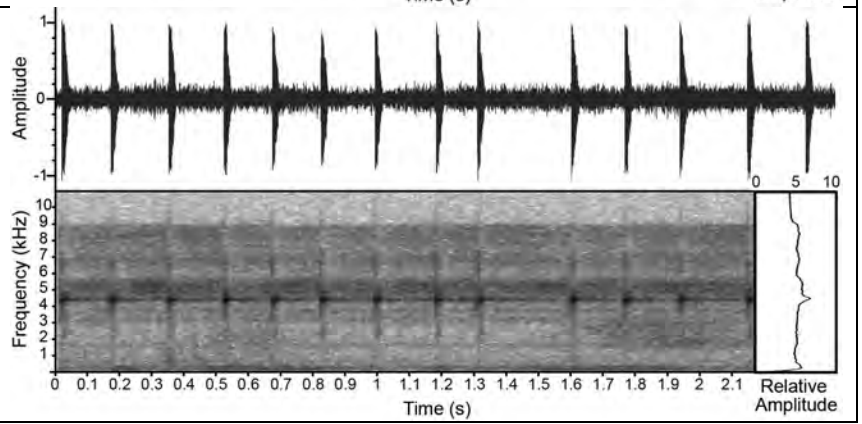
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*cainarachi*	**Perú:** San Martín: Chazuta **Latitude, Longitude:** -6.574166, -76.1366692 **Notes:** Estimates of the variables used are derived from the original paper (Brown & Twomey 2009) **Calling behavior:** males called above leaf litter **Phylogeny number:** 102	**Time:** NA **Temperature:** 25.0°C **Voucher(s):** See original paper (Brown & Twomey 2009) **SVL (mm):** $n = 4$, $\bar{X} = 24.48 \pm 2.28$ **SVL (ref.):** measured by JCS from QCAZSC specimens from the road from Shapaja to Chazuta (15.5 Km) **Collectors (Call):** See original paper (Brown & Twomey 2009) **Recorder:** See original paper (Brown & Twomey 2009) **Microphone:** See (Brown & Twomey 2009)	See original paper (Brown & Twomey 2009)
Ameerega	*flavopicta*	**Brazil:** Goias: Municipality of Caldas Novas, Parque Estadual da Serra de Caldas Novas (PESCAN) **Latitude, Longitude:** -17.7691, -48.6608 **Notes:** Call provided by R. C. Costa. See original paper (Costa *et al.* 2006). Another male is calling antiphonally **Calling behavior:** males called well-illuminated sites such as rocky fields, rain channels (Costa *et al.* 2006) **Phylogeny number:** 95	**Time:** NA **Temperature:** 22.7°C water **Voucher(s):** not collected **SVL (mm):** $n = 11$, $\bar{X} = 26.6$ **SVL (ref.):** measurements as from *E. pictus* (Pattern 1) from reference (Silverstone 1976) **Collectors (Call):** Call provided by R. C. Costa. See original paper (Costa *et al.* 2006) **Recorder:** Boss 864 **Microphone:** Sennheiser ME67	

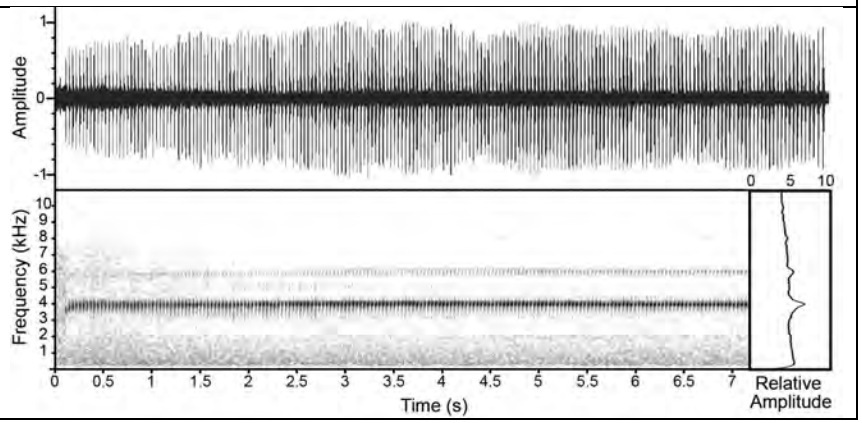
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*hahneli*	**Colombia:** Amazonas: Near Leticia in sistema de lagos de Yahuarkakas **Latitude, Longitude:** -4.1878, -69.9502 **Notes:** 0.5-1.0 m from a male calling on leaf litter **Calling behavior:** males called concealed above leaf litter **Phylogeny number:** 96	**Time:** 14h00-16h00 **Temperature:** 24.0°C leaf litter **Voucher(s):** not collected **SVL (mm):** n = 19, $\bar{X}$ = 19.8 **SVL (ref.):** measurements as from *E. pictus* (Pattern 4) from reference (Silverstone 1976) **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Ameerega	*hahneli*	**Ecuador:** Sucumbíos: 2.5 km N of Lago Agrio (Nueva Loja) **Latitude, Longitude:** 0.108304, -76.880962 **Notes:** 1.0-3.0 m from calling male. Another male is calling antiphonally in the background **Calling behavior:** males called concealed above leaf litter **Phylogeny number:** 97	**Time:** 17h10 **Temperature:** 25.2°C leaf litter **Voucher(s):** not collected **SVL (mm):** n = 3, $\bar{X}$ = 19.62 ± 0.11 **SVL (ref.):** measured by JCS from QCAZ specimens from close locality **Collectors (Call):** LAC, S. Ron **Recorder:** Marantz **Microphone:** Sennheiser ME66	

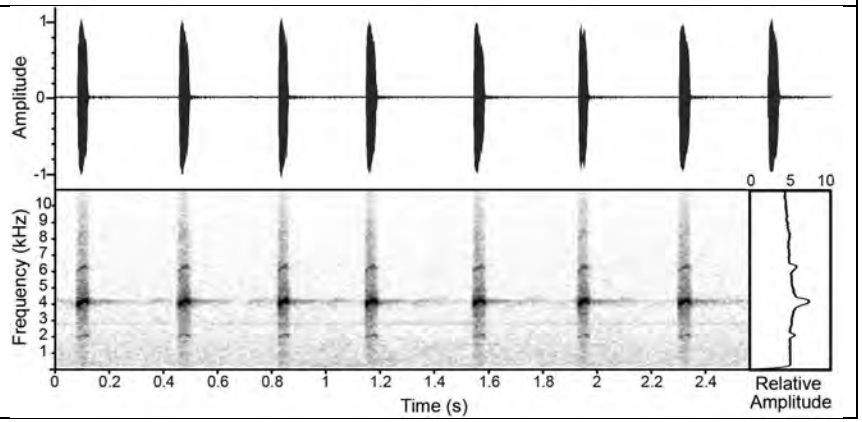
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*hahneli*	**Bolivia:** Pando: Cobija, Western Amazonia of Bolivia **Latitude, Longitude:** -11.03, -68.79 **Notes:** Audio recording from reference (Marquez *et al.* 2002) **Calling behavior:** NA **Phylogeny number:** 98	**Time:** NA **Temperature:** 26.9°C **Voucher(s):** NA **SVL (mm):** 20.0 **SVL (ref.):** from reference (Marquez *et al.* 2002) **Collectors (Call):** see reference (Marquez *et al.* 2002) **Recorder:** NA **Microphone:** NA	
Ameerega	*hahneli*	**Perú:** Madre de Dios: Reserva Cusco Amazónico, 15 km E Puerto Maldonado **Latitude, Longitude:** -12.6, -70.08 **Notes:** 1.0 m from a calling male **Calling behavior:** males called above leaf litter **Phylogeny number:** 99	**Time:** 15h55 **Temperature:** 27.0°C air **Voucher(s):** not collected **SVL (mm):** $n = 8$, $\bar{X} = 18.08 \pm 1.49$ **SVL (ref.):** literature reference (Duellman 2005) **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	

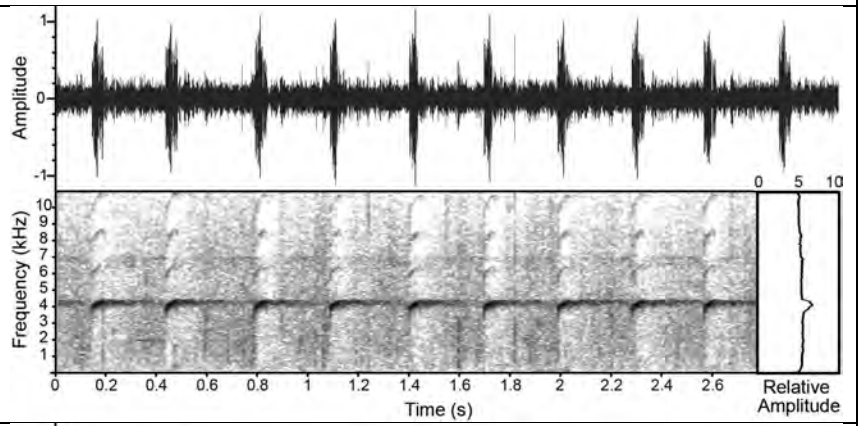
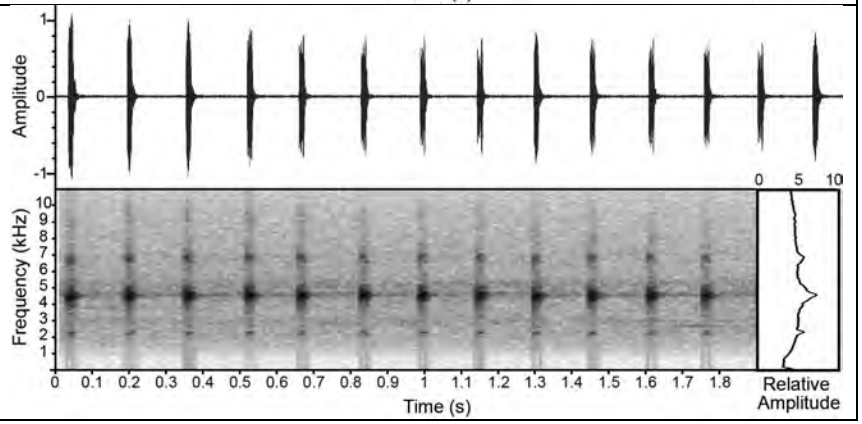
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*ignipedis*	**Perú:** Loreto: 17.5 km NE Contamana at the western foot of the Serranía de Contamana, near "El Unión" **Latitude, Longitude:** -7.1987, -74.9598 **Notes:** Estimates of the variables used are derived from the original paper (Brown & Twomey 2009) **Calling behavior:** NA **Phylogeny number:** 90	**Time:** NA **Temperature:** 24.0°C **Voucher(s):** See original paper (Brown & Twomey 2009) **SVL (mm):** $n = 7$, $\bar{X} = 22.4$ **SVL (ref.):** See original paper (Brown & Twomey 2009) **Collectors (Call):** See original paper (Brown & Twomey 2009) **Recorder:** See original paper (Brown & Twomey 2009) **Microphone:** See original paper (Brown & Twomey 2009)	See original paper (Brown & Twomey 2009)
Ameerega	*parvula*	**Ecuador:** Morona Santiago: 21.6 Km S of Macas **Latitude, Longitude:** -2.1438, -78.035939 **Notes:** 1.0 m from calling male **Calling behavior:** males called above leaf litter on forest and secondary growth (open habitat) **Phylogeny number:** 86	**Time:** 16h45 **Temperature:** 22.0°C leaf litter **Voucher(s):** not collected **SVL (mm):** $n = 20$, $\bar{X} = 21.22 \pm 1.07$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	

Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*petersi*	**Perú:** Huanuco: Cordillera Azul 20 km NE of Tingo María, near the village of Miguel Grau **Latitude, Longitude:** -9.192587, -75.893468 **Notes:** Estimates of the variables used are derived from the original paper (Brown & Twomey 2009) **Calling behavior:** NA **Phylogeny number:** 101	**Time:** NA **Temperature:** 24.5°C **Voucher(s):** See original paper (Brown & Twomey 2009) **SVL (mm):** $n = 6$, $\bar{X} = 25.5 \pm 0.39$ **SVL (ref.):** See reference (Myers *et al.* 1998) **Collectors (Call):** See original paper (Brown & Twomey 2009) **Recorder:** See original paper (Brown & Twomey 2009) **Microphone:** See original paper (Brown & Twomey 2009)	See original paper (Brown & Twomey 2009)
Ameerega	*picta*	**Bolivia:** Santa Cruz: Mataracu, Ichilo Province **Latitude, Longitude:** -16.9072, -64.1235 **Notes:** Audio recording from reference (Marquez *et al.* 2002) **Calling behavior:** NA **Phylogeny number:** 91	**Time:** NA **Temperature:** 23.3°C **Voucher(s):** NA **SVL (mm):** 22.0 **SVL (ref.):** from reference (Marquez *et al.* 2002) **Collectors (Call):** see reference (Marquez *et al.* 2002) **Recorder:** NA **Microphone:** NA	

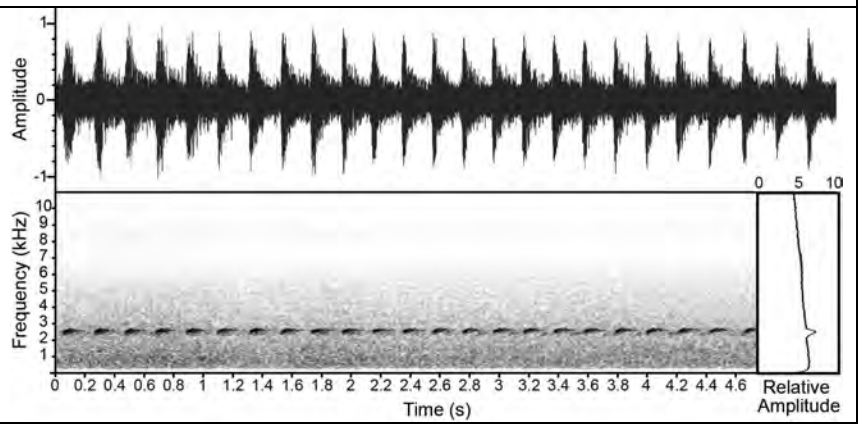
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*picta*	**Venezuela:** Delta Amacuro: El Palmar, Sierra de Imataca, Reserva Forestal Río Grande **Latitude, Longitude:** 8.3333, -61.6667 **Notes:** 1.0-2.0 m from a calling male **Calling behavior:** males called above leaf litter **Phylogeny number:** 92	**Time:** 16h00-18h00 **Temperature:** 26.0°C leaf litter **Voucher(s):** not collected **SVL (mm):** n = 16, $\bar{X}$ = 25.6 **SVL (ref.):** measurements as from *E. pictus* (Pattern 6) from reference (Silverstone 1976) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Ameerega	*picta*	**French Guiana:** NA **Latitude, Longitude:** 3.98, -52.58 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Calling behavior:** NA **Phylogeny number:** 93	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** n = 16, $\bar{X}$ = 25.6 **SVL (ref.):** measurements as from *E. pictus* (Pattern 6) from reference (Silverstone 1976) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	

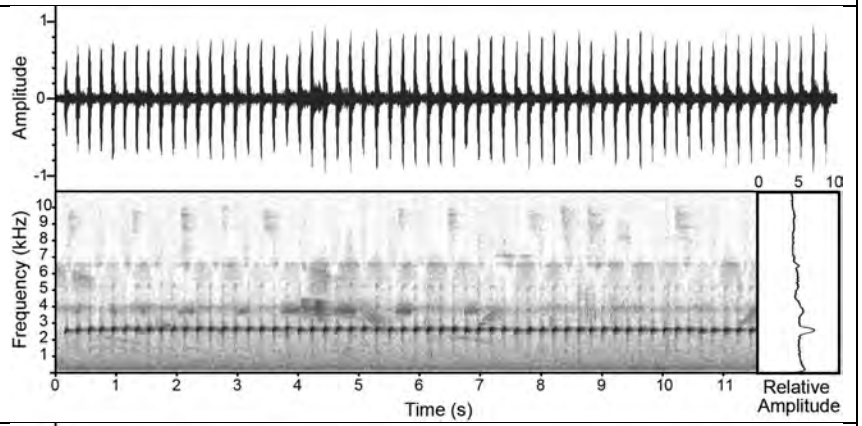
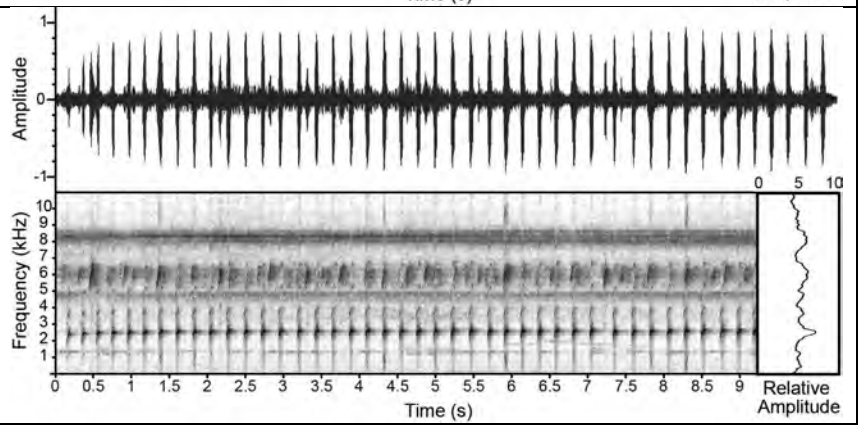
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*pongoensis*	**Perú:** San Martín: Río Huallaga, near Callehuacana **Latitude, Longitude:** -6.5, -75.9 **Notes:** Estimates of the variables used are derived from the original paper (Brown & Twomey 2009) **Calling behavior:** NA **Phylogeny number:** 88	**Time:** NA **Temperature:** 21°C **Voucher(s):** See original paper (Brown & Twomey 2009) **SVL (mm):** n = 5, $\bar{X}$ = 22.9 **SVL (ref.):** See original paper (Brown & Twomey 2009) **Collectors (Call):** See original paper (Brown & Twomey 2009) **Recorder:** See original paper (Brown & Twomey 2009) **Microphone:** See (Brown & Twomey 2009)	See original paper (Brown & Twomey 2009)
Ameerega	*silverstonei*	**Perú:** Huanuco: 30 km NE Tingo María on road from Tingo María to Pucallpa in montane forest of Cordillera Azul **Latitude, Longitude:** -9.222546, -75.841678 **Notes:** Estimates of the variables used are derived from the original paper (Myers & Daly 1979) **Calling behavior:** males are timid and called while hidden within piles of logs (Myers & Daly 1979) **Phylogeny number:** 85	**Time:** 12h00 (midday) **Temperature:** 18.5°C air **Voucher(s):** See original paper (Myers & Daly 1979) **SVL (mm):** n = 17, $\bar{X}$ = 35.85 ± 3.47 **SVL (ref.):** See original paper (Myers & Daly 1979) **Collectors (Call):** See original paper (Myers & Daly 1979) **Recorder:** See original paper (Myers & Daly 1979) **Microphone:** See original paper (Myers & Daly 1979)	See original paper (Myers & Daly 1979)

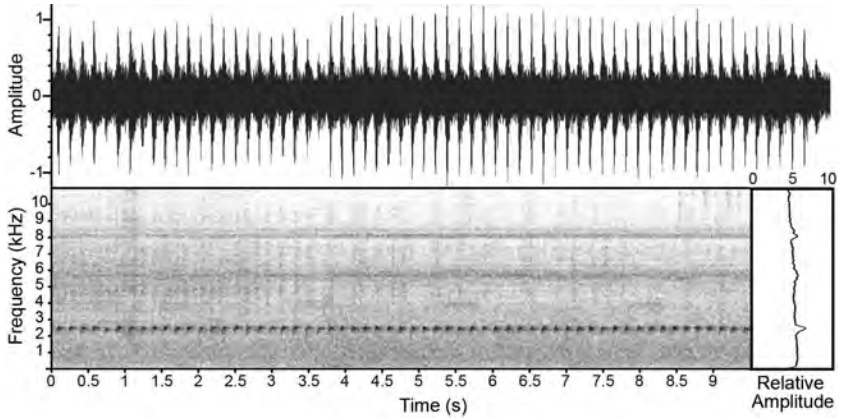
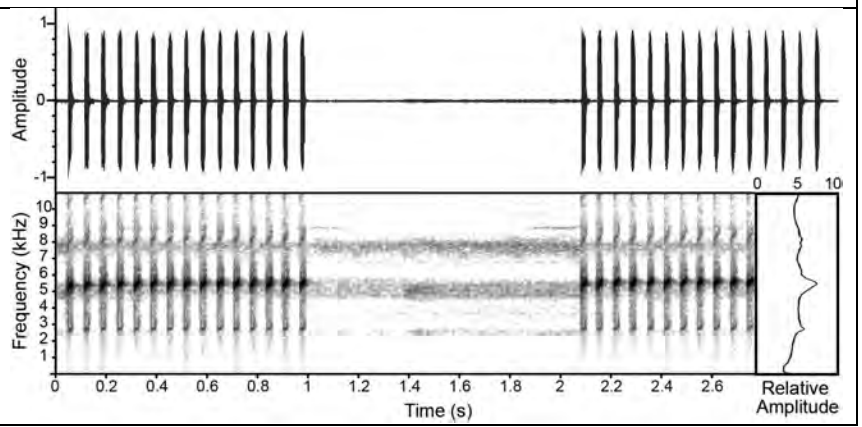
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*smaragdina*	**Perú:** Huanuco: Pan de Azúcar near the town of Iscozacín **Latitude, Longitude:** -10.24898, -75.22558 **Notes:** Estimates of the variables used are derived from the original paper (Brown & Twomey 2009) **Calling behavior:** NA **Phylogeny number:** 100	**Time:** NA **Temperature:** 24.5°C **Voucher(s):** See original paper (Brown & Twomey 2009) **SVL (mm):** $n = 2$, $\bar{X} = 26.5$ **SVL (ref.):** See original paper (Brown & Twomey 2009) **Collectors (Call):** See original paper (Brown & Twomey 2009) **Recorder:** See original paper (Brown & Twomey 2009) **Microphone:** See original paper (Brown & Twomey 2009)	See original paper (Brown & Twomey 2009)
Ameerega	*trivittata*	**Perú:** San Martín: 18 km NE of Tarapoto, trail next to road from road from Tarapoto to Yurimaguas **Latitude, Longitude:** -6.42917, -76.29139 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called on top of logs in recently cleared secondary forest **Phylogeny number:** 105	**Time:** 15h00-17h00 **Temperature:** 21.0°C leaf litter **Voucher(s):** QCAZSC 16211-16214 **SVL (mm):** $n = 5$, $\bar{X} = 38.86 \pm 1.41$ **SVL (ref.):** measured by JCS **Collectors (Call):** DCC, JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

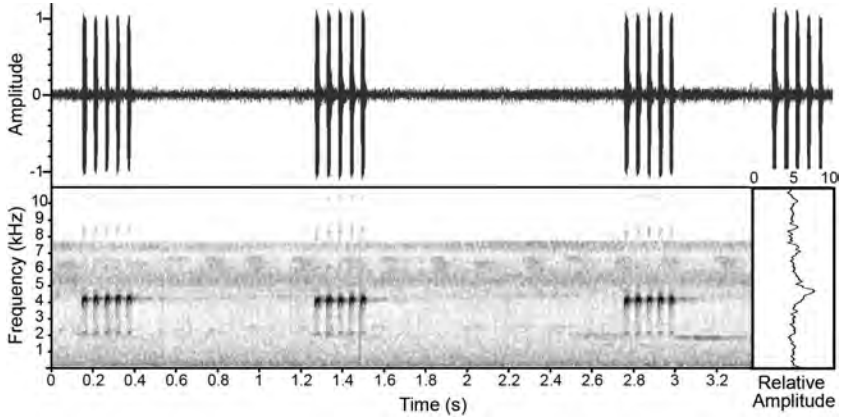
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*trivittata*	**Perú:** Madre de Dios: Tambopata Reserved Zone **Latitude, Longitude:** -13.1481, -69.6172 **Notes:** NA **Calling behavior:** males called on the ground along the exposed main trail **Phylogeny number:** 107	**Time:** 9h00 **Temperature:** 22.0°C leaf litter **Voucher(s):** USNM 268846 **SVL (mm):** 37.0 **SVL (ref.):** measured by JCS **Collectors (Call):** Reginald B. Cocroft. Tape from USNM **Recorder:** NA **Microphone:** NA	
Ameerega	*trivittata*	**Brazil:** Acre: Porongaba, Río Jurua **Latitude, Longitude:** -8.6667, -72.7833 **Notes:** NA **Calling behavior:** males called above leaf litter **Phylogeny number:** 106	**Time:** 16h15 **Temperature:** 27.0°C leaf litter **Voucher(s):** INPA 4218 **SVL (mm):** $n = 79$, $\bar{X} = 37.4 \pm 2.26$ **SVL (ref.):** measurements from reference (Silverstone 1976) **Collectors (Call):** Claude Gascon. Tape from USNM **Recorder:** NA **Microphone:** NA	

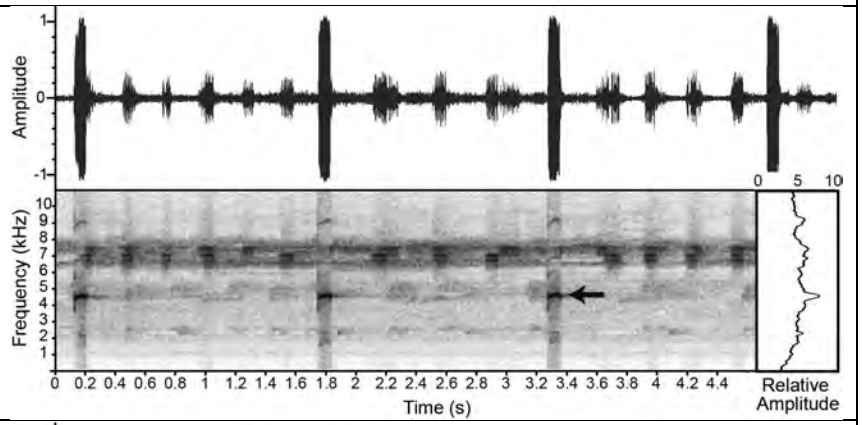
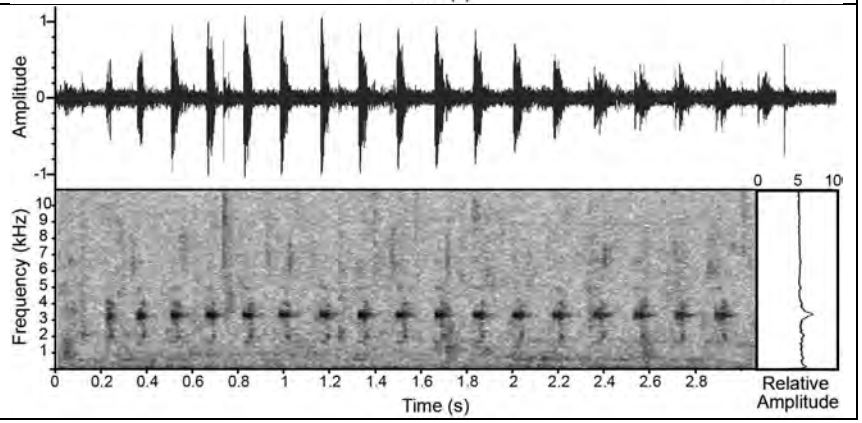
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Ameerega	*trivittata*	**Perú:** San Martín: On recently cleared secondary forest on the side of the road from Shapaja to Chazuta 14 Km **Latitude, Longitude:** -6.61622, -76.18686 **Notes:** 2.0-3.0 m from several males calling **Calling behavior:** males called in open habitat on top of logs in recently cleared forest **Phylogeny number:** 104	**Time:** 10h00-12h00 **Temperature:** 28.8°C leaf litter **Voucher(s):** QCAZSC 16287-16288 **SVL (mm):** $n = 4$, $\bar{X} = 38.75 \pm 1.71$ **SVL (ref.):** measured by JCS from vouchers and two additional from USNM **Collectors (Call):** JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Anomaloglossus	*baeobatrachus*	**French Guiana:** NA **Latitude, Longitude:** 3.75, -53.48 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Calling behavior:** NA **Phylogeny number:** 3	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** 16.5 **SVL (ref.):** measurement from reference (Boistel & de Massary 1999) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	

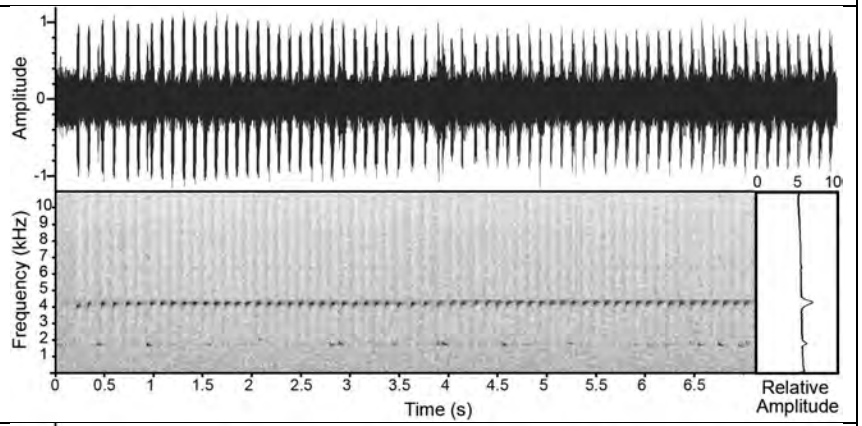
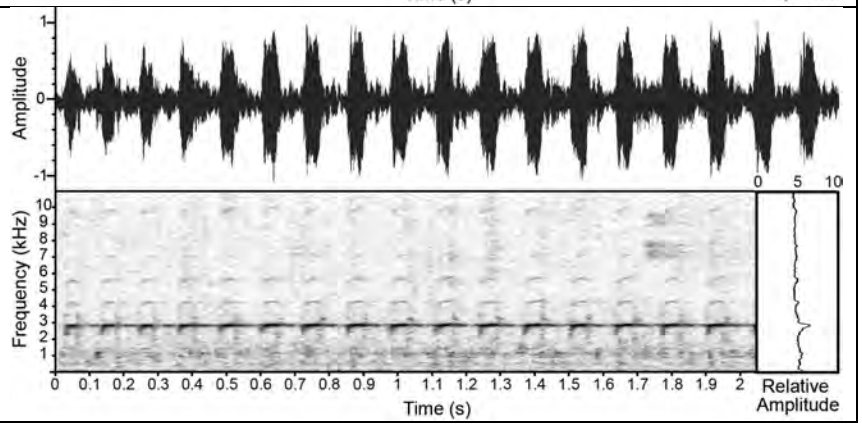
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Anomaloglossus	*stepheni*	**Brazil:** Amazonas: Presidente Figueiredo: Usina Hidroléctrica de Balbina - Vila Residencial **Latitude, Longitude:** -1.9078352, -59.4813537 **Notes:** Programa de Coleções e Acervos Científicos-Instituto Nacional de Pesquisas da Amazônia **Calling behavior:** males called from perches only few centimeters above forest leaf litter (Junca 1996, 1998) **Phylogeny number:** Not Included	**Time:** 18h30 **Temperature:** 26°C **Voucher(s):** FNJV 11064 (audio) **SVL (mm):** n = 53, $\bar{X}$ = 16.60 ± 0.7 **SVL (ref.):** measurement from reference (Junca 1996) **Collectors (Call):** Marcio R. Martíns **Recorder:** Sony Cassette TCM-2 **Microphone:** NA	

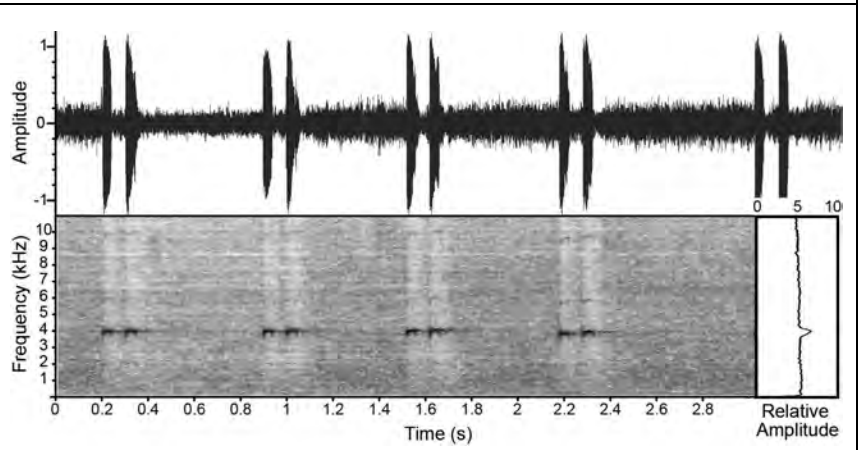
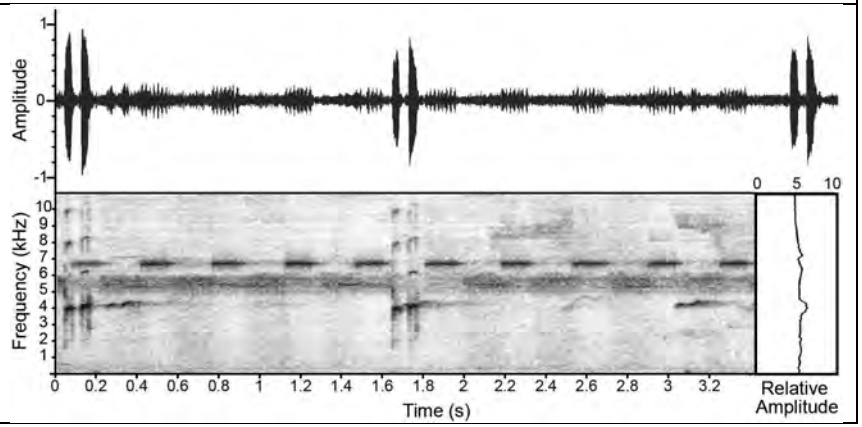
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Anomaloglossus	*degranvillei*	**French Guiana:** NA **Latitude, Longitude:** 3.57, -53.92 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Calling behavior:** NA **Phylogeny number:** 4	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** n = 30, $\bar{X}$ = 17.30 ± 2.0 **SVL (ref.):** measurement from reference (Lescure 1975) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	
Anomaloglossus	*rufulus*	**Venezuela:** Bolívar: summit of Churí-tepui (massif of Chimantá) **Latitude, Longitude:** 5.3, -62.1667 **Notes:** NA **Calling behavior:** Male was calling from a muddy soil and concealed among patches of vegetation **Phylogeny number:** 5	**Time:** Evening **Temperature:** 17.5°C air **Voucher(s):** MHNLS 20245 **SVL (mm):** n = 5, $\bar{X}$ = 21.1 ± 0.9 **SVL (ref.):** measured by CLBA **Collectors (Call):** CLBA **Recorder:** Sony TCM-353V **Microphone:** Sony F-V5	

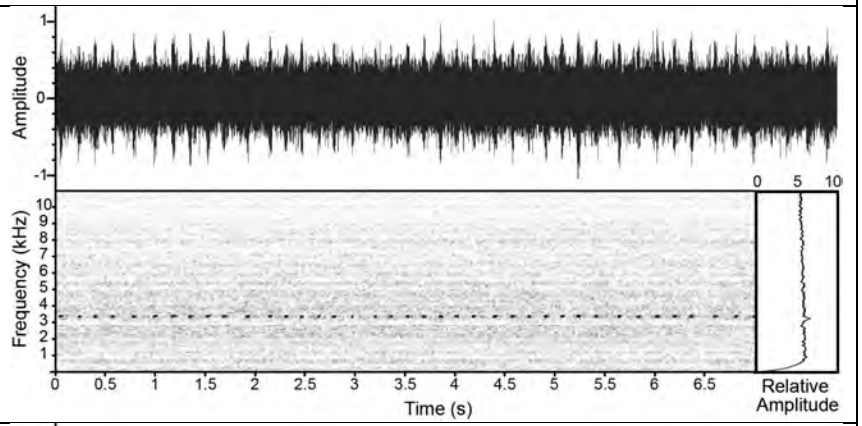
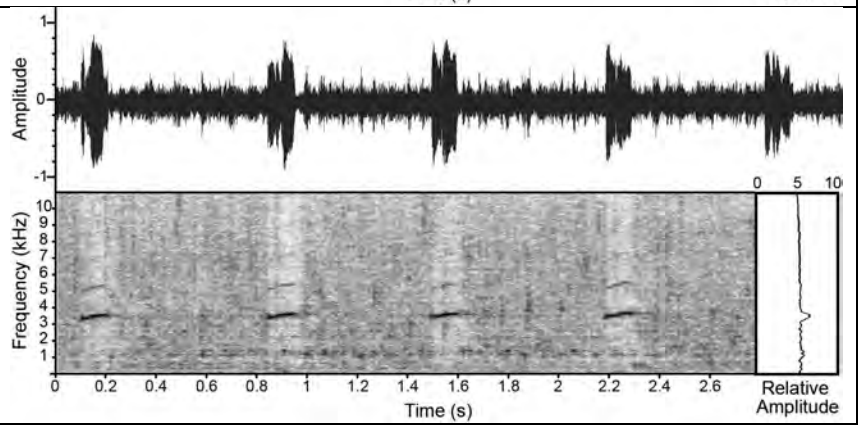
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Anomaloglossus	*verbeeksnyderorum*	**Venezuela:** Amazonas: Near the river that gives rise to the Tobogán de la Selva **Latitude, Longitude:** 5.38557, -67.614523 **Notes:** 0.5 m from males calling **Calling behavior:** males called concealed from boulder crevices covered with leaf litter **Phylogeny number:** 2	**Time:** 16h00-18h00 **Temperature:** 24.5°C leaf litter **Voucher(s):** TNHCFS 5627-5634 **SVL (mm):** $n = 4$, $\bar{X} = 18.8 \pm 0.7$ **SVL (ref.):** measured by JCS and from reference (Barrio-Amoros *et al.* 2010) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Aromobates	*meridensis*	**Venezuela:** Mérida: Finca El Cedral (Caño Seco) **Latitude, Longitude:** 8.65, -71.43 **Notes:** NA **Calling behavior:** males call concealed from crevices between two rocks behind a small waterfall **Phylogeny number:** 7	**Time:** morning **Temperature:** 19.0°C air **Voucher(s):** not collected **SVL (mm):** $n = 5$, $\bar{X} = 27.8 \pm 3.3$ **SVL (ref.):** measured by CLBA from syntopic specimens **Collectors (Call):** CLBA, E. Romero, and E. infante **Recorder:** Sony Hi-MD Walkman MZ-RH1 **Microphone:** Sony ECM-MS907	

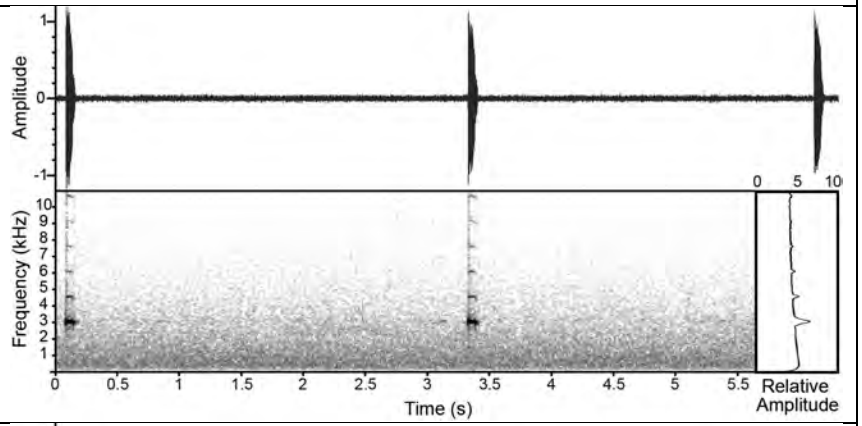
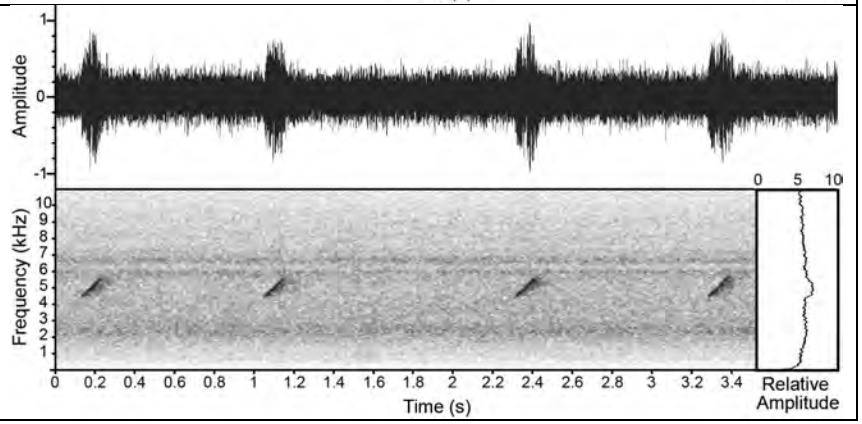
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Aromobates	*saltuensis*	**Venezuela:** Táchira: From a creek surrounded by pastures and secondary forest long the road from San Félix to San Juan de Colón **Latitude, Longitude:** 8.0736, -72.2293 **Notes:** 0.5 m from calling male **Calling behavior:** males call concealed behind a small waterfall **Phylogeny number:** 11	**Time:** 14h00-16h00 **Temperature:** 22.5°C water **Voucher(s):** CVULA 8315-8320 **SVL (mm):** $n = 4$, $\bar{X} = 23.13 \pm 0.41$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Aromobates	*ericksonae*	**Venezuela:** Mérida: Santa Cruz de Mora via Los Ranchos **Latitude, Longitude:** 8.39889, -71.68007 **Notes:** 0.5-1.0 m several males calling, **Calling behavior:** males call above leaf litter next to small stream **Phylogeny number:** 8	**Time:** 16h00-18h00 **Temperature:** 22.3-23.5°C leaf litter **Voucher(s):** CVULA 8309 **SVL (mm):** $n = 4$, $\bar{X} = 23.11 \pm 0.58$ **SVL (ref.):** measured by CLBA **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

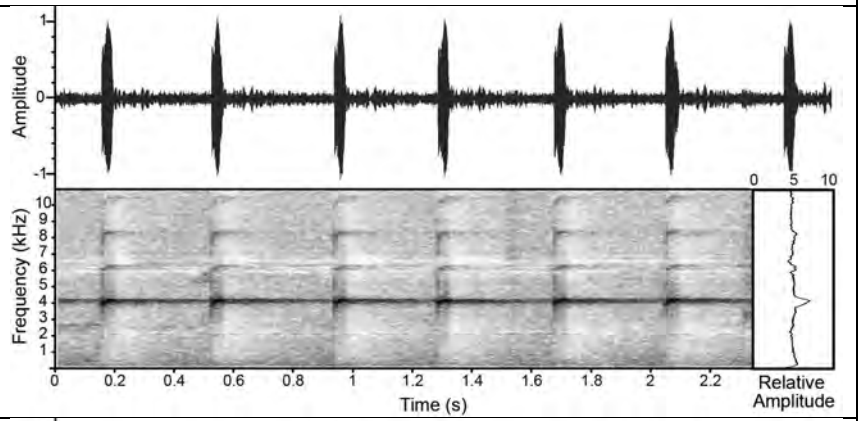
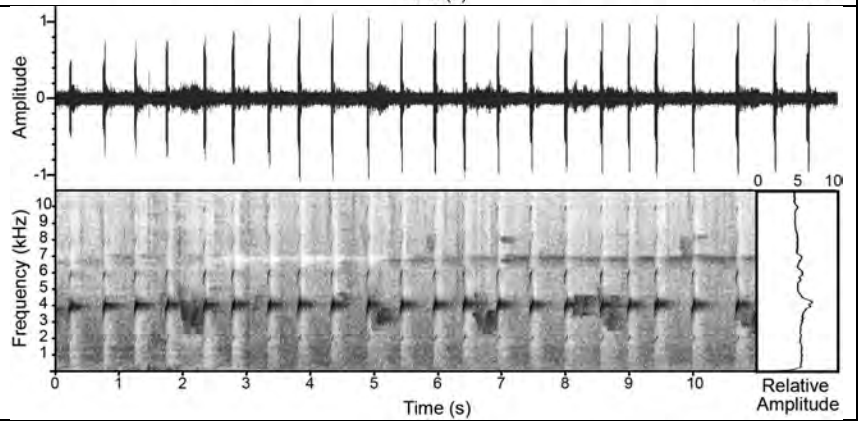
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Aromobates	*cannatellai*	**Venezuela:** Táchira: Parque Cascada de la Escalera, en la entrada a Mesa de Pérez, municipio Uribante **Latitude, Longitude:** 8.00308, -71.7316 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called concealed from crevices along a small stream **Phylogeny number:** 9	**Time:** 16h00-18h00 **Temperature:** 21.4°C water **Voucher(s):** CVULA 8327 **SVL (mm):** $n = 2$, $\bar{X} = 19.10 \pm 0.06$ **SVL (ref.):** measured by CLBA **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Aromobates	aff. *saltuensis*	**Venezuela:** Táchira: From a stream that flows into Río Negro, near Parque Nacional "El Tama" **Latitude, Longitude:** 7.57872, -72.1790 **Notes:** 1.0 m from male **Calling behavior:** males call from concealed place on edge of a large boulder **Phylogeny number:** 10	**Time:** 14h00-16h00 **Temperature:** 22.6°C gravel **Voucher(s):** TNHCFS 5568 **SVL (mm):** 22.48 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

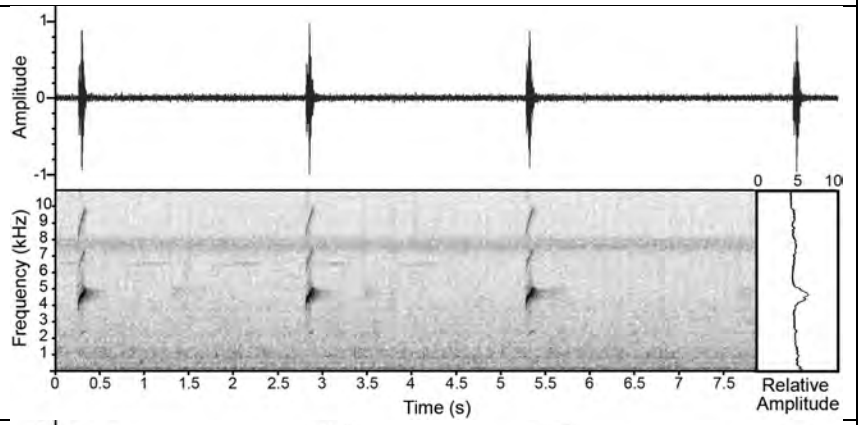
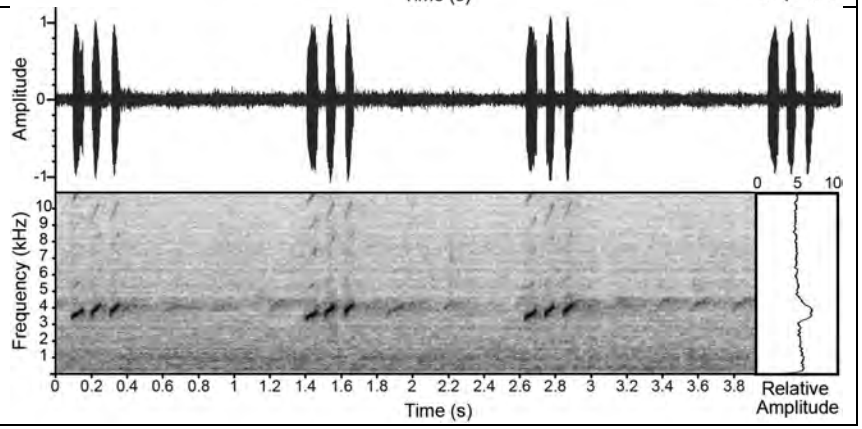
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Aromobates	*ornatissimus*	**Venezuela:** Trujillo: Municipio de Carache, Las Palmas **Latitude, Longitude:** 9.6964, -70.14 **Notes:** 0.5-1.0 m from a calling male **Calling behavior:** males called concealed along patches of vegetation along small streams **Phylogeny number:** 6	**Time:** morning **Temperature:** 19.0°C air **Voucher(s):** not collected **SVL (mm):** $n = 5$, $\bar{X} = 22.0 \pm 2.1$ **SVL (ref.):** measured by CLBA from syntopic specimens **Collectors (Call):** CLBA, R. Rivero **Recorder:** Sony HX1 camera with a setting for high definition (HD) video-recording **Microphone:** NA	
Colostethus	*argyrogaster*	**Perú:** San Martín: On the side of a stream near San José (Bdo. Shilcayo) **Latitude, Longitude:** -6.42917, -76.29139 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter along a stream **Phylogeny number:** 83	**Time:** 15h00-17h30 **Temperature:** 23.0°C leaf litter **Voucher(s):** MHNSM 22670 **SVL (mm):** $n = 6$, $\bar{X} = 19.96 \pm 0.65$ **SVL (ref.):** measured by JCS from voucher and other syntopic specimens **Collectors (Call):** JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

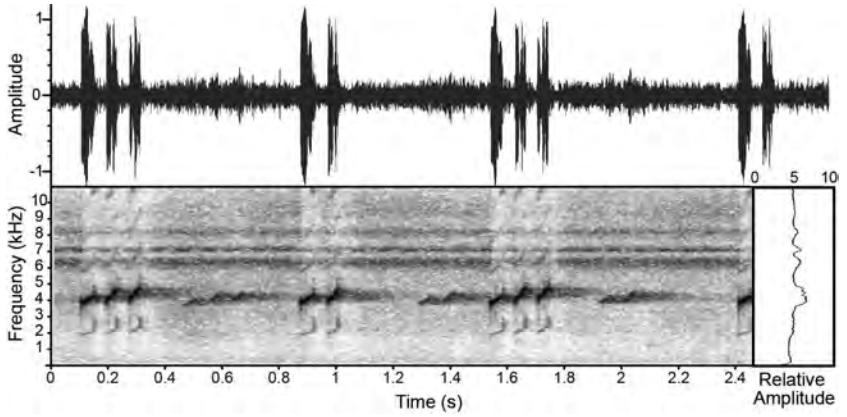
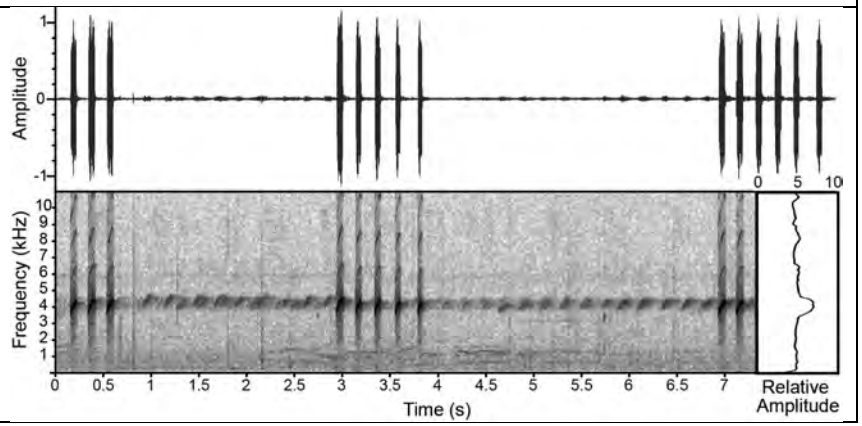
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Colostethus	*fraterdanieli*	**Colombia:** Valle del Cauca: Buga, Buga-Buenaventura road **Latitude, Longitude:** 3.876, -76.435 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 81	**Time:** 10h00-12h00 **Temperature:** 19.2°C leaf litter **Voucher(s):** TNHCFS 4976 **SVL (mm):** 23.07 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Colostethus	*fraterdanieli*	**Colombia:** Quindío: Barbas, Finlandia, Hacienda Lusitania **Latitude, Longitude:** 4.689778, -75.63525 **Notes:** 0.5-1.0 m from a male calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 82	**Time:** 9h00-12h00 **Temperature:** 22.0°C leaf litter **Voucher(s):** TNHCFS 4977 **SVL (mm):** $n = 3$, $\bar{X} = 22.38 \pm 0.70$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

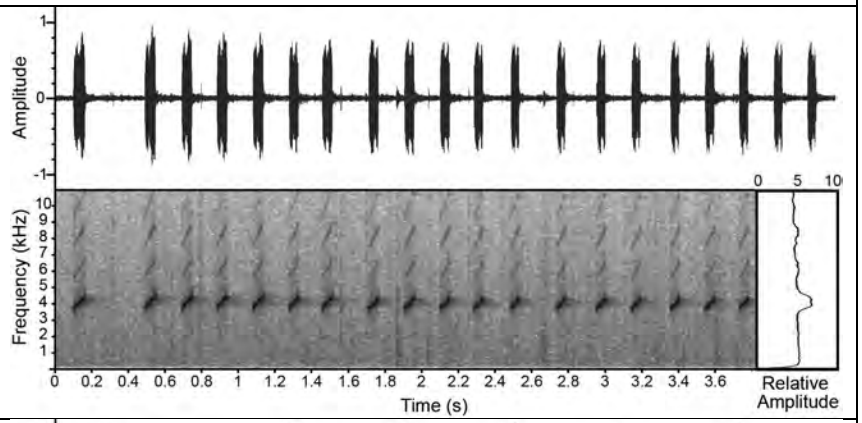
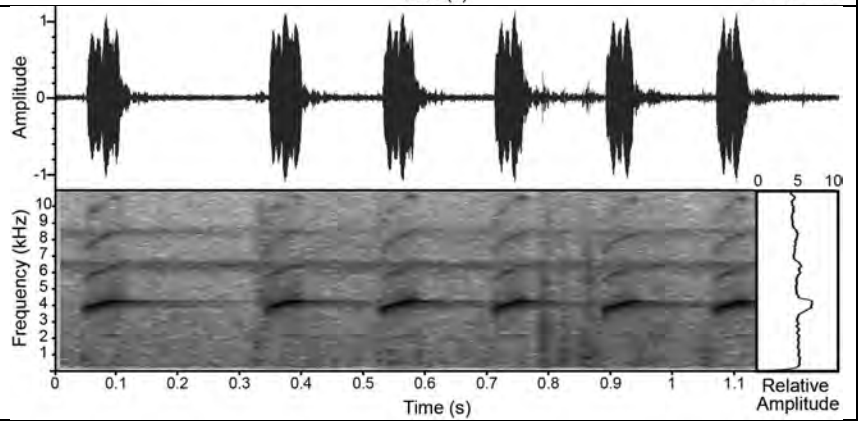
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Colostethus	*fugax*	**Ecuador:** Morona Santiago: 2.3 km E of Santiago (on the road to Patuca) Centro Shuar Tayuntsa **Latitude, Longitude:** -2.976401, -77.86257 **Notes:** 0.5-1.0 m from males calling **Calling behavior:** males called above leaf litter **Phylogeny number:** 84	**Time:** 9h00-12h45 **Temperature:** 27.1°C leaf litter **Voucher(s):** QCAZ 27370, 27395-27397, 27412-27414 **SVL (mm):** $n = 7$, $\bar{X} = 19.75 \pm 1.22$ **SVL (ref.):** measured by JCS **Collectors (Call):** DCC, LAC, JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Colostethus	*panamansis*	**Panamá:** Coclé: near El Gaital, El Valle de Antón **Latitude, Longitude:** 8.62873, -80.11603 **Notes:** 0.5-1.0 m from several males calling **Calling behavior:** males called exposed above leaf litter **Phylogeny number:** 76	**Time:** 16h00 **Temperature:** 21.2°C leaf litter **Voucher(s):** not collected **SVL (mm):** $n = 5$, $\bar{X} = 24.06 \pm 2.79$ **SVL (ref.):** measured by JCS from USNM specimens from same locality **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

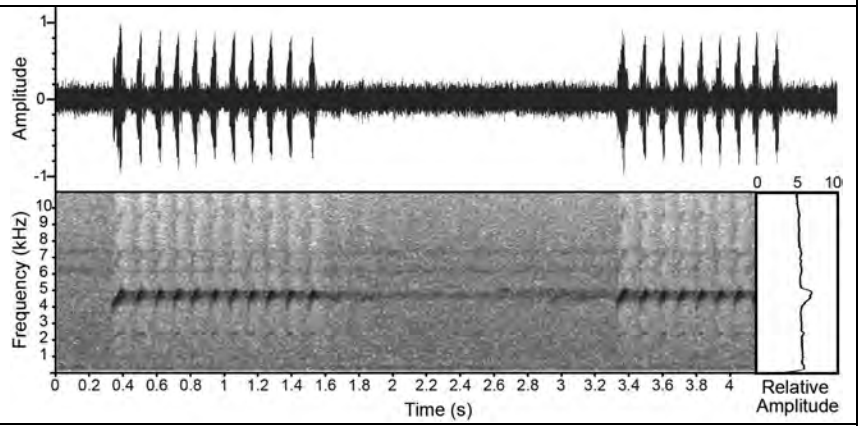
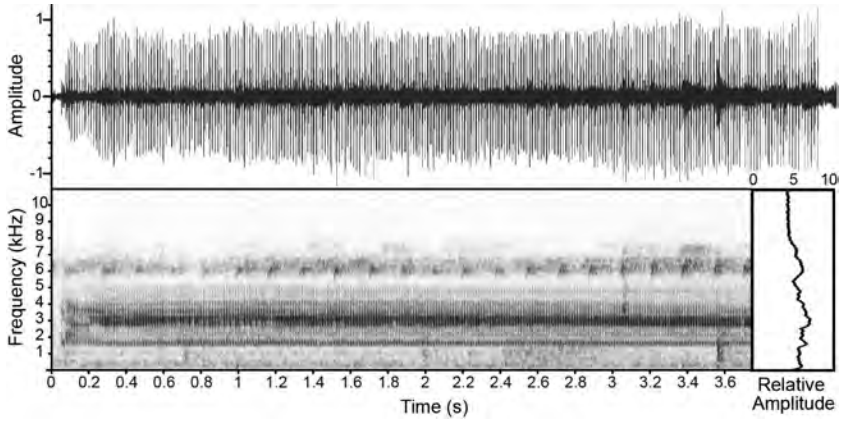
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Colostethus	*panamansis*	**Panamá:** Colón: On a stream along the road to Fort Sherman **Latitude, Longitude:** 9.295276, -79.924546 **Notes:** 0.5-1.0 m from several males on the stream. Another male is calling antiphonally in the background. **Calling behavior:** Males called almost continuous from the tops of large boulders or other elevated sites (Wells 1980) **Phylogeny number:** 75	**Time:** 16h00-17h00 **Temperature:** 24.4°C water **Voucher(s):** TNHCFS 4810 **SVL (mm):** $n = 2$, $\bar{X} = 22.35 \pm 0.98$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Colostethus	*pratti*	**Panamá:** Coclé: near El Gaital, El Valle de Anton **Latitude, Longitude:** 8.62873, -80.11603 **Notes:** 0.5 m from several males calling. Several males are calling antiphonally in the background. **Calling behavior:** males called above leaf litter **Phylogeny number:** 80	**Time:** 15h00 **Temperature:** 21.6°C leaf litter **Voucher(s):** not collected **SVL (mm):** 21.52 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

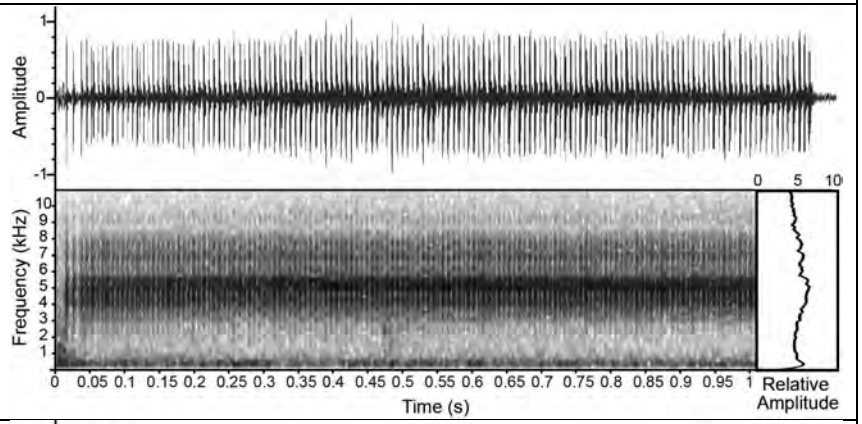
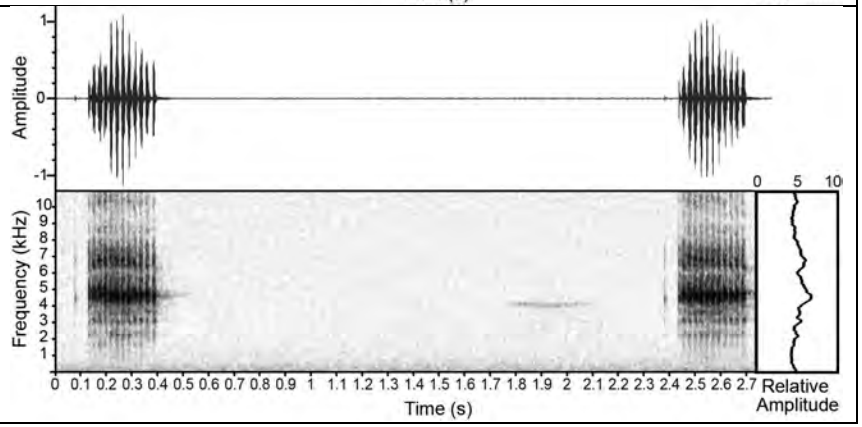
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Colostethus	*pratti*	**Panamá:** San Blas: near Nusagandi **Latitude, Longitude:** 9.2994, -78.98692 **Notes:** 0.5 m from a male **Calling behavior:** males called above leaf litter **Phylogeny number:** 79	**Time:** 12h00-14h00 **Temperature:** 25.1°C leaf litter **Voucher(s):** TNHCFS 4808 **SVL (mm):** 19.85 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Colostethus	*pratti*	**Panamá:** Colón: near Portobelo, Parque Nacional Portobello **Latitude, Longitude:** 9.52823, -79.6556 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called above leaf litter **Phylogeny number:** 77	**Time:** 10h00-12h00 **Temperature:** 27.5°C leaf litter **Voucher(s):** TNHCFS 4807 **SVL (mm):** 21.41 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

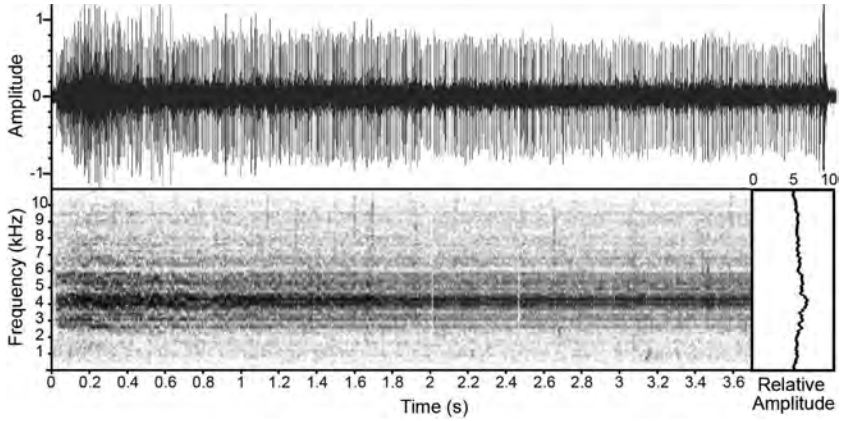
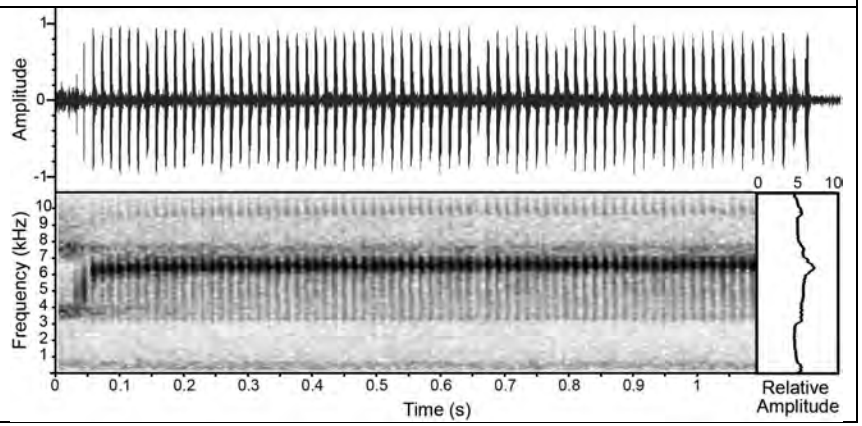
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Colostethus	aff. *pratti*	**Panamá:** Bocas del Toro: Near Selico Creek on stream along the road from David to Almirante **Latitude, Longitude:** 9.0667, -82.2833 **Notes:** 0.5 m from calling male **Calling behavior:** males called concealed from crevices and under boulders in a shallow stream **Phylogeny number:** 78	**Time:** 14h00-16h00 **Temperature:** 24.4°C gravel **Voucher(s):** TNHCFS 4809 **SVL (mm):** 19.27 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Dendrobates	*auratus*	**Panamá:** Panamá: Monumento Natural Barro Colorado **Latitude, Longitude:** 9.1543, -79.8461 **Notes:** Audio recording from Ibanez *et al.* (Ibanez *et al.* 1999) **Calling behavior:** males called rarely during the day from partially concealed locations in holes or hollows near tree bases (Wells 1978) **Phylogeny number:** 116	**Time:** NA **Temperature:** 23°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** NA **SVL (mm):** $n = 32$, $\overline{X} = 29.42 \pm 1.39$ **SVL (ref.):** measured by JCS from USNM specimens **Collectors (Call):** Audio recording from Ibañez *et al.* (Ibanez *et al.* 1999) **Recorder:** NA **Microphone:** NA	

Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*bombetes*	**Colombia:** Valle del Cauca: Buga, Buga-Buenaventura road **Latitude, Longitude:** 3.876, -76.435 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called above leaf litter from the forest floor and some were exposed in plain sight (Myers & Daly 1980) **Phylogeny number:** 126	**Time:** 15h00-17h00 **Temperature:** 20.2°C leaf litter **Voucher(s):** TNHCFS 4892 **SVL (mm):** $n = 6$, $\bar{X} = 18.19 \pm 0.87$ **SVL (ref.):** measured by JCS from voucher and other syntopic specimens **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Dendrobates	*captivus*	**Ecuador:** Zamora Chinchipe: Secondary forest near Panguitza, 11 Km S Yantzaza **Latitude, Longitude:** -3.8986, -78.8125 **Notes:** 3.0 m from a male calling **Calling behavior:** males called concealed under leaf litter within a secondary forest **Phylogeny number:** 125	**Time:** 11h00-11h15 **Temperature:** 21.7-23.5°C leaf litter **Voucher(s):** QCAZ 27442 **SVL (mm):** 16.82 **SVL (ref.):** measured by JCS from QCAZ specimen **Collectors (Call):** DCC, LAC, JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

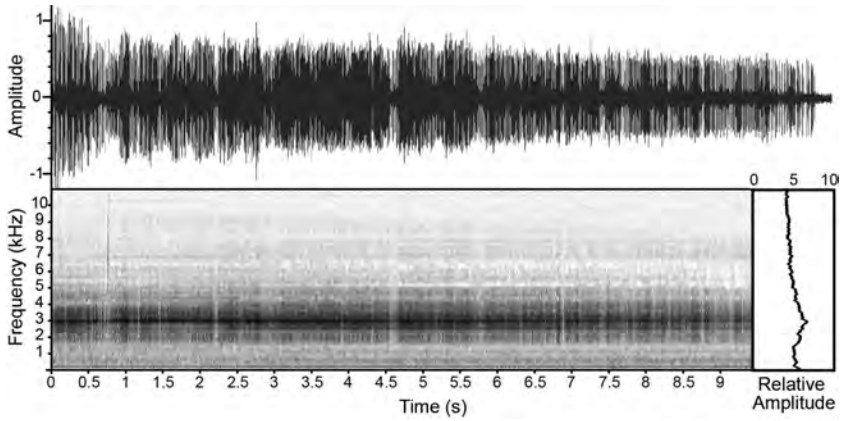
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*castaneoticus*	**Brazil:** Pará: NA (captive rised) **Latitude, Longitude:** -3.3667, -51.85 **Notes:** Audio recording from reference (Meyer 2005) **Calling behavior:** NA **Phylogeny number:** 114	**Time:** NA **Temperature:** 25.5°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** NA **SVL (mm):** $n = 9$, $\bar{X} = 19.32 \pm 0.77$ **SVL (ref.):** measurement from reference (Caldwell & Myers 1990) **Collectors (Call):** Audio recording from reference (Meyer 2005) **Recorder:** NA **Microphone:** NA	
Dendrobates	*claudiae*	**Panamá:** Bocas del Toro: Isla Colón, Bocas del Drago (Dragomar) **Latitude, Longitude:** 9.42479, -82.32038 **Notes:** 0.5-1.0 m from a male **Calling behavior:** several males calling above leaf litter **Phylogeny number:** 130	**Time:** 15h00 **Temperature:** 26.3°C leaf litter **Voucher(s):** not collected **SVL (mm):** 13.61 **SVL (ref.):** measured by JCS from TNHCFS syntopic specimens **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

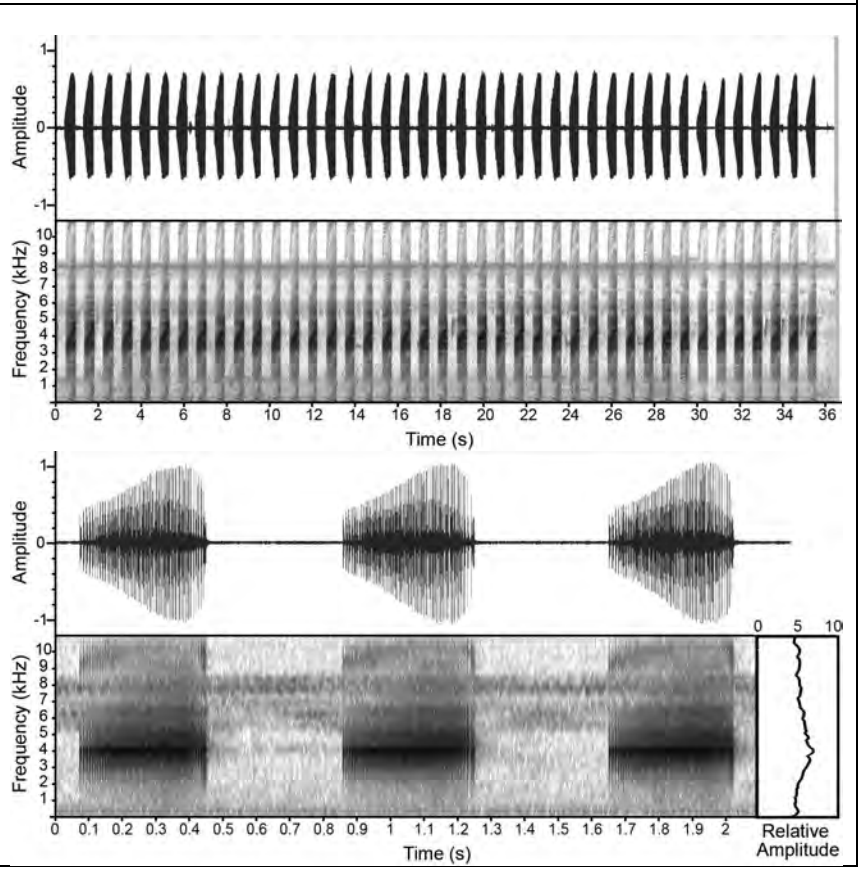
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*defleri*	**Colombia:** Vaupes: North bank of Mosiro Itájura (an oxbow lake off Río Apaporis, also known as 'Lago Taraira' **Latitude, Longitude:** -1.0771, -69.5143 **Notes:** Estimates of the variables used are derived from the original paper (Brown *et al.* 2011) **Calling behavior:** NA **Phylogeny number:** 133	**Time:** NA **Temperature:** 26.0°C **Voucher(s):** See original paper (Brown *et al.* 2011) **SVL (mm):** 16.9 **SVL (ref.):** See original paper (Brown *et al.* 2011) **Collectors (Call):** See original paper (Brown *et al.* 2011) **Recorder:** See original paper (Brown *et al.* 2011) **Microphone:** See original paper (Brown *et al.* 2011)	See original paper (Brown *et al.* 2011)
Dendrobates	*fantasticus*	**Perú:** Loreto: Iquitos **Latitude, Longitude:** -3.8423316, -73.361206 **Notes:** Estimates of the variables used are derived from the original paper (Brown *et al.* 2011) **Calling behavior:** NA **Phylogeny number:** 137	**Time:** NA **Temperature:** 24.0°C **Voucher(s):** See original paper (Brown *et al.* 2011) **SVL (mm):** 19.5 **SVL (ref.):** See original paper (Brown *et al.* 2011) **Collectors (Call):** See original paper (Brown *et al.* 2011) **Recorder:** See original paper (Brown *et al.* 2011) **Microphone:** See original paper (Brown *et al.* 2011)	See original paper (Brown *et al.* 2011)

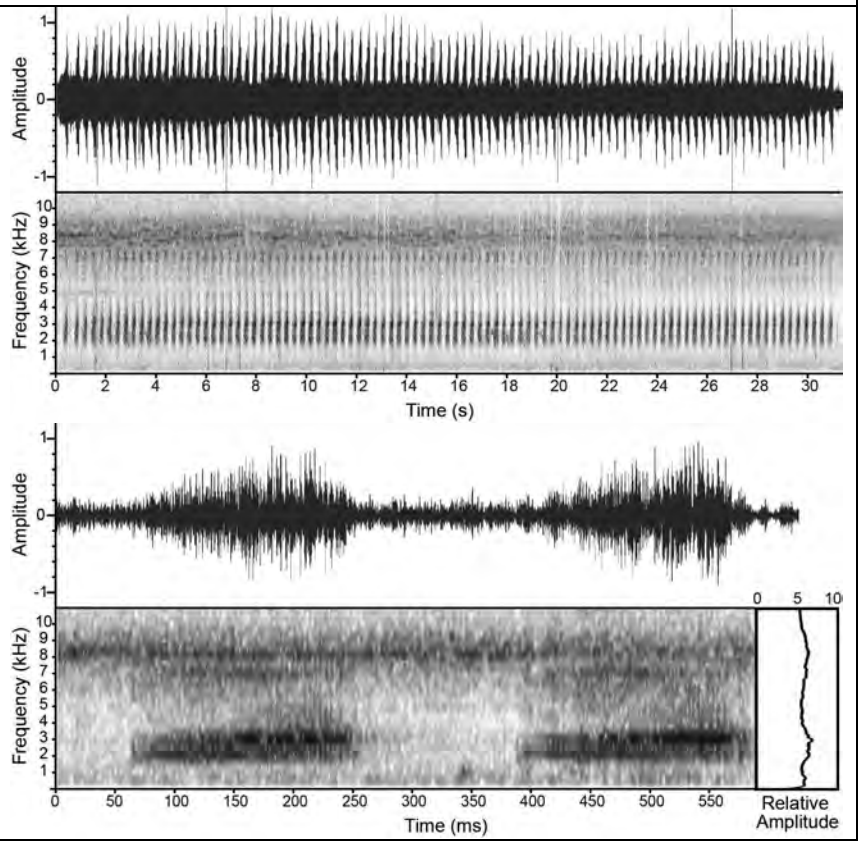
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*galactonotus*	**Guyana:** NA (captive raised) **Latitude, Longitude:** -0.8, -48.1333 **Notes:** Audio recording from Ostrowski and Mahn (Ostrowski & Mahn 2005) **Calling behavior:** NA **Phylogeny number:** 113	**Time:** NA **Temperature:** 27.0°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** NA **SVL (mm):** $n = 7$, $\bar{X} = 33.20 \pm 1.84$ **SVL (ref.):** measured from reference (Silverstone 1975) **Collectors (Call):** Audio recording from Ostrowski and Mahn (Ostrowski & Mahn 2005) **Recorder:** NA **Microphone:** NA	

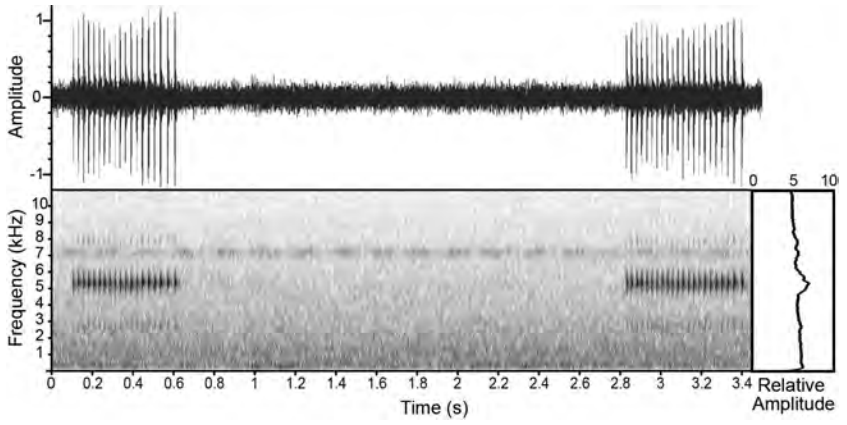
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*granuliferus*	**Costa Rica:** Puntarenas: Parque Nacional Corcovado-50 m from Sirena Field Station, Los Patos Trail **Latitude, Longitude:** 8.48, -83.5894 **Notes:** NA **Calling behavior:** males called continuously and exposed from sites 0.25-1.50 m above the ground in palms (*Cryosophila guargara*) (Goodman 1971) **Phylogeny number:** 119	**Time:** 16h55 **Temperature:** 28.0°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** Macaulay Library 55221 (sound recording) **SVL (mm):** $n = 2$, $\bar{X} = 20.24 \pm 0.29$ **SVL (ref.):** measured by JCS from USNM specimens from Punta Arenas (Costa Rica) **Collectors (Call):** David L. Ross **Recorder:** NA **Microphone:** NA	

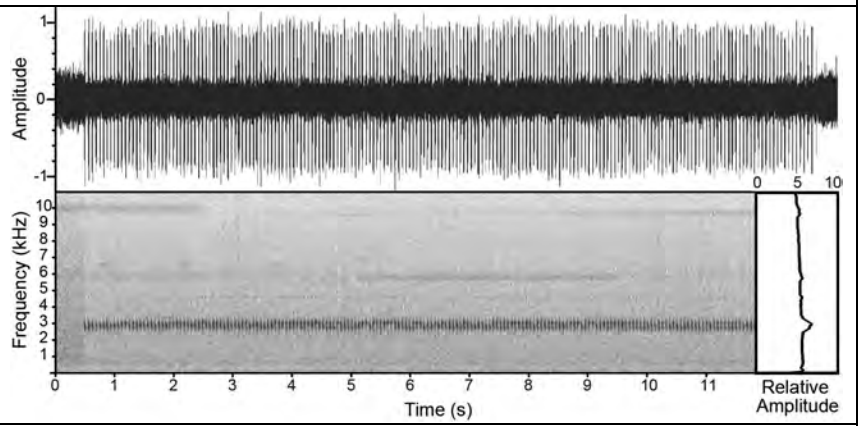
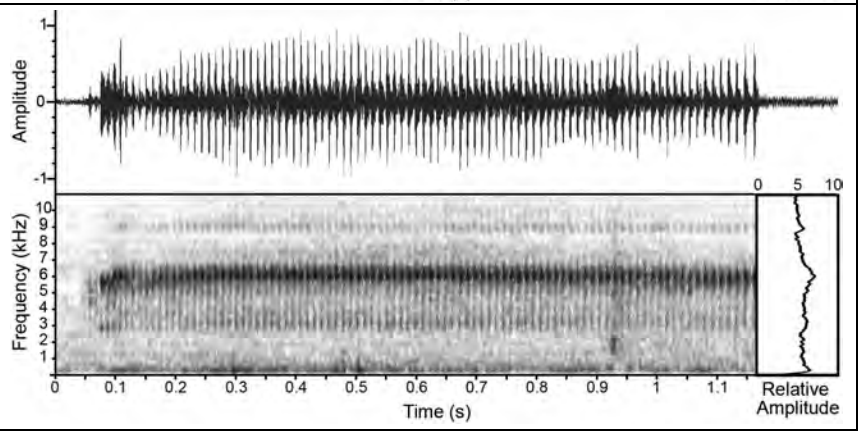
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*histrionicus*	**Colombia:** Chocó: On leaf litter near a stream La Troje, Quibdó **Latitude, Longitude:** 5.728, -76.591 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called standing and exposed on top of trunks, logs, and herbaceous plants (*Cyclanthus*) at about 56 cm above ground (Silverstone 1973) **Phylogeny number:** 121	**Time:** 14h00-16h00 **Temperature:** 27.6°C leaf litter **Voucher(s):** TNHCFS 4879 **SVL (mm):** 37.15 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

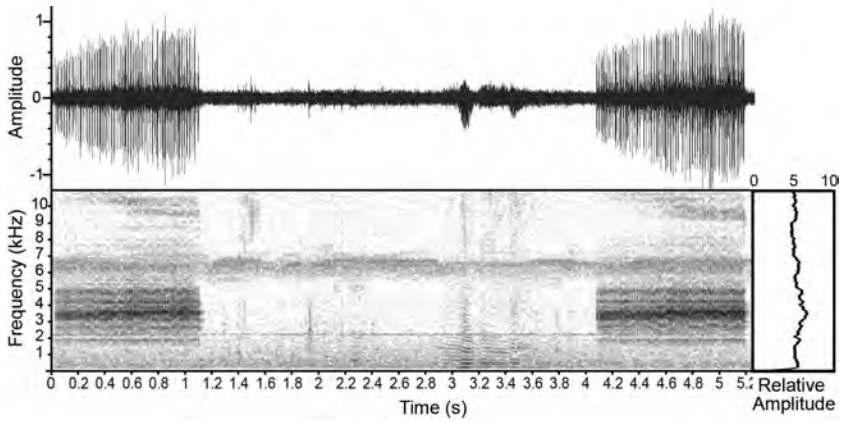
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*imitator*	**Perú:** San Martín: Trail next to road from Tarapoto to Yurimaguas at 35 Km, Quebrada Limón **Latitude, Longitude:** -6.42917, -76.29139 **Notes:** 0.5-1.0 m from several males **Calling behavior:** several males were calling concealed on bromeliads and heliconias at > 50 cm above ground **Phylogeny number:** 131	**Time:** 11h30 **Temperature:** 22.0°C air **Voucher(s):** QCAZSC 16228-16230 **SVL (mm):** $n = 6$, $\bar{X} = 17.92 \pm 0.81$ **SVL (ref.):** measured by JCS from QCAZSC specimens **Collectors (Call):** JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

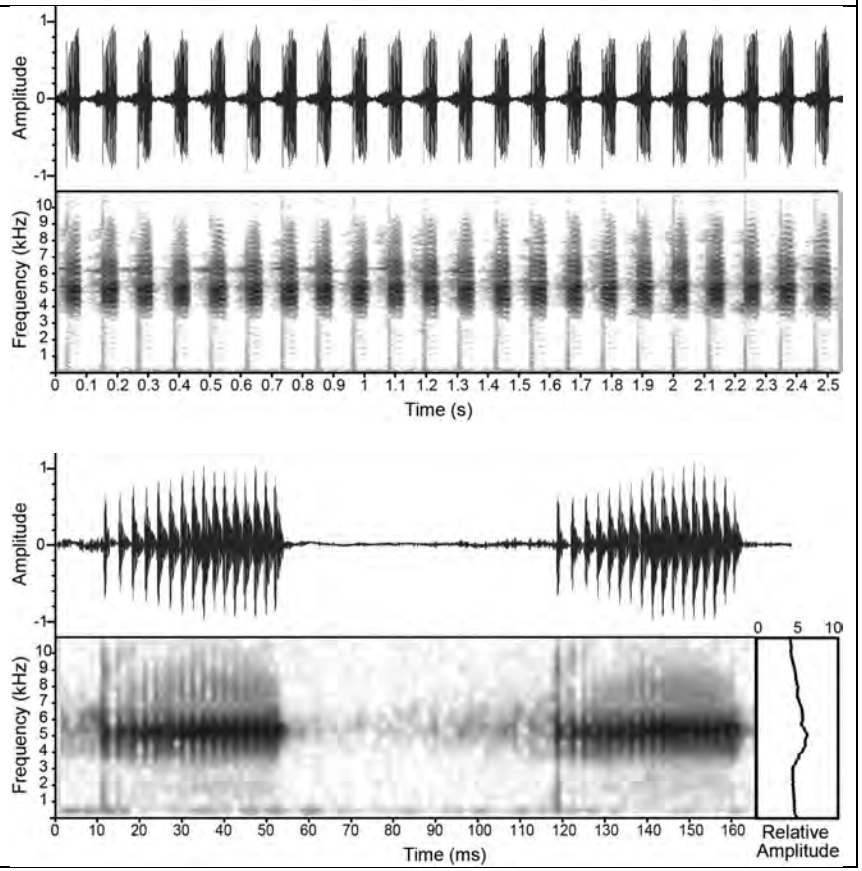
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*leucomelas*	**Venezuela:** Amazonas: Near the river that gives rise to the Tobogán de la Selva **Latitude, Longitude:** 5.38557, -67.614523 **Notes:** 0.5-1.0 m from several males **Calling behavior:** several males called while exposed above leaf litter along the trail from Tobogán **Phylogeny number:** 118	**Time:** 10h00-12h00 **Temperature:** 25.4°C leaf litter **Voucher(s):** TNHCFS 5636-5637 **SVL (mm):** $n = 2$, $\bar{X} = 30.99 \pm 0.31$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Dendrobates	*minutus*	**Panamá:** Panamá: Monumento Natural Barro Colorado **Latitude, Longitude:** 9.1543, -79.8461 **Notes:** Audio recording from Ibañez *et al.* (Ibanez *et al.* 1999) **Calling behavior:** several males were calling above leaf litter **Phylogeny number:** 128	**Time:** NA **Temperature:** 23°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** NA **SVL (mm):** $n = 50$, $\bar{X} = 13.20 \pm 0.73$ **SVL (ref.):** measured from reference (Silverstone 1975) **Collectors (Call):** Audio recording from Ibañez *et al.* (Ibanez *et al.* 1999) **Recorder:** NA **Microphone:** NA	

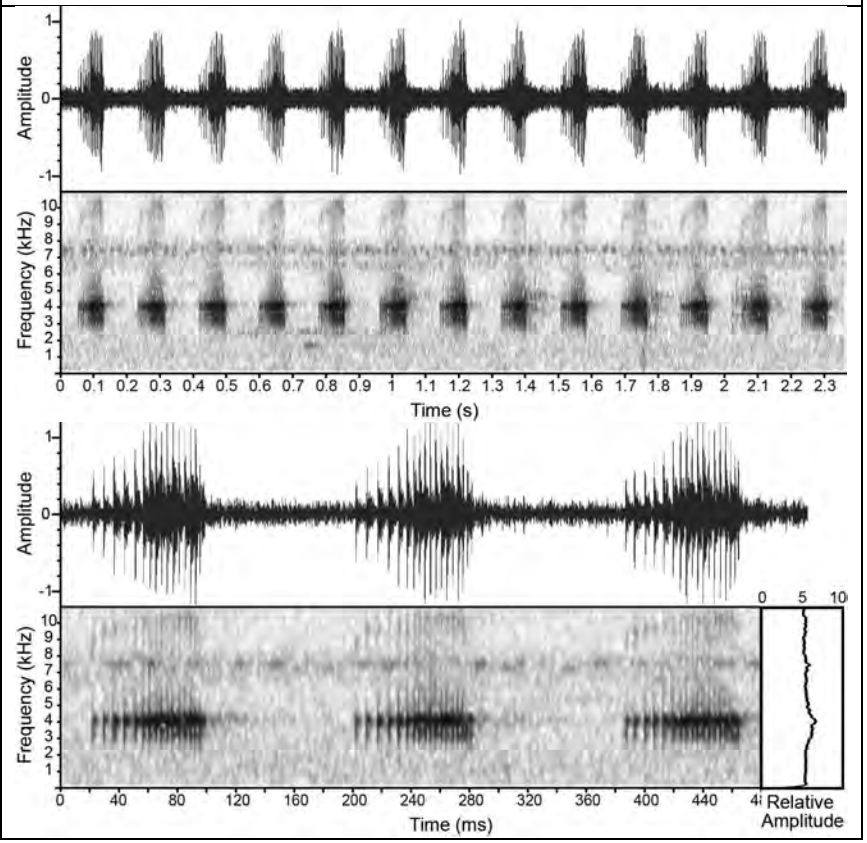
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*mysteriosus*	**Perú:** Cajamarca: Santa Rosa de la Yunga **Latitude, Longitude:** -5.4348, -78.5336 **Notes:** On bromeliad at 1.5 m on branch in nearby forest to the Santa Rosa de Yunga. This was call provided by C. Koch **Calling behavior:** males call concealed from within bromeliads (*Aechmea* sp.) at about 1.70 m above ground (Schulte 1990) **Phylogeny number:** 124	**Time:** 16h50 **Temperature:** 23.5°C water on bromeliad **Voucher(s):** NA **SVL (mm):** n = 11, $\bar{X}$ = 27.05 ± 1.25 **SVL (ref.):** measured from reference(Schulte 1990) **Collectors (Call):** Call provided kindly by C. Koch **Recorder:** NA **Microphone:** NA	

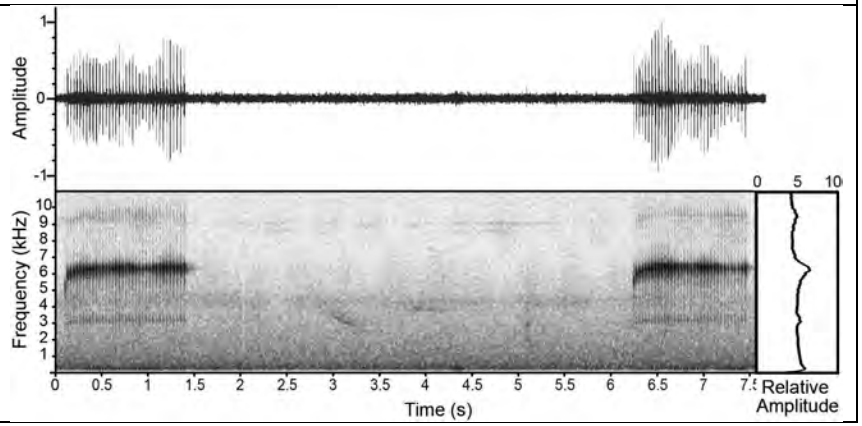
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*pumilio*	**Panamá:** Bocas del Toro: Isla Bastimentos, Cayo Nancy **Latitude, Longitude:** 9.33182, -82.21667 **Notes:** Male on a tree stump at about 1.0 m from forest floor **Calling behavior:** males called standing and exposed on top of trunks, logs, and herbaceous plants at > 40 cm above ground **Phylogeny number:** 123	**Time:** 9h30 **Temperature:** 24.5°C air **Voucher(s):** USNM 338420 **SVL (mm):** 16.65 **SVL (ref.):** measured by JCS **Collectors (Call):** Ronald I. Crombie. Tape from USNM **Recorder:** NA **Microphone:** NA	

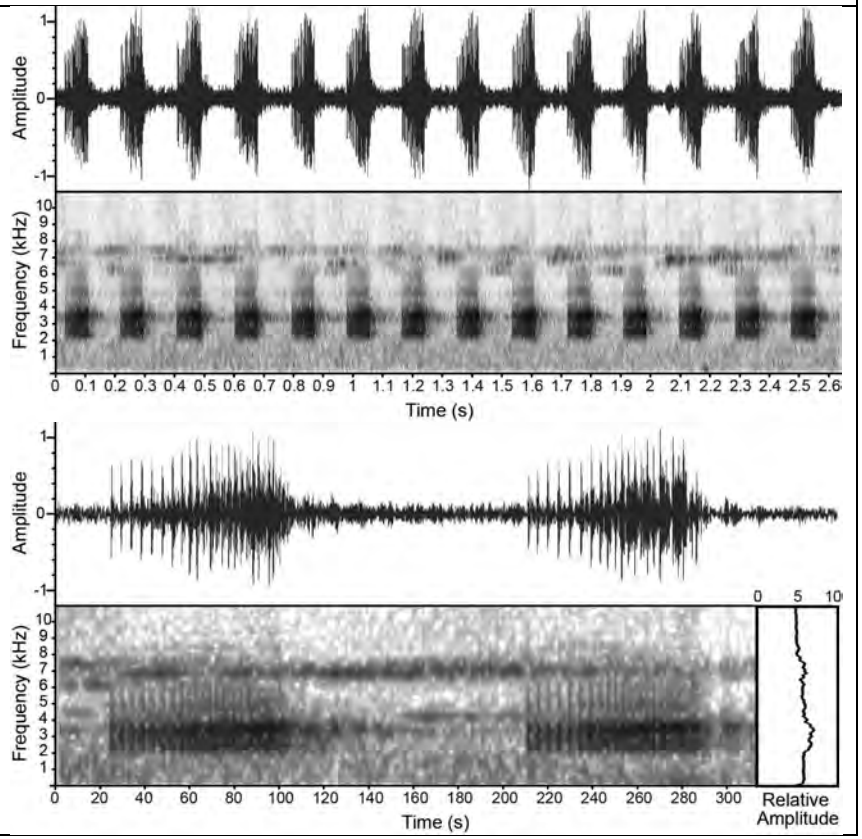
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*pumilio*	**Costa Rica:** Heredia: Puerto Limón (southeast of) **Latitude, Longitude:** 9.96633, -83.0354 **Notes:** Male at a second growth lowland tropical rainforest **Calling behavior:** males called standing and exposed on top of trunks, logs, and herbaceous plants at > 40 cm above ground **Phylogeny number:** 122	**Time:** 9h15 **Temperature:** 22°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** BLB (sound recording) 23620 **SVL (mm):** $n = 40$, $\bar{X} = 21.60 \pm 0.80$ **SVL (ref.):** measured from reference (Pröhl 2003) **Collectors (Call):** NA **Recorder:** NA **Microphone:** NA	

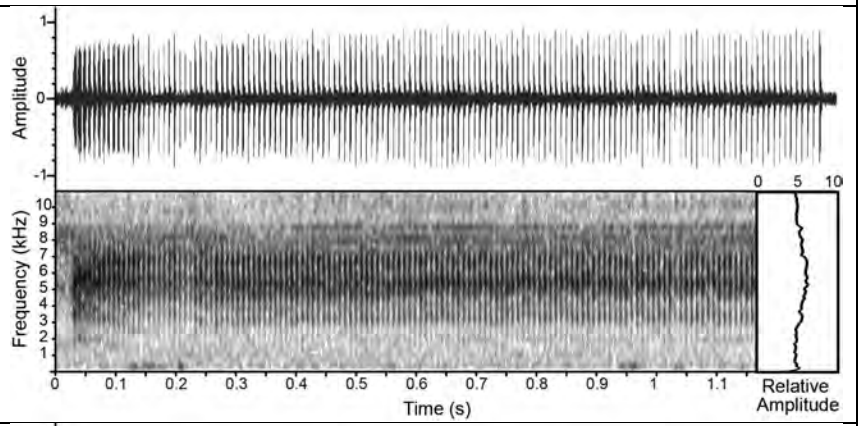
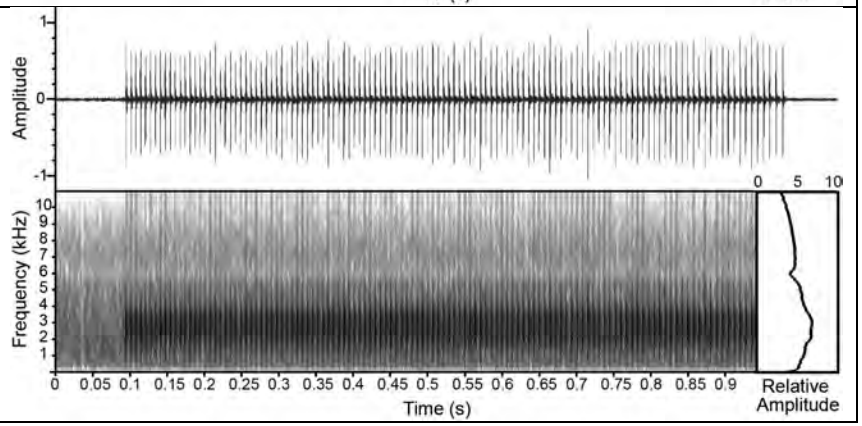
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*reticulatus*	**Perú:** Loreto: Iquitos and 3 km SSW Mishana, Río Nanay **Latitude, Longitude:** -3.842332, -73.36121 **Notes:** Estimates of the variables used are derived from the original papers (Brown *et al.* 2011) and (Myers 1982) **Calling behavior:** males call exposed above leaf litter **Phylogeny number:** 136	**Time:** NA **Temperature:** 25.6 and 29.3°C **Voucher(s):** See original papers (Brown *et al.* 2011) and (Myers 1982) **SVL (mm):** $n = 24$, $\bar{X} = 14.37 \pm 0.07$ **SVL (ref.):** measured from reference (Myers 1982) **Collectors (Call):** See original papers (Brown *et al.* 2011) and (Myers 1982) **Recorder:** See original papers (Brown *et al.* 2011) and (Myers 1982) **Microphone:** See original papers (Brown *et al.* 2011) and (Myers 1982)	See original papers (Brown *et al.* 2011) and (Myers 1982)
Dendrobates	*lamasi* (*sirensis*)	**Perú:** Loreto: Tambopata Reserved Zone, along Catacocha trail **Latitude, Longitude:** -13.1481, -69.6172 **Notes:** NA **Calling behavior:** male called at 1.5 m on top of a horizontal dead bamboo stalk **Phylogeny number:** 132	**Time:** 9h30 **Temperature:** 23.0-28.6°C air **Voucher(s):** USNM 268844 **SVL (mm):** $n = 6$, $\bar{X} = 17.0 \pm 0.48$ **SVL (ref.):** measured from reference (Morales 1992) **Collectors (Call):** Reginald B. Cocroft. Tape from USNM **Recorder:** NA **Microphone:** NA	

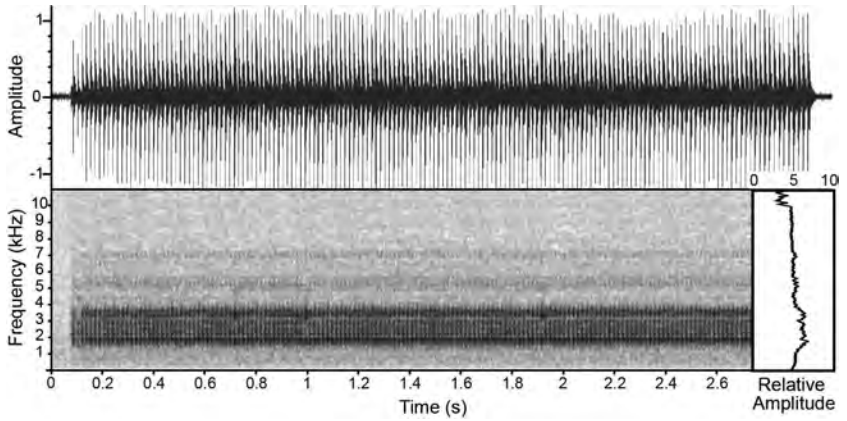
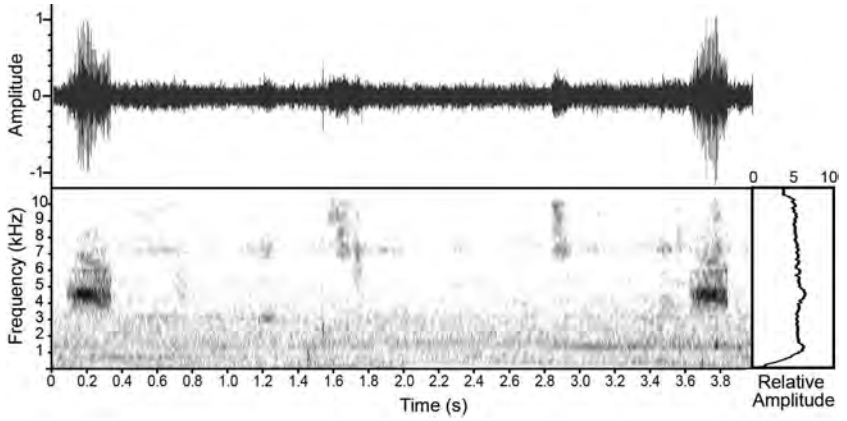
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*sylvaticus*	**Ecuador:** Pichincha: Near Puerto Quito, on the road to Shishink (Diez de Agosto) **Latitude, Longitude:** 0.10207, -79.2829 **Notes:** 0.5-1.0 m from a male calling from leaf litter **Calling behavior:** males called standing and exposed above leaf litter, trunks, and herbaceous plants **Phylogeny number:** 120	**Time:** 16h00-18h00 **Temperature:** 32.0°C leaf litter **Voucher(s):** QCAZ 27226 **SVL (mm):** 28.35 **SVL (ref.):** measured by JCS **Collectors (Call):** DCC, JCS, Martín R. Bustamante **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

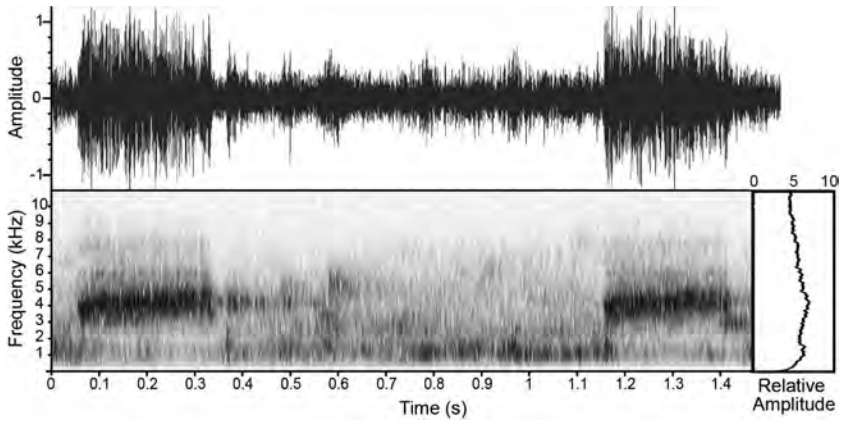
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	sp. Quibdo	**Colombia:** Chocó: Samburindó, near La Troje **Latitude, Longitude:** 5.728, -76.591 **Notes:** 0.5-1.0 m from a male calling from leaf litter **Calling behavior:** males called concealed above leaf litter **Phylogeny number:** 129	**Time:** 16h00 **Temperature:** 28.0°C leaf litter **Voucher(s):** TNHCFS 4943 **SVL (mm):** 12.29 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Dendrobates	*tinctorius*	**French Guiana:** NA (captive rised) **Latitude, Longitude:** 4.08, -52.68 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Calling behavior:** males do not vocalize frequently **Phylogeny number:** 117	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** $n = 21$, $\bar{X} = 30.10 \pm 2.40$ **SVL (ref.):** measurements from literature reference (Born *et al.* 2010) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	

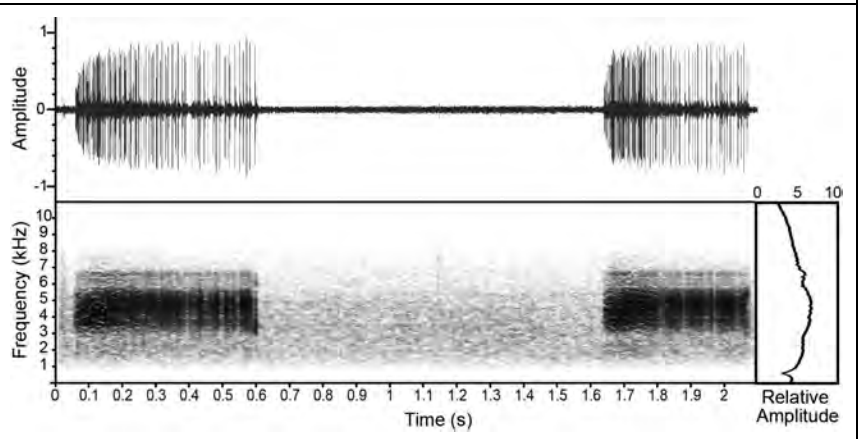
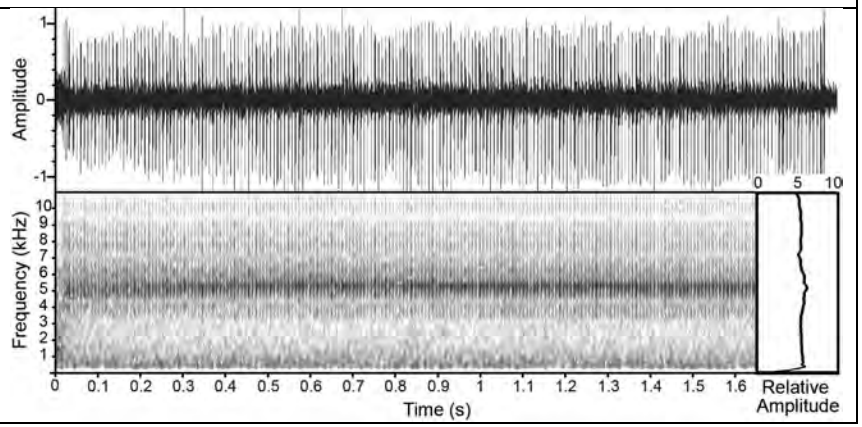
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*truncatus*	**Colombia:** Tolima **Latitude, Longitude:** 5.26, -74.89 **Notes:** Audio recording from Ostrowski and Mahn (Ostrowski & Mahn 2005) **Calling behavior:** males called standing and exposed above boulders along rivulets in the Magdalena Valley **Phylogeny number:** 115	**Time:** NA **Temperature:** 22.8°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** **SVL (mm):** $n = 18$, $\bar{X} = 25.60 \pm 1.38$ **SVL (ref.):** measured from reference (Silverstone 1975) **Collectors (Call):** Audio recording from Ostrowski and Mahn (Ostrowski & Mahn 2005) **Recorder:** Sony MD MZ-R70 **Microphone:** NA	
Dendrobates	*uakarii*	**Perú:** Loreto: Quebrada Blanco in Tamshiyacu-Tahuayo Reserve. Other by JCS tape of a terraria individual (no locality) **Latitude, Longitude:** -4.1894, -73.1043. See original paper (Brown *et al.* 2006) **Notes:** See original paper (Brown *et al.* 2006). JCS tape of a terraria individual **Calling behavior:** NA **Phylogeny number:** 138	**Time:** NA **Temperature:** 26.0°C leaf litter **Voucher(s):** See original paper (Brown *et al.* 2006). JCS taped individual without voucher. **SVL (mm):** $n = 3$, $\bar{X} = 15.03 \pm 0.38$ **SVL (ref.):** See original paper (Brown *et al.* 2006) **Collectors (Call):** See original paper (Brown *et al.* 2006). JCS taped individual. **Recorder:** See original paper (Brown *et al.* 2006). Marantz PDM-660 (JCS recording). **Microphone:** Sennheiser ME67 (JCS recording).	

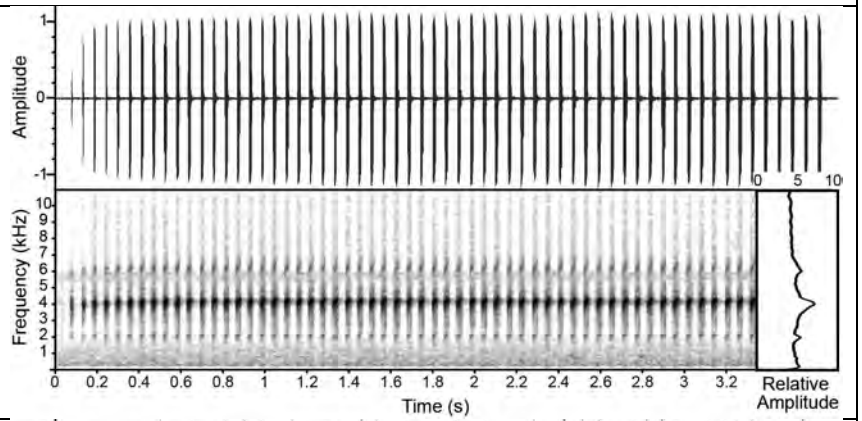
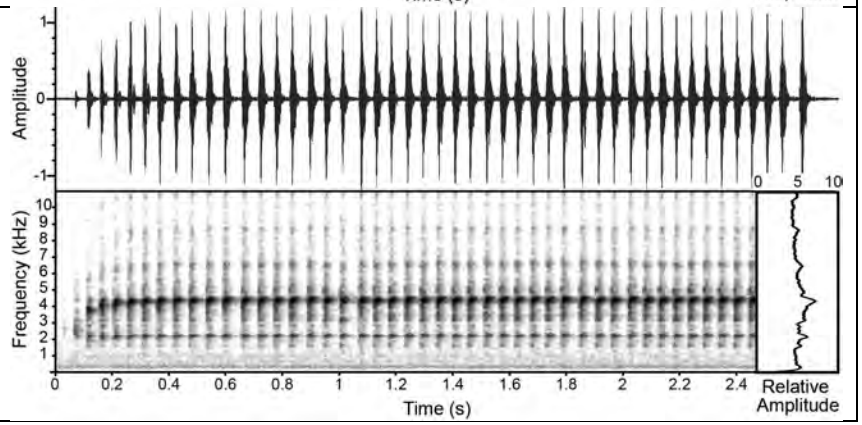
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*variabilis*	**Perú:** San Martín: road Tarapoto to Yurimaguas **Latitude, Longitude:** -6.41689, -76.29353 **Notes:** Estimates of the variables used are derived from the original papers (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988) **Calling behavior:** NA **Phylogeny number:** 135	**Time:** NA **Temperature:** 22.0°C **Voucher(s):** See original paper (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988) **SVL (mm):** $n = 5$, $\bar{X} = 18.29 \pm 0.77$ **SVL (ref.):** measured by JCS from QCAZSC from same locality **Collectors (Call):** See original paper (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988) **Recorder:** See original paper (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988) **Microphone:** See original paper (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988)	See original paper (Brown *et al.* 2011) and (Zimmermann & Zimmermann 1988)
Dendrobates	*ventrimaculatus*	**Ecuador:** Francisco de Orellana: Primary forest near ECY station, Parque Nacional Yasuní **Latitude, Longitude:** -0.633, -76.5 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called from concealed places above leaf litter **Phylogeny number:** 134	**Time:** 16h00-18h00 **Temperature:** 24.0°C **Voucher(s):** Specimen kept on terraria **SVL (mm):** $n = 25$, $\bar{X} = 14.92 \pm 0.90$ **SVL (ref.):** measured by JCS from QCAZ and USNM vouchers **Collectors (Call):** JCS **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

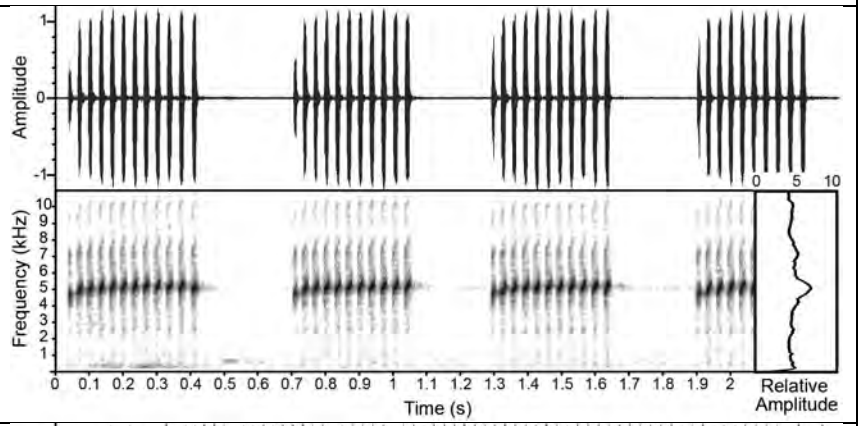
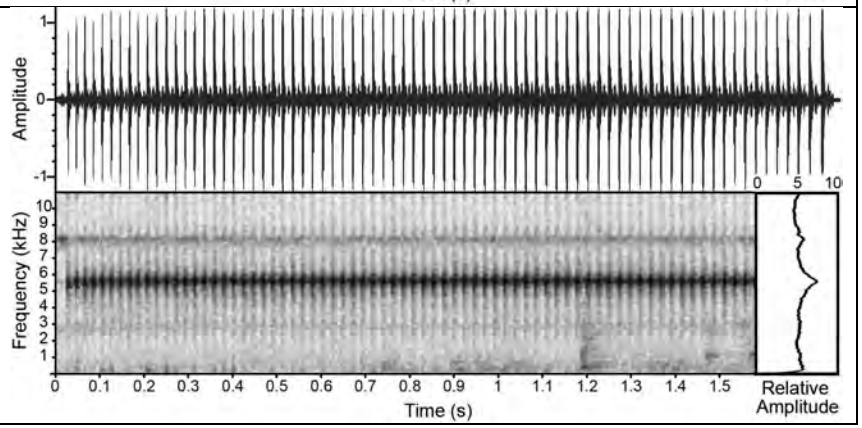
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Dendrobates	*ventrimaculatus*	**French Guiana:** NA (captive risen) **Latitude, Longitude:** 4.08, -52.68 **Notes:** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Calling behavior:** males called concealed above leaf litter **Phylogeny number:** 139	**Time:** NA **Temperature:** 24-28°C **Voucher(s):** NA **SVL (mm):** n = 33, $\bar{X}$ = 16.19 ± 0.56 **SVL (ref.):** measurements from literature reference (Poelman & Dicke 2008) **Collectors (Call):** Audio recording from Lescure and Marty (Lescure & Marty 2000) **Recorder:** NA **Microphone:** NA	
Dendrobates	*virolinensis*	**Colombia:** Santander: Costilla de Fara, near Virolín **Latitude, Longitude:** 6.113306, -73.196667 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed within leaf litter and moss **Phylogeny number:** 127	**Time:** 9h00-11h00 and 15h00-18h00 **Temperature:** 17.0-22.0 °C leaf litter **Voucher(s):** TNHCFS 4892-4897 **SVL (mm):** n = 3, $\bar{X}$ = 16.27 ± 0.97 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

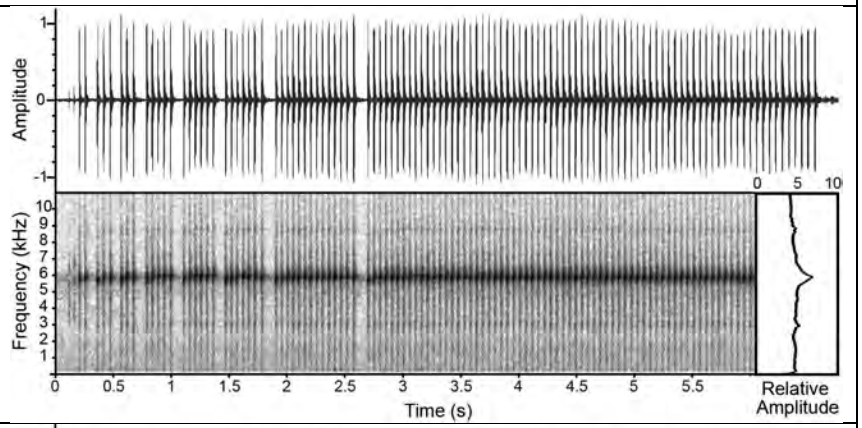
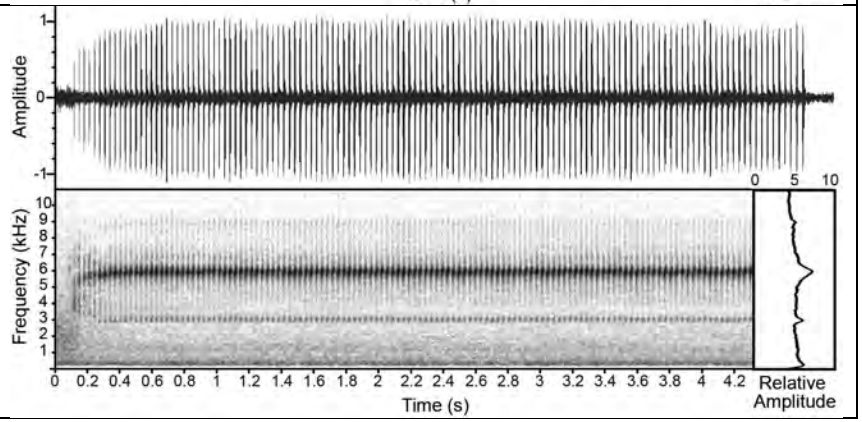
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Epipedobates	*anthonyi*	**Ecuador:** Azuay: Santa Marta, near Dueta valley of Río Jubones **Latitude, Longitude:** -3.27231, -79.52739 **Notes:** NA **Calling behavior:** males called exposed above leaf litter **Phylogeny number:** 71	**Time:** NA **Temperature:** 22.9°C leaf litter **Voucher(s):** QCAZ 32004 **SVL (mm):** 21.66 **SVL (ref.):** measured by MB **Collectors (Call):** MB **Recorder:** Olympus LS-10 Linear PCM **Microphone:** Sennheiser ME66	
Epipedobates	*anthonyi*	**Ecuador:** El Oro: El Progreso, la Cadena, Balneario Río Dos Bocas at 11.10 km E from Pasaje **Latitude, Longitude:** -3.27225, -79.74326 **Notes:** NA **Calling behavior:** males called exposed above leaf litter **Phylogeny number:** 70	**Time:** NA **Temperature:** 24.5°C leaf litter **Voucher(s):** QCAZ 35663, 35665, 35667-35668 **SVL (mm):** $n = 6$, $\bar{X} = 18.21 \pm 1.67$ **SVL (ref.):** measured by MB **Collectors (Call):** MB **Recorder:** Olympus LS-10 Linear PCM **Microphone:** Sennheiser ME66	

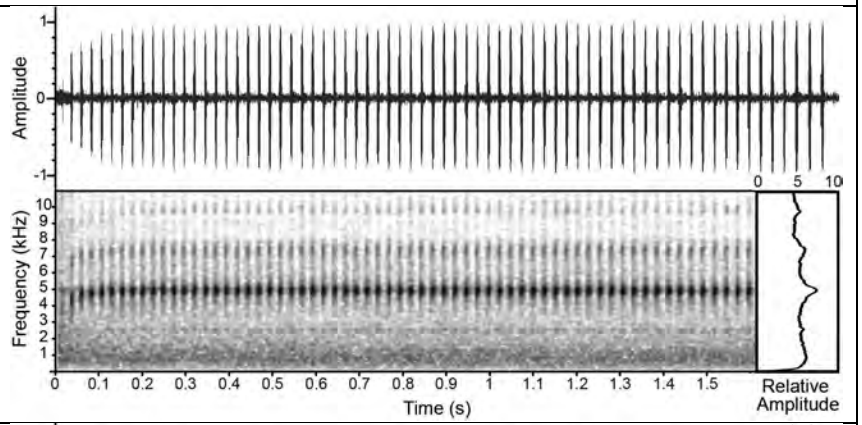
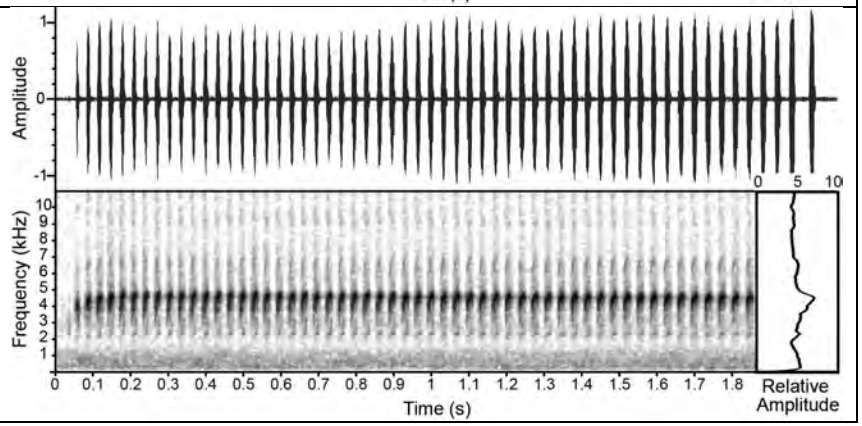
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Epipedobates	*boulengeri*	**Ecuador:** Esmeraldas: San Francisco at 5 Km on the road to Urbina **Latitude, Longitude:** 1.09438, -78.7075 **Notes:** 0.5-1.5 m from a male **Calling behavior:** males called exposed above leaf litter **Phylogeny number:** 67	**Time:** NA **Temperature:** 25.2°C leaf litter **Voucher(s):** QCAZ 32013 **SVL (mm):** 17.07 **SVL (ref.):** measured by MB **Collectors (Call):** MB **Recorder:** Olympus LS-10 Linear PCM **Microphone:** Sennheiser ME66	
Epipedobates	*espinosai*	**Ecuador:** Santo Domingo: Centro Científico Río Palenque (CCRP)- km 43 on the road to Santo Domingo **Latitude, Longitude:** -0.59134, -79.36161 **Notes:** 0.5 m a series of males **Calling behavior:** males called exposed above leaf litter next to a small stream **Phylogeny number:** 69	**Time:** 9h00-11h00 **Temperature:** 26.0°C leaf litter **Voucher(s):** QCAZ 30621-30622 **SVL (mm):** $n = 7$, $\bar{X} = 16.05 \pm 0.28$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

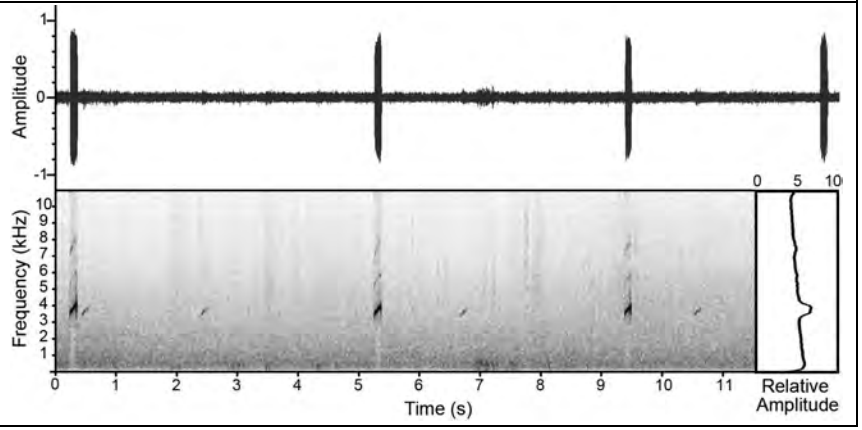
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Epipedobates	*machalilla*	**Ecuador:** Manabí: 4 km from road along Río Ayampe **Latitude, Longitude:** -1.666667, -80.783333 **Notes:** 0.5 m a series of males **Calling behavior:** males called exposed on top of rocks in a small stream **Phylogeny number:** 73	**Time:** 13h00 **Temperature:** 25.7°C leaf litter **Voucher(s):** QCAZ 10723-10728 **SVL (mm):** n = 13, $\bar{X}$ = 15.22 ± 0.78 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** Néstor Acosta-Buenaño **Recorder:** Marantz PDM-22 **Microphone:** Sennheiser ME66	
Epipedobates	*machalilla*	**Ecuador:** Bolívar: Caluma (San Antonio) **Latitude, Longitude:** -1.62, -79.27 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called exposed above leaf litter **Phylogeny number:** 72	**Time:** 16h00-17h00 **Temperature:** 28.4°C leaf litter **Voucher(s):** QCAZ 27235 **SVL (mm):** 15.65 **SVL (ref.):** measured by JCS **Collectors (Call):** DCC, LAC, JCS, Martín R. Bustamante **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

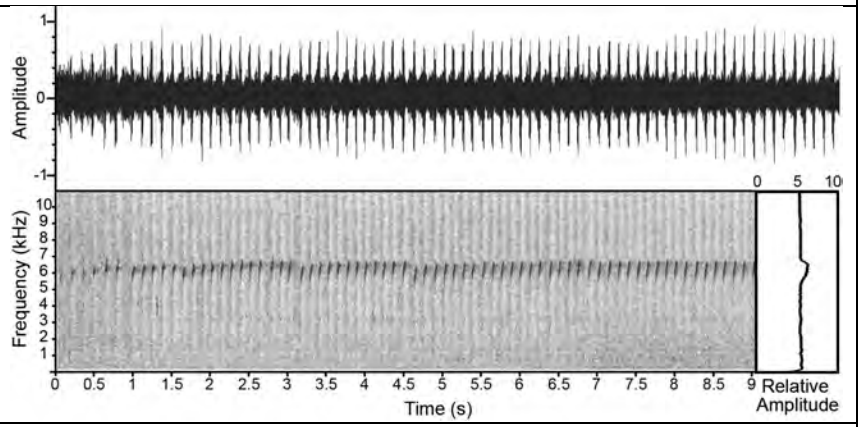
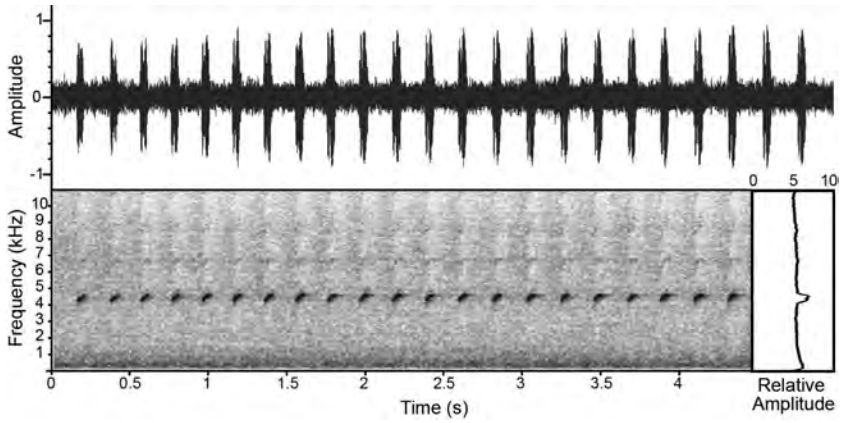
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Epipedobates	sp. F (*darwinwallacei*)	**Ecuador:** Pichincha: Forest remanents close to Río Mindo **Latitude, Longitude:** -0.0333, -78.8 **Notes:** 0.5 m from a series of calling males **Calling behavior:** males called exposed above grass on open pasture **Phylogeny number:** 68	**Time:** 9h00-11h00 **Temperature:** 20.0°C leaf litter **Voucher(s):** QCAZ 26193-26205 **SVL (mm):** n = 10, $\bar{X}$ = 17.95 ± 0.60 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** JCS **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Epipedobates	*tricolor*	**Ecuador:** Cotopaxi: 7.7 km E Moraspungo **Latitude, Longitude:** -1.15861, -79.15472 **Notes:** 0.5-1.5 m from a male **Calling behavior:** males called exposed above rocks on banks of small river **Phylogeny number:** 74	**Time:** NA **Temperature:** 22.0°C leaf litter **Voucher(s):** QCAZ 32017 **SVL (mm):** 22.4 **SVL (ref.):** measured by MB **Collectors (Call):** MB **Recorder:** Olympus LS-10 Linear PCM **Microphone:** Sennheiser ME66	

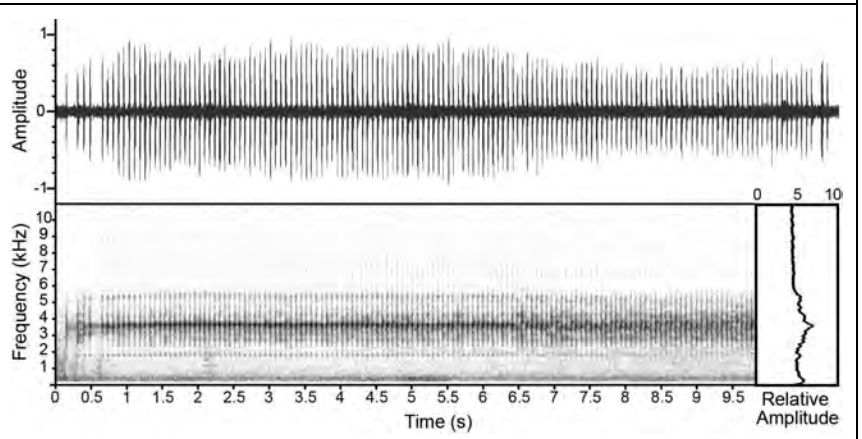
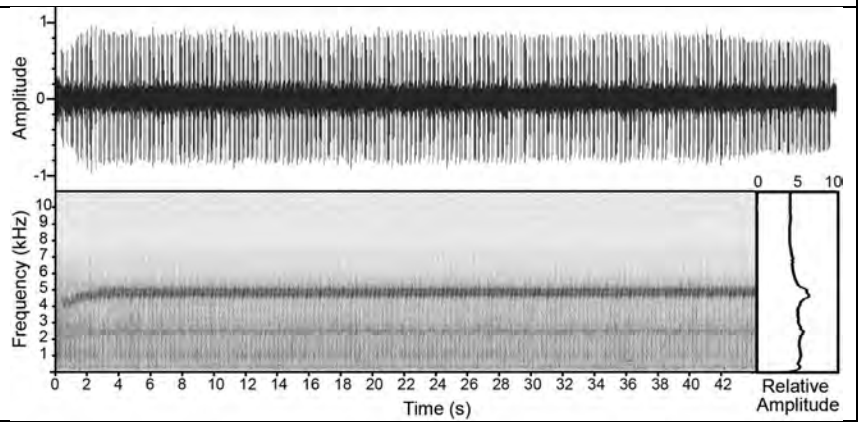
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*anthracinus*	**Ecuador:** Azuay: Mazan, Río Mazán Valley **Latitude, Longitude:** -2.865263, -79.111679 **Notes:** NA **Calling behavior:** males called at edge of small stream covered in dense herbaceous vegetation **Phylogeny number:** Not Included	**Time:** NA **Temperature:** ~9.5°C similar stream (Morley Read) **Voucher(s):** NA **SVL (mm):** n = 19, $\bar{X}$ = 16.21 ± 1.42 **SVL (ref.):** measured from reference (Edwards 1974) **Collectors (Call):** Morley Read **Recorder:** NA **Microphone:** NA **URL:** http://sounds.bl.uk/Environment/Amphibians/022M-WAMPHX0059XX-0100V0	

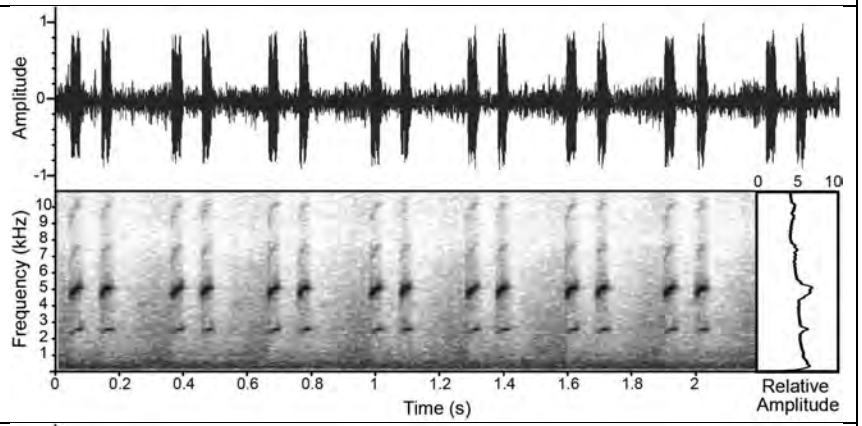
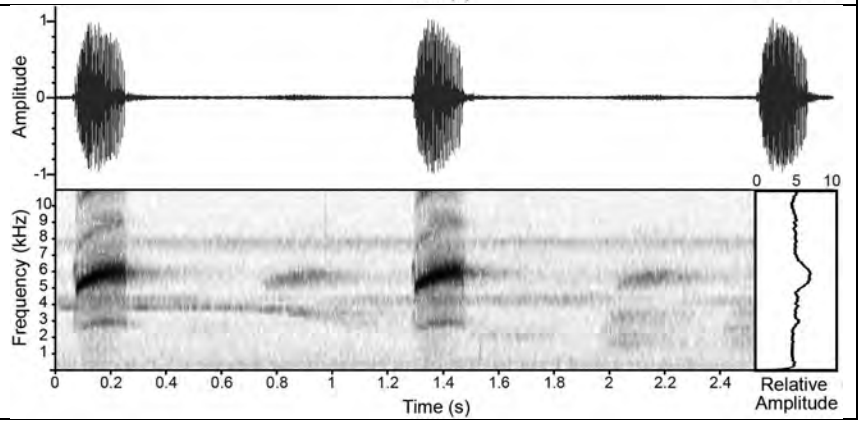
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	sp. Agua Azul	**Colombia:** Casanare: On stream at 4 km NW of Agua Azul, close to Río Unete **Latitude, Longitude:** 5.19, -72.58031 **Notes:** 1.0-2.0 m from males **Calling behavior:** males called concealed from within a storm drain **Phylogeny number:** 142	**Time:** 12h00-14h00 **Temperature:** 24.7°C water **Voucher(s):** TNHCFS 4940 **SVL (mm):** 14.5 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*awa*	**Ecuador:** Imbabura: Stream near Río Intag, 12 km from road from García Moreno to Apuela **Latitude, Longitude:** 0.296511, -78.578129 **Notes:** 3.0 m from a male **Calling behavior:** males called from above leaf litter and concealed in small rocks in a stream **Phylogeny number:** 171	**Time:** 16h20 **Temperature:** 24.0°C water **Voucher(s):** QCAZ 1325 **SVL (mm):** n = 11, $\overline{X}$ = 19.99 ± 0.82 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** LAC, Patricio Ponce, and Luis E. Lopez **Recorder:** Marantz **Microphone:** Sennheiser K3U	

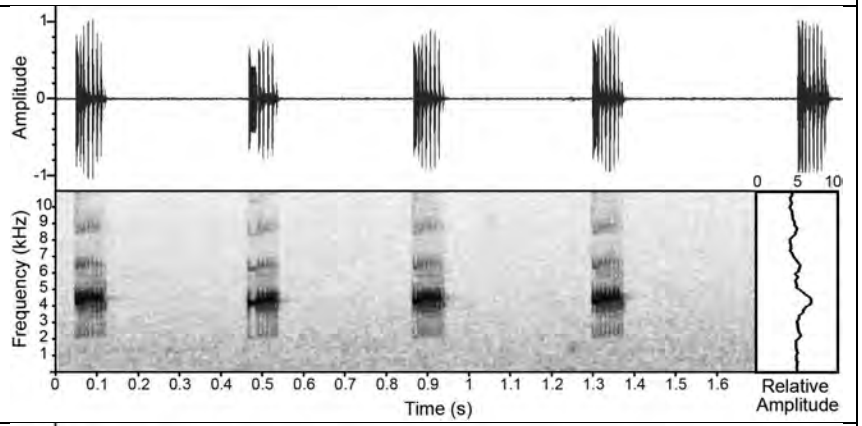
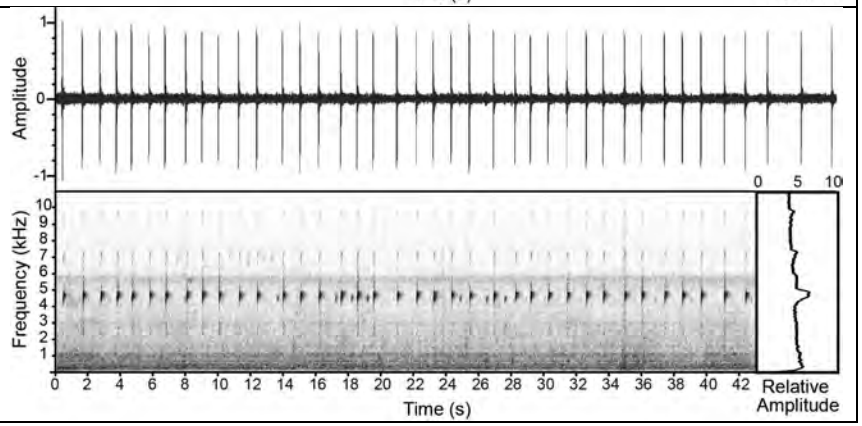
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*azureiventris*	**Perú:** San Martín: at km 26 on the road from Tarapoto to Yurimaguas **Latitude, Longitude:** -6.45043, -76.31758 **Notes:** Two sources were compared (1) a published account from reference (Lötters & Kneller 2000), and (2) captive risen adult male **Calling behavior:** NA **Phylogeny number:** 165	**Time:** NA and 14h30 **Temperature:** 24.0°C air. 23.5 °C air **Voucher(s):** See original paper (Lötters & Kneller 2000) **SVL (mm):** 24.65 **SVL (ref.):** measured by JCS from QCAZSC syntopic specimen **Collectors (Call):** See original paper (Lötters & Kneller 2000). JCS and Natalia Biani. **Recorder:** ASAHI (CS-650). Sony WM-D6C **Microphone:** NA. Sennheiser ME67	
Hyloxalus	*bocagei*	**Ecuador:** Sucumbíos: El Reventador, La Virgen **Latitude, Longitude:** -0.07, -77.586 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 151	**Time:** 12h00-14h00 **Temperature:** 17.3°C water **Voucher(s):** QCAZ 37259 **SVL (mm):** 23.65 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani, I. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

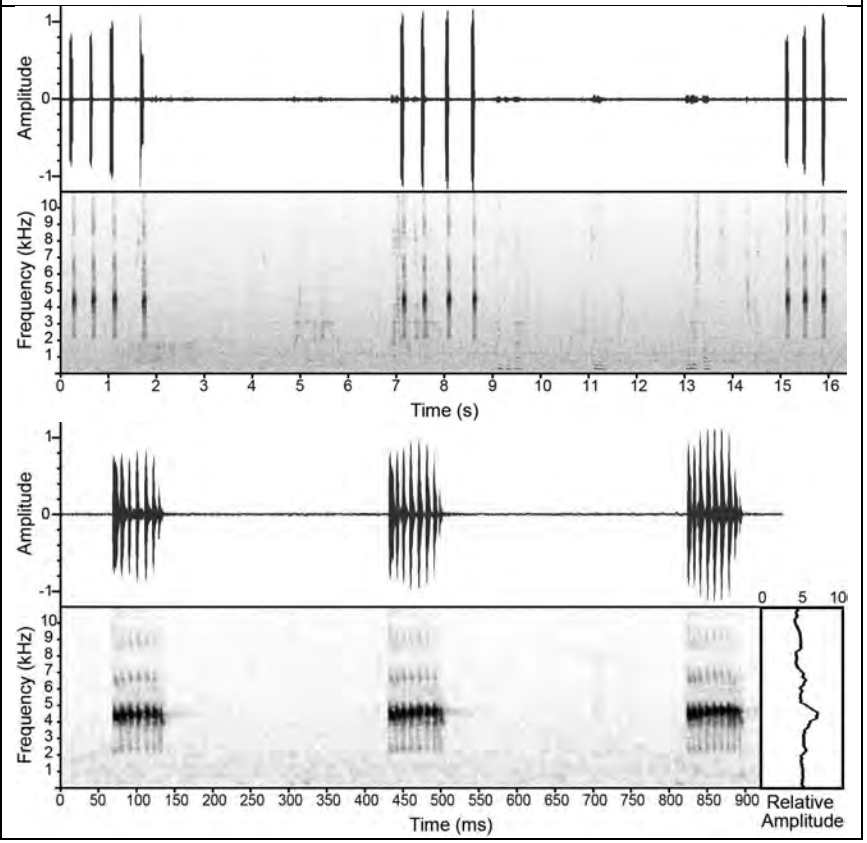
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*bocagei*	**Ecuador:** Sucumbíos: Entrance to San Rafael waterfall **Latitude, Longitude:** -0.104, -77.58712 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 150	**Time:** 16h00-17h00 **Temperature:** 22.0°C water **Voucher(s):** QCAZ 37620-37626 **SVL (mm):** n = 23, $\bar{X}$ = 22.80 ± 1.30 **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** JCS, Natalia Biani, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*craspedoceps*	**Perú:** San Martín: On a stream next to the road to San José de Sisa (El Dorado), about 30 Km SE of Zapatero **Latitude, Longitude:** -6.380222, -76.37298 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called above leaf litter **Phylogeny number:** 166	**Time:** 12h00-17h00 **Temperature:** 24.7°C leaf litter **Voucher(s):** QCAZSC 16303-16312 **SVL (mm):** n = 7, $\bar{X}$ = 19.30 ± 1.21 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

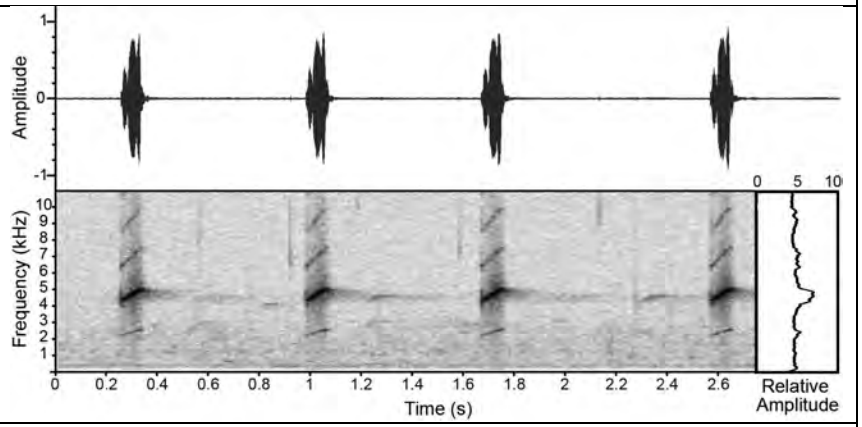
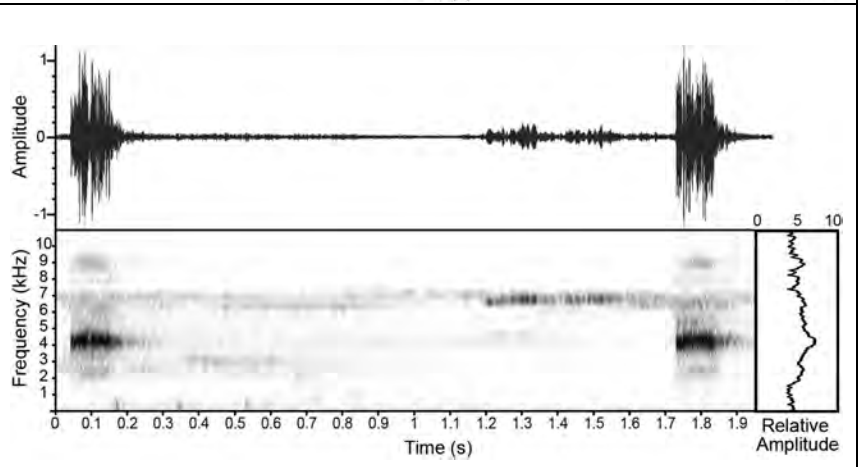
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*delatorreae*	**Ecuador:** Carchi: A swamp close to El Morán **Latitude, Longitude:** 0.77109, -78.05596 **Notes:** 0.5 m from a male **Calling behavior:** males called concealed on tall grass, tree roots, and moss **Phylogeny number:** 162	**Time:** 12h00-14h00 **Temperature:** 16.1°C moss **Voucher(s):** JCS voucher **SVL (mm):** 18.53 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, MB **Recorder:** Marantz PDM-660 **Microphone:** Sennheiser ME67	
Hyloxalus	*elachyhistus*	**Ecuador:** Cotopaxi: Stream along the road from Corazon to Moraspungo **Latitude, Longitude:** -1.1511, -79.15121 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 169	**Time:** 15h00-17h00 **Temperature:** 19.5°C water **Voucher(s):** not collected **SVL (mm):** 21.02 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Marantz PDM-660 **Microphone:** Sennheiser ME67	

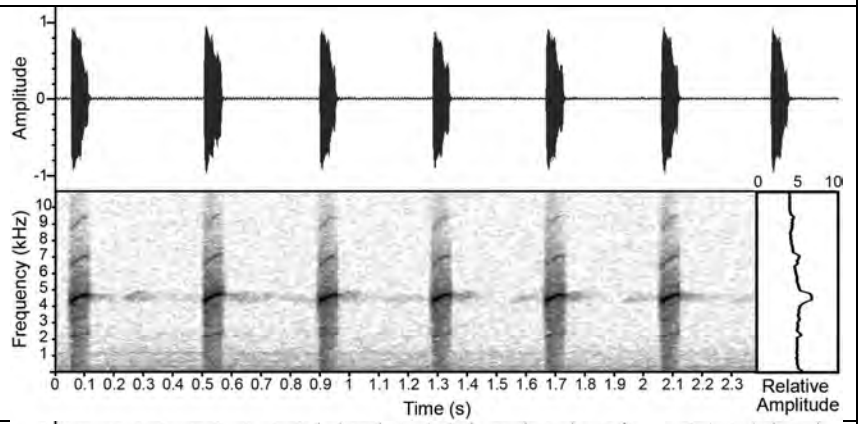
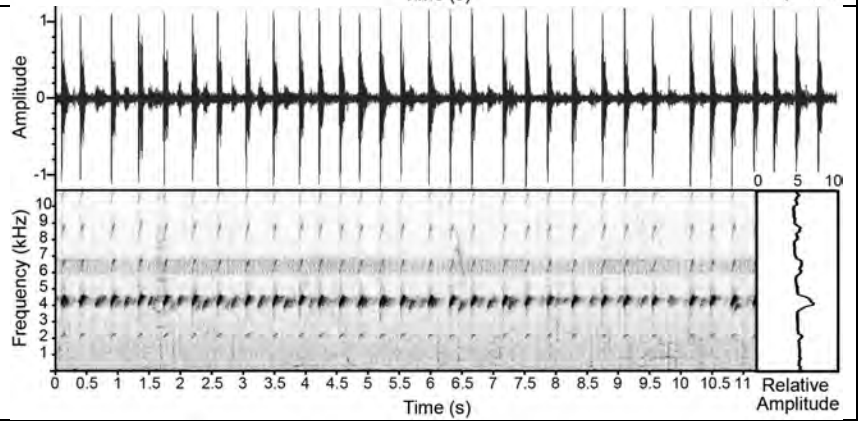
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	aff. *delatorreae*	**Ecuador:** Carchi: El Morán **Latitude, Longitude:** 0.77109, -78.05596 **Notes:** NA **Calling behavior:** males called concealed on moss from swampy area **Phylogeny number:** 163	**Time:** 12h00-14h00 **Temperature:** 16.10°C moss **Voucher(s):** not collected **SVL (mm):** 18.53 **SVL (ref.):** considered to be closely related or the same as *H. delatorreae* **Collectors (Call):** JCS, MB **Recorder:** Marantz PDM-660 **Microphone:** Sennheiser ME67	

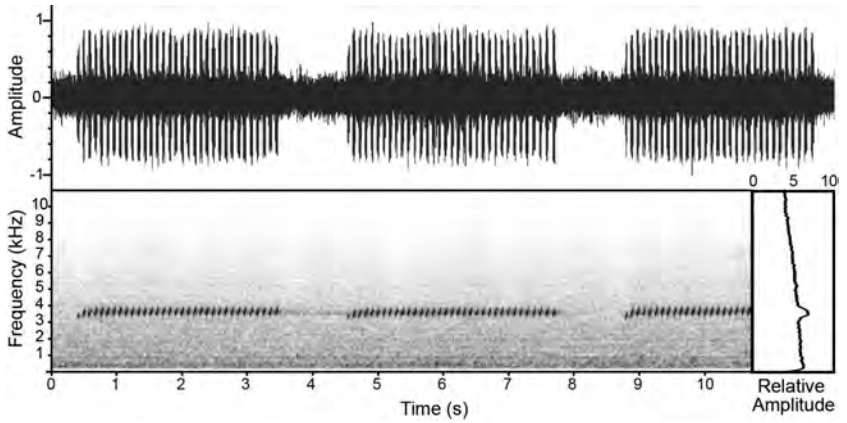
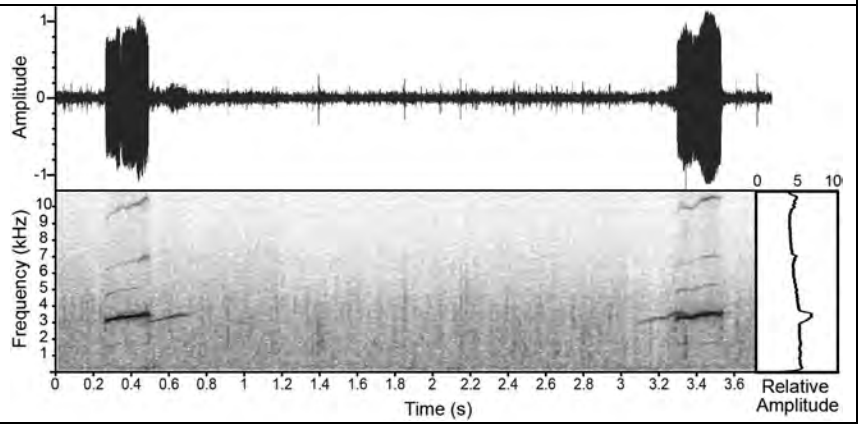
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*elachyhistus*	**Perú:** Piura: Stream along the road to San Miguel del Faique, near to Canchaque **Latitude, Longitude:** -5.39958, -79.60862 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 168	**Time:** 12h00-17h00 **Temperature:** 22.6°C water **Voucher(s):** QCAZSC 16392-16395 **SVL (mm):** n = 43, $\bar{X}$ = 17.7 **SVL (ref.):** literature reference (Duellman 2004) **Collectors (Call):** DCC, JCS, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*erythromos*	**Ecuador:** Los Ríos: Centro Científico Río Palenque (CCRP), at km 43 along the road from Santo Domingo to Quevedo (Estero Sherd, Sendero 3) **Latitude, Longitude:** -0.5833, -79.35 **Notes:** NA **Calling behavior:** males called above concealed leaf litter and from inside holes (Myers & Burrowes 1987) **Phylogeny number:** 140	**Time:** NA **Temperature:** 26.0°C leaf litter **Voucher(s):** QCAZ 38094 **SVL (mm):** n = 3, $\bar{X}$ = 21.0 **SVL (ref.):** literature reference (Myers & Burrowes 1987) **Collectors (Call):** Juan M. Guayasamin, Elisa Bonaccorso **Recorder:** NA **Microphone:** NA	

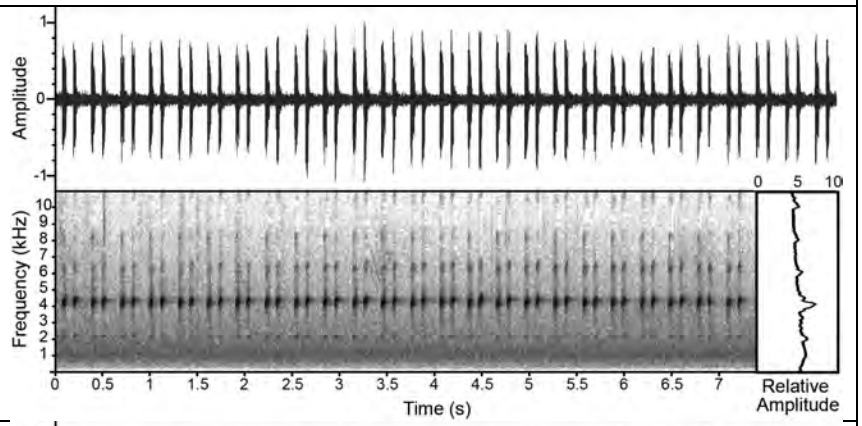
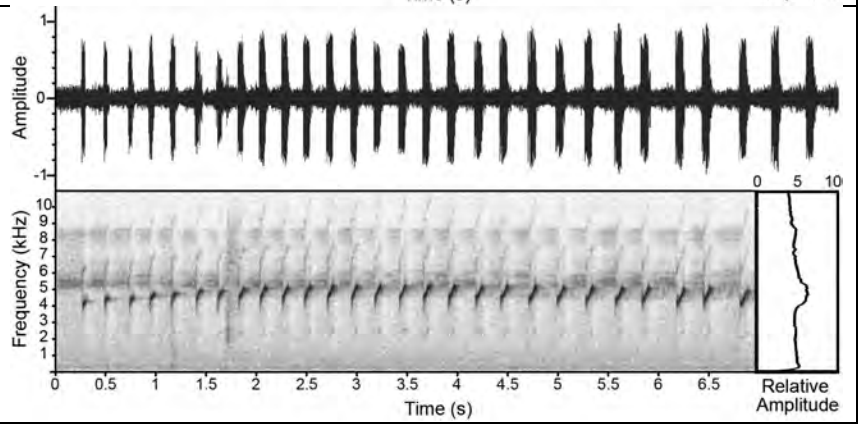
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*infraguttatus*	**Ecuador:** Manabí: Stream along a road at 12 km N Puerto Cayo to Jipijapa **Latitude, Longitude:** -1.339946, -80.664725 **Notes:** 0.1 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 170	**Time:** 12h15-12h55 **Temperature:** 22.0°C water **Voucher(s):** QCAZ 11076-11087 **SVL (mm):** n = 13, $\bar{X}$ = 19.87 ± 0.75 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** Néstor Acosta-Buenaño **Recorder:** NA **Microphone:** NA	
Hyloxalus	*insulatus*	**Perú:** Amazonas: La Peca **Latitude, Longitude:** -5.60928, -78.43634 **Notes:** 0.5 m from several males **Calling behavior:** males called concealed from storm sewers and gravel **Phylogeny number:** 167	**Time:** 16h00-18h00 **Temperature:** 23.2°C gravel **Voucher(s):** QCAZSC 16360-16369 **SVL (mm):** n = 4, $\bar{X}$ = 22.62 ± 0.93 **SVL (ref.):** measured by JCS **Collectors (Call):** DCC, JCS, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

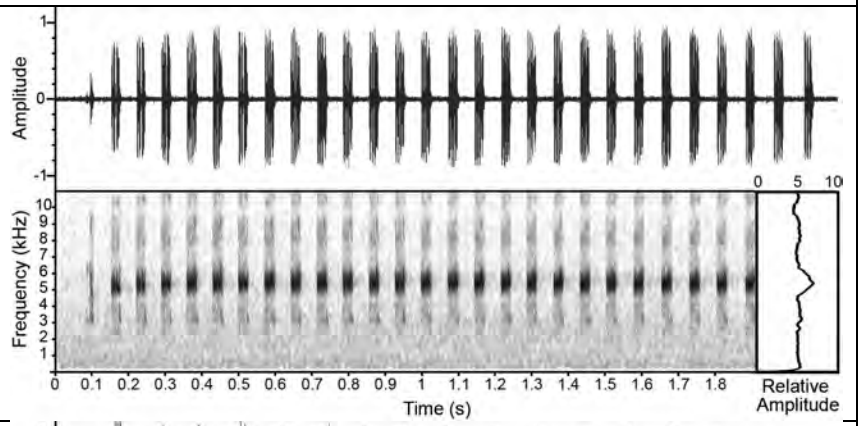
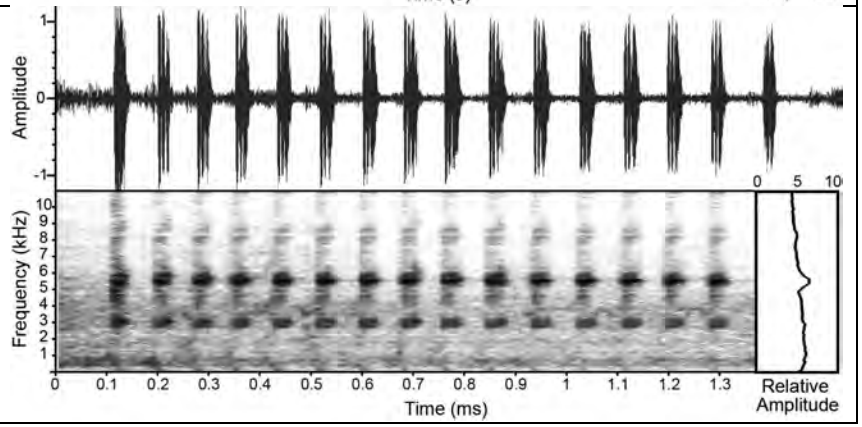
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*italoi*	**Ecuador:** Pastaza: Reserva Hola Vida, El Porvenir, 12 km from Km 16 of Puyo-Macas road **Latitude, Longitude:** -1.636, -77.842 **Notes:** 2.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream on the way to the Hola Vida waterfall **Phylogeny number:** 144	**Time:** 8h00 **Temperature:** 20.0°C water **Voucher(s):** not collected **SVL (mm):** $n = 94$, $\bar{X} = 23.10 \pm 1.40$ **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** Néstor Acosta-Buenaño **Recorder:** NA **Microphone:** NA	
Hyloxalus	*jacobuspetersi*	**Ecuador:** Pichincha: 5 km E Aloag **Latitude, Longitude:** -0.42279, -78.40466 **Notes:** Several males calling from pasture. Another male is calling antiphonally in the background **Calling behavior:** males called concealed from within patches of grass **Phylogeny number:** 152	**Time:** 10h00 **Temperature:** 11.0°C air **Voucher(s):** not collected **SVL (mm):** $n = 3$, $\bar{X} = 23.72 \pm 0.58$ **SVL (ref.):** measured by JCS from other specimens from Molinuco (Pichincha) **Collectors (Call):** William E. Duellman **Recorder:** Uher 4000-S **Microphone:** NA	

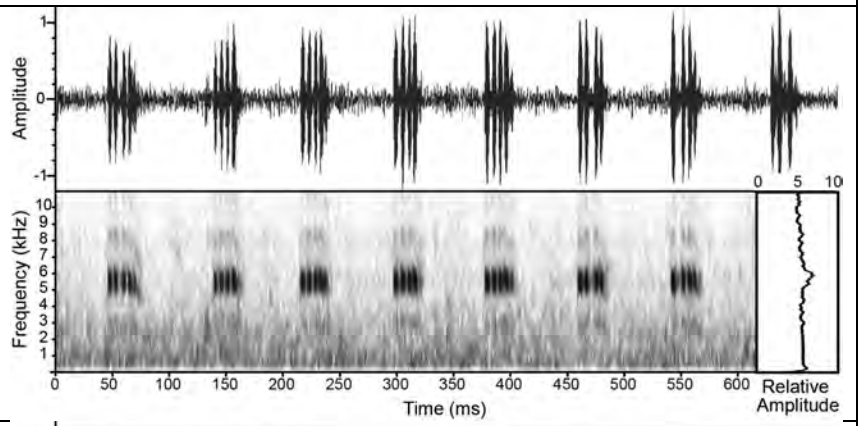
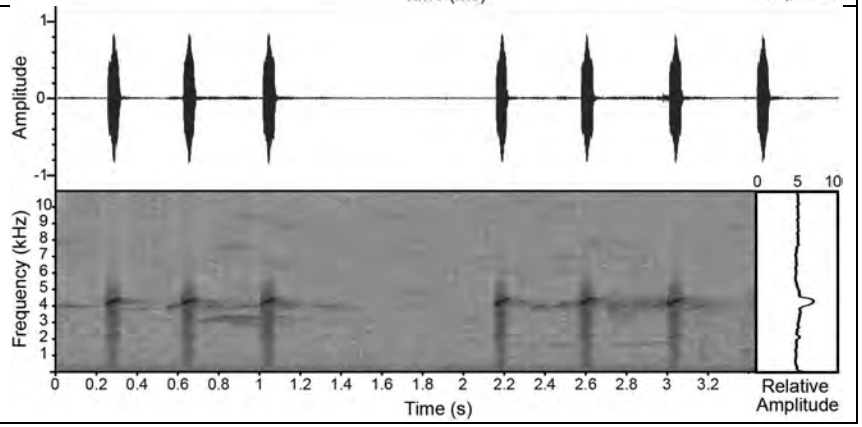
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*maculosus*	**Ecuador:** Pastaza: Santa Rosa, 1 km from Shell on Shell-Puyo road **Latitude, Longitude:** -1.4667, -78.1333 **Notes:** NA **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 149	**Time:** 8h30 **Temperature:** 20.0°C water **Voucher(s):** QCAZ 42076 **SVL (mm):** $n = 12$, $\bar{X} = 22.6 \pm 1.60$ **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** Elicio Tapia **Recorder:** Olympus LS-10 Linear PCM Field Recorder **Microphone:** Sennheiser ME66	
Hyloxalus	sp. Negro	**Ecuador:** Morona Santiago: Secondary forest near Méndez **Latitude, Longitude:** -2.731548, -78.309592 **Notes:** 2.0-3.0 m from male **Calling behavior:** males called above leaf litter **Phylogeny number:** 164	**Time:** 10h20 **Temperature:** 25.0°C air **Voucher(s):** KU 220660 **SVL (mm):** 16.2 **SVL (ref.):** measured by LAC **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	

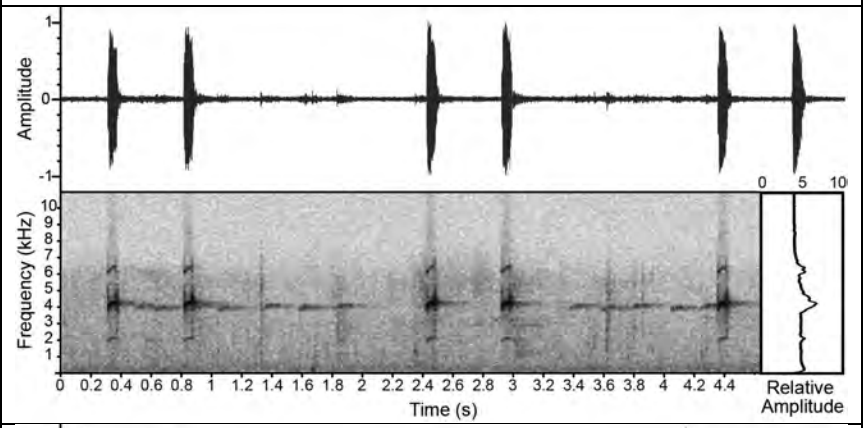
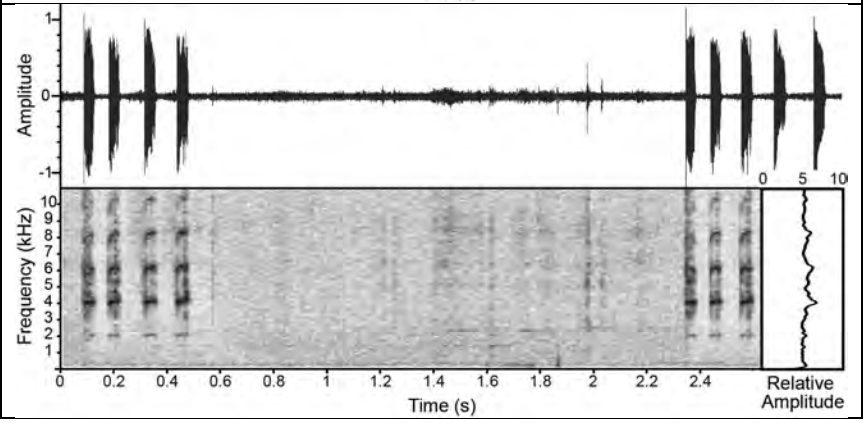
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*nexipus*	**Ecuador:** Morona Santiago: 1-2 km from Méndez **Latitude, Longitude:** -2.7454, -78.3034 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices or under boulders along a small streams **Phylogeny number:** 154	**Time:** 11h00 **Temperature:** 22.3°C water **Voucher(s):** QCAZ 27240, 27373-27375 **SVL (mm):** $n = 4$, $\bar{X} = 21.39 \pm 1.70$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** DCC, LAC, JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	aff. *nexipus*	**Perú:** San Martín: Along the Tarapoto to Yurimaguas road **Latitude, Longitude:** -6.41318, -76.30078 **Notes:** 0.5 m from a male **Calling behavior:** males called concealed from within crevices along a roadside stream **Phylogeny number:** 156	**Time:** 18h00 **Temperature:** 24.5°C water **Voucher(s):** QCAZSC 16165 **SVL (mm):** 19.30 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

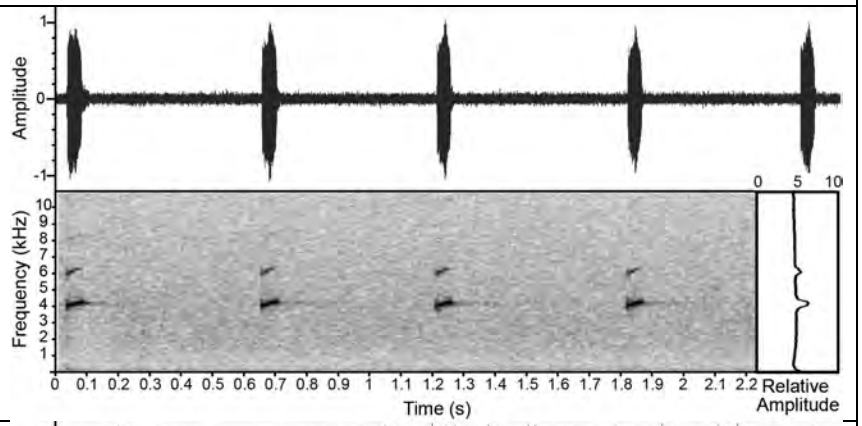
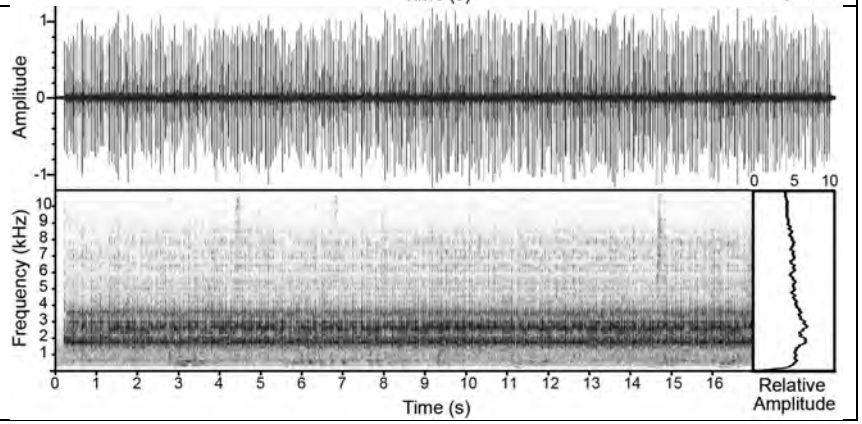
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	aff. *nexipus*	**Perú:** San Martín: Trail next to road from Tarapoto to Yurimaguas **Latitude, Longitude:** -6.61673, -76.17194 **Notes:** 0.5 m a series of males **Calling behavior:** males called concealed from within crevices in rocks from a small stream **Phylogeny number:** 155	**Time:** 15h00-17h00 **Temperature:** 25.4°C water **Voucher(s):** QCAZSC 16206-16209 **SVL (mm):** $n = 4$, $\bar{X} = 21.01 \pm 0.63$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Elicio Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*pulchellus*	**Ecuador:** Napo: Cosanga, Estación Científica Yanayacu **Latitude, Longitude:** -0.6, -77.886 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 160	**Time:** NA **Temperature:** 16.0°C **Voucher(s):** QCAZ 20923 **SVL (mm):** 20.4 **SVL (ref.):** measured from reference (Guayasamin & Funk 2009) **Collectors (Call):** Chris W. Funk, Martín R. Bustamante **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME66	

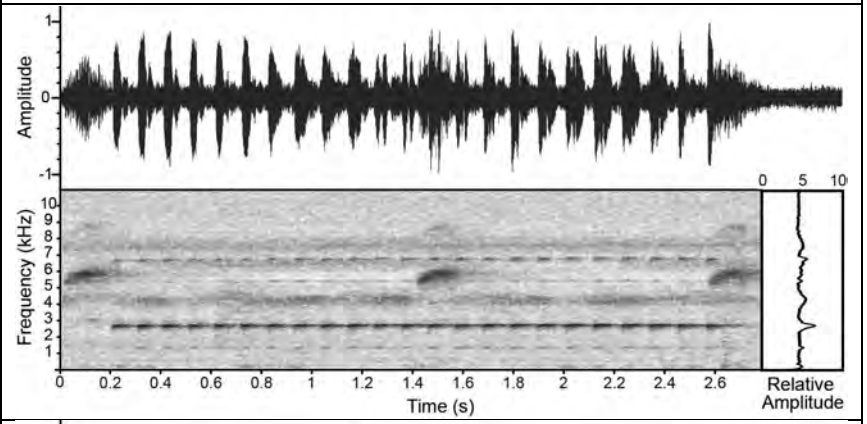
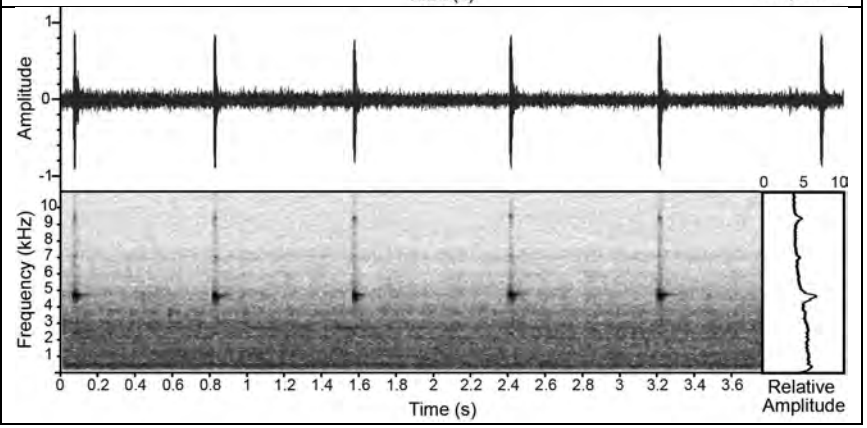
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	cf. *pulchellus*	**Ecuador:** Sucumbíos: Azuela in a forest next to Río Azuela **Latitude, Longitude:** -0.1667, -77.65 **Notes:** 0.5 m a series of males calling from leaf litter. Another male is calling antiphonally in the background **Calling behavior:** males called concealed under logs and leaf litter **Phylogeny number:** 159	**Time:** NA **Temperature:** 18.4°C leaf litter **Voucher(s):** QCAZ 15964 **SVL (mm):** n = 51, $\bar{X}$ = 18.76 ± 0.92 **SVL (ref.):** measured from reference as *Colostethus taeniatus* (Edwards 1974) **Collectors (Call):** Martín R. Bustamante, JCS **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	cf. *pulchellus*	**Ecuador:** Carchi: Monte Olivo **Latitude, Longitude:** 0.4, -77.8833 **Notes:** NA **Calling behavior:** males called concealed from a swampy area **Phylogeny number:** 161	**Time:** 11h46 **Temperature:** 24.0°C air **Voucher(s):** QCAZ 1320-1322 **SVL (mm):** n = 51, $\bar{X}$ = 18.76 ± 0.92 **SVL (ref.):** measured from reference as *Colostethus taeniatus* (Edwards 1974) **Collectors (Call):** Diego Lombeida, LAC, Felipe Campos **Recorder:** NA **Microphone:** NA	

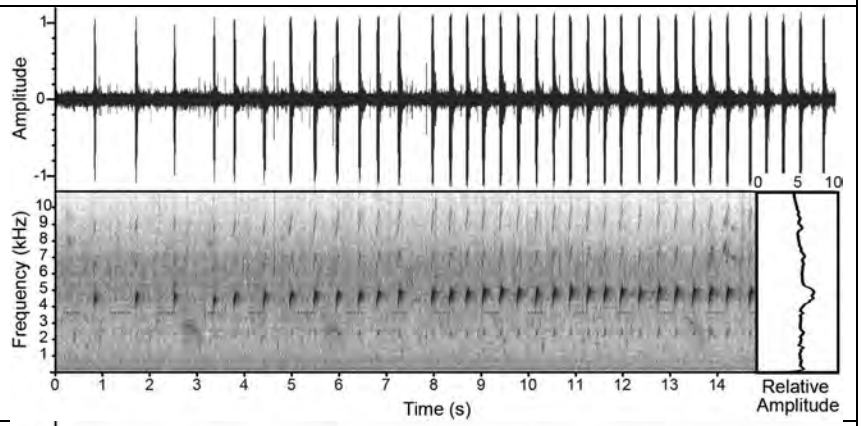
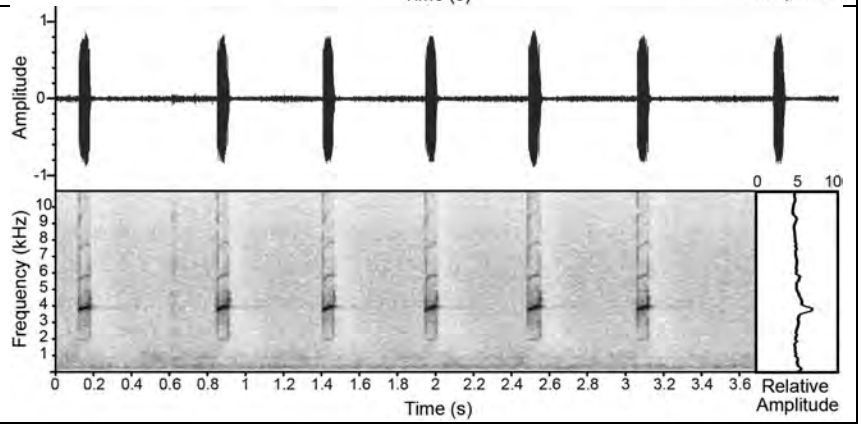
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	cf. *pulcherrimus*	**Perú:** Cajamarca: Near Río Zana by Monte Seco **Latitude, Longitude:** -6.88427, -79.06131 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 153	**Time:** 16h00 **Temperature:** 18.0°C air **Voucher(s):** not collected **SVL (mm):** 28.20 **SVL (ref.):** literature reference (Duellman 2004) **Collectors (Call):** John Cadle. Tape from USNM **Recorder:** NA **Microphone:** NA	
Hyloxalus	*sauli*	**Ecuador:** Francisco de Orellana: 1017 m from Bloque Shiripuno **Latitude, Longitude:** -1.1045, -76.7319 **Notes:** NA **Calling behavior:** males called concealed from with several crevices used as hiding places **Phylogeny number:** 148	**Time:** 14h25 **Temperature:** 26.0°C water **Voucher(s):** not collected **SVL (mm):** $n = 30$, $\overline{X} = 22.70 \pm 1.0$ **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** Néstor Acosta-Buenaño **Recorder:** NA **Microphone:** NA	

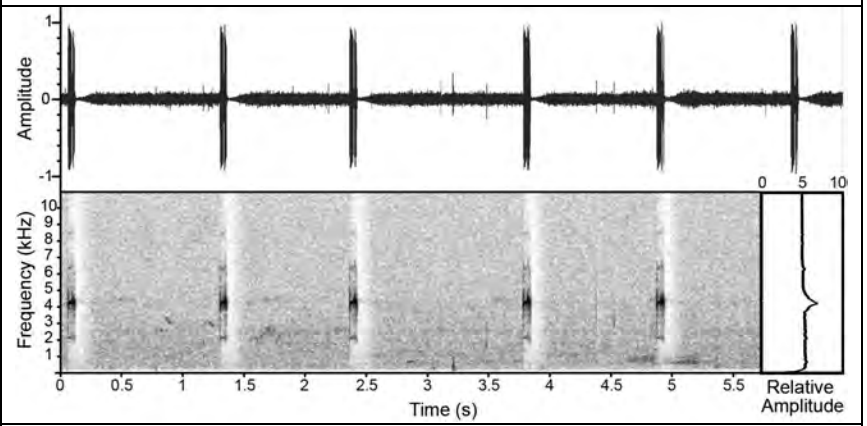
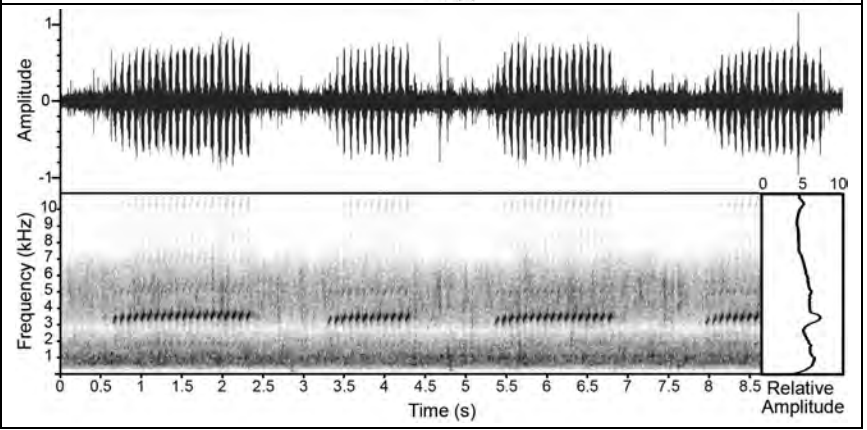
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*sorditatus*	**Perú:** San Martín: On a stream next to the road to San José de Sisa (El Dorado), about 30 Km SE of Zapatero **Latitude, Longitude:** -6.380222, -76.37298 **Notes:** 2.0-4.0 m of a male **Calling behavior:** males called concealed from under large boulders **Phylogeny number:** 141	**Time:** 16h00-18h00 **Temperature:** 24.7°C water **Voucher(s):** QCAZSC 16298, 16298, 16302, 16326 **SVL (mm):** $n = 4$, $\bar{X} = 31.20 \pm 0.73$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Elicio Tapia, César Aguilar **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*subpunctatus*	**Colombia:** Cundinamarca: 2km S of Chipaque **Latitude, Longitude:** 4.431933, -74.050562 **Notes:** 1.0 m from a male **Calling behavior:** males called concealed from dense graces, background noises includes traffic and *Rheobates palmatus* **Phylogeny number:** 143	**Time:** 13h30 **Temperature:** 19.0°C air **Voucher(s):** KU 133162 **SVL (mm):** $n = 34$, $\bar{X} = 18.65 \pm 1.36$ **SVL (ref.):** measured from reference as *Colostethus subpunctatus* (Edwards 1974) **Collectors (Call):** Stephen R. Edwards (KU recording 1024) **Recorder:** Uher 4000-S **Microphone:** NA	

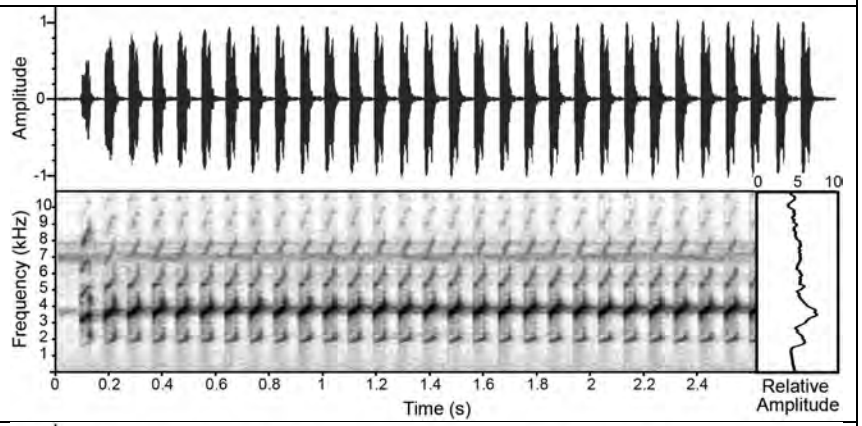
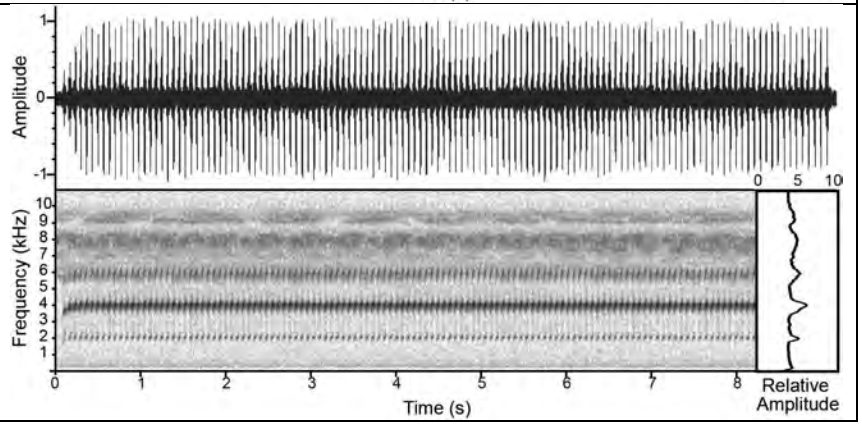
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*toachi*	**Ecuador:** Pichincha: 5 km La Florida, finca Gloria **Latitude, Longitude:** -0.313529, -78.9546 **Notes:** 2.0-3.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 172	**Time:** NA **Temperature:** 19.8°C air **Voucher(s):** not collected **SVL (mm):** $n = 5$, $\bar{X} = 17.99 \pm 0.97$ **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	
Hyloxalus	*vertebralis*	**Ecuador:** Azuay: Near Sigsig, Río Ayllón headwaters (Santa Bárbara) **Latitude, Longitude:** -3.092351, -78.80381 **Notes:** 0.5 m from a male **Calling behavior:** males called concealed from within patches of grass **Phylogeny number:** 157	**Time:** 16h30 **Temperature:** 14.0°C water **Voucher(s):** QCAZ 1456 **SVL (mm):** 18.24 **SVL (ref.):** measured by JCS **Collectors (Call):** Oscar Delgado, Luis E. López, LAC **Recorder:** Marantz **Microphone:** Sennheiser K3U	

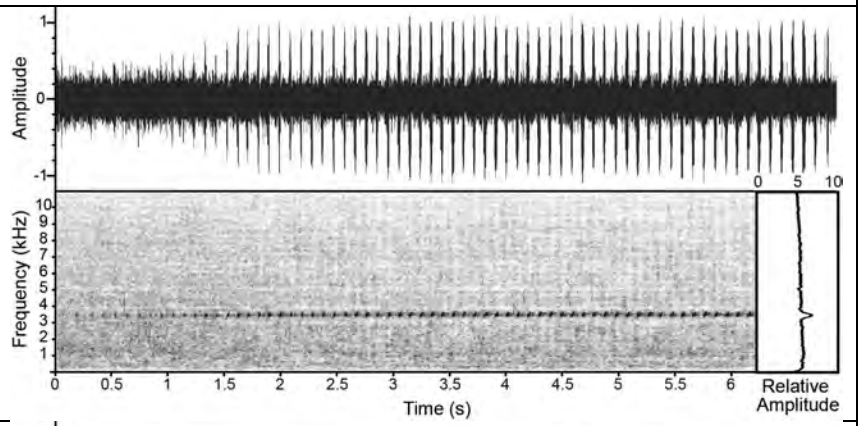
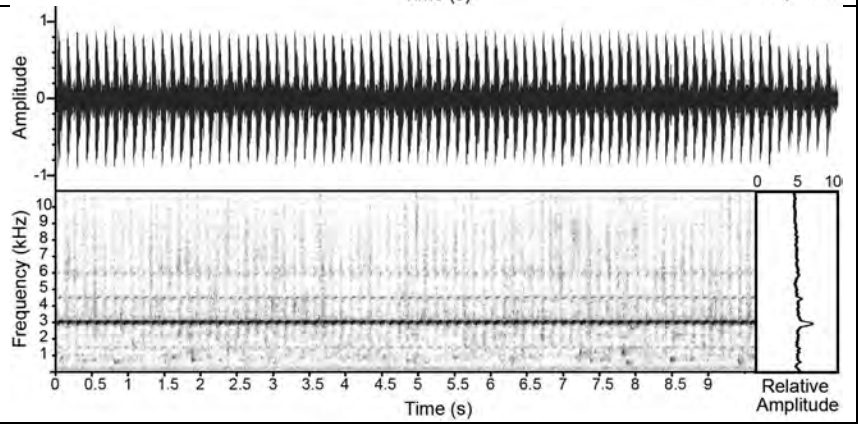
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*vertebralis*	**Ecuador:** Azuay: Pasture near El Jordán along the road from Azogues to Guarumales **Latitude, Longitude:** -2.633333, -78.6 **Notes:** 0.5 m from several males **Calling behavior:** males called concealed from within patches of grass **Phylogeny number:** 158	**Time:** 8h15-9h45 **Temperature:** 18.0°C grass **Voucher(s):** QCAZ 27236-27237 **SVL (mm):** n = 9, $\bar{X}$ = 17.65 ± 0.73 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Italo G. Tapia **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Hyloxalus	*yasuni*	**Ecuador:** Napo: On the trail to the waterfall of Río Pinguyo **Latitude, Longitude:** -0.7258, -77.566 **Notes:** 0.5 m along river close to Guagua Sumaco **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 147	**Time:** 9h49 **Temperature:** 24.7°C water **Voucher(s):** QCAZSC 16481 **SVL (mm):** n = 14, $\bar{X}$ = 22.50 ± 1.60 **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** Ítalo G. Tapia, Néstor Acosta-Buenaño, and Mónica I. Páez **Recorder:** Olympus LS-10 Linear PCM Field Recorder **Microphone:** Sennheiser ME66	

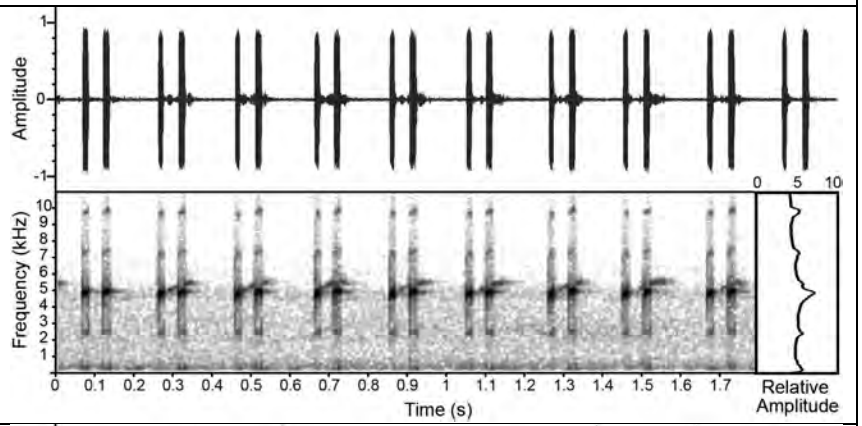
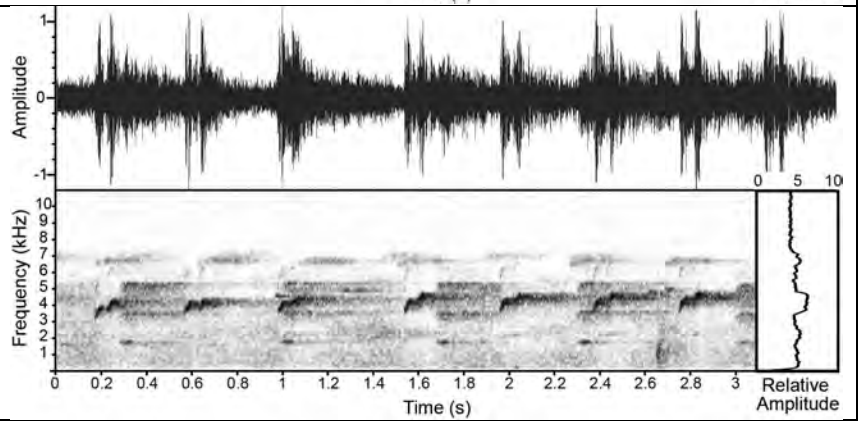
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Hyloxalus	*yasuni*	**Ecuador:** Sucumbíos: Reserva de Producción Faunística Cuyabeno, Tarapoa, Laguna Grande, Cabañas de Neotropic Turis **Latitude, Longitude:** 0, -76.216667 **Notes:** NA **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 145	**Time:** NA **Temperature:** 24.7°C water **Voucher(s):** QCAZ 37790 **SVL (mm):** $n = 7$, $\bar{X} = 22.70 \pm 1.10$ **SVL (ref.):** measured from reference (Paez-Vacas *et al.* 2010) **Collectors (Call):** Ítalo G. Tapia **Recorder:** Olympus LS-10 Linear PCM Field Recorder **Microphone:** Sennheiser ME66	
Hyloxalus	*yasuni*	**Ecuador:** Sucumbíos: Parque Nacional Yasuní, 42 km Pompeya to Iro **Latitude, Longitude:** -0.68038, -76.43452 **Notes:** 1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 146	**Time:** 10h00 **Temperature:** 25.10°C water **Voucher(s):** QCAZ 28834 **SVL (mm):** 23.76 **SVL (ref.):** measured by JCS from QCAZ specimens **Collectors (Call):** Diego Paucar from Paez-Vacas et al. (2010). **Recorder:** NA **Microphone:** NA	

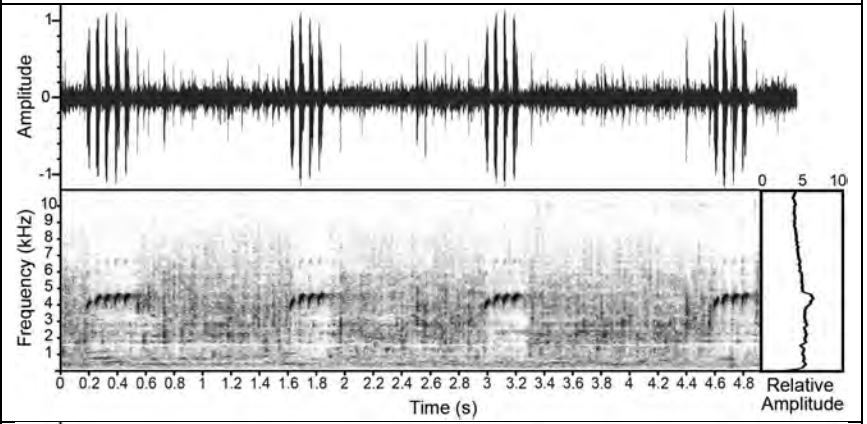
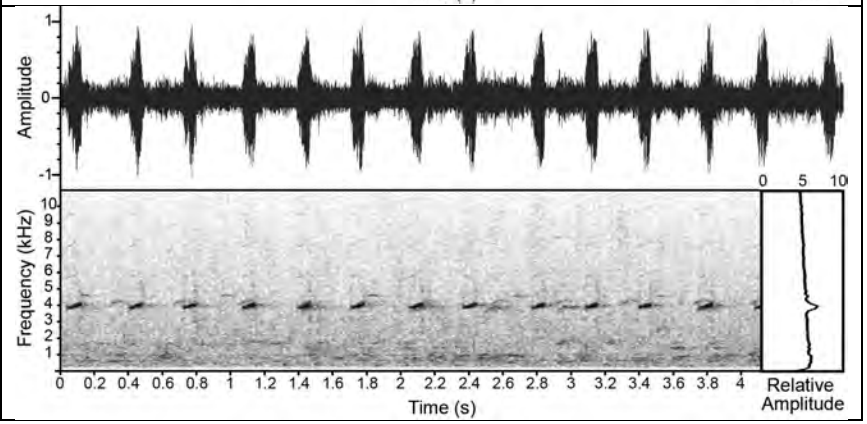
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*urticans*	**Venezuela:** Mérida: On a stream along a stream near San Juan de Lagunillas **Latitude, Longitude:** 8.520867, -71.356683 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 25	**Time:** 12h00-14h00 **Temperature:** 23.7°C water **Voucher(s):** TNHCFS 5520 **SVL (mm):** 24.84 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*cordilleriana*	**Venezuela:** Mérida: A stream near the road to Pueblo Llano **Latitude, Longitude:** 8.87835, -70.65481667 **Notes:** 1.0-2.0 m from several males **Calling behavior:** males called concealed from within a storm sewer **Phylogeny number:** 20	**Time:** 12h00-14h00 **Temperature:** 19.2°C water **Voucher(s):** TNHCFS 5589 **SVL (mm):** $n = 3$, $\bar{X} = 25.88 \pm 0.36$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

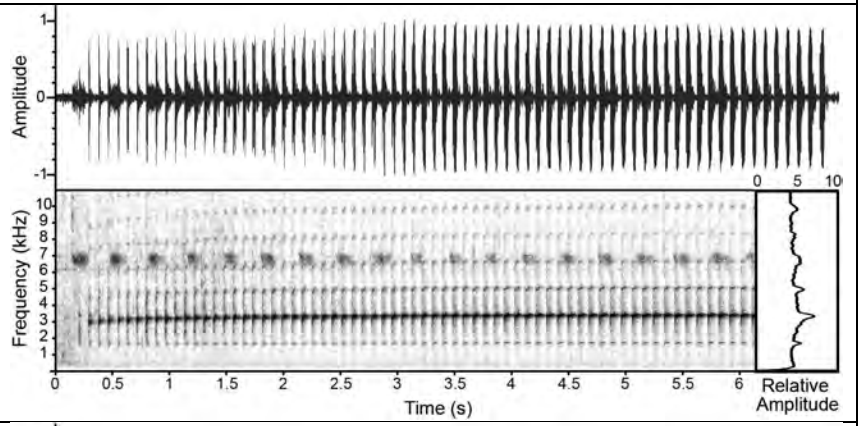
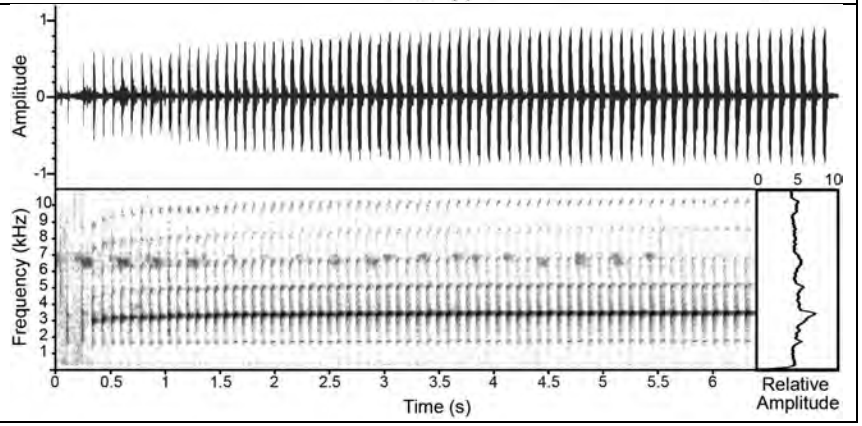
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*herminae*	**Venezuela:** Aragua: Near Estación Biológica Rancho Grande **Latitude, Longitude:** 10.34958, -67.68432 **Notes:** 2.0 m from calling males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 19	**Time:** 10h00-12h00 **Temperature:** 24.0°C water **Voucher(s):** not collected **SVL (mm):** n = 68, $\bar{X}$ = 21.30 ± 2.72 **SVL (ref.):** measured from reference (La Marca 1995 [1994]) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	sp. Guatopo	**Venezuela:** Miranda: On road to Altagracia, Guatopo National Park **Latitude, Longitude:** 10.08495, -66.48908 **Notes:** 2.0 m from several males **Calling behavior:** males called above leaf litter **Phylogeny number:** 15	**Time:** 14h00-16h00 **Temperature:** 26.3°C leaf litter **Voucher(s):** TNHCFS 5664-5673 **SVL (mm):** n = 68, $\bar{X}$ = 21.30 ± 2.72 **SVL (ref.):** measured from reference (La Marca 1995 [1994]) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

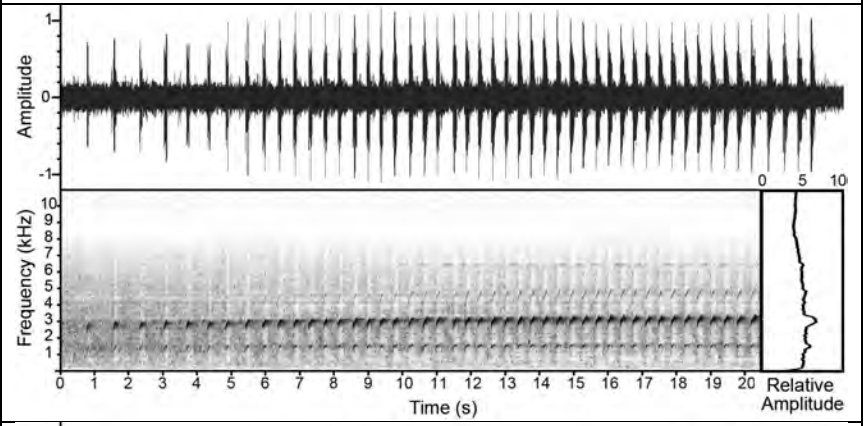
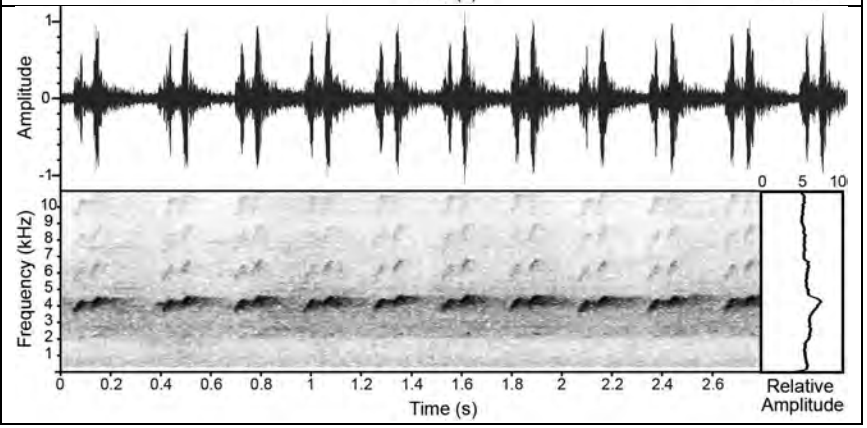
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*leonardoi*	**Venezuela:** Monagas: Near the Cueva del Guácharo, proximity to Caripe River **Latitude, Longitude:** 10.17088, -63.5536 **Notes:** 0.5-1.0 m from male **Calling behavior:** males called concealed from within crevices along a dry bed of the Caripe **Phylogeny number:** 16	**Time:** 10h00-12h00 **Temperature:** 19.5°C water **Voucher(s):** TNHCFS 5657-5661 **SVL (mm):** $n = 7$, $\bar{X} = 20.18 \pm 0.33$ **SVL (ref.):** measured from reference (Manzanilla *et al.* 2007 [2005]) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*olmonae*	**Trinidad and Tobago:** Tobago: Road to Charlotteville **Latitude, Longitude:** 11.3179, -60.5536 **Notes:** Call provided by R. M. Lehtinen. See call reference (Lehtinen *et al.* 2010) **Calling behavior:** NA **Phylogeny number:** 12	**Time:** NA **Temperature:** 26.2°C air **Voucher(s):** NA **SVL (mm):** $n = 8$, $\bar{X} = 21.0 \pm 0.63$ **SVL (ref.):** measured from reference (La Marca 1995 [1994]) **Collectors (Call):** R. M. Lehtinen **Recorder:** Marantz PDM-660 **Microphone:** Sennheiser ME67	

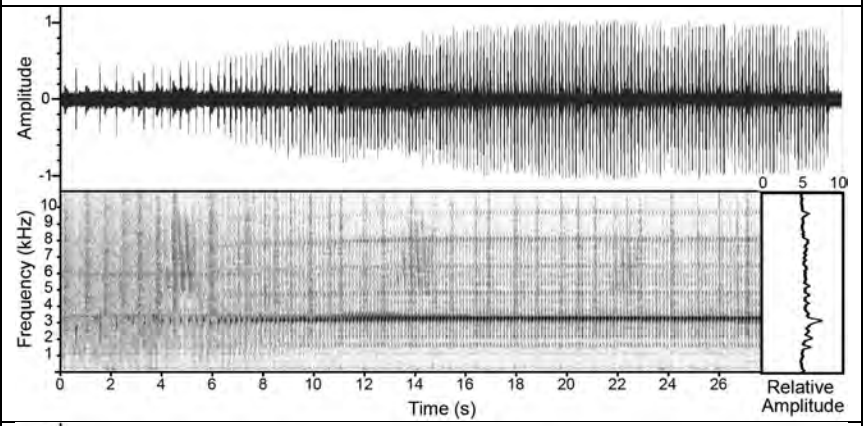
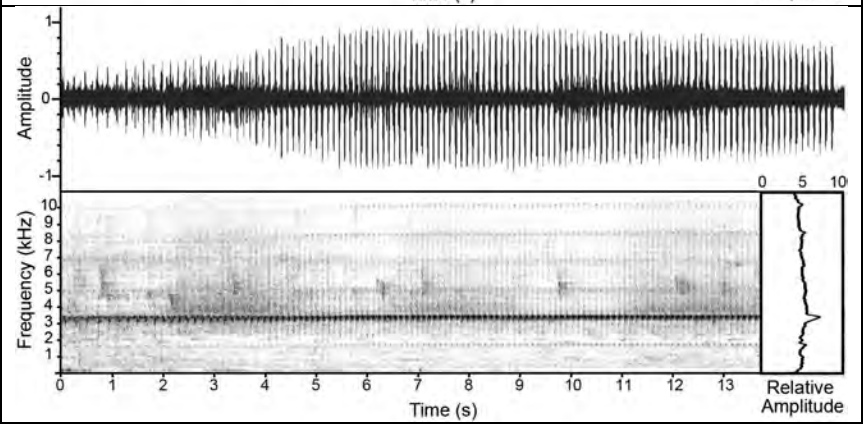
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*orellana*	**Venezuela:** Táchira: A stream along the road from Pregonero to La Trampa **Latitude, Longitude:** 8.03252, -71.7277 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 22	**Time:** 14h00-16h00 **Temperature:** 20.6°C water **Voucher(s):** CVULA 7165 **SVL (mm):** $n = 7$, $\bar{X} = 26.50 \pm 0.7$ **SVL (ref.):** measured by JCS and CLBA from voucher and other specimens **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*orellana*	**Venezuela:** Táchira: From a stream that flows into Río Negro, near Parque Nacional El Tama **Latitude, Longitude:** 7.57872, -72.17898 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 21	**Time:** 16h00-18h00 **Temperature:** 20.3°C water **Voucher(s):** CVULA 7231-7235 **SVL (mm):** $n = 7$, $\bar{X} = 26.50 \pm 0.7$ **SVL (ref.):** measured by JCS and CLBA from voucher and other specimens **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

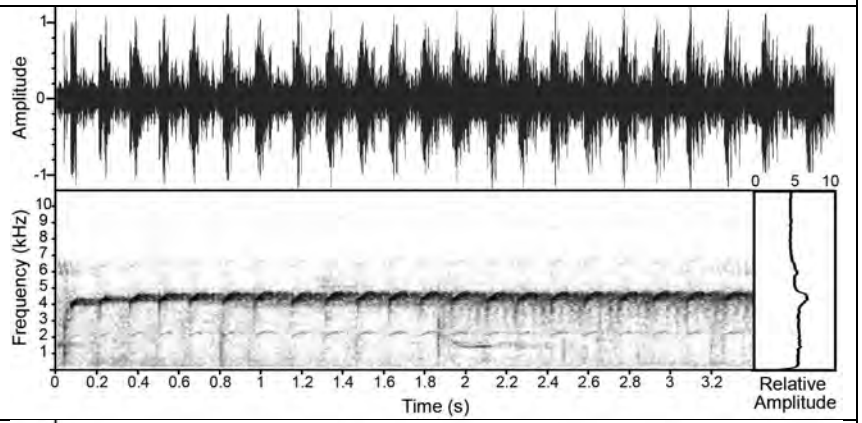
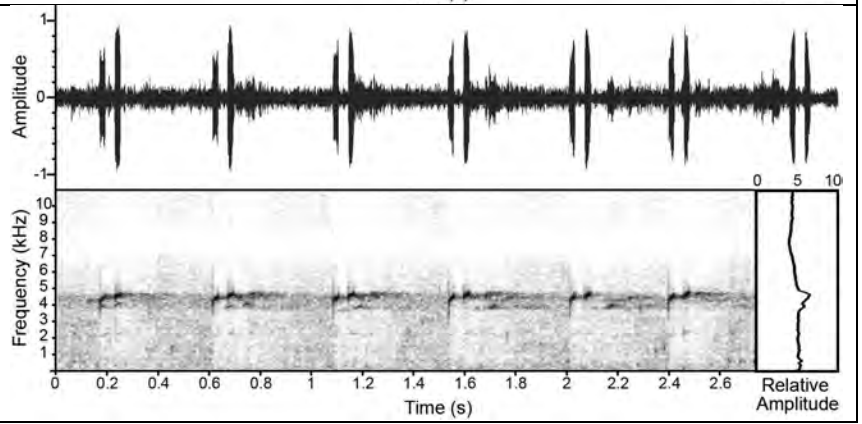
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*riveroi*	**Venezuela:** Sucre: Península de Paria National Park **Latitude, Longitude:** 10.68992, -62.61023 **Notes:** 1.0-2.0 m from several males **Calling behavior:** males called concealed from small ponds along a stream **Phylogeny number:** 13	**Time:** 14h00-16h00 **Temperature:** 22.3°C water **Voucher(s):** TNHCFS 5643-5644 **SVL (mm):** $n = 5$, $\bar{X} = 36.72 \pm 1.54$ **SVL (ref.):** measured from reference as *Colostethus riveroi* (Edwards 1974) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*trinitatis*	**Trinidad and Tobago:** Trinidad: Mount St. Benedict **Latitude, Longitude:** 10.6639, -61.3991 **Notes:** Call provided by R. M. Lehtinen. See call reference (Lehtinen *et al.* 2010) **Calling behavior:** males called along banks and crevices of small stream **Phylogeny number:** 17	**Time:** NA **Temperature:** 24.9°C air **Voucher(s):** NA **SVL (mm):** $n = 15$, $\bar{X} = 21.12 \pm 0.74$ **SVL (ref.):** measured by JCS from USNM specimens from Trinidad **Collectors (Call):** R. M. Lehtinen **Recorder:** Marantz PDM-660 **Microphone:** Sennheiser ME67	

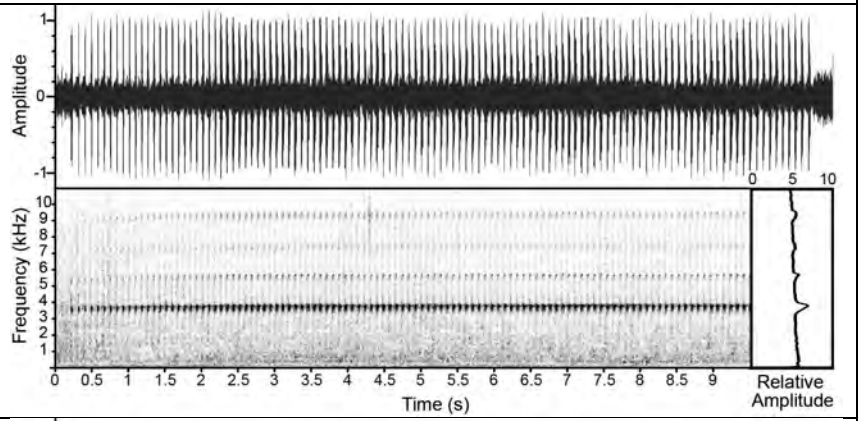
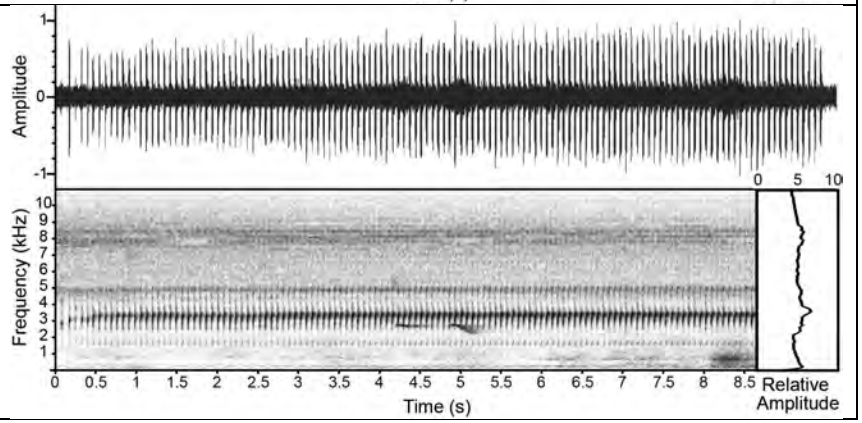
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*collaris*	**Venezuela:** Mérida: On a stream along the autopista El Vijía to Mérida near sector Trujillana after the túneles de Vijía **Latitude, Longitude:** 8.543683, -71.58303 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 23	**Time:** 14h00-16h00 **Temperature:** 20.3°C water **Voucher(s):** TNHCFS 5515 **SVL (mm):** 26.9 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*collaris*	**Venezuela:** Mérida: On a stream along a trail from Río Frío towards the Lago Maracaibo **Latitude, Longitude:** 8.85935, -71.2951 **Notes:** 0.5-1.0 m from several males **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 24	**Time:** 10h00-12h00 **Temperature:** 22.4°C water **Voucher(s):** TNHCFS 5501-5505 **SVL (mm):** $n = 5$, $\bar{X} = 25.09 \pm 1.11$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

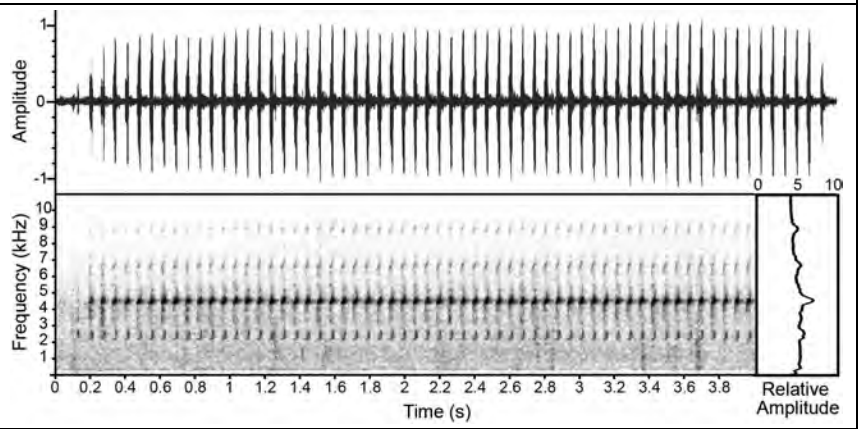
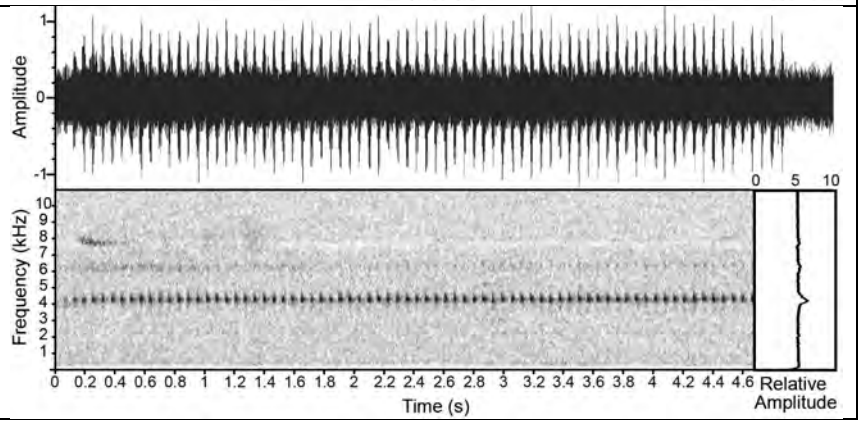
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*venezuelensis*	**Venezuela:** Sucre: Península de Paria National Park **Latitude, Longitude:** 10.68992, -62.61023 **Notes:** 1.0-2.0 m from several males **Calling behavior:** males called above leaf litter **Phylogeny number:** 18	**Time:** 14h00-16h00 **Temperature:** 23.2°C leaf litter **Voucher(s):** TNHCFS 5651-5656 **SVL (mm):** $n = 6$, $\bar{X} = 21.70 \pm 0.90$ **SVL (ref.):** measured from reference as *Colostethus praecia* (Edwards 1974) **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Mannophryne	*vulcano*	**Venezuela:** Miranda: Northern slope of Cerro El Volcán, Baruta **Latitude, Longitude:** 10.42317, -66.85782 **Notes:** 1.0 m from two males **Calling behavior:** males called concealed in a small stream **Phylogeny number:** 14	**Time:** 14h00-16h00 **Temperature:** 21.5°C water **Voucher(s):** TNHCFS 5677-5683 **SVL (mm):** $n = 2$, $\bar{X} = 18.80 \pm 0.50$ **SVL (ref.):** measured by CLBA **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

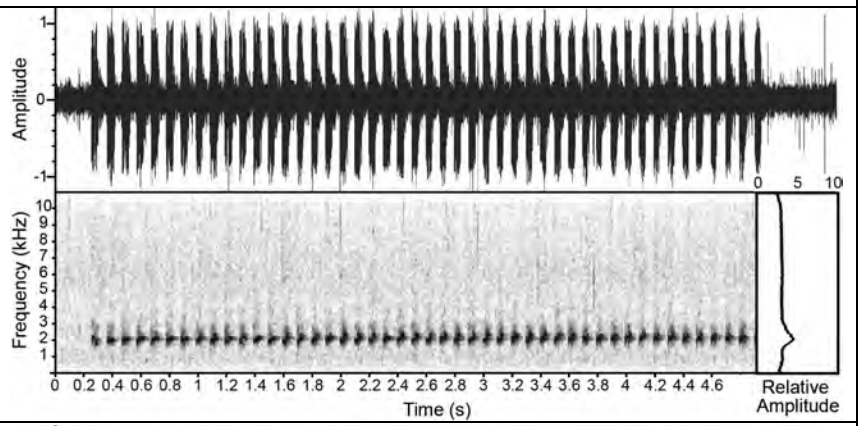
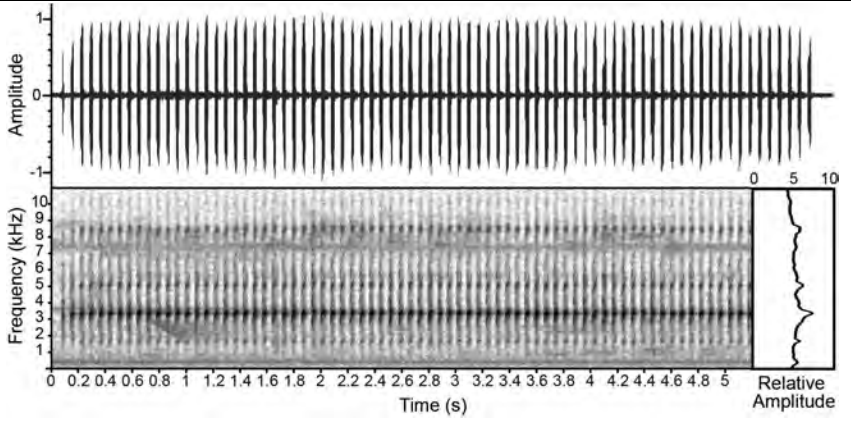
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Mannophryne	*yustizi*	**Venezuela:** Lara: Stream along the road to Guarico, near Sábana Grande **Latitude, Longitude:** 9.58228, -69.8498 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from within crevices along a small stream **Phylogeny number:** 26	**Time:** 14h00-16h00 **Temperature:** 19.2°C water **Voucher(s):** TNHCFS 5604 **SVL (mm):** 21.14 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, CLBA **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Phyllobates	*aurotaenia*	**Colombia:** Chocó: On the road to Pacurita **Latitude, Longitude:** 5.683944, -76.610861 **Notes:** 1.0-2.0 m from a male **Calling behavior:** male called exposed above leaf litter at ground level **Phylogeny number:** 108	**Time:** 10h00-12h00 **Temperature:** 28.0°C leaf litter **Voucher(s):** TNHCFS 4990 **SVL (mm):** 27.81 **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

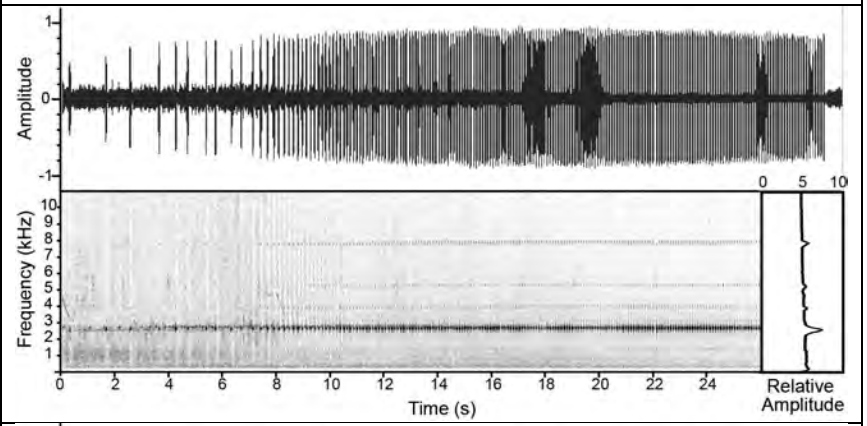
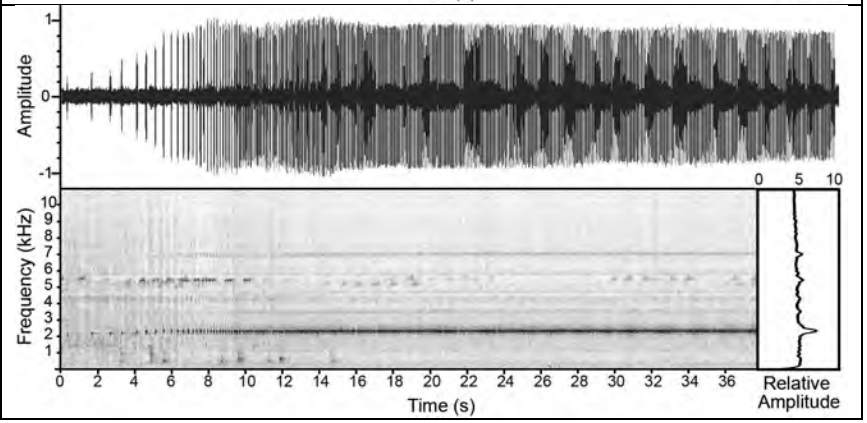
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Phyllobates	*lugubris*	**Costa Rica:** Heredia: Puerto Viejo de Sarapiqui, OTS La Selva **Latitude, Longitude:** 10.43002, -84.0055 **Notes:** 2.0-2.5 m from male **Calling behavior:** male called above leaf litter in swampy area **Phylogeny number:** 111	**Time:** NA **Temperature:** 26°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** Macaulay Library 72629 **SVL (mm):** $n = 6$, $\bar{X} = 19.20 \pm 0.26$ **SVL (ref.):** measured from reference (Silverstone 1976) **Collectors (Call):** David L. Ross **Recorder:** Marantz **Microphone:** NA	
Phyllobates	*lugubris*	**Panamá:** Bocas del Toro: Bluefield, Península Valiente **Latitude, Longitude:** 9.14044, -81.8954 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 112	**Time:** NA **Temperature:** 27.78°C water **Voucher(s):** WED 224, 226 **SVL (mm):** $n = 6$, $\bar{X} = 19.20 \pm 0.26$ **SVL (ref.):** measured from reference (Silverstone 1976) **Collectors (Call):** William E. Duellman. KU Tape 480 (Reel 74) **Recorder:** NA **Microphone:** NA	

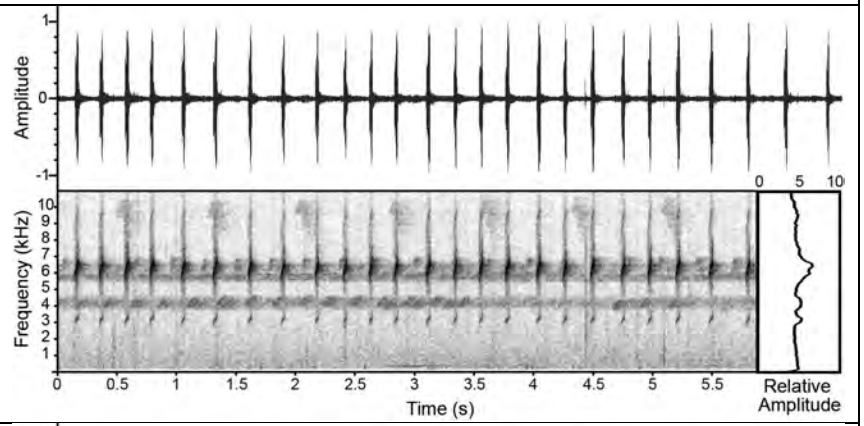
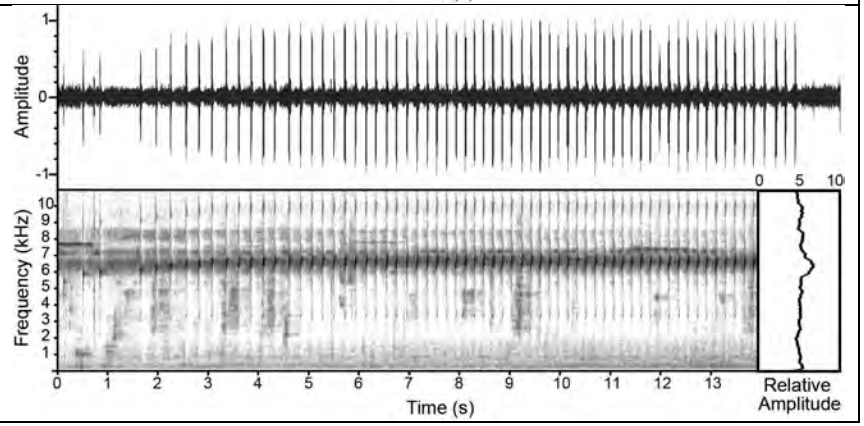
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Phyllobates	*terribilis*	**Colombia:** Nariño: NA (captive-risen) **Latitude, Longitude:** 1.86955, -77.60501 **Notes:** Audio recording from (Meyer 2005) **Calling behavior:** male called above leaf litter. Animals are bold and not behave secretive (Myers *et al.* 1978) **Phylogeny number:** 109	**Time:** NA **Temperature:** 25.2°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** NA **SVL (mm):** n = 150, $\bar{X}$ = 41.05 ± 1.36 **SVL (ref.):** measured from reference (Myers *et al.* 1978) **Collectors (Call):** Audio recording from (Meyer 2005) **Recorder:** NA **Microphone:** NA	
Phyllobates	*vittatus*	**Costa Rica:** Puntarenas: Corcovado National Park, Sirena Station **Latitude, Longitude:** 8.4801, -83.58939 **Notes:** NA **Calling behavior:** Male calling from a rotten log **Phylogeny number:** 110	**Time:** 6h17 **Temperature:** 25°C WorldClim (Hijmans *et al.* 2005), annual mean temperature **Voucher(s):** Macaulay Library 55112 **SVL (mm):** n = 8, $\bar{X}$ = 24.40 ± 1.06 **SVL (ref.):** measured from reference (Silverstone 1976) **Collectors (Call):** David L. Ross **Recorder:** Marantz **Microphone:** NA	

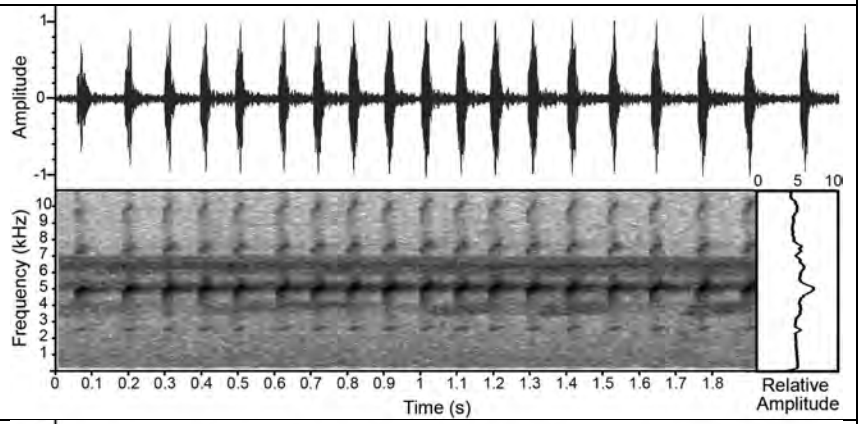
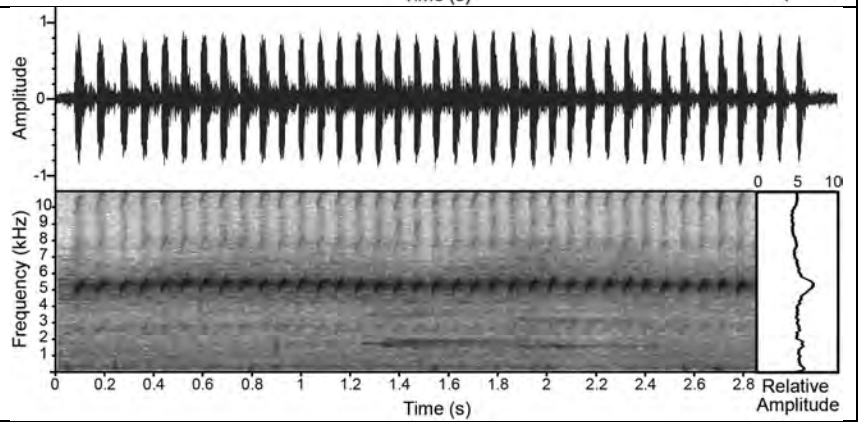
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Rheobates	*palmatus*	**Colombia:** Cundinamarca: Las Brisas (Caqueza), in pasture near a small pond **Latitude, Longitude:** 4.433, -73.918 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed between roots of shrub **Phylogeny number:** 28	**Time:** 14h30 **Temperature:** 18.0°C leaf litter **Voucher(s):** TNHCFS 4955 **SVL (mm):** n = 5, $\bar{X}$ = 27.47 ± 1.30 **SVL (ref.):** measured by JCS from voucher and other syntopic specimens **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Rheobates	*palmatus*	**Colombia:** Cundinamarca: San Francisco, Finca La Galia **Latitude, Longitude:** 4.951, -74.283 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed along a small stream **Phylogeny number:** 27	**Time:** 16h00-18h00 **Temperature:** 19.1°C water **Voucher(s):** TNHCFS 4983 **SVL (mm):** n = 13, $\bar{X}$ = 31.7 ± 0.28 **SVL (ref.):** measured from reference as *Colostethus palmatus* Tena (W1) population (Bernal *et al.* 2005) **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

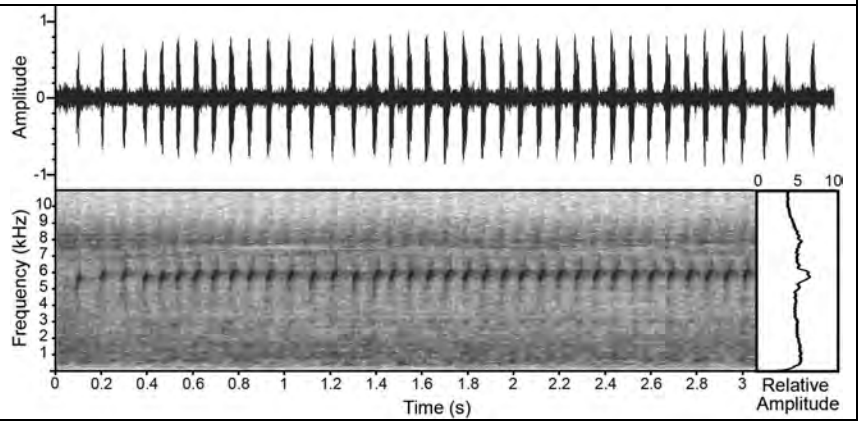
Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Silverstoneia	*flotator*	**Panamá:** Coclé: Cerro El Gaital **Latitude, Longitude:** 8.62873, -80.11603 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from above leaf litter or between tree roots **Phylogeny number:** 62	**Time:** 15h00-17h00 **Temperature:** 21.2°C leaf litter **Voucher(s):** TNHCFS 4805 **SVL (mm):** $n = 2$, $\bar{X} = 14.29 \pm 0.59$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Silverstoneia	*flotator*	**Panamá:** Panamá: Parque Nacional Soberanía, Pipeline road near Gamboa **Latitude, Longitude:** 9.14778, -79.72997 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from above leaf litter or between tree roots **Phylogeny number:** 63	**Time:** 14h00-16h00 **Temperature:** 25.7°C leaf litter **Voucher(s):** not collected **SVL (mm):** $n = 35$, $\bar{X} = 15.60 \pm 0.50$ **SVL (ref.):** measured from reference (Ibanez & Smith 1995) **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Silverstoneia	*nubicola*	**Panamá:** Coclé: Cerro Gaital **Latitude, Longitude:** 8.62873, -80.11603 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from above leaf litter or between tree roots **Phylogeny number:** 66	**Time:** 15h00-17h00 **Temperature:** 22.6°C leaf litter **Voucher(s):** not collected **SVL (mm):** $n = 24$, $\bar{X} = 17.5 \pm 0.70$ **SVL (ref.):** measured from reference (Ibanez & Smith 1995) **Collectors (Call):** JCS, Natalia Biani **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	
Silverstoneia	*nubicola*	**Panamá:** Darién: NE slope Cerro Sapo, La Garcia **Latitude, Longitude:** 8.064444, -78.36306 **Notes:** NA **Calling behavior:** NA **Phylogeny number:** 65	**Time:** NA **Temperature:** 23.0°C air **Voucher(s):** KU 115721-115722 **SVL (mm):** $n = 24$, $\bar{X} = 17.5 \pm 0.70$ **SVL (ref.):** measured from reference (Ibanez & Smith 1995) **Collectors (Call):** Charles W. Myers **Recorder:** NA **Microphone:** NA	

Dataset S1 (Cont.) Poison frog male acoustic signal description including ecological and natural history data. Description for each species includes locality of collection (source), voucher, recording equipment, temperature, body size (snout vent length, SVL), oscillogram, spectrogram, and power spectrum.

Genus	Species	Collection Site	Call, Voucher, and Recording	Oscillogram and Spectrogram
Silverstoneia	*nubicola*	**Colombia:** Chocó: Cabi near Quibdó **Latitude, Longitude:** 5.666667, -76.6333351 **Notes:** 0.5-1.0 m from a male **Calling behavior:** males called concealed from above leaf litter **Phylogeny number:** 64	**Time:** 16h00 **Temperature:** 28.0°C leaf litter **Voucher(s):** TNHCFS 4942 **SVL (mm):** $n = 2$, $\bar{X} = 15.04 \pm 0.34$ **SVL (ref.):** measured by JCS **Collectors (Call):** JCS, Rafael Guerrero, and Juliana Gómez **Recorder:** Sony WM-D6C **Microphone:** Sennheiser ME67	

References Dataset S1:

1.
Barrio-Amoros, C.L. & Santos, J.C. (2009). Description of a new *Allobates* (Anura, Dendrobatidae) from the eastern Andean piedmont, Venezuela. *Phyllomedusa*, 8, 89-104.
2.
Barrio-Amoros, C.L., Santos, J.C. & Jovanovic, O. (2010). A new dendrobatid frog (Anura: Dendrobatidae: *Anomaloglossus*) from the Orinoquian rainforest, southern Venezuela. *Zootaxa*, 37-50.
3.
Bastos, R.P., Signorelli, L., Morais, A.R., Costa, T.B., Lima, L.P. & Pombal, J.P. (2011). Advertisement calls of three anuran species (Amphibia) from the Cerrado, Central Brazil. *South American Journal of Herpetology*, 6, 67-72.
4.
Bernal, X., E, Guarnizo, C. & Luddecke, H. (2005). Geographic variation in advertisement call and genetic structure of *Colostethus palmatus* (Anura, Dendrobatidae) from the Colombian Andes. *Herpetologica*, 61, 395-408.
5.
Boistel, R. & de Massary, J.C. (1999). Les amphibiens veneneux de la famille des dendrobatides. *Le Courrier de la Nature*, 34-39.
6.
Born, M., Bongers, F., Poelman, E.H. & Sterck, F.J. (2010). Dry-season retreat and dietary shift of the dart-poison frog *Dendrobates tinctorius* (Anura: Dendrobatidae). *Phyllomedusa*, 9, 37-52.
7.
Brown, J.L., Schulte, R. & Summers, K. (2006). A new species of *Dendrobates* (Anura : Dendrobatidae) from the Amazonian lowlands in Peru. *Zootaxa*, 45-58.
8.
Brown, J.L. & Twomey, E. (2009). Complicated histories: three new species of poison frogs of the genus *Ameerega* (Anura: Dendrobatidae) from north-central Peru. *Zootaxa*, 1-38.
9.
Brown, J.L., Twomey, E., Amézquita, A., Barbosa de Souza, M., Caldwell, J.P., Lötters, S. *et al.* (2011). A taxonomic revision of the Neotropical poison frog genus *Ranitomeya* (Amphibia: Dendrobatidae). *Zootaxa*, 3083, 1-120.
10.

Caldwell, J.P. & Lima, A.P. (2003). A new amazonian species of *Colostethus* (Anura : Dendrobatidae) with a nidicolous tadpole. *Herpetologica*, 59, 219-234.
11.
Caldwell, J.P., Lima, A.P. & Biavati, G.M. (2002). Description of tadpoles of *Colostethus marchesianus* and *Colostethus caeruleodactylus* (Anura: Dendrobatidae) from their type localities. *Copeia*, 2002, 157-165.
12.
Caldwell, J.P. & Myers, C.W. (1990). A new poison frog from Amazonian Brazil, with further revision of the *quinquevittatus* group of *Dendrobates*. *Am Mus Novit*, 1-21.
13.
Costa, R.C., Facure, K.G. & Giaretta, A.A. (2006). Courtship, vocalization, and tadpole description of *Epipedobates flavopictus* (Anura: Dendrobatidae) in southern Goias, Brazil. *Biota Neotropica*, 6, 1-9.
14.
Duellman, W.E. (2004). Frogs of the genus *Colostethus* (Anura: Dendrobatidae) in the Andes of Northern Peru. *Scientific Papers, Natural History Museum, The University of Kansas*, 35, 1-49.
15.
Duellman, W.E. (2005). *Cusco Amazónico: The Lives of Amphibians and Reptiles in an Amazonian Rainforest.* Cornell University Press, Ithaca, NY.
16.
Edwards, S.R. (1974). A Phenetic Analysis of the Genus Colostethus (Anura: Dendrobatidae). University of Kansas Lawrence.
17.
Forti, L.R., Strüssmann, C. & Mott, T. (2010). Acoustic communication and vocalization microhabitat in *Ameerega braccata* (Steindachner, 1864) (Anura, Dendrobatidae) from Midwestern Brazil. *Braz J Biol*, 70, 211-216.
18.
Gasser, H., Amezquita, A. & Hodl, W. (2009). Who is calling? Intraspecific call variation in the aromobatid frog *Allobates femoralis*. *Ethology*, 115, 596-607.
19.
Goodman, D.E. (1971). Territorial behavior in a neotropical frog, *Dendrobates granuliferus*. *Copeia*, 1971, 365-370.
20.
Guayasamin, J.M. & Funk, W.C. (2009). The amphibian community at Yanayacu Biological Station, Ecuador, with a comparison of vertical microhabitat use among *Pristimantis* species and the description of a new species of the *Pristimantis myersi* group. *Zootaxa*, 2220, 41-66.

21.
Hijmans, R.J., Cameron, S.E., Parra, J.L., Jones, P.G. & Jarvis, A. (2005). Very high resolution interpolated climate surfaces for global land areas. *International Journal of Climatology*, 25, 1965-1978.
22.
Ibanez, D.R., Rand, A.S. & Jaramillo, C. (1999). *Los anfibios del Monumento Natural Barro Colorado, Parque Nacional Soberanıa y areas adyacentes / The amphibians of Barro Colorado Nature Monument, Soberanıa National Park and adjacent areas. Panama*. Editorial Mizrachi & Pujol, S.A., Panama City, Panama.
23.
Ibanez, R. & Smith, E.M. (1995). Systematic status of *Colostethus flotator* and *C. nubicola* (Anura: Dendrobatidae) in Panama. *Copeia*, 1995, 446-456.
24.
Junca, F.A. (1996). Parental care and egg mortality in *Colostethus stepheni*. *Journal of Herpetology*, 30, 292-294.
25.
Junca, F.A. (1998). Reproductive biology of *Colostethus stepheni* and *Colostethus marchesianus* (Dendrobatidae), with description of a new anuran mating behavior. *Herpetologica*, 54, 377-387.
26.
Kok, P.J.R., MacCulloch, R.D., Gaucher, P., Poelman, E.H., Bourne, G.R., Lathrop, A. *et al.* (2006). A new species of *Colostethus* (Anura, Dendrobatidae) from French Guiana with a redescription of *Colostethus beebei* (Noble, 1923) from its type locality. *Phyllomedusa*, 5, 43-66.
27.
La Marca, E. (1995 [1994]). Taxonomy of the frogs of the genus *Mannophryne* (Amphibia; Anura: Dendrobatidae). *Pub Asoc Amigos de Doñana*, 4, 1-75.
28.
La Marca, E., Vences, M. & Lötters, S. (2002). Rediscovery and mitochondrial relationships of the dendrobatid frog *Colostethus humilis* suggest parallel colonization of the Venezuelan Andes by poison frogs. *Stud. Neotrop. Fauna Environ.*, 37, 233-240.
29.
Lehtinen, R.M., Wojtowicz, E.A. & Hailey, A. (2010). Male vocalizations, female discrimination and molecular phylogeny: multiple perspectives on the taxonomic status of a critically endangered Caribbean frog. *J Zool*, doi:10.1111/j.1469-7998.2010.00752.x.
30.

Lescure, J. (1975). Contribution a L'etude des amphibiens de Guyane Francaise III. Une nouvelle espece de *Colostethus* [sic] (Dendrobatidae): *Colostethus* [sic] *degranvillei* nov. sp. *Bulletin du Museum National. d'Histoire Naturelle, Paris, 3, Serie, Zoologie*, 203, 413-420.

31.

Lescure, J. & Marty, C. (2000). *Atlas des Amphibiens de Guyane*. Muséum National d'Histoire Naturelle. Patrimoines Naturels, Paris, France.

32.

Lima, A.P. & Caldwell, J.P. (2001). A new Amazonian species of *Colostethus* with sky blue digits. *Herpetologica*, 57, 180-189.

33.

Lima, A.P., Caldwell, J.P. & Strussmann, C. (2009). Redescription of *Allobates brunneus* (Cope) 1887 (Anura: Aromobatidae: Allobatinae), with a description of the tadpole, call, and reproductive behavior. *Zootaxa*, 1-16.

34.

Lima, A.P., Erdtmann, L.K. & Amezquita, A. (2012). Advertisement call and colour in life of *Allobates crombiei* (Morales) "2000" 2002 (Anura: Aromobatidae) from the type locality (Cachoeira do Espelho), Xingu River, Brazil. *Zootaxa*, 86-88.

35.

Lötters, S. & Kneller, M. (2000). Der Anzeigeruf von *Epipedobates azureiventris* (Anura: Dendrobatidae) aus Peru im Vergleich mit anderen Pfeilgiftfröschen. *Salamandra*, 36, 69-75.

36.

Manzanilla, J., La Marca, E., Jowers, M., Sanchez, D. & Garcia-Paris, M. (2007 [2005]). Un nuevo *Mannophryne* (Amphibia: Anura: Dendrobatidae) del macizo del Turimiquire, noreste de Venezuela. *Herpetotropicos*, 2, 105-113.

37.

Marquez, R., De la Riva, I., Bosch, J. & Matheu, E. (2002). Guía Sonora de las Ranas y Sapos de Bolivia. Sounds of Frogs and Toads of Bolivia. In: *Sounds of frogs and toads of Bolivia.* (eds. Marquez, R, De la Riva, I, Bosch, J & Matheu, E). ALOSA, sonidos de la naturaleza, pp. 1-48.

38.

Meyer, D. (2005). Sounds of Poison Dart Frogs of Central & South America. Ribbit Recordings Seattle, WA.

39.

Morales, V.R. (1992). Dos especies nuevas de *Dendrobates* (Anura: Dendrobatidae) para Peru. *Carib J Sci*, 28, 191-199.

40.

Myers, C.W. (1982). Spotted poison frogs: descriptions of three new *Dendrobates* from Western Amazonia, and resurrection of a lost species from "Chiriqui". *American Museum Novitates*, 1-23.

41.
Myers, C.W. & Burrowes, P.A. (1987). A new poison frog (*Dendrobates*) from Andean Colombia, with notes on a lowland relative. *America Museum Novitates*, 2899, 1-17.
42.
Myers, C.W. & Daly, J.W. (1979). A name for the poison frog of Cordillera Azul, eastern Peru, with notes on its biology and skin toxins (Dendrobatidae). *Am Mus Novit*, 2674, 1-24.
43.
Myers, C.W. & Daly, J.W. (1980). Taxonomy and ecology of *Dendrobates bombetes*, a new Andean poison frog with new skin toxins. *American Museum Novitates*, 1-23.
44.
Myers, C.W., Daly, J.W. & Malkin, B. (1978). A dangerously toxic new frog (*Phyllobates*) used by Embera Indians of western Colombia, with discussion of blowgun fabrication and dart poisoning. *Bull Amer Mus Nat Hist*, 161, 307-366.
45.
Myers, C.W., Rodriguez, L.O. & Icochea, J. (1998). *Epipedobates simulans*, a new cryptic species of poison frog from southeastern Peru, with note on *E. macero* and *E. petersi* (Dendrobatidae). *Am Mus Novit*, 3238, 20.
46.
Ostrowski, T. & Mahn, T. (2005). Dendrobase.de – Eine Online-Datenbank der Familie Dendrobatidae (Anura). http://www.dendrobase.de.
47.
Paez-Vacas, M.I., Coloma, L.A. & Santos, J.C. (2010). Systematics of the *Hyloxalus bocagei* complex (Anura: Dendrobatidae), description of two new cryptic species, and recognition of *H. maculosus. Zootaxa*, 2711, 1-75.
48.
Poelman, E.H. & Dicke, M. (2008). Space use of Amazonian poison frogs: Testing the reproductive resource defense hypothesis. *Journal of Herpetology*, 42, 270-278.
49.
Pröhl, H. (2003). Variation in male calling behaviour and relation to male mating success in the strawberry poison frog (*Dendrobates pumilio*). *Ethology*, 109, 273-290.
50.
Santos, J.C., Coloma, L.A., Summers, K., Caldwell, J.P., Ree, R. & Cannatella, D.C. (2009). Amazonian amphibian diversity is primarily derived from late Miocene Andean lineages. *PLoS Biol*, 7, e56 doi:10.1371/journal.pbio.1000056
51.

Schulte, R. (1990). Redescubrimiento y redefinicion de *Dendrobates mysterious* (Myers, 1982) de la Cordillera del Condor. *Boletin de Lima*, 12, 57-68.
52.
Silverstone, P.A. (1973). Observations on the behavior and ecology of a Colombian poison-arrow frog, the kokoe-pa (*Dendrobates histrionicus* Berthold). *Herpetologica*, 29, 295-301.
53.
Silverstone, P.A. (1975). A revision of the poison-arrow frogs of the genus *Dendrobates* Wagler. *Bulletin of the Natural History Museum of Los Angeles County Science*, 1-55.
54.
Silverstone, P.A. (1976). A revision of the poison-arrow frogs of the genus *Phyllobates* Bibron in Sagra (Family Dendrobatidae). *Bulletin of the Natural History Museum of Los Angeles County Science*, 27, 1-53.
55.
Wells, K.D. (1978). Courtship and parental behavior in a Panamanian poison-arrow frog (*Dendrobates auratus*). *Herpetologica*, 34, 148-155.
56.
Wells, K.D. (1980). Behavioral ecology and social organization of a dendrobatid frog (*Colostethus inguinalis*). *Behavior, Ecology and Sociobiology*, 6, 199-209.
57.
Zimmermann, H. & Zimmermann, E. (1988). Etho-taxonomie und zoogeographische artengruppenbildung bei pfeilgiftfroschen. *Salamandra*, 24, 125-160.