

Supporting information

Table S1: Morphometric data of the analyzed individuals. All measurements are in millimeters (mm). Legend: SVL - Snout-vent length; SL - Skull length; SW - Skull width.

Species	Specimen	SVL	SL	SW
<i>Boana albomarginata</i>	MCNAM2230	52.68	15.74	16.68
<i>Boana albomarginata</i>	MCNAM3750	48.35	14.67	15.70
<i>Boana albomarginata</i>	MCNAM11223	49.95	14.39	15.44
<i>Boana albomarginata</i>	MCNAM13607	41.20	12.58	13.00
<i>Boana albomarginata</i>	MCNAM13915	47.28	14.37	15.59
<i>Boana albomarginata</i>	MCNAM14696	51.22	15.47	16.50
<i>Boana albomarginata</i>	MCNAM15841	49.81	15.13	15.78
<i>Boana albomarginata</i>	MCNAM17675	45.21	13.83	16.23
<i>Boana albomarginata</i>	MCNAM18974	46.13	13.55	15.64
<i>Boana albomarginata</i>	MCNAM20674	51.03	14.26	16.82
<i>Boana crepitans</i>	MCNAM173	67.08	18.46	20.81
<i>Boana crepitans</i>	MCNAM1063	60.02	16.92	20.29
<i>Boana crepitans</i>	MCNAM1493	58.96	16.78	19.55
<i>Boana crepitans</i>	MCNAM6384	60.73	16.48	20.14
<i>Boana crepitans</i>	MCNAM7938	57.94	16.50	19.74
<i>Boana crepitans</i>	MCNAM14889	59.74	16.37	18.30
<i>Boana crepitans</i>	MCNAM18471	52.52	14.06	15.45
<i>Boana crepitans</i>	MCNAM21084	56.73	15.45	18.17
<i>Boana exastis</i>	MNRJ35324	85.57	24.09	25.39
<i>Boana exastis</i>	MNRJ35325	86.84	23.87	24.71
<i>Boana faber</i>	MCNAM057	90.99	26.46	29.28
<i>Boana faber</i>	MCNAM1018	91.32	24.43	28.68
<i>Boana faber</i>	MCNAM6275	87.13	26.00	30.32
<i>Boana faber</i>	MCNAM9510	79.82	22.44	26.95
<i>Boana faber</i>	MCNAM10627	80.35	21.99	26.69
<i>Boana faber</i>	MCNAM10762	90.07	26.77	31.29

<i>Boana faber</i>	MCNAM16881	79.63	23.77	26.72
<i>Boana faber</i>	MCNAM17006	79.03	21.51	25.27
<i>Boana faber</i>	MCNAM17593	93.10	22.69	27.46
<i>Boana faber</i>	MCNAM17595	95.93	24.85	29.56
<i>Boana lundii</i>	MCNAM1617	55.04	15.27	17.09
<i>Boana lundii</i>	MCNAM4112	52.72	15.89	16.94
<i>Boana lundii</i>	MCNAM6710	62.05	18.12	20.11
<i>Boana lundii</i>	MCNAM7129	64.29	18.81	21.14
<i>Boana lundii</i>	MCNAM7780	58.11	17.43	19.40
<i>Boana lundii</i>	MCNAM8007	64.88	19.87	21.95
<i>Boana lundii</i>	MCNAM8606	58.6	17.50	18.85
<i>Boana lundii</i>	MCNAM8800	65.36	18.46	21.60
<i>Boana lundii</i>	MCNAM9378	61.08	17.57	20.21
<i>Boana lundii</i>	MCNAM9389	68.73	18.96	22.33
<i>Boana lundii</i>	MCNAM9395	60.18	17.96	19.72
<i>Boana lundii</i>	MCNAM9513	60.78	17.96	18.55
<i>Boana lundii</i>	MCNAM9543	47.41	14.45	15.63
<i>Boana lundii</i>	MCNAM11894	64.48	19.39	20.84
<i>Boana lundii</i>	MCNAM12952	65.06	18.84	20.84
<i>Boana lundii</i>	MCNAM13010	61.11	18.50	21.00
<i>Boana lundii</i>	MCNAM14017	67.96	17.90	22.10
<i>Boana lundii</i>	MCNAM16133	56.45	16.53	18.00
<i>Boana pardalis</i>	MCNAM7931	62.93	18.57	19.75
<i>Boana pardalis</i>	MCNAM1836	64.54	18.01	21.13
<i>Boana pardalis</i>	MCNAM4026	53.22	17.11	18.16
<i>Boana pardalis</i>	MCNAM11583	57.66	15.58	17.35
<i>Boana pardalis</i>	MCNAM11598	50.59	15.57	16.79
<i>Boana pardalis</i>	MCNAM13532	49.83	14.71	16.76
<i>Boana pardalis</i>	MCNAM13544	57.16	16.93	18.82
<i>Boana pardalis</i>	MCNAM14690	54.70	15.74	17.01
<i>Boana pardalis</i>	MCNAM14891	55.22	15.70	16.71
<i>Boana pardalis</i>	MCNAM19022	59.49	17.15	18.95
<i>Boana polytaenia</i>	MCNAM403	24.24	6.99	7.65

<i>Boana pombali</i>	MCNAM15858	50.45	16.90	15.79
<i>Boana rosenbergi</i>	DZSJRP548	80.29	22.31	23.50
<i>Boana xerophylla</i>	MNRJ92500	56.57	15.93	17.69
<i>Boana xerophylla</i>	MNRJ92501	48.71	14.65	17.04

Table S2: Parameters used in the CT scanning process of the specimens. Legend: V - Voltage; A - Amperage; VS - Voxel Size.

Specimen	V (kV)	A (μ A)	VS (μ m)	Projections	Frames
<i>Boana albomarginata</i>					
MCNAM2230	40	200	36.499997	1845	5
MCNAM3750	50	240	34.200829	1920	5
MCNAM11223	40	220	33.501667	1858	5
MCNAM13607	40	220	25.999120	1857	5
MCNAM13915	50	240	32.000261	1931	5
MCNAM14696	50	240	34.998591	1943	5
MCNAM15841	50	240	34.501110	1885	5
MCNAM17675	40	220	30.001375	1839	5
MCNAM18974	40	220	30.498856	1811	5
MCNAM20674	50	240	33.501667	1865	5
<i>Boana crepitans</i>					
MCNAM173	50	160	40.999733	1919	5
MCNAM1063	50	240	38.001403	1940	5
MCNAM1493	50	240	39.498327	1929	5
MCNAM6384	50	240	41.501695	1914	5
MCNAM7938	50	240	42.501138	1927	5
MCNAM14889	50	220	44.500025	1835	5
MCNAM18471	40	220	33.999148	1898	5

MCNAM21084	50	220	39.198046	1872	5
<i>Boana exastis</i>					
MNRJ35324	65	230	42.998619	2781	5
MNRJ35325	65	230	42.998619	2958	5
<i>Boana faber</i>					
MCNAM057	65	230	41.501695	2886	5
MCNAM1018	65	230	45.499468	2592	5
MCNAM6275	65	230	45.001988	2665	5
MCNAM9510	50	240	51.774000	1943	5
MCNAM10627	55	240	45.001988	1848	5
MCNAM10762	65	230	45.001988	2572	5
MCNAM16881	55	240	51.774000	1927	5
MCNAM17006	65	230	41.999176	1202	5
MCNAM17593	65	230	46.001431	1207	5
MCNAM17595	50	200	24.999677	1606	5
<i>Boana lundii</i>					
MCNAM1617	50	220	36.298316	1869	5
MCNAM4112	50	220	35.998034	1810	5
MCNAM6710	50	220	44.500025	1800	5
MCNAM7129	50	220	40.000289	1818	5
MCNAM7780	50	220	35.998034	1814	5
MCNAM8007	50	220	43.998062	1817	5

MCNAM8606	50	220	42.501138	1897	5
MCNAM8800	50	220	45.001988	1872	5
MCNAM9378	50	220	44.500025	1814	5
MCNAM9389	50	220	46.001431	1808	5
MCNAM9395	50	220	42.998619	1849	5
MCNAM9513	50	220	42.998619	1840	5
MCNAM9543	50	220	34.501110	1888	5
MCNAM11894	50	220	42.501138	1821	5
MCNAM12952	50	220	47.498355	1834	5
MCNAM13010	50	220	40.000289	1759	5
MCNAM14017	50	220	50.998647	1841	5
MCNAM16133	50	220	40.000289	1880	5

Boana pardalis

MCNAM7931	50	240	42.501138	1862	5
MCNAM1836	40	200	41.999176	1865	5
MCNAM4026	50	240	33.501667	1912	5
MCNAM11583	50	220	37.001960	1819	5
MCNAM11598	50	240	38.498884	1874	5
MCNAM13532	40	220	34.501110	1856	5
MCNAM13544	50	240	40.000289	1916	5
MCNAM14690	50	220	37.001960	1878	5
MCNAM14891	50	240	40.000289	1922	5

MCNAM19022	50	220	38.498884	1892	5
<i>Boana polytaenia</i>					
MCNAM403	30	225	16.99965	1814	5
<i>Boana pombali</i>					
MCNAM15858	50	240	37.49944	1768	5
<i>Boana rosenbergi</i>					
DZSJRP548	65	230	43.99806	2711	5
<i>Boana xerophylla</i>					
MNRJ92500	50	240	37.001960	1900	5
MNRJ92501	50	240	32.999705	1876	5

Table S3: Analysis of Variance (ANOVA) for the dorsal view of the skull of species from the *Boana faber* clade, considering the difference, in Procrustes coordinates, between two photographs of the same individual and two digitization of anatomical landmarks in the same photograph. Legend: SQ - sum of squares; MQ - mean of squares; df - degree of freedom; F - F statistics; * - significant values (< 0.05).

Effect	SQ	MQ	df	F	P (param.)
Individual	0.43963188	0.0003330545	1320	13.33	<0.0001*
Side	0.00828664	0.0003452765	24	13.61	<0.0001*
Ind * Side	0.03348451	0.0000253671	1320	1.81	<0.0001*
Error 1	0.03769264	0.0000140226	2688	5.60	<0.0001*
Residual	0.01345429	0.0000025027	5376	-	-

Table S4: MANOVA considering the logarithm of the centroid size, species and the interaction between these parameters for the skull shape of species from the *Boana faber* clade (*Boana albomarginata*; *B. crepitans*; *B. faber*; *B. lundii*; *B. pardalis*). Legend: df, degree of freedom; SQ, sum of squares; MQ, mean of squares; RQ, R squared coefficient; F, F statistic; Z, size effect; Pr, P value; *, significant values (<0.05).

	df	SQ	MQ	RSQ	F	Z	Pr (>SS)
Centroid	1	0.001715	0.0017153	0.02883	2.4070	1.8384	0.031*
Species	4	0.022193	0.0055482	0.37298	7.7855	6.5386	0.001*
Centroid*Species	4	0.002811	0.0007029	0.04725	0.9863	0.0772	0.463
Residuals	46	0.032781	0.0007126	0.55094	-	-	-
Total	55	0.059500	-	-	-	-	-

Table S5: Pairwise test comparing the ontogenetic trajectory of skull shape of species from the *Boana faber* clade (*Boana albomarginata*; *B. crepitans*; *B. faber*; *B. lundii*; *B. pardalis*). Legend: d, distance between trajectories; UCL (95%), confidence interval between trajectory differences; Z, size effect; Pr > d, P value.

	d	UCL (95%)	Z	Pr > d
<i>B. albomarginata</i> : <i>B. crepitans</i>	0.09735456	0.10026793	1.50622516	0.067
<i>B. albomarginata</i> : <i>B. faber</i>	0.08506675	0.10777427	0.65297894	0.266
<i>B. albomarginata</i> : <i>B. lundii</i>	0.09047088	0.09412424	1.51941778	0.065
<i>B. albomarginata</i> : <i>B. pardalis</i>	0.08731880	0.13454334	0.05413966	0.460
<i>B. crepitans</i> : <i>B. faber</i>	0.05448181	0.09574206	-0.40288394	0.650
<i>B. crepitans</i> : <i>B. lundii</i>	0.03396872	0.07612170	-1.17809556	0.875
<i>B. crepitans</i> : <i>B. pardalis</i>	0.10323939	0.12795869	0.92885511	0.176
<i>B. faber</i> : <i>B. lundii</i>	0.04066470	0.09049704	-1.13926165	0.858
<i>B. faber</i> : <i>B. pardalis</i>	0.06841940	0.13270252	-0.70064106	0.763
<i>B. lundii</i> : <i>B. pardalis</i>	0.08986976	0.12251450	0.61363758	0.275

Table S6: Mahalanobis distances between groups.

	<i>Boana albomarginata</i>	<i>Boana crepitans</i>	<i>Boana faber</i>	<i>Boana lundii</i>
<i>Boana crepitans</i>	9.4828	-	-	-
<i>Boana faber</i>	9.6400	10.6795	-	-
<i>Boana lundii</i>	10.1442	6.2777	9.7739	-
<i>Boana pardalis</i>	8.4559	7.4730	9.2450	6.2628

Table S7: P values for permutation tests (10,000 permutations) for Mahalanobis distances between groups.

	<i>Boana albomarginata</i>	<i>Boana crepitans</i>	<i>Boana faber</i>	<i>Boana lundii</i>
<i>Boana crepitans</i>	< 0.0001	-	-	-
<i>Boana faber</i>	< 0.0001	< 0.0001	-	-
<i>Boana lundii</i>	< 0.0001	< 0.0001	< 0.0001	-
<i>Boana pardalis</i>	< 0.0001	< 0.0001	< 0.0001	< 0.0001

TableS8: Procrustes distance between groups.

	<i>Boana albomarginata</i>	<i>Boana crepitans</i>	<i>Boana faber</i>	<i>Boana lundii</i>
<i>Boana crepitans</i>	0.0437	-	-	-
<i>Boana faber</i>	0.0456	0.0496	-	-
<i>Boana lundii</i>	0.0486	0.0386	0.0380	-
<i>Boana pardalis</i>	0.0514	0.0463	0.0758	0.0628

Table S9: P values for permutation tests (10,000 permutations) for Procrustes distances between groups.

	<i>Boana albomarginata</i>	<i>Boana crepitans</i>	<i>Boana faber</i>	<i>Boana lundii</i>
<i>Boana crepitans</i>	< 0.0001	-	-	-
<i>Boana faber</i>	< 0.0001	<0.0002	-	-
<i>Boana lundii</i>	< 0.0001	< 0.0001	< 0.0001	-
<i>Boana pardalis</i>	< 0.0001	< 0.0001	< 0.0001	< 0.0001