

Supplementary Material

Assessing the function of calls in *Litoria chloris*: quality signalling Vs individual recognition.

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Supplementary methods

All recorded calls were analysed using Raven Pro version 1.3 for Windows. Spectrographs (frequency vs time) were used to identify the characteristic moans and trills that make up calls in *L. Chloris*. Waveforms (energy vs time) were used to measure the call duration, moan number, moan duration, moan pulse number, moan rate, moan interval, trill number trill duration, trill pulse number, trill rate and trill interval. Power spectra (energy vs frequency) were used to measure the moan frequency and the trill frequency (Fig. S3.). A window size of 1024 points was used for these measurements.

Supplementary Figures



Figure S1

Left: A map of the east coast of Australia, with a small box highlighting the area containing the study sites.

Right: The area of the east coast containing the study sites, with the locations of the study sites marked by bullet points.

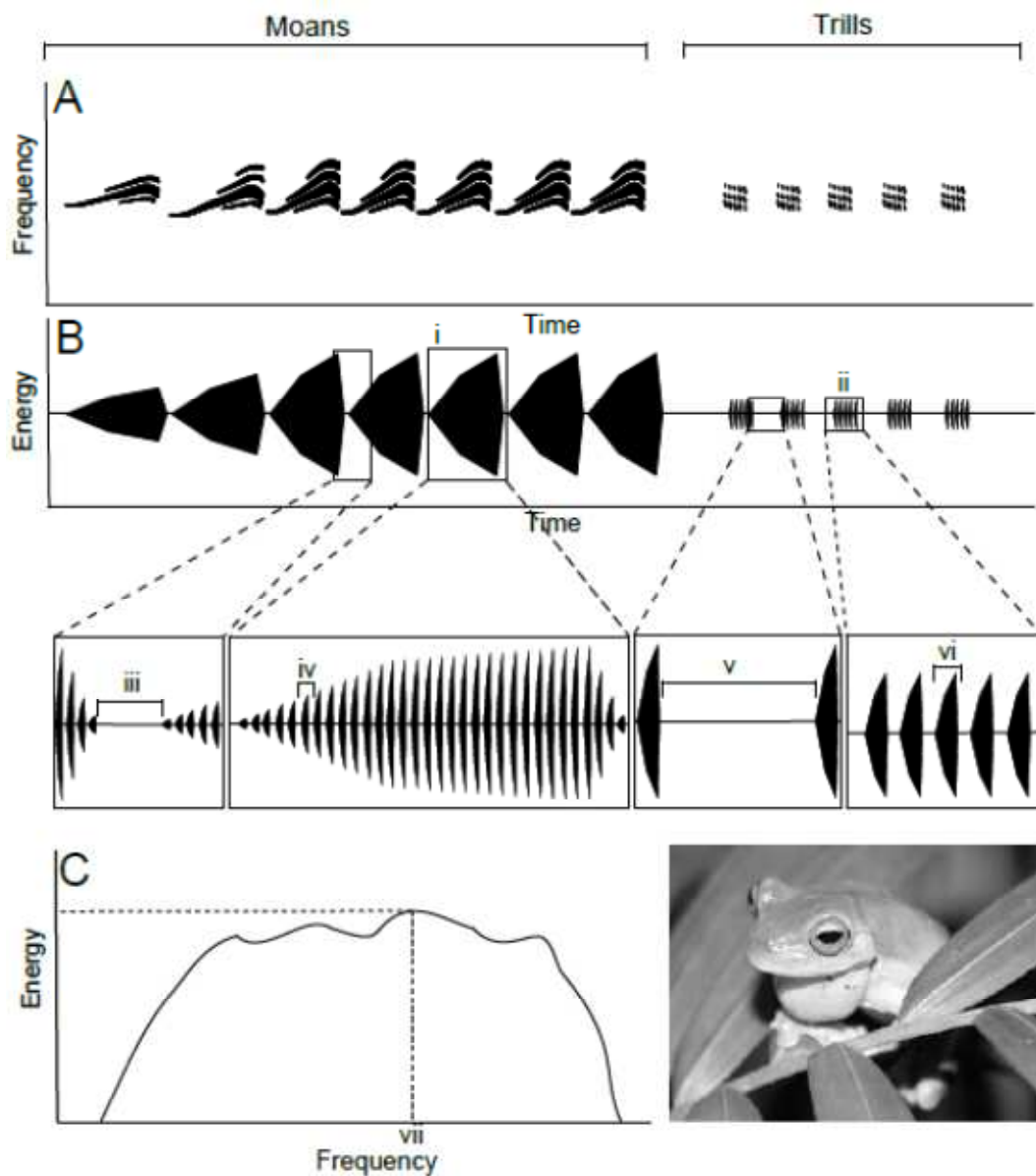


Figure S2

An idealised version of a *Litoria chloris* (bottom right) advertisement call, showing a spectrogram (A), waveform (B) and power spectrum (C). Labelled within the diagrams are: i. one entire moan; ii. one entire trill; iii. the moan interval; iv. one pulse from within a moan; v. the trill interval; vi. one pulse from within a trill; vii. the dominant frequency.



Figure S3: Measurement demonstration

A male *Litoria chloris*, in the process of being measured with a dial vernier calliper.

Supplementary tables

Table S1: *Litoria chloris* call features

Descriptions and abbreviations for the call properties used in the analysis of *Litoria chloris* calls.

Abbreviation	Call feature	Description
CD	Call Duration	The total length of the call, from the beginning of the first moan to the end of the last trill
MN	Moan Number	The total number of moans in a call
MD	Moan Duration	The total length of the most central moan within the call
MF	Moan Frequency	The dominant frequency of the central moan
MP	Moan Pulse Number	The total number of pulses in the central moan
MR	Moan Rate	The rate at which moans are produced during a call
MI	Moan Interval	The mean interval between moans either side of the central moan
TN	Trill Number	The total number of trills in a call
TD	Trill Duration	The total length of the central trill
TF	Trill Frequency	The dominant frequency of the most central trill within the call
TP	Trill Pulse Number	The total number of pulses in the central trills
TR	Trill Rate	The rate at which trills are produced during a call
TI	Trill Interval	The mean interval between trills either side of the central trill

Table S2. The principal component analysis results using the complete data set (both moans and trills), including loadings.

PC	Proportion of var	Cumulative proportion	Eigenvalues	Loadings												
				CD	MN	MD	MF	MP	MR	MI	TN	TD	TF	TP	TR	TI
1	0.235	0.235	3.484	-0.36	-0.45	0.18	0.12	0.28	0.3			-0.39	0.31	-0.34	0.22	0.18
2	0.174	0.409	2.678	0.325		0.55	0.24	0.45	-0.23	0.33	0.31	0.1			-0.1	0.2
3	0.145	0.554	1.948	-0.13	-0.11		-0.39	0.23	0.36		-0.4	0.39		0.34	-0.2	0.44
4	0.105	0.660	1.346	0.125	0.13	0.11	0.3	0.15	0.14	-0.4		0.22	0.42	0.45	0.45	-0.2
5	0.089	0.749	1.116	-0.35	-0.17		0.48		-0.22	0.16	-0.5	0.21	0.1		-0.4	-0.3
6	0.077	0.826	0.780		-0.27		-0.12	0.13	0.12	-0.58	0.34			-0.11	-0.6	-0.3
7	0.062	0.889	0.665	-0.22	-0.29	-0.1			0.37	0.43	0.4	0.14	-0.3	0.3	0.16	-0.4
8	0.049	0.938	0.593	0.143	-0.23	-0.1	-0.31	-0.2	-0.22	0.32	0.16	0.11	0.75		-0.1	
9	0.039	0.977	0.217	-0.21	-0.51			-0.2	-0.57	-0.29		0.13	-0.3	0.19	0.29	0.2
10	0.019	0.996	0.148			0.34	-0.55	0.26	-0.19		-0.3	-0.15			0.22	-0.5
11	0.004	0.999	0.023	-0.69	0.51	0.15	-0.18	0.13	-0.19		0.34		0.14			
12	0.000	1.000	0.004			0.14		-0.1				0.7		-0.63	0.25	
13	0.000	1.000	0.000			-0.7		0.68	-0.23			0.15		-0.12		

Table S3. The results from the principal component analysis using only call features from the moan part of the call.

PC	Proportion of var	Cumulative proportion	Eigenvalues	Loadings					
				MN	MD	MF	MP	MR	MI
1	0.422	0.422	2.531	-0.4	0.57	0.35	0.59	0.13	0.16
2	0.248	0.670	1.486	0.361	0.2	0.33	-0.11	-0.7	0.46
3	0.146	0.815	0.876	-0.12		-0.6		0.18	0.79
4	0.097	0.913	0.584	-0.72	-0.36	0.38	-0.4	-0.1	0.2
5	0.087	1.000	0.521	-0.42	0.27	-0.5		-0.6	-0.32
6	0.000	1.000	0.002		0.66		-0.69	0.3	

Table S4. The results from the principal component analysis using only call features from the trill part of the call.

PC	Proportion of var	Cumulative proportion	Eigenvalues	Loadings					
				TN	TD	TF	TP	TR	TI
1	0.346	0.346	2.074	-0.2	0.68	-0.2	0.58	-0.3	
2	0.230	0.576	1.381	-0.46		0.48	0.31	0.54	0.42
3	0.180	0.756	1.080	-0.39	-0.11	-0.4	-0.32	-0.3	0.68
4	0.149	0.905	0.896	0.609		-0.4	0.27	0.45	0.4
5	0.094	0.999	0.564	-0.47	-0.2	-0.6		0.45	-0.45
6	0.001	1.000	0.006		-0.7		0.63	-0.3	