

Recent species in old Islands: the origin of introduced populations of *Litoria aurea* (Anura: Hylidae) in New Caledonia and Wallis

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Supplementary Tables

Table S1. Geographical distribution of 21 Cytochrome oxidase 1 (CO1) *Litoria aurea* haplotypes summarised across regions (Australia, New Zealand) or localities within islands (Wallis, New Caledonia). Numbers represent the number of individuals displaying a particular haplotype.

		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	Total
Australia	Northeast Victoria	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-	-	-	-	21	-	27
Australia	Southern Tablelands	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Australia	Shoalhaven	-	-	-	1	1	1	17	4	1	-	21	1	-	-	-	3	-	-	-	18	1	69
Australia	Illarwarra	-	-	-	-	2	-	11	-	-	-	3	-	-	-	-	-	-	-	-	8	-	24
Australia	Sydney	-	2	9	-	-	8	-	-	-	-	21	-	1	-	-	13	5	4	-	6	-	69
Australia	Central Coast	1	-	8	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	11
Australia	Hunter	-	-	30	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	31
Australia	Lower North Coast	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Australia	Upper North Coast	-	2	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
New Zealand	Coromandel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	2
New Zealand	Northland	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
New Zealand	Waikato	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Wallis	Lac Kikila	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	3	-	-	-	-	-	9
Wallis	Aka'aka	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	3	-	-	-	-	-	11
Wallis	Mata'utu	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Wallis	Liku	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	1	-	-	-	-	-	10
New Caledonia	Nakutakoin	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	2	-	-	-	-	-	9
New Caledonia	Poingam	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	9	-	-	-	-	-	17
New Caledonia	Thio	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	4	-	-	-	-	-	17
New Caledonia	Sarraméa	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	6	-	-	-	-	-	10
New Caledonia	Koumac	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	5	-	-	-	-	-	11
New Caledonia	Pouembout	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	17
New Caledonia	Poindimé	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
New Caledonia	Noumea	-	-	-	-	-	-	-	-	-	3	9	-	-	-	-	5	-	-	-	-	-	17
Santo	Santo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2

Table S3. Morphological differentiation as measured by ANOVA and post-doc Scheffe statistics between Australia, New Caledonia and Wallis of *Litoria aurea* populations of 49 measurements. Significance: *, $p < 0.05$; n.s., not significant; SE, standard error.

	ANOVA	Australia-New Caledonia	Australia- Wallis	Wallis-New Caledonia		ANOVA	Australia-New Caledonia	Australia- Wallis	Wallis-New Caledonia
svl	F=31.117 p=0.000*	SE=2.202 p=0.000*	SE=2.603 p=0.000*	SE=1.912 p=0.091 n.s.	rtff	F=30.712 p=0.000*	SE=4.124 p=0.000*	SE=4.875 p=0.000*	SE=3.580 p=0.688 n.s.
rhw	F=6.527 p=0.000*,002	SE=2.706 p=0.000*	SE=3.342 p=0.003*	SE=2.454 p=0.321 n.s.	rfff	F=26.288 p=0.000*	SE=4.864 p=0.000*	SE=5.791 p=0.000*	SE=4.277 p=0.468 n.s.
rhl	F=28.191 p=0.000*	SE=4.183 p=0.000*	SE=4.183 p=0.000*	SE=3.631 p=0.661 n.s.	rppiv	F=10.912 p=0.000*	SE=0.977 p=0.005*	SE=1.154 p=0.000*	SE=0.848 p=0.044*
rmn	F=36.217 p=0.000*	SE=3.676 p=0.000*	SE=4.345 p=0.000*	SE=3.191 p=0.762 n.s.	rwpiv	F=46.278 p=0.000*	SE=1.118 p=0.000*	SE=1.322 p=0.000*	SE=0.971 p=0.371 n.s.
rmfe	F=21.308 p=0.000*	SE=3.636 p=0.000*	SE=4.298 p=0.000*	SE=3.156 p=0.771 n.s.	rwi	F=1.81 p=0.167 n.s.	SE=3.332 p=0.171 n.s.	SE=3.939 p=0.508 n.s.	SE=2.892 p=0.840 n.s.
rmbe	F=9.863 p=0.000*	SE=3.269 p=0.000*	SE=3.865 p=0.000*	SE=2.838 p=0.731 n.s.	rwii	F=5.147 p=0.007*	SE=2.972 p=0.014*	SE=3.538 p=0.521 n.s.	SE=2.613 p=0.197 n.s.
rife	F=21.92 p=0.000*	SE=2.706 p=0.000*	SE=3.199 p=0.096 n.s.	SE=2.348 p=0.001*	rtwf	F=0.524 p=0.593 n.s.	SE=3.791 p=0.940 n.s.	SE=4.481 p=0.646 n.s.	SE=3.290 p=0.686 n.s.
ribe	F=30.042 p=0.000*	SE=3.823 p=0.000*	SE=4.519 p=0.000*	SE=3.318 p=0.034*	rwff	F=1.874 p=0.157 n.s.	SE=3.087 p=0.577 n.s.	SE=3.675 p=0.903 n.s.	SE=2.715 p=0.200 n.s.
rin	F=16.963 p=0.000*	SE=1.231 p=0.000*	SE=1.456 p=0.011*	SE=1.069 p=0.058 n.s.	rpai	F=17.873 p=0.000*	SE=0.694 p=0.000*	SE=0.821 p=0.000*	SE=0.603 p=0.282 n.s.
ren	F=16.434 p=0.000*	SE=1.549 p=0.000*	SE=1.831 p=0.000*	SE=1.345 p=0.769 n.s.	rwai	F=21.928 p=0.000*	SE=0.712 p=0.000*	SE=0.847 p=0.000*	SE=0.618 p=0.548 n.s.
rel	F=15.555 p=0.000*	SE=2.242 p=0.000*	SE=2.651 p=0.000*	SE=1.946 p=0.786 n.s.	rpaii	F=29.227 p=0.000*	SE=0.807 p=0.000*	SE=0.954 p=0.000*	SE=0.700 p=0.322 n.s.
rtyd	F=43.646 p=0.000*	SE=1.399 p=0.000*	SE=1.654 p=0.000*	SE=1.215 p=0.461 n.s.	rwaii	F=20.356 p=0.000*	SE=0.447 p=0.000*	SE=0.529 p=0.015*	SE=0.388 p=0.011*
rye	F=5.33 p=0.006*	SE=1.132 p=0.030*	SE=1.338 p=0.007*	SE=0.983 p=0.440 n.s.	rpaiii	F=23.736 p=0.000*	SE=0.840 p=0.000*	SE=0.993 p=0.000*	SE=0.729 p=0.160 n.s.
riue	F=11.692 p=0.000*	SE=2.218 p=0.000*	SE=2.620 p=0.125 n.s.	SE=1.926 p=0.050*	rwaiii	F=18.744 p=0.000*	SE=0.514 p=0.000*	SE=0.608 p=0.029*	SE=0.446 p=0.011*
ruew	F=13.928 p=0.000*	SE=1.695 p=0.000*	SE=2.002 p=0.000*	SE=1.472 p=0.887 n.s.	rpaiiv	F=17.995 p=0.000*	SE=0.802 p=0.000*	SE=0.947 p=0.000*	SE=0.696 p=0.018*
rfl	F=27.781 p=0.000*	SE=3.438 p=0.000*	SE=4.064 p=0.000*	SE=2.984 p=0.818 n.s.	rwaiv	F=14.347 p=0.000*	SE=0.544 p=0.000*	SE=0.643 p=0.892 n.s.	SE=0.472 p=0.000*
rhal	F=19.888 p=0.000*	SE=3.682 p=0.000*	SE=4.353 p=0.000*	SE=3.196 p=0.999 n.s.	rppi	F=20.965 p=0.000*	SE=0.678 p=0.000*	SE=0.802 p=0.000*	SE=0.589 p=0.313 n.s.
rtfl	F=32.611 p=0.000*	SE=1.983 p=0.000*	SE=2.344 p=0.000*	SE=1.721 p=0.380 n.s.	rwpi	F=55.494 p=0.000*	SE=0.718 p=0.000*	SE=0.849 p=0.000*	SE=0.623 p=0.151 n.s.
rtl	F=57.006 p=0.000*	SE=5.544 p=0.000*	SE=6.554 p=0.000*	SE=4.812 p=0.868 n.s.	rppii	F=12.689 p=0.000*	SE=0.778 p=0.000*	SE=0.917 p=0.003*	SE=0.673 p=0.541 n.s.
rfo	F=14.166 p=0.000*	SE=4.734 p=0.000*	SE=5.596 p=0.000*	SE=4.109 p=0.902 n.s.	rwpii	F=45.38 p=0.000*	SE=0.864 p=0.000*	SE=1.021 p=0.000*	SE=0.750 p=0.780 n.s.
rtfl	F=1.684 p=0.189 n.s.	SE=3.601 p=0.611 n.s.	SE=4.257 p=0.202 n.s.	SE=3.126 p=0.428 n.s.	rppiii	F=14.261 p=0.000*	SE=0.770 p=0.000*	SE=0.910 p=0.000*	SE=0.668 p=0.730 n.s.
rint	F=5.245 p=0.006*	SE=0.920 p=0.731 n.s.	SE=1.087 p=0.237 n.s.	SE=0.798 p=0.006*	rwpiii	F=57.594 p=0.000*	SE=0.903 p=0.000*	SE=1.067 p=0.000*	SE=0.784 p=0.390 n.s.
rit	F=16.107 p=0.000*	SE=2.296 p=0.000*	SE=2.714 p=0.000*	SE=1.993 p=0.251 n.s.	rppv	F=10.022 p=0.000*	SE=0.845 p=0.000*	SE=0.998 p=0.000*	SE=0.733 p=0.712 n.s.
rttff	F=7.006 p=0.001*	SE=5.694 p=0.002*	SE=6.731 p=0.008*	SE=4.942 p=0.993 n.s.	rwpv	F=41.396 p=0.000*	SE=0.922 p=0.000*	SE=1.090 p=0.000*	SE=0.799 p=0.457 n.s.
rttff	F=0.103 p=0.902 n.s.	SE=6.040 p=0.911 n.s.	SE=7.191 p=0.980 n.s.	SE=5.311 p=0.976 n.s.					

Table S4. Morphological variation of *Litoria aurea* populations within New Caledonia. Of 21 pairwise comparisons for 49 measurements, only significant ($p < 0.05$) pairwise comparisons as obtained by Scheffé post-hoc ANOVA are given. SE, standard error. Abbreviations for measurements are given in Material and Methods section.

Population comparison	Measurement	Scheffé	Population comparison	Measurement	Scheffé
Poingam – Thio	svl	SE =2.636 p=0.000	Poingam – Noumea	svl	SE =2.636 p=0.000
	rin	SE =1.680 p=0.000		rin	SE =1.680 p=0.001
	rtyd	SE =1.878 p=0.007	Pouembout – Noumea	svl	SE =2.595 p=0.000
	ruew	SE =2.270 p=0.006		ribe	SE =5.559 p=0.045
	rwii	SE =4.131 p=0.017		rin	SE =1.654 p=0.015
Pouembout – Thio	svl	SE =2.595 p=0.000	Sarramea – Thio	svl	SE =3.016 p=0.000
	ribe	SE =5.559 p=0.022		rin	SE =1.922 p=0.016
	rin	SE =1.654 p=0.007		rtyd	SE =2.149 p=0.035
	rel	SE =3.458 p=0.041	Sarramea – Nakutakoin	rpaiii	SE =1.640 p=0.031
	rtyd	SE =1.850 p=0.000		rppi	SE =1.283 p=0.027
	ruew	SE =2.270 p=0.007	Sarramea – Noumea	svl	SE =3.016 p=0.000
	ritl	SE =3.397 p=0.020		rin	SE =1.922 p=0.028
	rwii	SE = p=0.014		Nakutakoin – Noumea	rppi

Table S5. Morphological variation of *Litoria aurea* populations within Wallis. Only comparisons significant ($p < 0.05$) in at least one pairwise comparison as obtained by Scheffé post-hoc ANOVA are given. *, $p < 0.05$; n.s., not significant; p, probability; SE, standard error. Abbreviations for measurements are given in the Materials and methods section.

	Aka-aka - Liku	Aka-aka - Kikila	Liku - Kikila
svl	SE=2.432 p=0.014 *	SE=2.502 p=0.926 n.s.	SE=2.558 p=0.045 *
rin	SE=1.227 p=0.001 *	SE=1.263 p=0.329 n.s.	SE=1.291 p=0.034 *
ren	SE=1.988 p=0.010 *	SE=2.045 p=0.966 n.s.	SE=2.091 p=0.029 *
rfl	SE=5.752 p=0.236 n.s.	SE=5.917 p=0.544 n.s.	SE=6.048 p=0.035 *
rhal	SE=5.386 p=0.216 n.s.	SE=5.541 p=0.024 *	SE=5.664 p=0.526 n.s.
rtfl	SE=2.540 p=0.897 n.s.	SE=2.613 p=0.007 *	SE=2.671 p=0.024 n.s.
rmttf	SE=6.075 p=0.493 n.s.	SE=6.249 p=0.023 *	SE=6.388 p=0.239 n.s.
rwi	SE=4.406 p=0.017 *	SE=4.532 p=0.276 n.s.	SE=4.633 p=0.421 n.s.
rwii	SE=3.778 p=0.018 *	SE=3.882 p=0.455 n.s.	SE=3.882 p=0.251 n.s.
rpai	SE=1.026 p=0.988 n.s.	SE=1.055 p=0.001 *	SE=1.079 p=0.001 *
rpaii	SE=1.133 p=0.792 n.s.	SE=1.165 p=0.018 *	SE=1.191 p=0.005 *
rpaiii	SE=1.121 p=0.889 n.s.	SE=1.153 p=0.048 *	SE=1.179 p=0.131 n.s.
rppi	SE=0.789 p=0.317 n.s.	SE=0.812 p=0.019 *	SE=0.830 p=0.344 n.s.
rwpv	SE=1.106 p=0.025 *	SE=1.138 p=0.454 n.s.	SE=1.163 p=0.329 n.s.