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Supplementary material

APPENDIX 1. This Supplemental Appendix file contains Supplementary Tables A1–A6.

Table A1. Locality, museum voucher numbers, type of tissue, haplotype numbers, and GenBank accession numbers of banded-rail (*Gallirallus philippensis*) data included in this study. Haplotype numbers from 1 to 38 have GenBank ID from Kirchman (2009). Acronyms for museums are: ANWC (Australian National Wildlife Collection, Australia), NMNZ (Te Papa Museum, New Zealand), UWBM (Burke Museum of Natural History and Culture, USA), MUNZ (Massey University Tissue Collection, New Zealand), EBU (Evolutionary Biology Unit at the Australian Museum, Australia), WAM (Western Australia Museum, Australia). *Samples of specimens without museum voucher number were either taken from blood, feathers or faeces from living birds that were released at the site of capture.

Locality	**Museum voucher***	**Type of tissue**	**Haplotype**	**GenBank accession number**	
				CR	**cyt *b***
New Caledonia	ANWC 19211	Muscle	1	FJ207364	
Vorovoro Island, Fiji	NMNZ OR.020582	Toe pad	9	EF219115	
Vorovoro Island, Fiji	NMNZ OR.020581	Toe pad	40	KJ698604	
Vatulele Island, Fiji	NMNZ OR.019554	Toe pad	9	EF219115	
Vatulele Island, Fiji	NMNZ OR.019553	Toe pad	15	FJ207372	
Ono Island, Fiji	NMNZ OR.020653	Toe pad	9	EF219115	
Ono Island, Fiji	NMNZ OR.020652	Toe pad	15	FJ207372	
Taveuni Island, Fiji	NMNZ OR.017838	Toe pad	2	EF219113	
Taveuni Island, Fiji	NMNZ OR.017841	Toe pad	2	EF219113	
Taveuni Island, Fiji	NMNZ OR.017839	Toe pad	43	KJ698606	
Upolu Island, Samoa	NMNZ OR.019205	Toe pad	1	FJ207364	
Nofoa Island, Samoa	NMNZ OR.027180	Toe pad	40	KJ698604	
Tutuila, American Samoa	UWBM 89687	Muscle	47	KJ698609	

Niue Island	NMNZ OR.017393	Toe pad	1	FJ207364
Niue Island	NMNZ OR.017762	Toe pad	1	FJ207364
Niue Island	NMNZ OR.017763	Toe pad	1	FJ207364
Northland, New Zealand	none	Feathers	15	FJ207372
Northland, New Zealand	NMNZ OR.018153	Toe pad	15	FJ207372
Northland, New Zealand	NMNZ OR.018155	Toe pad	15	FJ207372
Northland, New Zealand	NMNZ OR.022344	Toe pad	40	KJ698604
Northland, New Zealand	MUNZ12772	Muscle	44	KJ698612
Whakatane, New Zealand	NMNZ OR.028058	Toe pad	40	KJ698604
Great Barrier Island, New Zealand	MUNZ12792	Muscle	26	FJ207378
Great Barrier Island, New Zealand	MUNZ12793	Muscle	26	FJ207378
Great Barrier Island, New Zealand	MUNZ12794	Muscle	26	FJ207378
Great Barrier Island, New Zealand	MUNZ12795	Muscle	26	FJ207378
Great Barrier Island, New Zealand	MUNZ12796	Muscle	40	KJ698604
Kundy Island, New Zealand	NMNZ OR.028830	Toe pad	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604
Golden Bay, New Zealand	none	Faeces	40	KJ698604

Golden Bay, New Zealand	none	Faeces	40	KJ698604	
Golden Bay, New Zealand	none	Faeces	40	KJ698604	
Golden Bay, New Zealand	none	Faeces	40	KJ698604	
Golden Bay, New Zealand	none	Faeces	41	KJ698603	
Golden Bay, New Zealand	none	Faeces	48	KJ698610	
NSW, Australia	EBU 39560	Muscle	15	FJ207372	KT778255
NSW, Australia	ANWC 43303	Muscle	40	KJ698604	KT778253
NSW, Australia	ANWC 34178	Muscle	45	KJ698607	KT778249
NSW, Australia	EBU 39536	Muscle	46	KJ698613	KT778254
QLD, Australia	ANWC 44301	Muscle	22	EF219130	KT778251
QLD, Australia	ANWC 10622	Muscle	22	EF219130	KT778252
QLD, Australia	ANWC 32326	Muscle	26	FJ207378	KT778250
Lord Howe Island, Australia	EBU 38482	Muscle	41	KJ698603	
SA, Australia	EBU 45507	Muscle	24	EF219131	
WA, Australia	WAM 34289	Muscle	20	FJ207374	
WA, Australia	WAM 33896	Muscle	20	FJ207374	
WA, Australia	WAM 35742	Muscle	24	EF219131	
Cocos Island, Australia	none	Blood	24	EF219131	
Cocos Island, Australia	none	Blood	24	EF219131	
Cocos Island, Australia	none	Blood	24	EF219131	
Cocos Island, Australia	none	Blood	39	KJ698611	
CocosIisland, Australia	none	Blood	39	KJ698611	

Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	39	KJ698611

Cocos Island, Australia	none	Blood	39	KJ698611
Cocos Island, Australia	none	Blood	42	KJ698605
Cocos Island, Australia	none	Blood	42	KJ698605
Sumba Island, Indonesia	WAN 22849	Toe pad	20	FJ207374
Sumba Island, Indonesia	WAN 22850	Toe pad	24	EF219131
Sumba Island, Indonesia	WAN 23475	Toe pad	49	KJ698608

Table A2. Summary of mtDNA sampling of buff-banded rails (*Gallirallus philippensis*). Archipelago, subspecies, localities, sample size, haplotype numbers, and original source of the Control Region data included in this study.

Archipelago	**subspecies**	**localities**	**N**	**Haplotypes**	**Source**
Cocos	*andrewsi*	Cocos Island	30	24, 39, 42	This study
Philippines	*philippensis*	Batan	1	30	Kirchman 2009
		Luzon	2	31, 33	Kirchman 2009
		Lagangilang	1	32	Kirchman 2009
		Mindanao	6	35, 36, 37, 38	Kirchman 2009
Wallacea		Sulawesi	3	1, 4, 11	Kirchman 2009
		Flores	1	1	Kirchman 2009
		Sumba	3	20, 24, 49	This study
	yorki	Halmahera	1	23	Kirchman 2009
Palau	*pelewensis*	Garakayo	1	28	Kirchman 2009
		Koror	1	34	Kirchman 2009
		Peleliu	1	28	Kirchman 2009
Bismarck	*reductus*	New Guinea	2	3, 10	Kirchman 2009
	admiralitatis	Pityilu	1	29	Kirchman 2009
		Ninigo	1	29	Kirchman 2009
	praedo	Skoki	1	12	Kirchman 2009
	lesouefi	Wanton	1	13	Kirchman 2009
		Boang	1	1	Kirchman 2009
	meyeri	New Britain	2	1	Kirchman 2009
Solomon	*christophori*	San Christobal	1	16	Kirchman 2009
Australia	*mellori*	NSW	9	14, 15, 22, 24, 26, 40, 45, 46	Kirchman and Franklin 2007; Kirchman 2009; This study
		Lord Howe Island	1	41	This study
		SA	1	24	This study

		QLD	4	15, 22, 26	Kirchman 2009; This study
		Heron Island	2	22	Kirchman 2009
		NT	2	21, 25	Kirchman 2009
		WA	3	20, 24	This study
New Zealand	*assimilis*	?	3	1, 15, 24	Kirchman 2009
		Northland	5	15, 40, 44	This study
		Great Barrier Island	5	26, 40	This study
		Whakatane	1	40	This study
		Golden Bay	12	40, 41, 48	This study
		Kundy Island	1	40	This study
New Caledonia	*swindellsi*	New Caledonia	2	1	Kirchman 2009; This study
		Loyalty	1	2	Kirchman 2009
Fiji	*sethsmithi*	Taveuni	4	2, 43	Kirchman 2009; This study
		Vorovoro	2	9, 40	This study
		Vatulele	2	9, 15	This study
		Ono	2	9, 15	This study
Vanuatu		Santo	10	2, 7, 8, 17, 18, 27	Kirchman and Franklin 2007
		Efate	5	2, 6	Kirchman and Franklin 2007
		Uripiv	4	2, 9, 19	Kirchman and Franklin 2007
Samoa	*goodsoni*	Upolu	1	1	This study
		Nofoa	1	40	This study
		Tutuila	3	20, 47	Kirchman 2009; This study
		Manua	1	20	Kirchman 2009
		Ofu	1	20	Kirchman 2009
		Niue	3	1	This study

Table A3. Primers for PCR amplification of 6 microsatellite loci in buff-banded rails (*Gallirallus philippensis*). Locus name is followed by repeat motif and primer sequences.

Locus	Repeat motif	Primer sequences 5'-3'	References
Crex1	$(GT)_9$ $AT(GT)_8$	F-CACTGTTCCTTTGGAACTTTCTC	Gautschi et al. 2002
		R-TAACCCCAGGGATCATTTTG	Gautschi et al. 2002
Crex2	$(GT)_5$ $AT(GT)_6$ $CT(GT)_7$	F-GTGTCTCAGGCAGCACAGAA	Gautschi et al. 2002
		R-AGCAGGGCAGGACCCATT	Gautschi et al. 2002
Locus11	$(CCAT)_{11}$	F-TGCAGAGCCACAGTGTTG	Manson 2003
		R-TAGATGTTAAGGAATCCTGA	Manson 2003
Locus13	$(GT)_{21}$	F-GTAATCCTGGATCTTGGCGT	Manson 2003
		R-CTCCTGGTCTCTTGTAGCT	Manson 2003
Crex7	$(GA)_{23}$ $GG(GA)_{10}$	F-TCTCTCCAAGGGAACAGCTC	Gautschi et al. 2002
		R-TATTTGGCCTGAGCTGCAA	Gautschi et al. 2002
Crex11	$(CA)_{27}$	F-CACCTGGTCAAGTAAGCAACC	Gautschi et al. 2002
		R-GCTTGCATAACCTGTGCTTG	Gautschi et al. 2002

Table A4. Genetic polymorphism estimates for buff-banded rails (*Gallirallus philippensis*) for localities with more than two samples. N = sample sizes, h = haplotype numbers, S = segregating sites, Hd = haplotype diversity, θ_W = population mutation rate per site, π = nucleotide diversity per site, D_T = Tajima's D test, Fs = Fu's *F*s test, R_2 = Ramos and Rozas statistic. NA = Not Applicable. * = 0.01< P < 0.05; ** = 0.001 < P < 0.01; *** = < 0.001.

	N	h	S	Hd	θ_W	π	D_T	*F*s	R_2
LOCALITIES									
Cocos									
Cocos	30	3	4	0.301	0.0025	0.00249	-0.048	1.59	0.123
Philippines									
Mindanao	6	4	3	0.8	0.004	0.0045	0.6	-1.072	0.226
Luzon	2	2	2	1	0.00615	0.00615	NA	NA	0.5
Wallacea									
Sulawesi	3	3	2	1	0.0041	0.0041	NA	NA	0.235
Sumba	3	3	3	1	0.005	0.005	NA	NA	0.272
Australia									
NSW	9	8	9	0.972	0.0101	0.0097	-0.201	**-4.153***	**0.137*****
QLD	4	3	5	0.833	0.0083	0.0087	0.371	0.646	0.212
WA	3	2	1	0.667	0.0016	0.0016	NA	NA	0.471
Heron Island	2	1	0	0	0	0	NA	NA	NA
NT	2	2	3	1	0.0092	0.0092	NA	NA	0.5
New Zealand									
Northland	5	3	2	0.7	0.0022	0.0018	-0.972	-0.829	0.244
Great Barrier Island	5	2	2	0.4	0.0022	0.0018	-0.972	1.04	0.4
Golden Bay	12	3	2	0.345	0.0015	0.0008	-1.429	-1.246	0.192
Fiji									
Taveuni	4	2	1	0.5	0.0012	0.0011	-0.612	0.172	0.433
Vorovoro	2	2	2	1	0.0046	0.0046	NA	NA	0.5
Vatulele	2	2	2	1	0.0046	0.0046	NA	NA	0.5
Ono	2	2	2	1	0.0046	0.0046	NA	NA	0.5
Vanuatu									
Santo	10	5	4	0.667	0.0032	0.0022	-1.244	-2.377	**0.112*****
Efate	5	4	5	0.9	0.0055	0.005	-0.561	-0.848	0.24
Uripiv	4	2	6	0.667	0.0075	0.0092	2.156	3.526	0.333
Samoa									
Tutuila	3	2	1	0.667	0.002	0.002	NA	NA	0.471
Niue	3	1	0	0	0	0	NA	NA	NA
Bismarck									
New Guinea	2	2	5	1	0.0153	0.0153	NA	NA	0.5
New Britain	2	1	0	0	0	0	NA	NA	NA
Palau									
Palau	3	2	12	0.667	0.0246	0.0246	NA	NA	0.471
New Caledonia									
Loyalty + mainland NC	2	1	0	0	0	0	NA	NA	NA

Table A5. Estimates for buff-banded rails (*Gallirallus philippensis*) obtained from IMa using CR data for the population size parameter theta (*Ne*), gene flow (*Nm*) and divergence times (*t*) and 90% highest posterior density (HPD) intervals for archipelagos dataset, where Phil = Philippines, Aus = Australia, NCal = New Caledonia, and NZ = New Zealand.

Samples	Parameters		
	HiPt	90% HPD	
		Lower	Upper
Ne			
Philippines	152,190	56,767	596,573
Palau	86,543	28,384	328,585
Wallacea	133,047	84,073	543,887
Bismarck	160,592	92,492	327,243
Australia	250,696	143,640	749,008
New Zealand	135,046	86,086	773,961
New Caledonia	22,724	5,833	155,063
Vanuatu	133,179	65,145	588,873
Fiji	53,667	21,099	258,422
Samoa	47,720	16,284	249,926
Cocos	17,685	2,449	442,674
Nm			
Palau→Phil	0.037	0.014	168.480
Wallacea→Bismarck	0.018	0.011	65.436
Wallacea→Cocos	0.009	0.001	431.126
Wallacea→Aus	0.029	0.015	292.903
Bismarck→NCal	0.005	0.002	101.282
Bismarck→Aus	0.131	0.066	763.197
Aus→NZ	0.016	0.005	353.506

Aus→NCal	0.036	0.019	295.725
Aus→Vanuatu	2.08	0.03	396.59
Aus→Fiji	0.039	0.011	304.588
Aus→Samoa	0.014	0.006	188.161
Aus→Cocos	0.024	0.001	212.145
NZ→NCal	0.007	0.002	88.289
NZ→Vanuatu	2.780	0.049	378.400
NZ→Fiji	0.014	0.003	241.613
NZ→Samoa	0.022	0.009	212.336
Vanuatu→Aus	0.098	0.056	472.640
Vanuatu→NZ	0.066	0.042	639.140
Vanuatu→NCal	0.008	0.003	57.435
Vanuatu→Fiji	0.044	0.025	695.814
Fiji→Samoa	0.004	0.001	40.568
Samoa→Fiji	0.017	0.007	167.787
t			
Palau–Phil	46,059	6,650	492,365
Wallacea–Bismarck	42,488	2,833	137,069
Wallacea–Cocos	20,320	74	141,946
Wallacea–Aus	28,227	4,581	295,419
Bismarck–NCal	49,212	3,990	221,823
Bismarck–Aus	46,552	19,951	105,369
Aus–NZ	21,798	123	246,182
Aus–NCal	38,867	3,695	198,473
Aus–Vanuatu	42,709	11,084	175,714
Aus–Fiji	33,842	3,103	295,123
Aus–Samoa	24,975	1,034	294,532

Aus–Cocos	24,877	2,217	492,365
NZ–NCal	50,862	6,773	246,182
NZ–Vanuatu	43,300	8,128	221,232
NZ–Fiji	40,025	123	193,966
NZ–Samoa	33,128	123	209,729
Vanuatu–NCal	47,167	5,049	191,502
Vanuatu–Fiji	37,315	5,296	164,655
Fiji–Samoa	25,000	123	237,562

Table A6. Genetic diversity statistics for three populations of buff-banded rails (*Gallirallus philippensis*) at six microsatellite loci. Number of individuals sampled (n); number of alleles (A); expected and observed heterozygosity (H_E and H_O); and inbreeding coefficient (F_{IS}).

Locality/Locus	Australia (n = 11)				Cocos (n = 30)				New Zealand (n = 20)			
	A	H_O	H_E	F_{IS}	A	H_O	H_E	F_{IS}	A	H_O	H_E	F_{IS}
Crex1	6	0.72	0.74	0.02	4	0.3	0.34	0.12	10	0.15	0.81	0.82
Crex2	11	0.9	0.87	-0.04	6	0.76	0.65	-0.19	4	0.05	0.57	0.91
Locus11	8	0.63	0.69	0.09	6	0.56	0.63	0.10	4	0.05	0.73	0.93
Locus13	5	0.63	0.67	0.05	2	0.03	0.03	0.00	6	0.1	0.43	0.77
Crex7	11	0.81	0.91	0.11	2	0.4	0.36	-0.11	5	0.7	0.56	-0.27
Crex11	2	0.81	0.09	0.00	2	0.06	0.06	-0.02	4	0.15	0.28	0.46
Mean	7.17	0.75	0.66	0.04	3.67	0.35	0.35	-0.02	5.50	0.20	0.56	0.61