

Tables S3, Supporting information P-values obtained from the comparison between real and simulated datasets for *Gonioctena intermedia* (1000 simulations per set of parameters and reproduction rate $t_R = 2^*$), generated using spatially-explicit coalescence models. f_m is the forward migration rate and N_e is the maximal effective populations sizes. Combined p-values in italic correspond to significant p-values ($p < 0.05$; scenario rejected) and combined p-value in bold represent non-significant p-values (scenario compatible with observed data). * Results associated with the simulations appear independent of the chosen reproduction rate t_R with tested values of 2, 5, or 10.

Scenario	Simulation parameters		Combined p-value	Combined p-value (without COI)	Locus by locus p-values				
	f_m	N_e (mitoch./nuclear)			COI ^a	Actin	EF-1 α	RpP0	WgI
P1	0.0001	250/1000	< 0.001	< 0.001	0.000	0.007	0.000	0.002	0.010
P1	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.015
P1	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.145	0.015	0.002	0.337
P1	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.000	0.003	0.000	0.906
P1	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.040	0.057	0.002	0.034
P2	0.0001	250/1000	< 0.001	< 0.001	0.281	0.015	0.004	0.008	0.014
P2	0.00001	2500/10000	< 0.001	< 0.001	0.173	0.004	0.002	0.004	0.009
P2	0.0001	2500/10000	0.034	0.061	0.100	0.445	0.041	0.167	0.192
P2	0.00001	25000/100000	0.271	0.736	0.030	0.665	0.734	0.193	0.787
P2	0.0001	25000/100000	0.000	0.015	0.000	0.153	0.113	0.157	0.028
P3	0.0001	250/1000	< 0.001	< 0.001	0.000	0.008	0.000	0.000	0.002
P3	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.016
P3	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.060	0.000	0.003	0.154
P3	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.000	0.000	0.000	0.443
P3	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.001	0.000	0.041
P4	0.0001	250/1000	< 0.001	< 0.001	0.000	0.004	0.000	0.000	0.003
P4	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.001	0.000	0.001	0.004
P4	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.023	0.000	0.000	0.204
P4	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.637
P4	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.904
P5	0.0001	250/1000	< 0.001	< 0.001	0.008	0.002	0.001	0.001	0.002
P5	0.00001	2500/10000	< 0.001	< 0.001	0.009	0.004	0.002	0.000	0.001
P5	0.0001	2500/10000	< 0.001	< 0.001	0.005	0.100	0.003	0.020	0.006
P5	0.00001	25000/100000	< 0.001	< 0.001	0.005	0.246	0.017	0.002	0.090
P5	0.0001	25000/100000	0.004	0.060	0.004	0.921	0.141	0.015	0.289
P6	0.0001	250/1000	< 0.001	< 0.001	0.000	0.001	0.000	0.001	0.000
P6	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.002	0.000	0.000	0.000
P6	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.025	0.000	0.000	0.007
P6	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.066
P6	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.234
P7	0.0001	250/1000	< 0.001	< 0.001	0.000	0.016	0.001	0.001	0.019
P7	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.003	0.000	0.000	0.005
P7	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.047	0.003	0.003	0.400
P7	0.00001	25000/100000	< 0.001	< 0.001	0.001	0.005	0.003	0.000	0.841
P7	0.0001	25000/100000	< 0.001	< 0.001	0.002	0.061	0.027	0.006	0.047
P8	0.0001	250/1000	< 0.001	< 0.001	0.310	0.013	0.004	0.004	0.011
P8	0.00001	2500/10000	< 0.001	< 0.001	0.142	0.006	0.004	0.003	0.007
P8	0.0001	2500/10000	0.056	0.098	0.107	0.487	0.062	0.161	0.248
P8	0.00001	25000/100000	0.251	0.768	0.022	0.787	0.769	0.196	0.726
P8	0.0001	25000/100000	0.000	0.016	0.000	0.191	0.138	0.108	0.028
P9	0.0001	250/1000	< 0.001	< 0.001	0.000	0.009	0.000	0.002	0.006
P9	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.002	0.000	0.000	0.009
P9	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.036	0.001	0.001	0.159
P9	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.000	0.000	0.000	0.456
P9	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.003	0.001	0.000	0.038
P10	0.0001	250/1000	< 0.001	< 0.001	0.000	0.002	0.000	0.000	0.005
P10	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.003
P10	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.015	0.000	0.000	0.246
P10	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.592
P10	0.0001	25000/100000	< 0.001	< 0.001	0.000	0.000	0.000	0.000	0.958
P11	0.0001	250/1000	< 0.001	< 0.001	0.012	0.003	0.001	0.002	0.003
P11	0.00001	2500/10000	< 0.001	< 0.001	0.035	0.001	0.001	0.001	0.003
P11	0.0001	2500/10000	0.000	0.005	0.015	0.170	0.005	0.024	0.022
P11	0.00001	25000/100000	< 0.001	< 0.001	0.021	0.021	0.014	0.000	0.124
P11	0.0001	25000/100000	0.007	0.349	0.001	0.980	0.478	0.028	0.430
P12	0.0001	250/1000	< 0.001	< 0.001	0.000	0.001	0.000	0.000	0.001
P12	0.00001	2500/10000	< 0.001	< 0.001	0.000	0.002	0.000	0.000	0.003
P12	0.0001	2500/10000	< 0.001	< 0.001	0.000	0.040	0.000	0.001	0.016
P12	0.00001	25000/100000	< 0.001	< 0.001	0.000	0.002	0.000	0.000	0.124