

Supplementary material

Appendix 1.

TableA1. Results of BayesDiscrete analyses for additional topologies used in the analyses. Refer to Table 2 in the main text for more information.

dataset	rate parameter								P(root dichromatic)	sample sizes ¹
	(a) concealed		(b) exposed		(c) monomorphic		(d) dichromatic			
	mono. → dichr.	dichr. → mono.	mono. → dichr.	dichr. → mono.	conc. → exp.	exp. → conc.	conc. → exp.	exp. → conc.		
High coverage tree from Powell et al. 2014										
(i) no NAs ²	0.859 (0.432,1.401) 1.5%	0.788 (0.0,1.39) 12.3%	0.867 (0.445,1.396) 0.8%	0.289 (0.0,1.202) 71.4%	0.327 (0.0,1.155) 64.6%	0.864 (0.445,1.396) 0.8%	0.619 (0.0,1.293) 30.8%	0.092 (0.0,0.704) 89.5%	0.099 (0.0, 0.395) 46.2%	MC = 10, DC = 3, ME = 9, DE = 13
(ii) no BPs ³ , no NAs ²	0.661 (0.0,1.284) 17.3%	0.747 (0.0,1.425) 11.6%	0.82 (0.364,1.444) 2.1%	0.35 (0.0,1.305) 63.6%	0.4 (0.0,1.216) 53.9%	0.821 (0.383,1.44) 1.1%	0.591 (0.0,1.339) 31.3%	0.117 (0.0,0.761) 84.0%	0.219 (0.0,1.0) 33.8%	MC = 8, DC = 2, ME = 9, DE = 13
(iii) NAs ² =exposed	0.781 (0.429,1.25) 1.7%	0.643 (0.0,1.262) 21.4%	0.819 (0.455,1.308) 0.2%	0.56 (0.0,1.284) 35.7%	0.282 (0.0,1.035) 64.6%	0.778 (0.432,1.237) 1.5%	0.493 (0.0,1.168) 38.9%	0.081 (0.0,0.666) 90.2%	0.188 (0.0,0.405) 21.7%	MC = 10, DC = 3, ME = 15, DE = 14
(iv) NAs ² =concealed	1.874 (0.0,2.943) 9.4%	3.043 (0.0,3.88) 8.2%	3.027 (0.558,3.696) 4.2%	1.88 (0.0,3.136) 49.8%	1.556 (0.0,2.527) 76.0%	3.071 (0.641,3.67) 2.6%	2.874 (0.0,3.725) 19.8%	1.446 (0.0,1.888) 79.7%	0.204 (0.0,0.51) 33.4%	MC = 16, DC = 4, ME = 9, DE = 13
Jetz et al. 2012 tree, Hackett backbone										
(i) no NAs ²	0.065 (0.0,0.114) 7.3%	0.081 (0.034,0.176) 1.5%	0.096 (0.035,0.181) 0.7%	0.097 (0.035,0.183) 0.1%	0.009 (0.0,0.05) 79.2%	0.065 (0.0,0.114) 7.4%	0.075 (0.031,0.149) 2.9%	0.018 (0.0,0.148) 82.8%	0.274 (0.137, 0.654) 0.1%	MC = 43, DC = 9, ME = 15, DE = 18
(ii) no BPs ³ , no NAs ²	0.124 (0.0,0.109) 40.9%	0.561 (0.033,0.206) 1.2%	0.421 (0.033,0.22) 0.6%	0.421 (0.034,0.221) 0.0%	0.008 (0.0,0.047) 80.1%	0.081 (0.0,0.152) 6.3%	0.095 (0.03,0.175) 1.8%	0.014 (0.0,0.116) 86.4%	0.559 (0.14,1.0) 0.0%	MC = 41, DC = 6, ME = 15, DE = 18
(iii) NAs ² =exposed	0.055 (0.0,0.11) 28.0%	0.112 (0.048,0.232) 0.3%	0.127 (0.05,0.24) 0.1%	0.127 (0.05,0.24) 0.0%	0.003 (0.0,0.042) 93.3%	0.055 (0.0,0.109) 28.3%	0.115 (0.05,0.239) 0.0%	0.053 (0.0,0.221) 69.5%	0.444 (0.295,0.684) 0.0%	MC = 51, DC = 17, ME = 15, DE = 18
(iv) NAs ² =concealed	0.091 (0.054,0.133) 1.6%	0.093 (0.058,0.134) 0.3%	1.387 (0.059,0.146) 0.0%	1.387 (0.059,0.146) 0.0%	0.002 (0.0,0.0) 95.7%	0.093 (0.058,0.134) 0.0%	0.092 (0.057,0.133) 0.7%	0.011 (0.0,0.088) 86.4%	0.302 (0.221,0.405) 0.0%	MC = 43, DC = 9, ME = 23, DE = 26
Jetz et al. 2012 tree, Ericson backbone										
(i) no NAs ²	0.070 (0.038,0.110) 1.8%	0.075 (0.041,0.119) 0.9%	0.393 (0.041,0.126) 0.4%	0.393 (0.042,0.127) 0.0%	0.003 (0.0,0.035) 93.4%	0.07 (0.037,0.11) 2.2%	0.072 (0.039,0.116) 2.1%	0.005 (0.0,0.042) 93.9%	0.27 (0.149,0.481) 0.0%	MC = 43, DC = 9, ME = 15, DE = 18
(ii) no BPs ³ , no NAs ²	0.06 (0.0,0.104) 8.6%	0.077 (0.032,0.136) 1.9%	0.141 (0.03,0.139) 2.4%	0.144 (0.034,0.143) 0.0%	0.006 (0.0,0.042) 85.7%	0.067 (0.03,0.118) 1.8%	0.072 (0.028,0.129) 3.2%	0.004 (0.0,0.02) 94.9%	0.335 (0.145,1.0) 0.0%	MC = 41, DC = 6, ME = 15, DE = 18
(iii) NAs ² =exposed	0.063 (0.0,0.108) 18.2%	0.096 (0.052,0.196) 0.1%	0.097 (0.052,0.197) 0.3%	0.098 (0.052,0.198) 0.0%	0.001 (0.0,0.0) 97.9%	0.062 (0.0,0.108) 18.7%	0.097 (0.052,0.197) 0.0%	0.032 (0.0,0.189) 79.9%	0.421 (0.3,0.685) 0.0%	MC = 51, DC = 17, ME = 15, DE = 18
(iv) NAs ² =concealed	0.088 (0.058,0.127) 1.2%	0.09 (0.06,0.127) 0.1%	0.145 (0.06,0.128) 0.2%	0.145 (0.06,0.128) 0.0%	0.001 (0.0,0.0) 99.0%	0.09 (0.06, 0.127) 0.0%	0.089 (0.06, 0.127) 0.6%	0.007 (0.0,0.074) 90.9%	0.281 (0.2,0.36) 0.0%	MC = 43, DC = 9, ME = 23, DE = 26

¹MC = monomorphic/concealed, DC = dichromatic/concealed, ME = monomorphic/exposed, DE = dichromatic/exposed

²NA = species with ambiguous nest exposure designations

³BP = brood parasites