

Morrone (1994) Geodis output using nesting procedure 1

Differentiating population structure from history - Geodis 2.4
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Input file:

/Users/anthonydeo/Desktop/endemism/morrone94wsteps/geodisincorrectedwsteps

Endemic Areas

Wed Oct 05 05:17:45 EDT 2005

PERMUTATION ANALYSIS OF Clade 1-2
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 2.0000

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 1-2	25.6680	30.5680
0-3	25.6680	30.2680
0-23	25.6680	30.8680

CLADE 0-3 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	94.6845	1.0000	0.3320
NESTED CLADE	100.8646	0.8420	0.4900

CLADE 0-23 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	90.4487	0.6420	0.6900
NESTED CLADE	96.2829	0.4900	0.8420

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF Clade 1-3
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 1.3333

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 1-3	33.0000	25.3750
0-2	33.0000	25.2500
0-1	33.0000	25.5000

CLADE 0-2 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	23.2919	1.0000	0.5100
NESTED CLADE	23.2919	1.0000	0.5100

CLADE 0-1 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	0.5100	1.0000
NESTED CLADE	11.6459	0.5100	1.0000

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF Clade 1-5
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 39.1667

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.4170

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 1-5	27.1084	28.8371
0-4	27.3300	30.3300
0-5	24.0000	30.0000
0-6	29.5706	28.2529
0-7	28.2900	28.5700
0-8	28.0363	28.0712
0-11	26.0000	29.3300
0-12	31.4000	27.8000
0-13	26.0000	29.3300

CLADE 0-4 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
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WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	149.5232	0.7090	0.3920
CLADE 0-5 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	364.4469	0.7970	0.3170
CLADE 0-6 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	171.1898	0.7370	0.4160
NESTED CLADE	279.3613	0.8560	0.2970
CLADE 0-7 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	133.8614	0.5750	0.7080
CLADE 0-8 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	14.1063	0.1730	0.8840
NESTED CLADE	129.4881	0.0570	1.0000
CLADE 0-11 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	132.5211	0.3060	0.9020
CLADE 0-12 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	487.2183	1.0000	0.2020
CLADE 0-13 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	0.0000	1.0000	1.0000
NESTED CLADE	132.5211	0.3110	0.9030

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF Clade 1-9
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 3.7714

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 1-9	32.9505	26.5237
0-17	32.6000	26.7661
0-18	33.4293	26.1927

CLADE 0-17 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	115.5090	0.6680	0.3610
NESTED CLADE	116.6539	0.6050	0.4240

CLADE 0-18 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	86.1339	0.4620	0.5670
NESTED CLADE	106.7261	0.4530	0.5760

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF Clade 2-1
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 7.9167

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 2-1	29.0267	30.4149
1-12	29.4089	30.4052
1-13	28.6257	30.4251

CLADE 1-12 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	98.0104	0.6080	0.3920
NESTED CLADE	99.0967	0.6240	0.3760

CLADE 1-13 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	87.1086	0.3080	0.6920
NESTED CLADE	91.1669	0.3830	0.6170

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF Clade 2-3
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 3.7976

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 2-3	25.1783	30.3003
1-1	24.9335	30.1665
1-2	25.6680	30.5680

CLADE 1-1 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	110.4557	0.5820	0.4450
NESTED CLADE	119.1204	0.6750	0.3520

CLADE 1-2 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	98.5737	0.5400	0.4870
NESTED CLADE	100.6872	0.3060	0.7210

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	-11.8820	0.4560	0.5710
NESTED CLADE	-18.4332	0.3140	0.7130

PERMUTATION ANALYSIS OF Clade 2-4
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 37.0500

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0710

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 2-4	28.9895	28.0005
1-3	33.0000	25.3750
1-4	29.8190	29.2636
1-5	27.1084	28.8371
1-6	32.6000	26.0667

CLADE 1-3 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	17.4689	0.0010	1.0000
NESTED CLADE	511.1358	0.9820	0.0190

CLADE 1-4 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	126.9143	0.1840	0.8330
NESTED CLADE	199.6038	0.2140	0.8030

CLADE 1-5 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	195.5389	0.0120	0.9880
NESTED CLADE	265.3179	0.1570	0.8430

CLADE 1-6 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	140.1122	0.4690	0.5620
NESTED CLADE	448.3041	0.8300	0.2010

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	121.9270	0.7780	0.2220
NESTED CLADE	-81.8065	0.2540	0.7460

PERMUTATION ANALYSIS OF Clade 2-5
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 14.0099

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9540

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 2-5	32.6412	26.2015
1-7	32.8857	25.7810
1-8	32.1789	25.9066
1-9	32.9505	26.5237

CLADE 1-7 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	65.2732	0.2930	0.7210
NESTED CLADE	90.1334	0.3890	0.6250

CLADE 1-8 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	43.9939	0.0070	0.9930
NESTED CLADE	82.3380	0.1540	0.8460

CLADE 1-9 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	112.4576	0.7850	0.2150
NESTED CLADE	122.8221	0.9440	0.0560

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	-21.9609	0.5000	0.5000
NESTED CLADE	-17.7735	0.3370	0.6630

PERMUTATION ANALYSIS OF Clade 3-1
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 11.6228

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9980

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 3-1	29.0562	30.5393
2-1	29.0267	30.4149
2-2	29.1500	30.9347

CLADE 2-1 (Tip)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	95.2270	0.8320	0.1680
NESTED CLADE	93.9517	0.7920	0.2080

CLADE 2-2 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	58.4785	0.0590	0.9410
NESTED CLADE	74.7275	0.1920	0.8080

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	-36.7485	0.0770	0.9230
NESTED CLADE	-19.2242	0.1970	0.8030

PERMUTATION ANALYSIS OF Clade 3-3
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 146.6963

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 3-3	30.0283	28.5360
2-3	25.1783	30.3003
2-4	27.6262	28.7225
2-5	32.6412	26.2015
2-6	31.6764	29.9749

CLADE 2-3 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	112.9760	0.0000	1.0000
NESTED CLADE	570.0545	1.0000	0.0000

CLADE 2-4 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	348.2814	0.3680	0.6320
NESTED CLADE	426.9813	0.8590	0.1410

CLADE 2-5 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	103.4239	0.0000	1.0000
NESTED CLADE	371.1210	0.4410	0.5590

CLADE 2-6 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	60.1466	0.0000	1.0000
NESTED CLADE	243.6368	0.0000	1.0000

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	253.8631	1.0000	0.0000
NESTED CLADE	41.5460	0.7610	0.2390

PERMUTATION ANALYSIS OF Clade 4-0
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 106.8870

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.1060

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
Clade 4-0	29.7575	29.3842
3-1	29.0578	30.5545
3-2	28.6988	30.8328
3-3	30.3601	28.4260

CLADE 3-1 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	90.0240	0.0000	1.0000
NESTED CLADE	169.6141	0.0000	1.0000

CLADE 3-2 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	92.8078	0.0000	1.0000
NESTED CLADE	212.0837	0.0370	0.9630

CLADE 3-3 (Tip)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	352.7495	1.0000	0.0000
NESTED CLADE	374.9738	1.0000	0.0000

PART III. TEST OF INTERIOR VS. TIP CLADES:

TYPE OF DISTANCE	I-T DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	-146.0165	0.0130	0.9870
NESTED CLADE	-73.8404	0.0710	0.9290

** ANALYSIS FINISHED **
 It took 10.8780 seconds.