

Morrone & Escalante (2002) Geodis output for nesting level 3

Differentiating population structure from history - Geodis 2.3 beta
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Input file: C:\Documents and Settings\Anthony
Deo\Desktop\geo_in_transfer\geodis_in_level3_final
Endemic Areas Mexico

Wed Mar 16 10:55:42 EST 2005

PERMUTATION ANALYSIS OF 3-1
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 133.7172

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
3-1	20.6762	101.5485
2-1	20.5794	101.3099
2-2	20.9062	102.1147

CLADE 2-1 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	331.6858	0.6120	0.3880
NESTED CLADE	331.2156	0.5610	0.4390

CLADE 2-2 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	315.9129	0.3290	0.6710
NESTED CLADE	322.6752	0.4240	0.5760

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-2
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 99.5321

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
2-2	22.0622	101.8058
1-3	22.3221	101.9963
1-4	21.1067	101.1052

CLADE 1-3 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	463.1977	0.9880	0.0120
NESTED CLADE	461.8524	0.9860	0.0140

CLADE 1-4 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	346.2885	0.0020	0.9980
NESTED CLADE	372.6014	0.0090	0.9910

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-3
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 367.7914

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
3-3	19.0685	97.8166
2-5	19.5240	98.8824
2-6	18.5514	96.6868
2-11	19.6256	98.9574

CLADE 2-5 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	343.5166	0.6300	0.3700
NESTED CLADE	360.4671	0.8530	0.1470

CLADE 2-6 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	319.9703	0.1060	0.8940

NESTED CLADE	346.7966	0.6480	0.3520
CLADE 2-11 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	291.3831	0.0010	0.9990
NESTED CLADE	309.7032	0.0420	0.9580

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-4
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 120.8325

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
3-4	19.6250	98.9734
2-13	19.4501	97.9968
2-16	19.9063	100.5443

CLADE 2-13 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	671.1770	0.4990	0.5010
NESTED CLADE	626.7328	0.5420	0.4580

CLADE 2-16 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	261.5857	0.0700	0.9300
NESTED CLADE	294.0921	0.0360	0.9640

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-5
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 534.7039

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9740

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-5	23.0761	100.3599
2-21	20.8135	99.4091
2-22	24.7461	101.4409
2-33	19.5070	92.0548
2-43	19.6473	98.2173
2-100	24.7857	106.6311

CLADE 2-21 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	329.2852	0.0000	1.0000
NESTED CLADE	413.8277	0.0000	1.0000

CLADE 2-22 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	516.9608	0.0050	0.9950
NESTED CLADE	572.5507	0.0380	0.9620

CLADE 2-33 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	332.9318	0.0000	1.0000
NESTED CLADE	968.7360	1.0000	0.0000

CLADE 2-43 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	303.9467	0.0010	0.9990
NESTED CLADE	511.9099	0.1080	0.8920

CLADE 2-100 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	544.5973	0.0930	0.9070
NESTED CLADE	776.8762	0.9700	0.0300

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-6
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 235.4787

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.7880

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-6	17.3163	91.4604
2-46	18.3024	96.0306
2-47	16.4529	87.4591

CLADE 2-46 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	352.0090	0.0000	1.0000
NESTED CLADE	583.2132	0.0970	0.9030

CLADE 2-47 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	841.4299	0.8960	0.1040
NESTED CLADE	746.5410	0.7640	0.2360

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-7
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 65.0761

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.1740

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-7	23.0502	100.0965
2-44	21.4850	94.3899
2-45	24.8873	106.7942

CLADE 2-44 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	1763.5959	0.8810	0.1190
NESTED CLADE	1650.6304	0.8740	0.1260

CLADE 2-45 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	517.1821	0.0570	0.9430
NESTED CLADE	792.6460	0.0540	0.9460

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-8
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 191.2329

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
3-8	19.2528	98.0860
2-9	19.4106	98.2506
2-10	18.4730	97.2724

CLADE 2-9 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	349.5288	0.8640	0.1360
NESTED CLADE	348.4195	0.8060	0.1940

CLADE 2-10 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	278.8421	0.0070	0.9930
NESTED CLADE	322.2776	0.2170	0.7830

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-9
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 200.9923

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
3-9	19.5678	97.0480

2-7	20.0727	97.9134
2-8	19.1300	96.2977

CLADE 2-7 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	264.2832	0.0210	0.9790
NESTED CLADE	264.3698	0.0130	0.9870

CLADE 2-8 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	359.4935	0.9010	0.0990
NESTED CLADE	366.0122	0.9400	0.0600

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-10
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 498.4236

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
3-10	19.8754	99.1876
2-12	18.9061	96.1793
2-14	20.7031	100.3912
2-15	20.3959	100.8925

CLADE 2-12 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	380.9975	0.6270	0.3730
NESTED CLADE	480.1501	1.0000	0.0000

CLADE 2-14 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	291.7938	0.0800	0.9200
NESTED CLADE	306.8528	0.0560	0.9440

CLADE 2-15 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	264.1005	0.0000	1.0000
NESTED CLADE	315.0994	0.0000	1.0000

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-11
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 178.1053

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
3-11	20.6808	100.5408
2-19	20.4587	99.4634
2-20	20.8501	101.3619

CLADE 2-19 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	329.9797	0.2270	0.7730
NESTED CLADE	348.7099	0.7980	0.2020

CLADE 2-20 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	324.4569	0.0420	0.9580
NESTED CLADE	332.7073	0.2140	0.7860

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-12
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 150.5218

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
3-12	21.9169	101.0356

2-17	21.6719	101.1783
2-18	21.9810	100.9983

CLADE 2-17 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	289.5691	0.0050	0.9950
NESTED CLADE	293.1466	0.0000	1.0000

CLADE 2-18 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	368.8330	0.9990	0.0010
NESTED CLADE	368.4798	0.9990	0.0010

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-13

BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 183.3594

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9990

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-13	19.0447	94.9359
2-24	19.6055	95.3806
2-25	18.8611	94.7902

CLADE 2-24 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	297.9554	0.3230	0.6770
NESTED CLADE	289.6305	0.2240	0.7760

CLADE 2-25 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	349.6401	0.6800	0.3200
NESTED CLADE	350.5247	0.7370	0.2630

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-14

BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 182.6796

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
3-14	18.1329	93.4421
2-26	18.3637	94.1517
2-27	18.0603	93.2191

CLADE 2-26 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	416.4514	0.2190	0.7810
NESTED CLADE	432.9661	0.2810	0.7190

CLADE 2-27 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	486.4632	0.6920	0.3080
NESTED CLADE	483.3047	0.6710	0.3290

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-15
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 154.9691

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
3-15	21.5506	98.7768
2-30	21.8675	98.5797
2-32	21.3409	98.9071

CLADE 2-30 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	316.8902	0.1860	0.8140

NESTED CLADE	323.2625	0.2240	0.7760
CLADE 2-32 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	358.2200	0.7660	0.2340
NESTED CLADE	362.2812	0.8190	0.1810

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-16
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 98.7531

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
3-16	23.2431	100.6747
2-29	22.7022	100.8694
2-31	23.3260	100.6448

CLADE 2-29 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	451.0985	0.9880	0.0120
NESTED CLADE	459.2613	0.9880	0.0120

CLADE 2-31 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	303.8639	0.0310	0.9690
NESTED CLADE	305.2481	0.0320	0.9680

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-17
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 80.0274

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.6430

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-17	21.1781	97.4662
2-23	19.1957	95.1627
2-28	21.6373	97.9997

CLADE 2-23 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	233.0603	0.0580	0.9420
NESTED CLADE	426.5180	0.8840	0.1160

CLADE 2-28 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	356.8976	0.1280	0.8720
NESTED CLADE	360.3977	0.1120	0.8880

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-18
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 85.5158

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9910

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-18	19.3448	93.6524
2-34	19.0315	91.9430
2-35	19.4220	94.0734

CLADE 2-34 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	206.3595	0.0040	0.9960
NESTED CLADE	286.0844	0.2630	0.7370

CLADE 2-35 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	315.0797	0.7200	0.2800
NESTED CLADE	317.9134	0.8340	0.1660

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-19
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 95.7109

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
3-19	19.9405	93.0603
2-36	19.3684	93.7866
2-37	20.2588	92.6563

CLADE 2-36 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	270.8592	0.0010	0.9990
NESTED CLADE	295.6686	0.0010	0.9990

CLADE 2-37 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	462.9132	0.9890	0.0110
NESTED CLADE	468.1012	0.9930	0.0070

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-20
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 72.1853

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
3-20	19.4009	93.0082
2-38	19.3733	92.0182
2-39	19.4212	93.7335

CLADE 2-38 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	299.1668	0.3550	0.6450
NESTED CLADE	321.4309	0.6920	0.3080

CLADE 2-39 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	306.2607	0.3830	0.6170
NESTED CLADE	303.0073	0.2720	0.7280

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-21
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 551.5546

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
3-21	18.7869	93.3834
2-40	20.0316	93.6427
2-41	19.0419	93.1200
2-42	17.9251	93.3486

CLADE 2-40 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	405.8984	0.9040	0.0960
NESTED CLADE	412.9364	0.9480	0.0520

CLADE 2-41 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	300.3290	0.0120	0.9880
NESTED CLADE	303.4557	0.0140	0.9860

CLADE 2-42 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	355.5593	0.2800	0.7200
NESTED CLADE	377.9603	0.6220	0.3780

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-22
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 86.6168

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.8150

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-22	28.0973	110.5108
2-48	28.8902	113.4665
2-49	26.1064	107.7768
2-80	29.2926	111.6766

CLADE 2-48 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	130.3960	0.0660	0.9340
NESTED CLADE	366.4644	0.1980	0.8020

CLADE 2-49 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	463.3146	0.2670	0.7330
NESTED CLADE	530.0698	0.8090	0.1910

CLADE 2-80 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	461.6009	0.4150	0.5850
NESTED CLADE	509.1614	0.5860	0.4140

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-23
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 427.5368

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0310

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-23	26.4993	108.7877
2-50	24.0005	103.2021
2-51	26.2996	106.7323
2-52	28.4306	113.7360

CLADE 2-50 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	363.6825	0.0000	1.0000
NESTED CLADE	659.3441	0.9800	0.0200

CLADE 2-51 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	525.2266	0.1410	0.8590
NESTED CLADE	581.2861	0.0950	0.9050

CLADE 2-52 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	258.1597	0.0000	1.0000
NESTED CLADE	620.8874	0.4520	0.5480

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-24
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 66.4992

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
3-24	27.9896	110.9184
2-55	28.2414	111.0008
2-58	27.4864	110.7536

CLADE 2-55 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	395.2194	0.5000	0.5000

NESTED CLADE	402.1786	0.6890	0.3110
CLADE 2-58 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	389.4970	0.4410	0.5590
NESTED CLADE	385.1845	0.2870	0.7130

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-25
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 58.4163

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
3-25	25.6922	109.8028
2-53	25.7345	109.3087
2-54	25.6164	110.6860

CLADE 2-53 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	449.0096	0.8090	0.1910
NESTED CLADE	446.4645	0.7460	0.2540

CLADE 2-54 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	386.0461	0.1690	0.8310
NESTED CLADE	411.6214	0.2760	0.7240

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-27
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 382.8021

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.8680

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-27	25.4331	103.3833
2-59	25.6468	103.4376
2-64	25.6992	104.2516
2-71	24.4725	102.8682

CLADE 2-59 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	329.6576	0.8230	0.1770
NESTED CLADE	331.0927	0.8760	0.1240

CLADE 2-64 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	205.4185	0.0050	0.9950
NESTED CLADE	223.4279	0.0240	0.9760

CLADE 2-71 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	281.7950	0.2130	0.7870
NESTED CLADE	295.3330	0.3160	0.6840

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-28
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 117.7568

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
3-28	23.5372	102.5615
2-72	23.2410	102.1765
2-75	23.8865	103.0156

CLADE 2-72 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	339.4321	0.9580	0.0420

NESTED CLADE	337.4442	0.9440	0.0560
CLADE 2-75 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	283.6840	0.0100	0.9900
NESTED CLADE	291.8423	0.0270	0.9730

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-29
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 116.4822

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
3-29	24.0445	103.5025
2-76	23.6471	103.1362
2-77	24.2889	103.7277

CLADE 2-76 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	253.2705	0.0000	1.0000
NESTED CLADE	259.6684	0.0000	1.0000

CLADE 2-77 (Interior)			
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	387.2625	0.9990	0.0010
NESTED CLADE	391.8079	0.9990	0.0010

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-30
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 185.0411

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
3-30	22.7441	102.5404
2-78	23.1121	103.1404
2-79	22.5117	102.1616

CLADE 2-78 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	350.0452	0.8220	0.1780
NESTED CLADE	365.9170	0.9710	0.0290

CLADE 2-79 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	315.1630	0.0190	0.9810
NESTED CLADE	316.5701	0.0220	0.9780

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-31
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 174.1930

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
3-31	24.8787	102.5148
2-73	24.8561	103.6685
2-74	24.8887	102.0054

CLADE 2-73 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	283.1456	0.3070	0.6930
NESTED CLADE	303.3071	0.6280	0.3720

CLADE 2-74 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	282.3362	0.1550	0.8450
NESTED CLADE	293.8611	0.4010	0.5990

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-33
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 98.6263

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
3-33	25.9286	104.9647
2-65	25.1753	104.6554
2-66	26.6448	105.2589

CLADE 2-65 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	294.6298	0.6750	0.3250
NESTED CLADE	304.5426	0.8960	0.1040

CLADE 2-66 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	266.3016	0.0140	0.9860
NESTED CLADE	280.0868	0.1420	0.8580

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-34
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 210.4558

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.6730

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-34	26.7381	106.9521
2-62	28.3929	110.4792
2-63	25.9467	105.2652

CLADE 2-62 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	411.5114	0.0010	0.9990
NESTED CLADE	535.4071	0.0020	0.9980

CLADE 2-63 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	734.3988	0.8370	0.1630
NESTED CLADE	790.3207	1.0000	0.0000

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-35
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 78.0920

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
3-35	29.6476	113.2079
2-56	29.4189	112.9990
2-57	29.7119	113.2667

CLADE 2-56 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	335.6263	0.1670	0.8330
NESTED CLADE	327.8512	0.0210	0.9790

CLADE 2-57 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	378.0782	0.7870	0.2130
NESTED CLADE	380.7875	0.9060	0.0940

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-36
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 81.2972

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9960

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
3-36	27.9667	109.1437
2-81	28.7193	110.1930
2-82	27.4671	108.4472

CLADE 2-81 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	366.3811	0.1660	0.8340
NESTED CLADE	419.1866	0.7400	0.2600

CLADE 2-82 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	385.2233	0.1670	0.8330
NESTED CLADE	387.0469	0.1710	0.8290

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-37
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 82.4912

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
3-37	27.5707	107.6057
2-83	28.2743	108.1217
2-84	27.2286	107.3548

CLADE 2-83 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	373.8615	0.1160	0.8840	
NESTED CLADE	396.5726	0.3000	0.7000	

CLADE 2-84 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	420.6033	0.8300	0.1700	
NESTED CLADE	416.3120	0.7010	0.2990	

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 3-38
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 150.0037

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
3-38	25.4684	105.8633
2-85	24.9918	105.6002
2-86	25.7031	105.9928

CLADE 2-85 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	454.2258	0.5590	0.4410	
NESTED CLADE	448.5851	0.4370	0.5630	

CLADE 2-86 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	454.8683	0.5470	0.4530	
NESTED CLADE	456.3662	0.5490	0.4510	

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

** ANALYSIS FINISHED **
 It took 167.5000 seconds.