This is an electronic appendix to the paper by Hartley *et al*. 2004 Coherence and discontinuity in the scaling of species distribution patterns. *Proc. R. Soc. Lond.* B **271**, 81–88. (DOI 10.1098/ rspb.2003. 2531.)

Electronic appendices are refereed with the text. However, no attempt is made to impose a uniform editorial style on the electronic appendices.

Electronic Appendix A

A phylogenetically controlled analysis of cross-scale correlations yields the same qualitative result as when species are analysed as independent sample points (Table 3). Correlation coefficients between the eight sets of pariwise contrasts were obtained from linear regression through the origin (Harvey & Pagel 1991; Garland *et al*. 1992) or equivalently, from the correlation of a "doubled data-set" in which each contrast is included once as a positive difference and once as a negative difference (Legendre & Desdives, *submitted*). Significance values were calculated with the parametric test of the REGRESSN program (Anderson & Legendre 1999), using 7 degrees of freedom (Legendre & Desdives, *submitted*). Cluster analysis was performed on the "doubled data set" of contrasts desribed above. In this case centroid clustering result in a slightly different grouping than the average linkage and median methods.

References (for Electronic Appendix)

Anderson, M. J. & Legendre, P. 1999 An empirical comparison of permutation methods for tests of partial regression coefficients in a linear model. *Jnl of Statistical Computation and Simulation* **62**: 271-303.

Garland, T. Jr., Harvey, P.H. & Ives, A.R. 1992 Procedures for the analysis of comparative data using phylogenetically independent contrasts. *Syst. Biol*. **41**: 18-32.

Harvey, P.H. & Pagel, M.D. 1991 *The Comparative Method in Evolutionary Biology*. Oxford University Press, Oxford.

Legendre, P. & Desadvises, Y. Independent contrasts and regression through the origin (*submitted*).

Table 3. (*a*) Pearson correlation coefficients between the D_{ij} differences or "contrasts" of the eight phylogenetically-independent species pairs. Single-test significance values depicted as follows: light grey = $p \leq 0.05$; dark grey $p \leq 0.01$; white text on black $p \leq 0.001$. There are numerous strong inter-correlations between local-scale patterns ($D_{0.001\text{-}0.002}$ to $D_{0.2\text{-}0.5}$) and between regional-scale patterns ($D_{1\text{-}2}$ to $D_{20\text{-}50}$), but once again $D_{0.5\text{-}1}$ does not correlate significantly with any other *D*-value. **(*b*)** Four-group membership obtained from average linkage and median cluster analysis (CA) of the doubled data-set, using correlation coefficients as a measure of similarity. **(*c*)** Mean and coefficient of variation of the absolute contrasts ($n = 8$).

(*a*)

Scale *i-j* (km)	0.001-0.002	0.002-0.005	0.005-0.01	0.01-0.02	0.02-0.05	0.05-0.1	0.1-0.2	0.2-0.5	0.5-1	1-2	2-5	5-10	10-20	20-50	50-100
0.002-0.005	0.9														
0.005-0.01	0.8	0.8													
0.01-0.02	0.7	0.6	0.8												
0.02-0.05	0.5	0.5	0.5	0.8											
0.05-0.1	0.3	0.2	0.5	0.9	0.9										
0.1-0.2	0.6	0.6	0.7	0.7	0.9	0.8									
0.2-0.5	0.4	0.3	0.3	0.6	0.8	0.7	0.6								
0.5-1	0.0	0.0	-0.3	0.0	-0.2	-0.1	-0.5	0.0							
1-2	0.0	0.2	-0.3	-0.2	0.2	-0.1	0.0	0.1	0.5						
2-5	0.0	0.2	-0.2	-0.1	0.1	-0.1	0.0	0.0	0.4	0.9					
5-10	-0.1	0.0	-0.2	0.0	0.3	0.2	0.1	0.3	0.4	0.9	0.9				
10-20	0.1	0.3	0.0	-0.2	-0.1	-0.3	-0.1	0.2	0.2	0.8	0.9	0.6			
20-50	-0.1	0.1	-0.1	-0.1	0.4	0.1	0.2	0.3	0.2	0.9	0.8	0.9	0.6		
50-100	-0.2	-0.1	-0.1	0.1	0.0	0.1	-0.2	0.5	0.2	0.1	0.2	0.3	0.1	0.1	

(*b*)

CA Grouping	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*b*	*c*	*c*	*c*	*c*	*c*	*d*

(*c*)

Mean absolute contrast	0.44	0.44	0.37	0.31	0.38	0.33	0.34	0.53	0.34	0.20	0.38	0.50	0.49	0.54	0.46
CV	0.90	0.58	0.79	0.96	0.79	0.55	0.75	0.79	0.96	0.62	0.45	0.63	0.70	0.57	1.03