
Article:
Evans, K.L., Greenwood, J.J.D. and Gaston, K.J. (2005) Relative contribution of abundant and rare species to species–energy relationships. Biology Letters, 1 (1). pp. 87-90. ISSN 1744-957X

https://doi.org/10.1098/rsbl.2004.0251

ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

Relative contribution of abundant and rare species
to species-energy relationships

by

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Biol. Lett. (doi:10.1098/rsbl.2004.0251)

Supplementary materials

Methods

Our spatial correlation models fit a spatial covariance matrix to the data and use this to adjust test statistics accordingly. Our spatial models assumed a power spatial covariance structure as, for each response variable, this gave a better fit to the null model than five alternative covariance structures: spherical, gaussian, linear, linear log and power. Comparing null spatial models to ones that assumed independent errors demonstrated that all our response variables were significantly spatially autocorrelated (likelihood ratio tests $P<0.0001$ in all cases). Further details of these models are provided by Littell *et al.* (1996).

Using R we constructed 1,000 non-identical random assemblages for each of the species richness values that we consider, with the exception of that of the complete assemblage, giving a total of 37 species richness values. We then assessed the form of the species-energy relationships in each of these random assemblages using GLMs. It was not practical to do so using spatial models due to the intensive computer time that these currently require. Each of our spatial models takes approximately 40 minutes to run on a high-specification PC and thus constructing spatial models for each of our 37,000 random assemblages would require more computer time (>24,000 hours) than we could allocate.