

Ecography

E6483

Ficetola, G. F., Manenti, R., De Bernardi, F. and Padoa-Schioppa, E. 2011. Can patterns of spatial autocorrelation reveal population processes? An analysis with the fire salamander. – *Ecography* 34: xxx–xxx.

Supplementary material

Appendix 1

Most environmental variables were affected by strong SAC (Fig. A1): for forest cover, SAC was positive and significant at distances up to 3000 m; for hydrographic network, SAC was positive and significant at distances up to 5000 m; for hydroperiod, SAC was weak but positive and significant at the 500 m distance (Fig. A1a-c). Similarly, the four variables describing microhabitat and communities in the 132 streams dataset were spatially autocorrelated. For morphological heterogeneity, SAC was positive and significant at distances up to 500 m; for macrobenthos richness, SAC was positive and significant at distances up to 1500 m; for periphyton abundance, SAC was positive and significant at distances up to 750 m; for maximum depth, the pattern was less clear, but was positive and significant at distances up to 2000 m (Fig. A1d-g).

Table A1. Coefficients and significance of environmental variables in ordinary last squares regression models. (a): Model considering all 565 sites; (b): model considering the subset of 132 permanent streams, for which additional environmental variables are available.

a) All sites	<i>B</i>	SE	χ^2_1	p
Forest cover	4.18	0.45	114.2	<0.001
Hydrographic network	-0.01	0.01	0.6	0.425
Hydroperiod	1.74 ^a	0.28	46.8	<0.001
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b) 132 sites subset				
Forest cover	3.28	1.86	3.3	0.070
Hydrographic network	0.02	0.02	1.1	0.303
Maximum depth	-5.35	1.79	12.3	< 0.001
Stream morphological heterogeneity	1.55	0.57	9.0	0.003
Macrobenthos richness	0.44	0.24	4.7	0.031
Periphyton abundance	-0.96	0.42	6.0	0.015

a) Positive values indicate association with more permanent water

Figure A1. Pattern of spatial autocorrelation of (a-c): environmental features recorded in 565 sites;

(d-g): microhabitat features measured in a subset of 132 streams. Error bars are twice the standard error of Moran's I ; asterisks indicate spatial autocorrelation significantly > 0 .

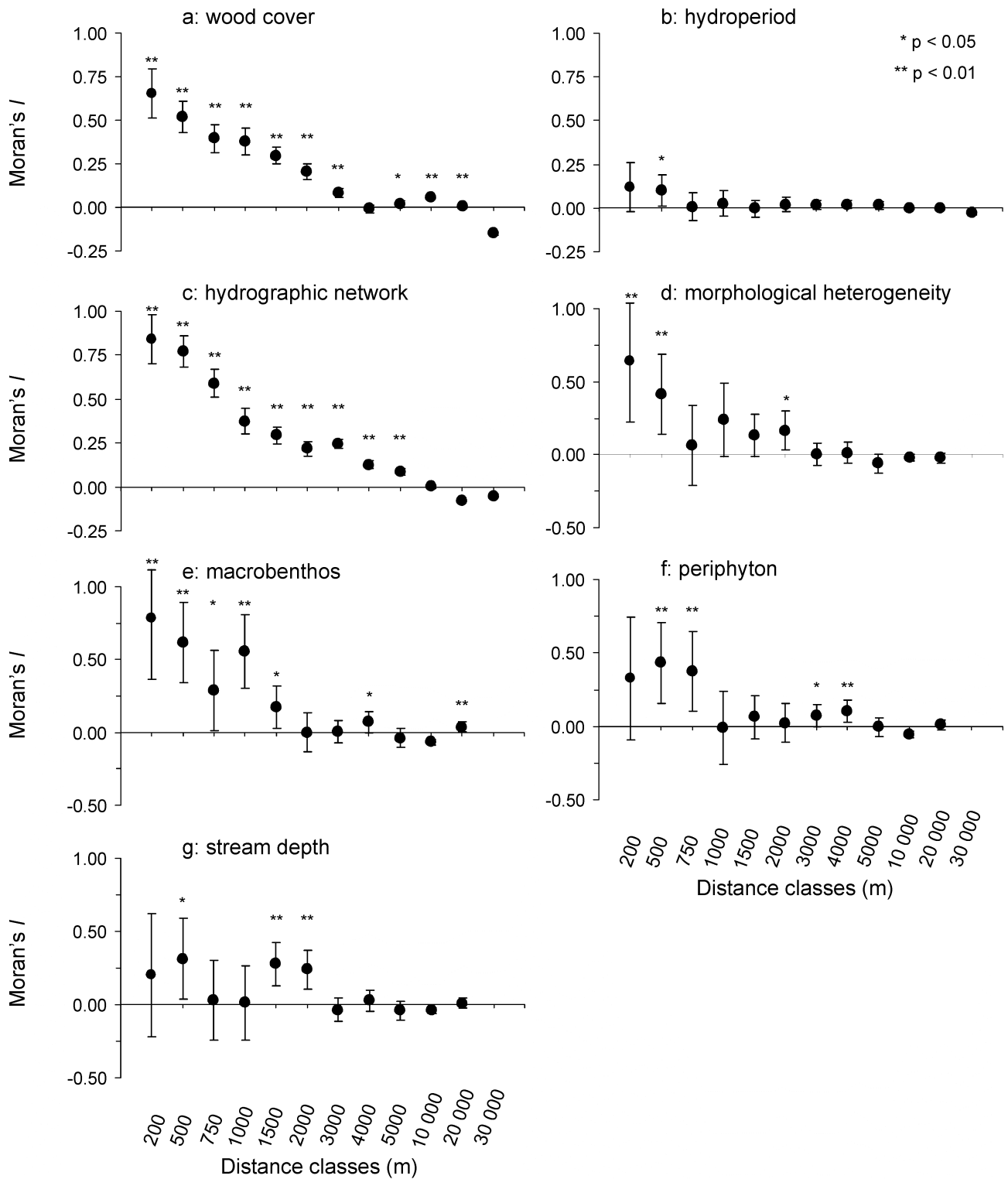


Figure A2. Relationship between wood cover and salamander distribution, as predicted by a Generalized Additive Model.

