

Supplementary Text S1

Structural Equation Modelling (SEM)

To distinguish between potential causal pathways and control for these possible confounding variables, we used Structural Equation Modelling (SEM). For each system, we constructed an initial model (Figure 2) with a variety of pathways allowing carnivoran frequency of occurrence and foraging activity rates by rodents. All paths in the original model were treated as optional, and were thus able to be removed during model simplification.

Initial model was simplified by removing nonsignificant terms, until model fit (assessed using Akaike Information Criterion) no longer improved. When model fit did not differ significantly between two competing models (the difference in AIC score was <2), we selected the most parsimonious (the model with fewest parameters) and the most appropriate model. The appropriateness was assessed by means of the comparative fit index (CFI values greater than 0.95), root mean square error of approximation (RAMSEA values less than 0.07) and standardised root mean square residual (SRMR less than 0.08) criteria [1,2].

In Figure 2 we present the diagram for the initial models, and present the final most parsimonious model in main text (Figure 2). Values adjacent to paths indicate standardized direct effects, with significance indicated by * = $P < 0.05$, ** = $P < 0.01$, *** = $P < 0.001$. For each model, the number of distinct parameters being estimated is shown. Standardized total effects (direct and indirect combined) are presented in Table 3.

References

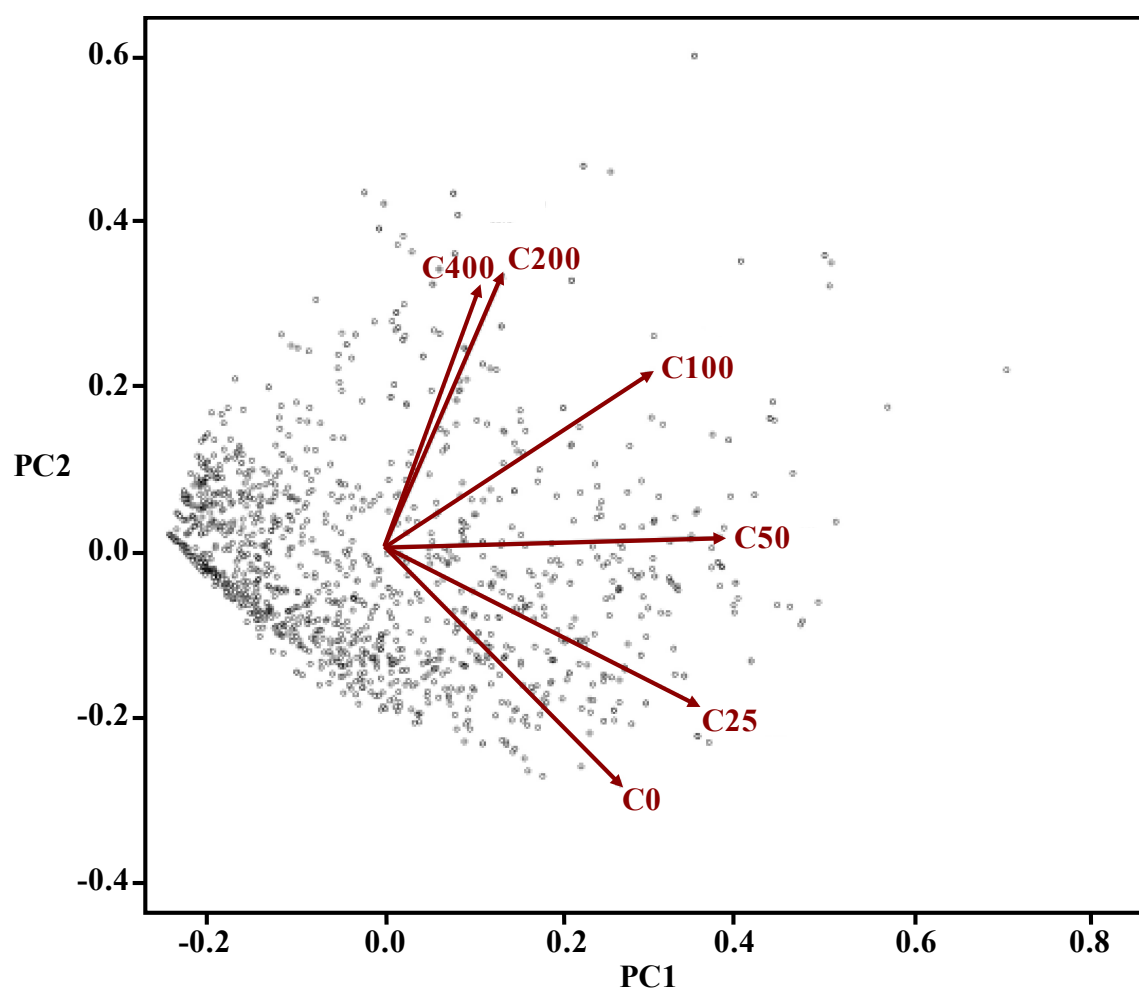
1. Hooper, D.; Coughlan, J.; Mullen, M. Structural equation modelling: Guidelines for determining model fit. *EJBRM* 2008, 6, 53-60, doi:10.21427/D7CF7R.
2. Hu, L.t.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling* 1999, 6, 1-55, doi:10.1080/10705519909540118.

Supplementary Data

Supplementary Figure S1

Principal component analysis of habitat structure

Principal component analysis (PCA) of the six foliage covers of the height of vegetation layers where, the first component (PC1; percentage of explained variance= 42.6) corresponds to the plant cover and the second component (PC2; percentage of explained variance= 27.9) corresponds to the height of vegetation. The bottom table shows the eigenvectors (reflect both common and unique variance of the variables, being linear combinations of the original variables weighted by their contribution to explaining the variance in a particular orthogonal dimension); and the percentage of contribution of the variables (if a factor has a low value, then it has a low contribution to explaining the variance of the variables).



Foliage cover	Eigenvectors		Contribution of the variables (%)	
	PC1	PC2	PC1	PC2
C0	0.29	-0.38	21.61	3.40
C25	0.32	-0.21	27.16	1.32
C50	0.36	0.02	27.30	0.70
C100	0.34	0.21	20.56	0.05
C200	0.15	0.34	1.76	47.31
C400	0.10	0.31	1.62	47.22

Supplementary Table S1

Selected GLMM models and criteria

Models structure for each response variable (total carnivorans, red fox and stone marten frequency of occurrence), selected following criteria of greater AIC weight ($AIC\omega_i$). If there was no clearly most parsimonious model than the rest, we proceed to the estimate of the average final model, from all those models considered with an adjustment equivalent to the best model, i.e., models than showed an increase in AIC (ΔAIC_{ci}) less than 2.

	df	AICc	ΔAIC_{ci}	$AIC\omega_i$	model
Carnivorans	7	1186.6	0.0	0.22	TSF + Perimeter + TSF*Perimeter + FleshyFruit + SmallMammal
	6	1187.0	0.4	0.17	TSF + Perimeter + TSF*Perimeter + SmallMammal
	8	1187.7	1.1	0.12	TSF + Perimeter + TSF*Perimeter + FleshyFruit + SmallMammal
	8	1188.1	1.5	0.10	TSF + Perimeter + TSF*Perimeter + SmallMammal
Red fox	6	754.4	0.0	0.28	TSF + Perimeter + TSF*Perimeter + SmallMammal
	7	756.1	1.7	0.12	TSF + Perimeter + TSF*Perimeter + SmallMammal
	7	756.3	1.9	0.11	TSF + Perimeter + TSF*Perimeter + FleshyFruit + SmallMammal
Stone marten	6	601.3	0.0	0.16	Perimeter + PC1 + SmallMammal
	5	601.6	0.3	0.14	Perimeter + PC1
	6	601.9	0.6	0.12	Perimeter + PC1 + PC2
	7	602.2	0.9	0.11	Perimeter + PC1 + PC2 + SmallMammal
	6	602.6	1.3	0.09	Perimeter + Refuge + PC1
	7	602.7	1.4	0.08	Perimeter + Refuge + PC1 + SmallMammal
	7	602.7	1.4	0.08	Perimeter + PC1 + SmallMammal + RedFox
	7	602.8	1.5	0.07	Perimeter + PC1 + PC2 + RedFox
	6	602.8	1.5	0.07	Perimeter + PC1 + RedFox
	8	603.2	1.9	0.06	Perimeter + PC1 + PC2 + SmallMammal + RedFox
TSF: Time-since-fire (months). Perimeter: Distance from the burnt area perimeter (m). PC1 = Plant cover component. PC2 = Height of vegetation component. FleshyFruit = Number of trophic resources availability. SmallMammal = Small-mammal relative abundance. RedFox= Red fox frequency of occurrence					