Trends of life-form spectra along environmental gradients in Spanish forest monitoring plots

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Can life-form proportions be used as indicators for forest biodiversity monitoring?

Methodological advantages

Little dependence on sampling area and intensity (Gastón et al. 2006)

Ecological relevance

Correlated with…

Climate (Raunkiaer 1934)
Natural disturbances (Adams et al., quoted in Dale et al. 2002)
Grazing (McIntyre et al. 1995)
Anthropogenic disturbance (Dale et al. 2002, McIntyre et al. 1995)

Do Spanish Level II ground vegetation data supports previously reported ecological relevance of life-form spectra?

Climatic variables show the strongest correlations with life-form proportions

Therophytes and hemicryptophytes show opposite trends along climatic gradients

Hemicryptophytes prevail in wetter and colder plots and the opposite can be stated for therophytes

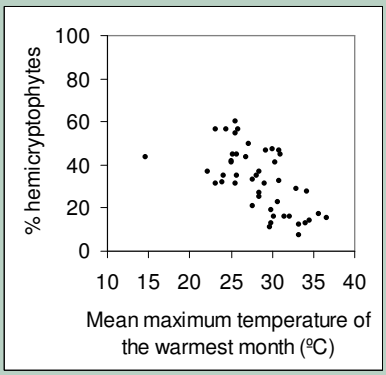
Soil variables explain variations in all life-form proportions except for hemicryptophytes

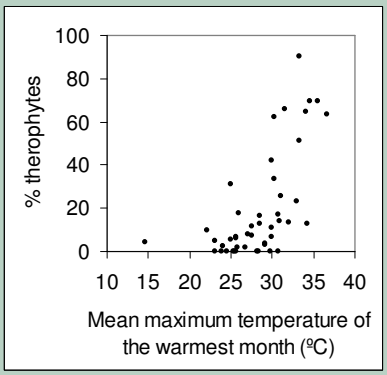
Correlations with soil fertility indicators are positive, except for therophytes that prevail in plots with lower level of nitrogen

Canopy closure positively correlates with geophytes and negatively with therophytes.

Pearson correlation coefficients, only shown those statistically significant with a confidence level higher than 95% (*) or 99% (**). n = 46.

	Tree layer cover	Shrub layer cover	Mean annual precipitation	Mean summer precipitation	Mean annual temperature	Mean maximum temperatures of the warmest month	Mean minimum temperatures of the coldest month	Drought season	Soil pH	Soil Nitrogen content
% chamaephytes					-0.30*				0.43**	
% phanerophytes		0.39**						-0.31*		0.47**
% geophytes	0.44**									0.39**
% hemicryptophytes			0.38**	0.57**	-0.65**	-0.61**	-0.54**	-0.58**		
% therophytes		-0.33*		-0.50**	0.43**	0.64**		0.60**		-0.56**





Ecological relevance linked to methodological advantages make life-form proportions useful indicators for ground vegetation monitoring

References:
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