



## **Reconstructing landcover from palaeoecological records: the problem of the inconstant constant**

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Methods for estimation of past landcover from pollen analysis have become increasingly quantitative and sophisticated over the last 15 years, using a range of approaches to reconstruct land cover, vegetation abundance or communities and land use at a variety of spatial scales. All such methods rely to some degree on uniformitarian assumptions, whether implicitly or explicitly, about the relative amounts of pollen produced by different plant types (Relative Pollen Production or RPP). In the vast majority of studies, RPP is assumed to be constant, both in time and space (that is, it is assumed that changes in pollen proportions at different points in a core sequence imply changes in the abundance or position of the producing plants rather than a change in the amount of pollen produced by one plant relative to the other, and that it is possible to compare pollen assemblages of the same age from different core locations within a landscape and again interpret differences in terms of plant abundance rather than pollen production).

Empirical estimates of RPP can be extracted from measurements of modern pollen assemblages and vegetation cover. This paper presents results of using a standardised methodology in multiple locations across northwest Europe which suggest that RPP is not constant, and explores possible drivers of variation and ways of addressing the challenges to quantification presented by failure of this assumption.