

Detecting and Quantifying Extended Landscape Structure With Spatial Co-occurrence Surfaces

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ABSTRACT

The attribute adjacency matrix is a fundamental component of many metrics used to characterize landscape heterogeneity from landcover/landuse maps. Since it quantifies adjacent pixel class co-occurrence it is unsuited to detect broader scale structure in land cover maps. This paper proposes a solution by generalizing the adjacency matrix concept by incorporating lag distances into class co-occurrence estimation. The spectrum of spatial structure is presented in the form of a spatial co-occurrence surface. These surfaces can provide a wealth of information on landscape structure including the size and spatial distribution of patches of a single class as well as inter-class spatial associations.