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The role of landscape pattern analysis in understanding concepts of land cover change

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Landscape ecology and landscape pattern analysis are important components of national-scale programs to identify trends in land cover change because: 1) Statistics on changes in land cover proportions are not spatial. A change matrix derived from GIS provides useful information, but it does not show the spatial form of change in the landscape. Landscape pattern metrics reveal spatial pattern. 2) A growing body of literature has shown that a change in landscape pattern might indicate important changes in ecological functions: forest connectivity and species movements, number and size of farm patches, effects on water quality. Spatial pattern is important in structuring ecological communities and in maintaining existence of competitors. Spatial pattern may be determined by disturbance and may in turn, determine how disturbances propagate through the system. 3) Sometimes landscape pattern may not significantly change, even though land cover proportions do change. Or, vice-versa, sometimes landscape pattern can significantly change, even though land cover proportions don´t significantly change. 4) Landscape pattern is an inherent and important part of describing landscapes: based on the literature, one of the most important descriptive characteristics of a landscape is its texture. The objectives of this paper are to: 1) Explain the importance of the role of landscape ecology and landscape pattern analysis in land cover change studies; 2) Review the literature that specifically incorporates landscape ecology into land cover change studies; and 3) List the theoretical and technical issues involved and suggest solutions for them.

Paper（PDF）

关键词： landscape pattern; landscape monitoring; landscape ecology; land cover change doi: 10.1360/gs040101