

Landscape Diversity Patterns in Alentejo, Portugal

*Ana Cristina Gonçalves, Susana Saraiva Dias,
Alfredo Ferreira and Nuno Almeida Ribeiro*

Abstract

The development of Geographic Information Systems (GIS) has created a set of tools that facilitate the analysis of landscape patterns in large areas. In the present study the landscape diversity patterns of the forest area in each Alentejo territorial unit, mainly pure and mixed stands of cork and holm oaks, were treated as functions of stand composition and ground cover. The diversity of landscape forest patterns was evaluated in terms of parameters such as area, shape and relative isolation. Diversity patterns permitted the identification of differences in composition and ground cover, thus defining landscape units.

Keywords: Landscape analysis, diversity, diversity patterns, GIS

Introduction

Traditional forest area analysis, initially developed for pure stands, took into account stand production, mainly of timber, but not diversity. The expansion of the area occupied by mixed stands enabled the development of methods and techniques of diversity analysis. In fact, the understanding of the interaction in space between different species and stand structure is needed in order to predict stand growth and forest area development.

At the landscape level, diversity is the abundance and distribution of ecosystems (Rhemtulla et al., 2001).

Although the relation between diversity and stability is not yet well understood, one can say that diversity contributes to stability due to (Rhemtulla et al., 2001):

- 1) a larger number of habitat types for individual species;
- 2) the number of populations that can colonise disturbed areas;
- 3) the reduction of the rate of spread of disturbance across the landscape.

The working scale influences the stand classification, so at a fine scale, forest stands can be classified according to stand structure and at a broader scale, composition can be the classification criteria.

Landscapes, according to the work scale, may include one or more ecosystems and disturbance regimes. In landscape ecology *scale* refers not only to the area occupied by the landscape, the spatial extent, but also to the resolution,