

Directions of Change in Land Cover and Landscape Patterns from 1957 to 2000 in Agricultural Landscapes in NW Spain

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Abstract The aim of this work is the analysis of the dynamics in cultural landscapes, focused on the spatial distribution of changes in land cover and landscape patterns, and their possible linkages. These dynamics have been analyzed for the years 1957 and 2000 in a sector of the north of Galicia (NW Spain) characterized with diverse landscapes. Afforestation processes linked to agriculture abandonment and forestry specialization were the main processes observed in the study area, with the exception of the southern mountainous sector that was dominated by ploughing of scrubland for conversion into grassland, reflecting a specialization in livestock production. The structural changes that have taken place in most of the study area were related to the heterogeneity aspects, although the mountainous sectors were characterized by changes in heterogeneity and fragmentation. According to the tests performed, the comparison of the spatial distribution of both dynamics showed a certain statistical

significance, reflecting the interrelationship between patterns and processes. This approach could be useful for the identification of areas with similar characteristics in terms of spatial dynamics so as to define more effective and targeted landscape planning and management strategies.

Keywords Landscape dynamics · Rate and directions of change · Pattern and process · Agricultural landscapes · NW Spain

Introduction

Agricultural landscapes as part of cultural landscapes are the result of the interaction between society and nature, bearing witness to past and present relationships between human beings and their environment (Stanners and Bourdeau 1995; UNESCO 1997; Council of Europe 2000). As society and nature are dynamic, landscapes are also dynamic and open systems where biophysical, social, and economic factors mutually interact and are structured in heterogeneous patterns in different space and time frameworks (Haase and others 2006). Their rate of change varies through space and time, in accordance with the strength of natural and human-induced fluctuations in the environmental conditions (Skanes and Bunce 1997). Many of the dynamics occurring at landscape level have profound consequences on its structure and functioning and are produced by changes in the intensity of use of the land and by land conversion (Bogaert and others 2003). Indeed, several driving forces are influencing landscapes, notably: the processes of intensification and extensification of agricultural practices, marginaliza-

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