

# Proceedings

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*Sustainability of Territories in the Context of Global Changes*

1<sup>st</sup> AMSR CONGRESS and 23<sup>rd</sup> APDR CONGRESS



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## [01080] LANDSCAPE CHANGE MONITORING AND ANALYSIS IN NORTHEASTERN PORTUGAL [ONLY ABSTRACT]

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### ABSTRACT

Change is an inherent condition in landscapes. In the Northeast of Portugal landscape change is currently driven mostly by agriculture abandonment and agriculture and energy policy. Ongoing change affects not just landscape patterns but also physical, biological, and socioeconomic processes, and the ecosystem services that result from them. Landscape change in the region has been studied for more 20 years in different and complementary perspectives. However, there are increasing needs for monitoring and predicting changes in composition, configuration, processes, functions, and services in the landscape.

This work summarizes two thesis projects currently under development intending to contribute to monitoring landscape change and to assess effects of these changes in landscape processes in the Northeastern region of Portugal.

One project aims to establish an online repository of oblique digital photography from the region to be used to register the condition of the landscape as recorded in historical and contemporary photography over time as well as to support qualitative and quantitative assessment of change in the landscape using repeat photography techniques and methods. It involves the development of a database and a series of web-based services using PHP: Hypertext Preprocessor language, and the development of an interface, with Joomla, for pictures uploading and downloading by users. The repository will make possible to upload, store, search by location, theme, or date, display, and download pictures for Northeastern Portugal.

The second project aims to understand and model the effects of Holm oak woodlands on fire behavior at the landscape level in the same region. It has been previously observed that Holm oak woodlands have an effect on the spread of fire at the edge scale. In this study we address this effect at the landscape level based on modeling and simulation of fire behavior in the Upper Sabor watershed, north of Bragança. We use the FlamMap model with elevation, weather, and land use data for simulating spread rate, flame length, and fireline intensity. Holm oak is tested in terms of area and configuration of woodlands in the landscape according to scenarios built based on the likely expansion of these vegetation units in the future in the area of study.