Introduction

Pure, naturally regenerated, maritime pine stands dominate the forest scenario of centre inland of Portugal, resulting in an high fire risk mostly due to the absence of management (vertical and horizontal continuity of fuel).

In this study, the working hypothesis was that natural regeneration in burned areas of maritime pine stands will be suppressed after more than one fire cycle shorter than 20 years, since seed production became viable only when stand age reaches 20 years old (Oliveira et al., 1990).

Materials and methods

In 2007 a forest inventory was conducted in the study area (Martins, 2007). Sampling intensity was assessed based on yield data variability from previous studies. A grid of 500 m was used to set a systematic sampling of 60 plots in the field (Fig. 1).

Results

Forests and semi-natural areas dominate the study area land cover (90%) being 78% of these pure maritime pine stands (Fig. 2). Several changes occurred since the 90’s land cover map production (COS 90) due to forest fires in 1991, 1992, 1995 and 2003 (Fig. 2).

Stand data was collected in 29 plot samples (Fig. 2 and Tab. 1). The remaining 31 plot samples were located in burned area: tall regeneration was found in 8 plots, short regeneration in 10 plots and bush land in 13 plots (Fig. 2 and Tab. 2). Comparative analysis of the understory was also made in the stands areas and in the burned areas with and without regeneration (Fig. 3).

Discussion

The findings of this study pointed out that stand reestablishment through natural regeneration still occurs when one or two fire cycles less than 20 years occurred showing that viable seed production is not a conditioning factor if stored seeds in the soil and/or mature stands horizontal continuity exists. Recent burned areas of mature maritime pine stands showed excellent levels of regeneration.

Continuous unevened monospecific areas (existing maritime pine stands and recent afforestation of eucalyptus) will compromise study area regional and municipal goals, unless specie diversification and compartmentation (mainly with deciduous broadleaves) will be promoted.

References


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