



On the relationship between wildfires and reforestations in Spain from 1988 to 2008

Emmanuel Da Ponte-Canova (1), Cristina Vega-Garcia (1), and Jesus Peman (2)

(1) Dep. Agriculture & Forest Engineering, University of Lleida, Spain(cvega@eagrof.udl.es), (2) Dep. Vegetal Production & Forest Science, University of Lleida, Spain

This paper discusses the main factors associated with forest fires in reforestations within Spain from 1988 to 2008 using statistical and spatial analysis.

Abstract

Human activities are related to 95 % of the wildfires in Europe. Among the known causes of wildfires in Europe 51% were classified as intentional fires, 44 % were due to negligence, and over 5 % were attributed to natural causes. However, the designation of the causes may vary from country to country (Catry et al. 2010).

In Spain, there is a long-debated and often heated argument that at least a part of the frequent arson-caused wildfires are caused by motivations related to anger against past reforestation work. National fire records have a specific code for arson fires motivated by resentment against reforestations (14. Incendios provocados por animadversión contra repoblaciones forestales).

During Franco's dictatorship (1939-1975) the Spanish National Forest Service implemented an extensive governmental reforestation program. In the 1940's after the Spanish civil war, land use changed over 3.6 million ha, almost 7 percent of the whole country (Molina, 1997).

It is widely accepted by a sector of the society that arson started to appear in Spain as a direct consequence of the government reforestation programs of the 1940's caused by the discontent of many communities for shifting their productive and range lands into forest (Molina, 1997). Also, more recent and current restoration programs are criticized for not taking into account the current lack of investment in Mediterranean forests that impairs forest management and fuel hazard reduction treatments.

No previous work on the causes and spatial distribution of wildfires in Spain has considered the presence or characteristics of the planted forest as an independent variable. This work aimed to specifically study the relationship between wildfires and reforestations within Spain from 1988- 2008, analyze the different factors involved, and reject or accept the common belief in a relationship.

Compilation of several data bases was carried out for this study, collecting the fire history records from 1988 to 2008 and all available information on reforestation and forest inventory data from the Spanish Ministry of Environment, and they were input in a dedicated GIS. The information was co-registered and analyzed by using statistical models and neural network models, and some spatial analysis techniques were applied to characterize the spatial distribution of ignition points with regards to planted forest. Preliminary results are presented in this paper.

Literature cited

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