Bringing soil science to society after catastrophic events such as big forest fires. Some examples of field approaches in Spanish Mediterranean areas

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INTRODUCTION

Forest fires must be considered a natural factor in Mediterranean ecosystems, but the changes in land use in the last six decades have altered its natural regime making them an ongoing environmental problem. Some big forest fires (> 500 has) also have a great socio-economical impact on human population. Our research team has experience of 20 years studying the effects of forest fires on soil properties, their recovery after fire and the impact of some post-fire management treatments. In this work we want to show our experience of how to transfer part of our knowledge to society after two catastrophic events of forest fires in the Alicante Province (E Spain).

Two big forest fires: one in "Sierra de Mariola (Alcoi)" and other in "Montgó Natural Park (Javea-Denia)" occurred in July 2012 and September 2014 respectively, and as consequence a great impact was produced on the populations of nearby affected villages. Immediately, some groups were formed through social networks with the aim of trying to help recover the affected areas as soon as possible. Usually, society calls for early reforestation and this pressure on forest managers and politicians can produce a response with a greater impact on fire-affected area than the actual fire. The soil is a fragile ecosystem after forest fire, and the situation after fire can vary greatly depending on many factors such as fire severity, previous history of fire in the area, soil type, topography, etc. An evaluation of the site to make the best decision for recovery of the area, protecting the soil and avoiding degradation of the ecosystem is necessary. In these 2 cases we organized some field activities and conferences to give society knowledge of how soil is affected by forest fires, and what would be the best post-fire management depending on how healthy the soil is and the vegetation resilience after fire and our expectations for a natural recovery. The application of different types of mulch in vulnerable areas, the participation of people on the days when we started field research with installation of plots and soil samplings, field trips with volunteers of some NGO's, etc., are some of examples of what we will show in this presentation of how to bring soil science to society.

SIERRA DE MARIOLA NATURAL PARK









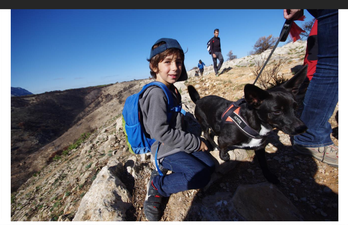


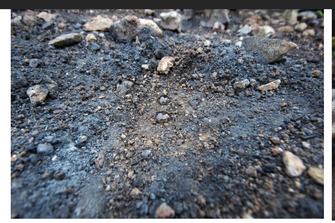




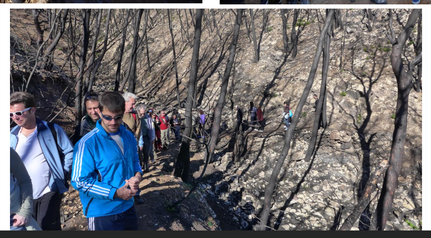
Pictures illustrate the different activities carried out in Sierra de Mariola fire affected area: - A session of conferences (Fire as an ecological factor, Fire effects on vegetation, Fire effects on soil properties, Soil erosion after fire) – A journey of fieldwork with volunteers (80) to do an application of straw mulch in a part of affected area very vulnerable to degradation, - Research study plots, that started the same day to show people what we are going to do and explain reasons of parameters to analyse a monitoring, etc. - Reports of research results every 6 months to local government and dissemination by websites, and social networks, - A journey with rainfall simulation experiments with 70 secondary school students and teachers to show how different land managements and vegetation covers can affect to soil erosion.

MONTGÓ NATURAL PARK






In a similar way in Montgó Natural Park we organized different activities that can be seen in pictures : - Two conferences with title: "Is fire the enemy?" in villages close to Natural Park (Denia and Javea) – A journey of fieldwork with interested people (40) to show how different fire severities affected in a different way to soils and vegetation, etc. – Press articles to media, and using social networks, field trips with Environmental degree students and measurements in field like soil water repellency, and we are planning to organize periodically fieldtrips to this area with people to show how is the evolution of recovery and how different post-fire treatments affect to soil and vegetation recovery

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