

Effect of post-fire salvage logging treatments on microbiological properties of two different soils in the Povince of Alicante.

Victoria Arcenegui (1)

(1) University Miguel Hernández, Agrochemistry and Environment, Elche-Alicante, Spain (v.arcenegui@umh.es), (2) Institute of Hydrology, Slovak Academy of Sciences, Bratislava, Slovak Republic, (3) Dipartimento di Scienze Agrarie e Forestali, Università degli Studi di Palermo, Palermo, Italy

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Victoria Arcenegui (1), Katarina. Chrenková (2), Jorge Mataix-Solera (1), Vincenzo Alagna (3), Jorge Moltó (1), Fuensanta García-Orenes (1), Alicia Morugán (1), Jorge Mataix-Beneyto (1).

(1) Departamento de Agroquímica y Medio Ambiente, Universidad Miguel Hernández, Elche, Spain (jorge.mataix@umh.es; fuensanta.garcia@umh.es; amorugan@umh.es; j.mataix@umh.es),

(2) Institute of Hydrology, Slovak Academy of Sciences, Bratislava, Slovak Republic (katka.chrenkova@gmail.com>)

(3) Dipartimento di Scienze Agrarie e Forestali, Università degli Studi di Palermo, Palermo, Italy (vincenzo.alagna01@unipa.it),

It is well known that the natural wild [U+FB01]re regime in Mediterranean forests is greatly disturbed by human activities. Fire can induce temporal or permanent changes in the soil (see Certini, 2005) and can retard or compromise the recovery of the ecosystem afterwards. Changes in soil properties and the impact on soil functions depend mainly on the severity of the [U+FB01]res (Neary et al., 1999) and type of soil and weather during and after burning (Robichaud & Hungerford, 2000).

Post-fire management can have an additional impact on the ecosystem; in some cases, even more severe than the fire. Post-fire salvage logging treatments are very frequently but its ecological impact is uncertain. Mainly because there are so many variables at play.

A research has been done in “Sierra de Mariola Natural Park” in Alcoi (M) and “Cabo de San Antonio” in Javea (J), both in the Province of Alicante (E Spain). A big forest fire (>500 has) occurred in July 2012 and in September 2014 respectively. After fire, salvage logging (SL) treatment were done. In the first area (M), with a soil classified as Typic Xerorthent, extraction of the burned wood using heavy machinery was applied. In contrast, in the second area (J), a Rhodoxeralf soil, not heavy machinery was used. Plots for monitoring this effect were installed in both areas and in a similar nearby area where no treatment was done, and then used as control (C) for comparison. Soil samplings were done immediately after treatment and 4 years and two years in M site and J site respectively. We examined the effect of salvage logging on basal soil respiration (BSR), and microbial biomass carbon (Cmic). Our results showed that in site M four years after the treatment, the plots without treatment showed a much better improvement for the properties monitored. And not differences were found in site J after two years of monitoring. The impact of salvage logging was different depending on the soil type and the way to do the treatment.