mountains2016

3-7 october · bragança · portugal

I International Conference on Research for Sustainable Development in Mountain Regions

Book of Abstracts

INSTITUTO POLITÉCNICO DE BRAGANÇA

Centro de Investigação de Montanha

Embrapa

United Nations Educational, Scientific and Cultural Organization · UNESCO Chair in Sustainable Mountain Development

University of the Highlands and Islands Oilthigh na Gàidhealtachd agus nan Eilean

EUROMONTANA

ADVID Cluster dos Vinhos da Região do Douro Douro Region Wine Cluster

I International Conference on Research for Sustainable Development in Mountain Regions: Book of Abstracts

Title: I International Conference on Research for Sustainable Development in Mountain Regions: Book of Abstracts

Editors: Centro de Investigação de Montanha (CIMO)

Published by: Instituto Politécnico de Bragança
Campus de Santa Apolónia 5300-253 Bragança, Portugal
http://www.ipb.pt

ISBN: 978-972-745-214-9

URI: http://hdl.handle.net/10198/12135

Cover design: Atilano Suarez, Serviços de Imagem do Instituto Politécnico de Bragança

I International Conference on Research for Sustainable Development in Mountain Regions

Book of abstracts

Edited by
Centro de Investigação de Montanha (CIMO)

Instituto Politécnico de Bragança, Portugal
2016

Sy13O02

Effect of prescribed fire on soil erosion and soil chemical properties in a mountain area, Northeast Portugal

Felícia Fonseca, Tomás Figueiredo, Anabela Quierós, Clotilde Nogueira
Instituto Politécnico de Bragança, Bragança, Portugal

Prescribed fires are a common management practice in the temperate forests and can be an alternative to reduce the quantity of fuel and hence decrease the wildfire risk. However, fire can affect soil properties (physical, chemical, mineralogical, and biological), depending on a number of factors including fire severity and soil type. A direct effect of fire on soil surface is the creation a continuous film water-repellent which reduces permeability and increase the soil susceptibility to water erosion processes. Prior to prescribed fire, the study area was covered by shrub species typical of NE Portugal uplands as *Erica australis* (44% of the surface), *Chaemespartium tridentatum* (30%), *Cystus ladanifer* (26%). The fire affected differently individuals of the 3 species, the former showing a high resistance to fire. The research focused on changes in soil chemical properties and on soil erosion processes. Runoff and soil loss were monitored in a set of 4 m^2 paired plots installed in the study area, during the first year after the fire and summed losses equivalent to 13 mm runoff and 1.5 Mg ha^{-1} soil loss. Chemical soil properties were assessed before, immediately after, and two, six and thirty six months (three years) after the fire. Despite low fire intensity, soil chemical changes were observed. Three years after the fire it turned out that the soil pH values were similar to those seen before the fire. However, the same was not verified with the values of the exchangeable bases, extractable potassium and electric capacity that differ from the observed ones before the fire. Although corresponding to a short monitoring period, these results may add to a better knowledge of the potential susceptibility of burnt scrublands to soil degradation and their natural recovery rates.