



A conceptual framework for an ecosystem services-based assessment of the so-called “emergency stabilization” measures following wildfire

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Wildfires have become a major environmental concern in many Southern European countries over the past few decades. This includes Portugal, where, on average, some 100 000 ha of rural lands are affected by wildfire every year. While policies, laws, plans and public expenditure in Portugal continue to be largely directed towards fire combat and, arguably, to a lesser extent fire prevention, there has only recently been increasing attention for post-fire land management. For example following frequent and several large wildfires during the summer of 2010, so-called emergency stabilization measures were implemented in 16 different burnt areas in northern and central Portugal, using funds of the EU Rural Development Plan in Portugal (PRODER). The measures that were implemented included mulching (i.e. application of a protective layer of organic material), seeding and the construction of log barriers. However, the effectiveness of the implemented measures has not been monitored or otherwise assessed in a systematic manner. In fact, until very recently none of the post-fire emergency stabilization measures contemplated under PRODER seem to have been studied in an exhaustive manner in Portugal, whether under laboratory or field conditions. Prats et al. (2012, 2013, 2014) tested two of these measures by field trials, i.e. hydro-mulching and forest residue mulching. The authors found both measures to be highly effective in terms of reducing overland flow and especially erosion. It remains a challenge, however, to assess the effectiveness of these and other measures in a broader context, not only beyond overland flow and sediment losses but also beyond the spatio-temporal scale that are typical for such field trials (plots and the first two years after fire). This challenge will be addressed in the Portuguese case study of the RECARE project. Nonetheless, the present study wants to be a first attempt at an ecosystem services-based assessment of mulching as a post-fire emergency stabilization measure, taking full stock of the field trials by Prats et al. (2012, 2013, 2014) and using existing literature to identify gaps in the data collected by Prats et al. and/or knowledge gaps on the impacts on other ecosystem services than those directly related to overland flow and soil erosion (e.g. biomass production and carbon sequestration). Such an assessment framework will be critical in gathering information on the impacts of post-fire land management, and ultimately in providing data on the cost-benefit ratio of selected emergency stabilization measures.

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