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Preventing erosive risks after wildfire in Spain: advances and gaps

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Galicia (NW Spain) is one of the most wildfire-affected areas in Western Europe and where the highest soil losses following fire are recorded in the Iberian Peninsula. During the last decade, mitigation of hydrological and erosive risk has been an important objective for researchers and forest managers. For this reason, research carried out has focused on three main issues: i) the development of operational tools to prioritize post-fire soil stabilization actions, based on soil burn severity indicators and remote sensed information, and testing of their ability to reflect degradation risk in relevant soil properties and subsequent soil erosion, ii) the development and testing of different soil stabilization treatments and their effectiveness for reducing erosion, following their application at broad scale, under the specific environmental conditions of Galicia and iii) the assessment of the performance of current erosion models as well as the development of empirical models to predict post-fire soil losses.
On the other hand, the use of forest resources is an essential component of the regional incomes in NW Spain and consequently there is a pressing necessity for investigation on techniques suitable for reconciling soil conservation and sustainable use of those resources. In the framework of wildfire impacts this involve many and complex challenges. This scenario contrast with most of the Iberian Peninsula under Mediterranean influence where salvage logging is not a priority.
As in other regions, post-fire hydrologic and erosive risk modeling, including threatened resources vulnerability evaluation is also a capital research need, particularly in a climate change context where dramatic changes in drivers such as precipitation, evapotranspiration and fire regime are expected.

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