

Observations on different post-fire bio-engineering interventions and vegetation response in a *Pinus canariensis* C. Sm. forest

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Fire may undoubtedly be considered as the principal long-term perturbation influencing the distribution of the Canary pine (*Pinus canariensis* C. Sm.). Even though the ecological adaptation to fire allows for a relatively rapid regeneration, wildfire may induce abrupt ecological changes and soil loss. On the Canary Islands, during the 2007 (30 July - 2 August) wildfire, about 18.000 hectares of forest were destroyed. After the event, in order to avoid erosion, a series of mixed check dams (wooden elements and stones with a core filled with forest residues) were built in the gullies created by the surface runoff. This work aims to characterize the different responses of vegetation and its recovery after fire for three different types of structures. We analyzed the performance and evolution of the mixed check dams nine years after their construction and the post-fire response of vegetation in the different types of bioengineering techniques applied. The effects of the mixed check dams are expressed in terms of plant density, frequency, and cover both in absolute and in relative terms, comparing mixed check dams with three others (rocks check dams, wattle fences, and control) in surrounding areas. Our results show that fire adaptation in the Canary Islands vegetation (pyrophyte plants), coupled with selected bioengineering techniques, facilitated the seedling germination and a quick restoration of the forest ecosystem.