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Integrated Wildland-Urban Interface Fire Management: the case study of Riba-Roja de Túria and Paterna municipalities

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Abstract

Europe is being placed in a new context of forest fires, mainly due to climate change, with an increasing risk of extreme events with fatal consequences in the wildland-urban interface (WUI) (European Commission, 2018). Over the past few years, wildfires with unprecedented intensity and destructive potential have raged across Mediterranean countries as well as new fire-prone northern regions (Vacca et al, 2020) killing people, destroying housing areas, severely affecting economic activity and impacting ecosystems. Areas at wildfire risk are expected to increase by 200% by the end of the 21st century in Europe. Furthermore, the development of urban areas in the vicinity of forests, together with a general lack of risk awareness among population will increase the exposure and vulnerability of local communities (European Commision, 2020) posing tremendous management challenges in terms of firefighting and civil protection. It has already been acknowledged (UNDRR, 2015; ESTAG, 2020) that this new paradigm requires holistic fire management strategies which go far beyond the classical approach of favouring fire suppression over other actions. The concept of integrated fire management (IFM) thus provides a very useful framework including the consideration of various socioeconomic and environmental aspects associated with fire management in its complete circle: prevention, preparedness, response, impact and restoration. The GUARDIAN project proposes an innovative integrated fire management strategy to increase fire resilience in the communities of Riba-Roja and Paterna (Spain). GUARDIAN's success lies in i) ensuring high performance of green firebreaks in WUI perimeter; ii) the use of reclaimed

water for preventive irrigation, pre-suppression and direct attack with ad-hoc designed and installed infrastructure; iii) a participatory and co-implementation approach with all stakeholders; iv) a program of communication and risk awareness raising addressed to population and v) an improvement of ecosystems' quality in local natural areas. In this communication, the technical solutions developed in GUARDIAN are presented and the main implementation challenges for the subsequent upscaling to other municipalities with fire-vulnerable urban-forest interface areas are discussed.

Keywords: fire resilience, regenerated water, circular economy, green firebreaks, GUARDIAN project

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