NOVEMBER 2025

PROJECT SYNTHESIS

FIRE-RES IN A NUTSHELL

Funded by the European Commission's Horizon 2020 programme and running from 2021 to 2025, the FIRE-RES project set out to improve scientific understanding of Extreme Wildfire Events and develop practical tools and interventions for Integrated Wildfire Management that address the risks created by wildfires across Europe and beyond.

FIRE-RES

Innovative technologies & socio-ecological-economic solutions for fire resilient territories in Europe

FIRE-RES's Approach and Recommendations

Wildfires and Extreme Wildfire Events (EWEs) – i.e. wildfires where large-scale complex interactions occur between the fire and the atmosphere, resulting in fast fire spread and intense, uncertain, fast-changing fire behaviour – are increasingly common in European countries.

Wildfire risks manifest when fire occurs in physical environments and communities that are susceptible to detrimental impacts (hazard + exposure + vulnerability). FIRE-RES acknowledges the dynamics that have come to be referred to as the 'fire paradox', whereby a long-standing focus on suppression of wildfires has led to fuel build-up, which increases the risk of more frequent and more intense wildfires.

Figure 1. FIRE-RES's understanding of resilient landscapes spans a large variety of socio-ecological elements and interventions.

FIRE-RES also acknowledges the inevitability – particularly under climate changed conditions, amongst other drivers – of wildfire occurrence and the circular nature of wildfire regimes: wildfire events are embedded in a cycle of phases where the period after a fire leads seamlessly into one before the next. This means that suppression alone cannot be the answer to wildfire risks, particularly in times, in which Extreme Wildfire Events and overlapping fire seasons across different territories overwhelm response capacities: prevention and preparedness as well as recovery and adaptation interventions are also needed.

At the same time, it is acknowledged that not all risks can be prevented or averted: acceptable risks need to be defined and prioritisation assets to be protected agreed.

Advancing Resilient Landscapes through Integrated Wildfire Management

The aim, then, is to create wildfire resilient landscapes. In line with the socio-ecological understanding of the phenomenon of fire, this concept spans social resilience and ecological resilience. This means that the practical interventions required to achieve this resilience must add up to 'integrated wildfire management'. This approach explicitly includes prescribed and controlled burns but goes well beyond these by incorporating myriad social and ecological interventions to reduce – under conditions of a constant hazard and increasing exposure – the vulnerability of European landscapes to wildfire events and their detrimental impacts.

Understanding the need for these myriad interventions logically leads on to the understanding that an 'all of government' approach is required to regulate wildfire risk mitigation and management.

FIRE-RES's Contributions

Of the various areas of activity relevant to integrated wildfire management, the FIRE-RES project focused on emergency management and technology, including methods and tools to predict fire behaviour and prioritise values at risk (WP1 & WP5), landscape (fuel) management, including nature-based solutions (WP2), and economic instruments to underpin integrated wildfire management (WP3). In addition, the project acknowledged the locally specific or place-based nature of landscape conditions and wildfire risks as well as resulting intervention needs. For this reason, it also placed an emphasis on developing interventions that promote local participatory governance and a 'wildfire culture of risk' (WP4).

Components of the Project

Three main elements combined to facilitated FIRE-RES's work:

- The network of 11 Living Labs across the European Union and in Chile engaged and built relationships with a large number of diverse relevant local stakeholders (the 'Communities of Wildfire Innovation'). They were involved in defining pressing challenges to be addressed to improve local wildfire risk mitigation and management, and in testing and implementing innovative solutions developed in the project or in association with it.
- The project's innovative interventions – project-internal Innovation Actions and -external Open Innovation Challenge participants – provided a pool of scalable and replicable solutions aiming to address the challenges defined in the Living Labs across all phases of the fire cycle, and all areas of activity along the socio-ecological resilience spectrum.
- The FIRE-RES Innovation Hub: a central structure that led the Living Labs' formulation of challenges to be addressed and provided acceleration support (covering wildfire expertise, innovation and venture building skills, individual coaching, networking and match-making opportunities) to the innovators, and connected the two constituencies by supporting in-situ innovation testing activities.

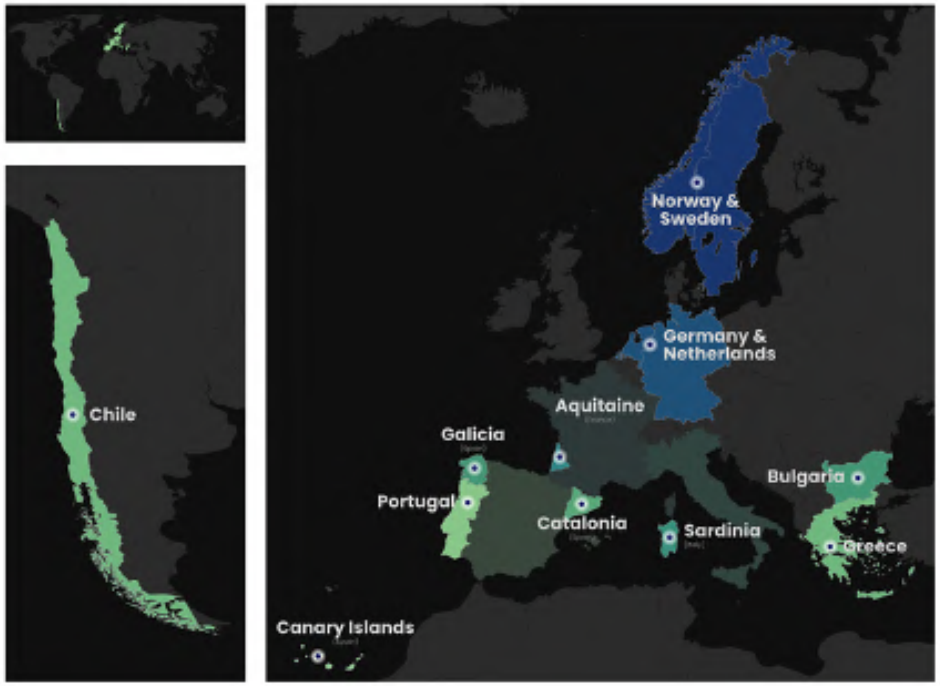

Figure 2. Eleven Living Labs across Europe and in Chile mobilised diverse wildfire stakeholders to create FIRE-RES's real-world innovation co-creation and testing locations

Adoption and Impact

As a result, many of the project's innovative solutions are ready for adoption or scaling at European level at the end of the project. Others have progressed to high technological readiness and are currently progressing their user or market readiness and building the adoption readiness of their societal contexts. Strategies to overcome adoption barriers that the innovators are currently pursuing include: seeking entrepreneurially-driven collaborations and bundling individual interventions with the aim of facilitating truly integrated wildfire management.

To promote these collaborations and synergies among all actors addressing wildfire risk mitigation and management challenges, FIRE-RES concluded by creating an online dashboard showcasing the Community of Practice created by the project. Over 300 organisations and individuals are listed here, who are committed to working together with those who want to make a contribution towards wildfire resilient landscapes in Europe and beyond.

See below further information:

- Catalogue of FIRE-RES innovations
- FIRE-RES community of practice (coming soon)
- Catalogue of FIRE-RES key messages
- Full-lenght FIRE-RES synthesis report (D6.6)

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