EUROPEAN UNION

EU MISSIONS

ADAPTATION TO CLIMATE CHANGE

November 2024

Nurturing local resilience against wildfires with the “Aldeas Modelo” concept

A network of fire-safe villages in Galicia, Spain

The Galician Model villages aspire to cultivate self-sufficiency and readiness among the inhabitants.

Key Learnings

- **Preventive land management**: Controlling vegetation with interventions such as pruning, thinning, and prescribed burns, reduces fire fuel. Maintaining clear roads, forest tracks, and creating firebreaks improves safety and ensures easy access for emergency services.
- **Integration of Traditional and Innovative Approaches**: The project successfully combines traditional land management practices, such as extensive livestock farming, with modern techniques like virtual reality training. This blend of old and new methods not only enhances the effectiveness of wildfire prevention but also fosters sustainable rural economies, making the villages more resilient and self-sufficient in the face of climate-related threats.
- **Engagement**: Mobilising local communities is key to tackling the urgent threat of wildfires and building self-reliant communities. A series of workshops brought together local authorities, community leaders, and the public to foster support, encourage active participation, and enhance emergency preparedness.

About the region

Galicia, located in northwest Spain along the Atlantic coast, hosts one of the 11 Living Labs of the FIRE-RES project in the Forest District XII Miño-Arnoia, Ourense. In summer, the temperatures can rise to 44ºC. With 69% of its land covered by forests including pine, eucalyptus, and oak trees, Galicia faces a critical challenge at the **interface of wildlands and rural areas**, compounded by **abandoned agricultural fields**.

Climate Hazards

Wildfires

Sector

Forestry, Disaster Risk Reduction, ICT, Health

Key system

Critical Infrastructure, Health and Wellbeing

Climate Threats

Extreme wildfires are a growing threat in Southern Europe and beyond, posing a significant risk to the environment, economy, and society. Traditional fire suppression policies are proving less effective, particularly since climate change extends fire seasons and worsens fire-prone weather conditions. Rising temperatures and altered precipitation patterns dry out the vegetation, making it more susceptible to setting on fire and creating conditions favourable for fire spread.

In Galicia, the annual number of forest fires has declined sharply over the past few decades. Still, the fires that occur are increasingly intense and destructive, as was the case in October 2017 when many wildfires occurred simultaneously. One hundred twenty-five fires destroyed 49,000 hectares, equalling almost 69 football pitches, within less than 4 hours, overwhelming firefighters and endangering rural communities. Thirteen of these fires exceeded 1,000 hectares, severely impacting valuable forests and scrubland.

A network of safe model villages in high wildfire-risk areas

The FIRE-RES project aims to promote an integrated fire management approach in 11 different Living Labs. The Galician Living Lab – located in the village of Trelle, in the municipality of Toén (Figure 1) – is a **safe model village** where inhabitants can protect themselves in case of an extreme wildfire until the emergency services arrive and where the landscape is resilient to fires.

The idea of Safe Model Villages builds on the pre-existent concept of "Aldeas Modelo", a land recovery instrument created by the Galician Government. Such rural revitalisation projects focus on sustainable land recovery and community development.

Drawing from this resource, the project team enhanced the aspect of wildfire prevention strategies in Trelle, which is one of the model villages, combining landscape management with community resilience through training and innovative tools. The overall goal is to create a replicable model of a fire-safe village.

Figure 2: Aerial view of Trelle in the municipality of Toén. Image Credit: Xunta de Galcia.

The municipalities empower their residents to protect themselves until emergency services arrive when a fire occurs. To this end, the local institution Xunta de Galicia organises various activities, including interviews to assess residents' knowledge of the environment and fire risks, as well as community talks to raise awareness about forest fires and emergency procedures. To further enhance the resilience of settlements to forest fires, the municipality shares safety recommendations and posts informational signs indicating safe locations to go in an emergency (Figure 2).

Figure 1: Safety advice posters of the model village of Trelle. Image Credit: Xunta de Galicia.

Additionally, the municipality informs its citizens by distributing leaflets with safety recommendations for protecting homes from forest fires. These leaflets provide essential information to help limit fire risks, such as removing dry vegetation, keeping flammable materials away from the house, and using fire-resistant materials for fencing. Following simple recommendations avoids significant damage to private homes and ensures personal and family safety.

The municipality has elaborated on the following tips:

- Prevention is the primary tool to fight a fire.
- Keep a fuel-free zone between your house and the mountain of at least 25 meters.
- Keep your home free of continuous and/or dry vegetation that would act as fuel.
- Prune your trees so the crowns are always high and well separated from the ground.
- If your garden furniture (tables, umbrellas, chairs, awnings, etc.) is made of flammable material, keep it away from vegetation.
- The fuel tanks must be away from the house and in a safe place without nearby vegetation, possibly buried or protected by a wall.
- Avoid treetops touching your house, and make sure they do not touch each other.
- Cut grass and dry bushes to a maximum height of 10 cm and avoid accumulating pruning residues or fuels.
- Limit lighters outdoors, such as smoking, barbecues, etc.

Figure 3: Safety advice posters of the model village of Trelle. Image Credit: Xunta de Galicia.

- Use fireplaces with spark arresters and roof and side walls, surrounded by land without vegetation. Make sure you have a nearby stream of water to extinguish possible sparks.
- In perimeter hedges, use smoke-resistant tree species. Avoid cypresses and conifers.
- In times of danger, remove the trees and dry bushes near your home and irrigate the surroundings.
- Guarantee access and manoeuvrability of two firefighting vehicles to your village and water points.

The local fire brigade also organises awareness campaigns about forest fires and equips the inhabitants with the necessary knowledge for emergencies.

Figure 4: The Xunta de Galicia firefighting team gives training to the inhabitants of the model village of Trelle. Image Credit: Xunta de Galcia.

The municipality also conducts drills that involve the fire brigade, police, and ambulance, allowing residents to practice what they have learned. Training involves virtual reality simulations that enable citizens to safely experience a forest fire scenario. These measures help ensure the local population is prepared for a forest fire until emergency services arrive, helping to prevent panic.

Preventive landscape management, including forestry treatment, is another key action. Residents are encouraged to properly dispose of vegetation, especially dead branches and leaves that can easily fuel

fires, in areas surrounding the village. Other practices include pruning trees, thinning dense vegetation, and conducting prescribed burns to manage vegetation effectively and reduce fire risks.

Local authorities also contribute to the efforts and adapt the local infrastructure by keeping the roads, forest tracks and firebreaks clear or by creating new roads, if necessary.

> *"As coordinators of the Living Lab, we are in constant contact with the village and its inhabitants."*
>
> *Jorge García Fernández (XUNTA de Galicia)*

Figure 5: The Xunta de Galicia firefighting team during one of the four workshops held in Trelle. Image Credit: Xunta de Galcia.

The small-scale model village of Trelle undoubtedly facilitated the entire community's involvement. To date, Xunta de Galicia has organised four workshops in the village attended by local authorities and most residents.

International knowledge exchange and future expansion

In line with the upscaling objectives of the FIRE-RES project, the initiative led by XUNTA de Galicia has engaged with a similar project in Chile to share experiences and solutions to common challenges. Future steps will include partners from Portugal interested in replicating this practice locally.

Summary

Creating safe model villages in high wildfire-risk areas involves rehabilitating abandoned agricultural land for sustainable use, thus reducing fire risk and fostering rural economies, as demonstrated in the Living Lab Galicia. The measures include leasing reclaimed land to small farms and working closely with communities to manage land use, raise fire awareness, and develop preparedness plans. Education on fire safety, practical drills, and virtual reality for training are key in supporting wildfire preparedness. In Trelle, local authorities and residents support preventive landscape management. This is crucial for wildfire prevention and includes ensuring vegetation is controlled.

Further information

The work presented in this adaptation story is part of the FIRE-RES project as the Living Lab Galicia.

This project has been co-funded by the European Union under grant agreement 101037419.

Contact

More information about the Living Lab

Name: Jorge Garcia Fernandez

Organisation: Xunta de Galicia, Consellería do Medio Rural

E-Mail: jorge.garcia.fernandez@xunta.gal

Communication contact point of the FIRE-RES project

Name: Beatrice Bellavia

Organisation: Euromontana

E-Mail: beatrice.bellavia@euromontana.or

Funded by the European Union