

Resilience | Climate change

LIFE MycoRestore: using mycological resources for forest resilience

Co-financed by the EU through the LIFE Programme, the project seeks to utilise diverse mycological resources and forest management practices to enhance forest resilience in Spain, Italy, and Portugal.

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Photo: LIFE MycoRestore

Mediterranean forests are currently facing serious abiotic and biotic tensions. The most frequent stress is drought due to climate change, which can sometimes lead to the rapid spread of forest fires. Fungi have proven to be a defining tool for forests to adapt to climate change and their potential to develop more resilient forests to stress factors such as drought or pests is currently being investigated.

Projects such as **LIFE MycoRestore** aim at the innovative and efficient use of forest mycological resources to protect and restore Europe's forest lands from the decline in their mass due to the effects of climate change: increased fires, longer lasting droughts and increased presence of insects and pathogens that weaken and kill the forest flora.

Through the application of controlled *mycorrhisation* (creating symbiosis between the mycelium of a fungus and the roots of a plant) of both small nursery trees and adult forest trees and forest management practices, the project will add value and contribute to the biological resilience of Mediterranean forests. Spain, Italy and Portugal are the countries participating in LIFE MycoRestore, where new solutions will be tested while generating new sources of income and offering stability in the provision of forest ecosystem services while addressing the effects of climate change.

The biological solutions proposed by the project promote and take advantage of the natural and socioeconomic values of fungi, which are highly appreciated in gastronomy (black truffle, *boletus edulis*, chanterelle, dental fungi, etc.), in the biomass used for energy purposes or for their medicinal and nutritional interest.

In this line, LIFE MycoRestore also deals with the usefulness of eco-insecticidal fungi to control destructive pests, such as *cordyceps militaris*, which in addition to curbing the pine procession have a great nutritional and medicinal value. The project will also investigate the application of fungi that help conserve biodiversity while helping to prevent and avoid forest fires such as *boletus edulis* growing in rockeries, oak groves and pine forests, which also prevent the spread of forest fires.



Photo: LIFE MycoRestore

Expected results

From its launch in 2019 to 2023, the project will demonstrate sustainable forestry activities using mycological resources in 305 hectares of Mediterranean forests, increasing their resilience to climate change and improving the ecosystem services they provide. Some of the goals set are:

- **Improve soil health (average 12%):** Through increased soil organic carbon, water retention capacity, pH, soil structure and microbiological activity and decreased presence of fungal pathogens.
- **Increase in biodiversity (15%):** By increasing the population and quantity of beneficial fungal communities, and mushrooms which serve as biodiversity magnets.
- **Diminish available fuel load by 45 tons/hectare:** From mixed thinning and inoculation activities that remove biomass and increase the rate of decay of woody organic material.
- **Generate revenue of more than €300,000:** From sales of processed wood, mushrooms and mushroom substrate, and expanded business services.
- **Create at least 29 full-time green jobs:** Directly and indirectly by providing high-skill job training to individuals at risk of social exclusion and expanding business models.
- **1,500 tons of CO2 emissions avoided:** Through reduced transport of forest goods and a shorter supply chain for mushroom producers.
- **Reduce presence of pests and pathogens (25%):** Through biocontrol activities which will improve overall tree health and forest resilience.

More information

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