LIFE MycoRestore

"innovative use of mycological resources for resilient y productive mediterranean forests threatened by climate change " - LIFE18 CCA/ES/001110

Summary	Mediterranean forests are currently facing an onslaught of biotic and abiotic stressors. The most prevalent abiotic stress currently is drought. Looking towards the future, climate change models show that the Mediterranean will be exposed to more frequent and severe droughts, which can in turn exacerbate other stressors such as forest fires. As climate change (CC) alters meteorological patterns, forest fire risk will rise. Growing rural abandonment implies a decrease in the practice of traditional silviculture which historically aided in mitigating fire risk. In the last year, more than 200 people have died, over 100,000 hectares have burned, and billions of euros have been spent on forest fires in Europe. As these fires burn, they destroy the homes and lives of humans and wildlife, and release thousands of tons of carbon that are stored in plants and soils into the atmosphere. These plants are also affected by biotic stressors, including a variety of pests and pathogens which weaken and kill forest flora. Weakened plants are susceptible to other biotic and abiotic stressors which ultimately places the health and existence of the whole forest ecosystem at risk. These MED forests serve as biodiversity refuges and important carbon sinks. As a keystone species, fungi –a fundamental biodiversity pillar – both below the ground (mycelia) and above the ground (mushrooms) support numerous ecosystem services and may serve as a defining tool for forests to adapt to CC. **LIFE MycoRestore** seeks to utilize diverse mycological resources and forest management practices **to add value** to and aid in the biological resilience of forests **in Spain, Italy, and Portugal,** generating new sources of income and ensuring the stability of forest ecosystem services while addressing the effects of CC. Its main objectives are reinforcing: **- MycoForestry:** Demonstrate sustainable mycological and forestry management practices for wildfire & drought-resistant forests. **- MycoEconomy:** Promote green jobs for people at risk of social exclusion by training them to replace traditionally low-value biomass production with high skilled work: processing wood and producing innovative high value mushrooms. It will demonstrate a circular economy approach to mycelium & mushroom production supply chains, stimulating rural economies. **- MycoControl:** Provide proof of concept on the use of natural myco-control products and native fungal species for reduced pest/pathogen presence in forests.
	Expected results include: **Myco Forestry:** **1. 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. **2. Increase in biodiversity (15%)** by increasing the population and quantity of beneficial fungal communities, and mushrooms which serve as biodiversity magnets. **3. Diminish available fuel load by 45 tons/ha** from mixed thinning and inoculation activities that remove biomass and increase the rate of decay of woody organic material. **Myco Economy:** **1. Generate revenue of €333,000** from sales of processed wood, mushrooms and mushroom substrate, and expanded business services. **2. Create at least 29 FTE Green jobs** directly and indirectly by providing high-skill job training to individuals at risk of social exclusion and expanding business models. **3. 1505 tons of CO2 emissions** avoided through reduced transport of forest goods and a shorter supply chain for mushroom producers. **Myco Control:** **1. Reduce presence of pests and pathogens (25%)** through biocontrol activities which will improve overall tree health and forest resilience.
Execution	1st July 2019 - 30th June 2023
Total project budget	€ 3,045,717
EU Financial Contribution	€ 1,575,135

			Involvement	Country
	Coordinating Beneficiary			
1	**Instituto de recursos naturales y agrobiología de Salamanca (IRNASA) y Consejo Superior de Investigaciones Científicas (CSIC)** http://www.irnasa.csic.es/	IRNASA CSIC	Leader of the LIFE Project General project management (Financial, administrative, technical) Technical monitoring (soil life, microorganisms, organic matter, pastures, biodiversity) Preparation trial sites	Spain
	Associated Beneficiaries			
2	**Colquida, Lda** https://www.cerdeirahomeforcreativity.com/	CERDEIRA	Trials Portugal Demonstration and replication Portugal of new business model Local dissemination	Portugal
3	**Fundación General de la Universidad de Valladolid** https://funge.uva.es/	FUNGE UVa	Administrative Support for UVA	Spain
4	**IDForest-Biotecnología Forestal Aplicada** http://www.idforest.es/en/	IDForest	Expertise on Mycology Training inoculation Support inoculation and liming	Spain
5	**Consiglio Nazionale Delle Ricerche Istituto Per la Protezione Sostenibile Delle Piante** http://www.ipsp.cnr.it/	IPSP	Demonstration and replication Italy Mycopesticide trials in lab and greenhouse Local dissemination	Italy
6	**Myco Life S.L.** http://mycelio.eu/es/home-2/	MYCELI	Professional Formation High value substrate and mushroom production Commercial Strategy	Spain
7	**Socialforest S.L.** http://socialforest.org/	SOCIAL FOREST	Demonstration Trials Catalonia Social Green Job Provider	Spain

			Training	
8	**Universidad de Valladolid** http://www.uva.es/		Expertise on Mycology Support demo trials Lab testing Myco-Pesticides	Spain
9	**Volterra Ecosystems SL** http://www.volterra.bio/		Biochar production Thinning and planting Communication of the results & dissemination	Spain