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# Local flora for ecological restoration: the flore project

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**Key words**: native seeds; restoring nature; Mediterranean region

**Abstract**
The territories of south-western Europe are still recognised as a biodiversity hotspot. However, it is very much subject to the dangerous consequences of the intensification of human activities, climate change, wild fires and the abandonment of the agricultural and forestry activities in marginal land areas, with the consequent degradation of the land, vegetation and the ecosystems. There, the Interreg SUDOE FLoRE project, started in January 2024, is being implemented to test, analyse and scale-up the implementation of different ecological restoration solutions based on native and locally sourced herbaceous plant seeds. We develop: a) practical tools adapted to the current needs of the target groups; b) create a network of pilot projects in sites with diverse environments and land degradation (due to wildfires, overgrazing, mining, invasive vegetation); and c) lead a multi-stakeholder participatory process to design and test new models of economic cooperation, aimed at the self-production of seeds by users or the supply of products and services to sector players. The project will engage public authorities, non-profit private organization and private companies with the ambition of introduce this type of species into their restoration processes and organise dissemination days for the general public.

Three working groups (WG) were created: WG1 - Operationalise and disseminate existing knowledge on ecological restoration using local seeds, to facilitate the information and learning process by stakeholders, and encourage their commitment and the implementation of good practices.; WG2-Test, monitor and evaluate different ecological restoration solutions from local seeds; and WG3-Develop a strategy to involve all the stakeholders in large-scale actions to support the sustainability of the ecological restoration solutions tested, and formulate recommendations for professionals and decision-makers on the different means of action available to them.

## Introduction

Our lives depend on nature, but we are degrading it, and it is imperative that we reverse this trend. A number of factors are putting pressure on ecosystems and species populations, including: pollution, climate change, habitat loss and invasive species (80% of habitats are in poor condition, 10% of bee and butterfly species are in risk of extinction and 70% of soils are in an unhealthy state) (European Council 2024). Soil

degradation represents a major threat to ecosystem services and biodiversity conservation. In addition, degradation processes are continuing and worsening (EC 2023).
The semi-enclosed nature of the Mediterranean Sea and the complex topography result in unique physiographic and ecological features. The latest IPCC results show an increasingly arid future for the Mediterranean, with less rainfall and more frequent and longer heat waves (Ali et al. 2022). Some of the consequences of climate change are: reduction of river low flows and annual runoff by 5-70%; yields of rainfed crops may decrease by 64% in some places; desertification will affect more areas, especially in the south and south-east.
The EU Environmental Council adopted the Nature Restoration Law (NRL). They intend to intervene in at least 20 per cent of the EU's land and sea areas by 2030. Restoration plans are intended to cover the period up to 2050. One of the measures envisaged is to restore of at least 30% of the habitats that are in poor condition.
In this context, the FLoRE project was created as part of the INTERREG-SUDOE programme, which aims to consolidate South-West Europe as an area of territorial cooperation in the of innovation, competitiveness and environmental protection. The major challenge of the FLoRE project is to ensure the preservation of the quality of life and the attractiveness of rural areas by demonstrating the economic and organisational viability of scale-change in the implementation of various ecological restoration techniques aimed at valuing native and local wild herbaceous species.

**Project Workplan**

The Interreg SUDOE FLoRE project, started in January 2024 and will finish in December 2026. The consortium is made up of eight partners (three in France: Conservatoire d'Espaces Naturels d'Occitanie (project leader), FAB'LIM - Le Labo des Territoires Alimentaires Méditerranéens, Conservatoire d'espaces naturels d'Auvergne; three in Spain: Comunidad Autónoma de la Región de Murcia, Asociación Forestal de Soria, Cámara Oficial de Comercio, Industria y Servicios de Badajoz and two in Portugal: National Institute of Agricultural and Veterinary Research, MORE CoLAB on mountain regions. Three groups of tasks were drawn up into three working groups (WG 1, WG 2 and WG 3); all the beneficiaries will take part in each WG, but one beneficiary is responsible for coordinating each WG.

***WG 1 - Operationalisation and dissemination of existing knowledge on ecological restoration***

Here, the focus is disseminating and applying existing knowledge on ecological restoration techniques using native and locally sourced wild herbaceous species, to facilitate their use by stakeholders (professionals in the sector, landowners, managers, national bodies), in order to encourage their involvement in changing practices and identify the remaining gaps in technical and socio-economic knowledge. To do this, we will update the current state of knowledge on initiatives, scientific publications and public policies aimed at supporting ecological restoration. Then, to facilitate access to information, the most frequently asked questions by stakeholders will be identified and answered, along with other types of dissemination actions. The deficits and gaps in knowledge identified will be revealed and addressed at a later stage of the project. (INIAV is the responsible beneficiary).

***WG 2 - Experimentation and evaluation of different solutions for seed production and ecological restoration***

A network of demonstration sites is being set up in different environments to publicise different solutions (including different restoration and seed multiplication techniques). Most of our pilot sites are already in place and are located in:
- Occitanie: representing altered agricultural systems and highly anthropized environments and Auvergne: representative of wetlands, meadows and pastures in Auvergne (France)

- Soria: captures truffle farms, recently cleared environments and forest environments and Murcia: degraded natural spaces and eroded areas (Spain)
- Serra da Estrela: I an example of mountain burnt areas in the centre of Portugal and the left bank of the Guadiana river- south-east Portugal represent grasslands (Portugal). This last pilot site is the responsibility of INIAV.

Based on the mapping of grasslands of ecological interest carried out, different techniques for obtaining and recovering seeds will be developed (brushing, mowing, hay transfer). Transnational co-operation will enable us to provide a range of restoration solutions adapted to the regulatory contexts of each country and the realities of each territory, given the diversity of environments representative of the SUDOE area[5]. The experiments carried out and their monitoring (based on indicators developed by the consortium) will make it possible to consolidate protocols and identify the relevant adaptations to be made depending on the contexts and restoration objectives. We will also measure the real benefit or added value, as well as the possible impacts of the restoration operations carried out. (*Asociación Forestal de Soria* is the responsible beneficiary)

***WG 3 - Development of a strategy to involve stakeholders in a large-scale action***

A medium/long-term strategy (from three to eight years) will be developed jointly based on the sharing of results from the multi-stakeholder group animation work at a transnational level, i.e., from the workshops involving different types of stakeholders (from scientific researchers and public decision-makers to seed vendors and farmers) from various countries, specifically from the SUDOE European region (southwest of France, Spain, and Portugal). Its main objective will be to guide professionals (landscapers, consultants, public and private buyers, scientists, local development associations, site managers) and decision makers (elected representatives, company managers, etc.) towards the means of action available to them supporting long-term viability of the technical solutions tested during the project (collection, planting and monitoring of native and locally sourced wild herbaceous species, etc.). This strategy will define realistic objectives (taking into account the constraints of these stakeholders) but ambitious enough to support the development of the proposed solutions. This may be broken down into several action plans, tailored to each type of public concerned and their respective areas of competence. We will identify a number of economic and public policy levers that can support this strategy. To facilitate its implementation, the strategy will be accompanied by a number of resources available in open access e.g. training modules for field workers and decision makers, awareness-raising content, a letter of engagement, feedback from multi-stakeholder groups, etc. (*FAB'LIM* is the responsible beneficiary).

**Goals to be achieved**

By carrying out the different tasks (WG1-3), we aim to achieve the following goals:

-1.Obtain commitment from: (i) the managers of the pilot ecological restoration fields to guarantee the sustainability of the solutions tested, (ii) the professionals to collectively implement the economic and organisational models co-constructed in accordance with the initial ethics, (iii) the beneficiaries of the multiplied seeds for use in projects of collective interest and (iv) the communities and companies to introduce this type of seed in their ecological restoration processes in favour of biodiversity.

[5] Interreg Sudoe is a European Union funding programme to support regional development and cohesion in the regions of south-west Europe.

-2.Training organisations that adopt the tested solutions to manage them independently over time.

**Acknowledgements**
This work is being carried out with funding from the Interreg Sudoe FLoRE- Local flora for ecological restoration project.

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