

# Training School-TS

Pan-European Network for Climate Adaptive Forest Restoration and Reforestation PEN-CAFoRR (CA19128)

**New approaches in mine reclamation:  
linking geomorphology with soil and  
vegetation management**

July 5-8 2022, Spain



Eight (8)  
places  
available!!

**Interested in innovative  
techniques of soil  
preparation and vegetation  
establishment for mine  
reclamation?  
Join us!!!!!!!**



POLITÉCNICA



TECMINE  
INNOVATIVE TECHNIQUES FOR MINE RESTORATION



RED DE RESTAURACIÓN  
DE MINAS Y CANTERAS



GENERALITAT  
VALENCIANA  
Conselleria de Agricultura,  
Desarrollo Rural, Emergencia  
Climática y Transición Ecológica



# Background

Mining is nowadays a key economic activity for Europe under the new geo-economic scenario. But open-pit mining results in profound modifications at different environmental scales that may persist for very long time periods. Considerable research efforts in mine reclamation have been made in the last years, with significant improvements in the techniques at different scales, from geomorphic reclamation to innovative techniques of improving vegetation establishment and soil erosion control under the challenging conditions of opencast mining.

# Aims and concept

The aim of the training school is to provide a general overview of last and innovative techniques for mine restoration. This TS will address the restoration strategy under three main approaches: the recovery of natural geomorphology shapes (**topography**), the production of functional substrates (**soil**) and the establishment of native vegetation based on innovative techniques (**plant**). To achieve this, the TS will combine classroom (1d) and field sessions (3d), visiting examples of mines reclamation at different stages on several locations of the Mediterranean Spain. Trainers are highly experienced researchers involved in the most innovative methods at international scale. Mining companies will assist the TS with operational inputs. The TS will be fully held in Spain. Spain has made considerable advances in the last years to improve mine restoration results thanks to combined efforts from private and public agents and funds contribution from EU (LIFE PROGRAMME and others).

# Organizers:



POLITÉCNICA

Universidad Politécnica de Madrid



RED DE RESTAURACIÓN DE MINAS Y CANTERAS



TEC MINE

INNOVATIVE TECHNIQUES FOR MINE RESTORATION



GENERALITAT VALENCIANA

Conselleria de Agricultura, Desarrollo Rural, Emergencia Climática y Transición Ecológica



## By enrolling this TS you will learn:

- i. Main principles and application of **Geomorphic design**. Geomorphic reclamation mimics the local geomorphology of a landscape to create stable landforms. These landforms provide visual integration with the surrounding landscape and support diverse biological communities.
- ii. The construction of artificial functional substrates (**Technosols**) based on the management of spoils materials and organic matter.
- iii. Innovative techniques of plant production and woody or herbaceous **vegetation establishment** to facilitate the recovery of ecological processes. The course will be focused on specific **ecotechnologies** fitted for challenging conditions of mines: seedling quality, soil preparation, plant protection, mulching and so on.



## Supporters:



# Detailed program (\*)

## **July 5, 2022. Conferences day. School of Forestry. Madrid**

- ☞ Legal framework of mine reclamation in Europe.
- ☞ Geomorphic reclamation. Principles and applications.
- ☞ Ecotechnologies in mine reclamation. Basis and applications  
Vegetation restoration: species and references selection. Restoration of ecosystem services.
- ☞ Hydrology and mine restoration: water management as an integrating factor.

## **July 6. Field trip 1. Guadalajara**

Santa Engracia mine. RIBERMINE Project (Peñalén, Guadalajara) This is the most recent and innovative project funded by the European LIFE Program. Indoor seminar about “Seedling quality and mine reclamation” and outdoor visit.

## **July 7. Field trip 2. Barcelona**

El Garraf quarries. Indoor conference about “Technosoils for mining: amendments and circular economy” and visiting two examples of Technosols in limestone quarries: La Falconera quarry (long term results in soils restored using organic amendments and Technosol experimental plots from RESTARC project); and Vallcarca (*Aquila fasciata* habitat recovery using Technosols amended with sewage sludge)

## **July 8. Field trip 3. Cuenca and Valencia**

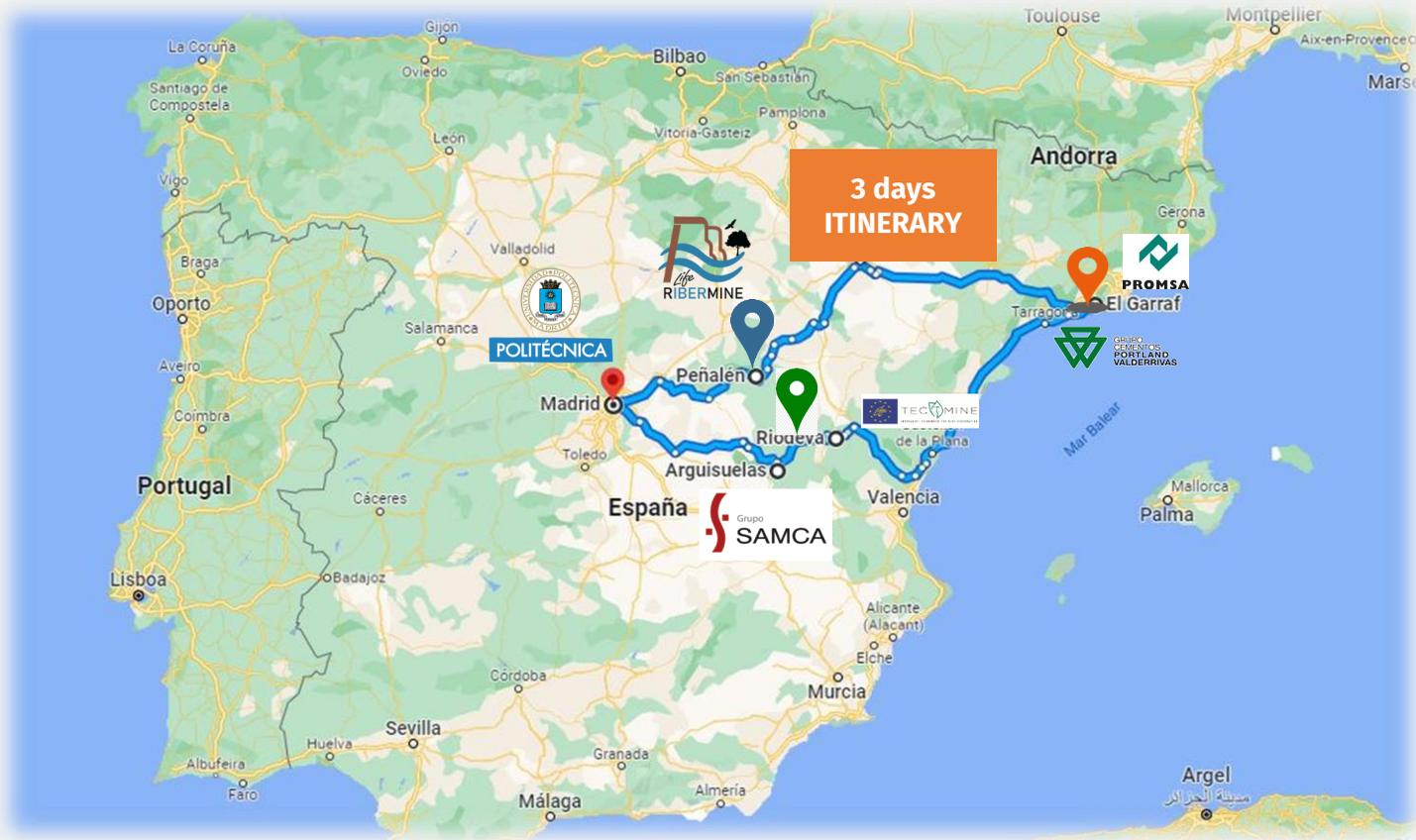
- i. Fortuna mine. TECMINE Project (Ademuz, Valencia) Demonstration project, funded by the European LIFE Program, applying innovative geomorphic restoration techniques and forest restoration practices.
- ii. San Luis mine (Arguisuelas, Cuenca) An array of different restoration techniques, from the most conventional to the most innovative ones at different stages will be compared, in particular simultaneous mine exploitation and geomorphic restoration will be depicted.

## **End of TS in Madrid, July 8 evening.**

**\*NB!** The program may be subject to minor changes.

# Field trip. Itinerary

## New approaches in mine reclamation (Spain)



**July 5, 2022. Conferences day. School of Forestry. Universidad Politécnica de Madrid. Madrid.**



**July 6. Field trip 1. Guadalajara. Santa Engracia mine (Peñalén). LIFE RIBERMINE Project.**

(Overnight accommodation on the way to Barcelona)



**July 7. Field trip 2. Barcelona. La Falconera and Vallcarca quarries (El Garraf-Sitges).**

(Overnight accommodation near Teruel)



**July 8. Field trip 3. Cuenca and Valencia. Fortuna mine (Ademuz) LIFE TECMINE Project. San Luis mine (Arguisuelas)**



**July 8. Return to Madrid.**

# Practical information

## Who can participate?

Both students and professionals of mine restoration and mining sector will be very welcome. Eight (8) spots are available for this course.

## Venue

The Training School will be held in Madrid ([School of Forestry: ETS Ingeniería de montes](#)) for the first day and multiple locations across Spain.

## Language

The TS will be held in English; thus, students must have a good working language knowledge.

## Logistics

The Training School will begin on Tuesday, July 5th (09:00) and end on Friday, July 8th (evening) at our arrival in Madrid from field trips. Rooms for days 4th to 5th (if necessary), 5th to 6th and 8th to 9th July in Madrid must be reserved by yourselves. Field nights and meals during field trips will be reserved by the organization. **Trainees must pay in advance** for these reservations a previous amount of 480 EUR. This amount will cover two accommodation days, local transport and three meals a day.

## Application Procedure

Interested must send an email **by June 20th, 2022**, to both Local Organizers Juan A Oliet ([juan.olieta@upm.es](mailto:juan.olieta@upm.es)) and Beatriz Olmo ([olmo.bea@vaersa.org](mailto:olmo.bea@vaersa.org)). Trainees will be selected by order of application.

