

Advancing Land Degradation Assessment and Restoration Planning in the Mediterranean through the LanDS Toolbox

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REACT4MED project (PRIMA):

Inclusive Outscaling of Agro-ecosystem REstoration ACTions for the MEDiterranean



REACT4MED

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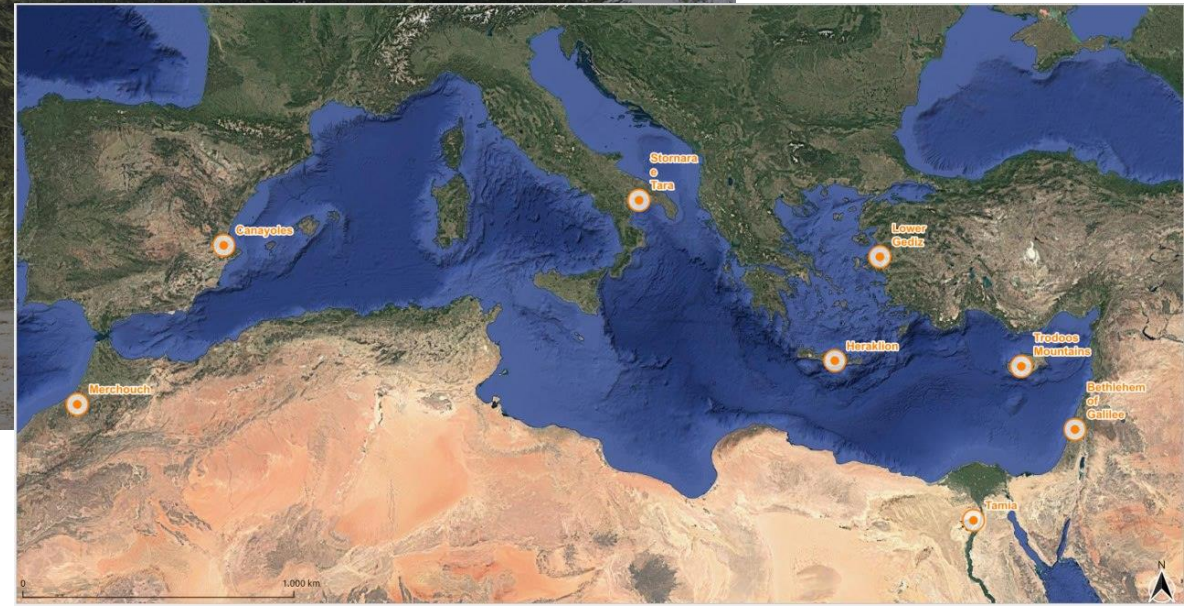
Land degradation and desertification

... are major threats for the Mediterranean ecosystems

How should we react?

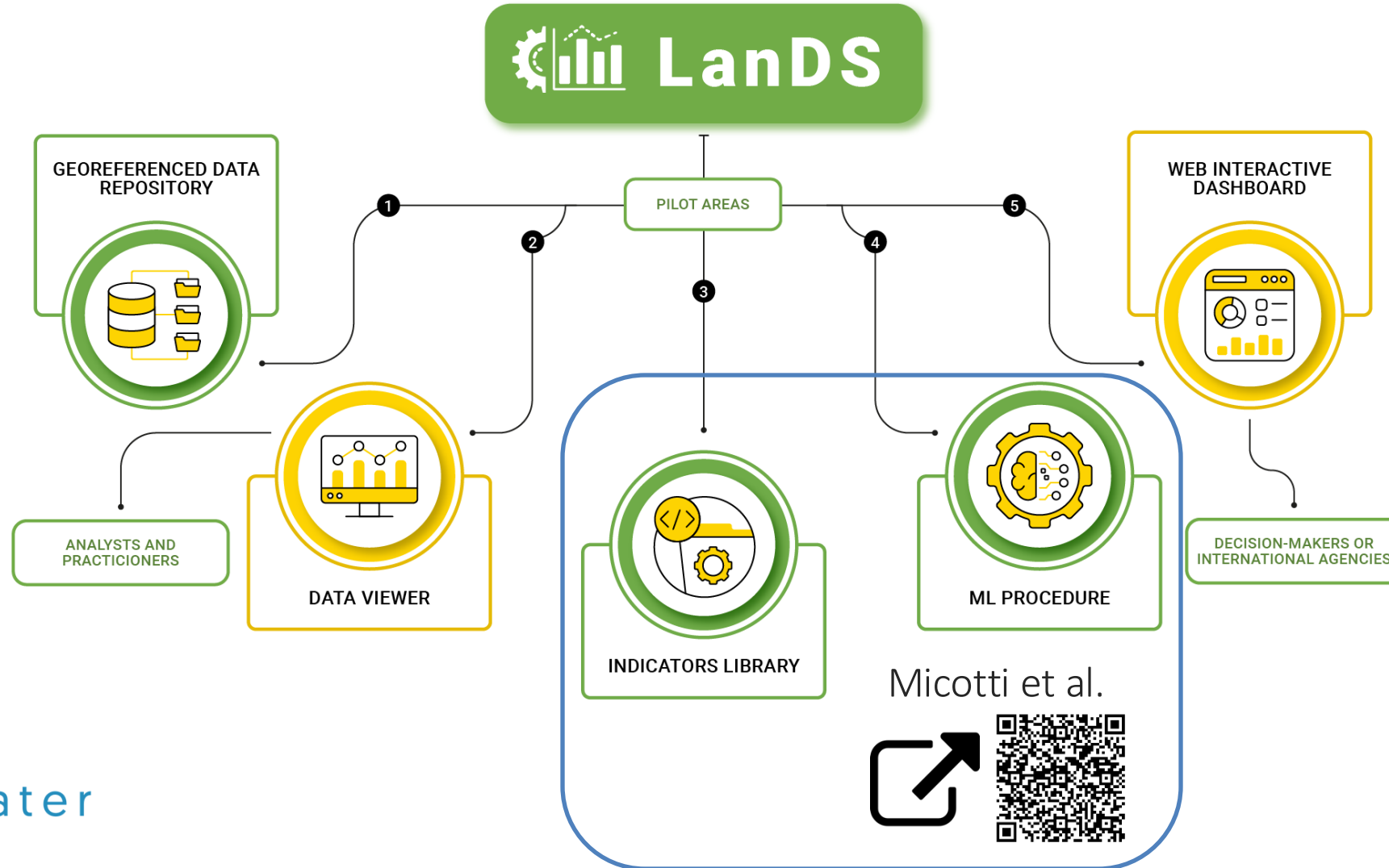
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PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



The LanDS Toolbox

A decision-support toolbox to support out- and upscaling of best land restoration practices against land degradation



Live demonstration

 **LanDS**

Repository

Data viewer

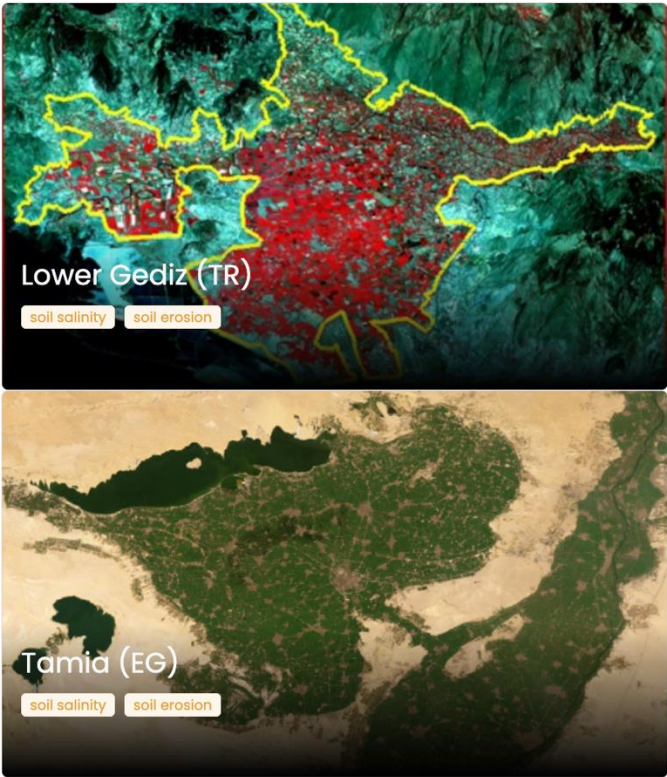
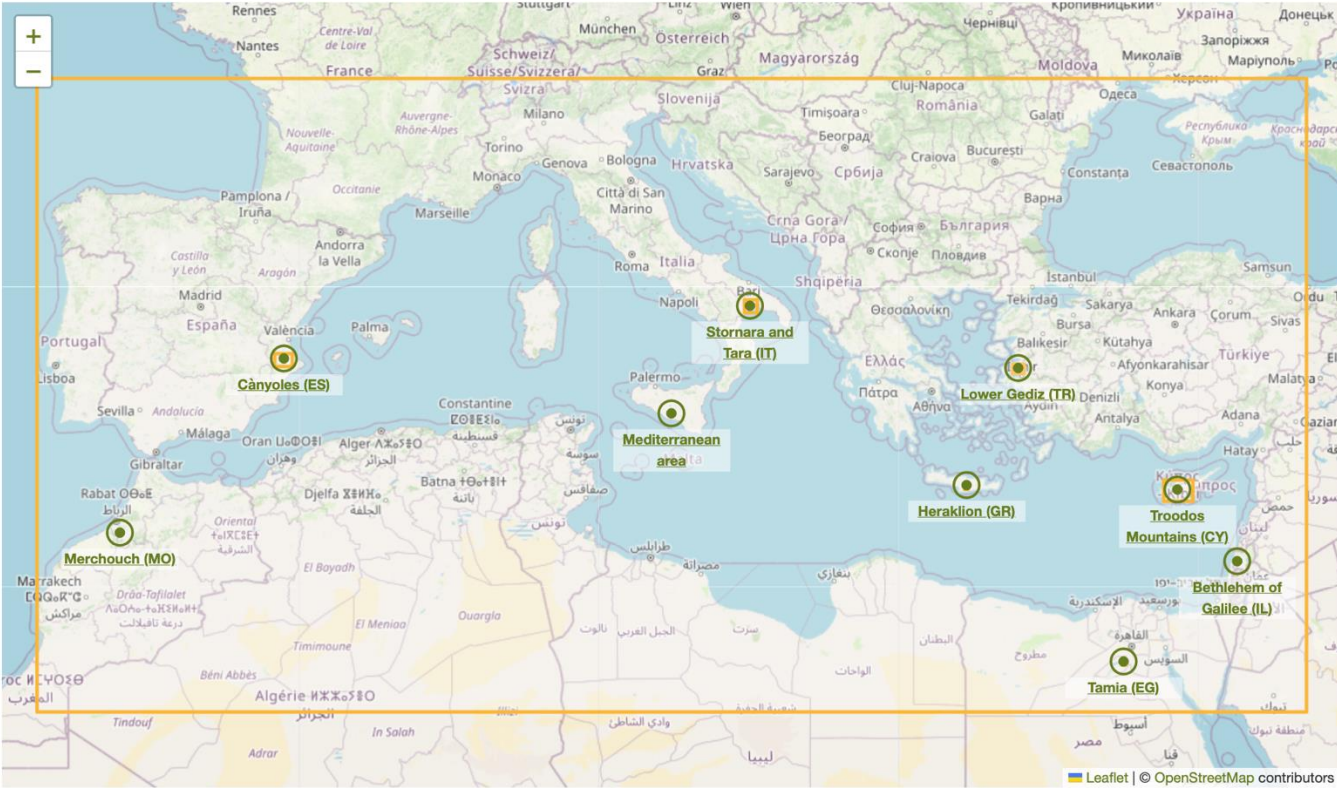
Indicators

ML Tool

Dashboard

 Log in

Welcome to LanDS!



Data Browser with multiple data organised in different Collections

The screenshot shows the LanDS web application interface. At the top, there is a navigation bar with buttons for 'Repository', 'Data viewer', 'Indicators', 'ML Tool', and 'Dashboard'. A search sidebar on the left includes a map of the Mediterranean area and a 'Filter' button. The main content area displays search results for 'Aridity Index 2015-2100 - Multi-Model Median - ISIMIP3b SSP585' and 'Population'. A blue arrow points from the 'Filter' button to the search results.

Data Viewer

Multiple visualizations
for multiple formats



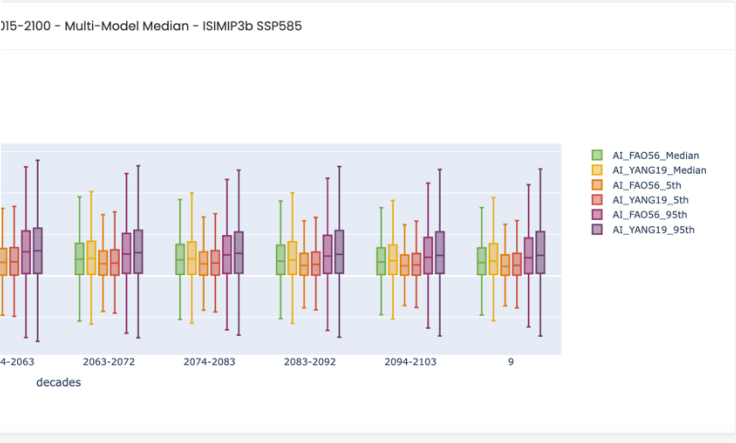
Data Viewer

Aridity Index 2015-2100 - M...
Go to dataset page

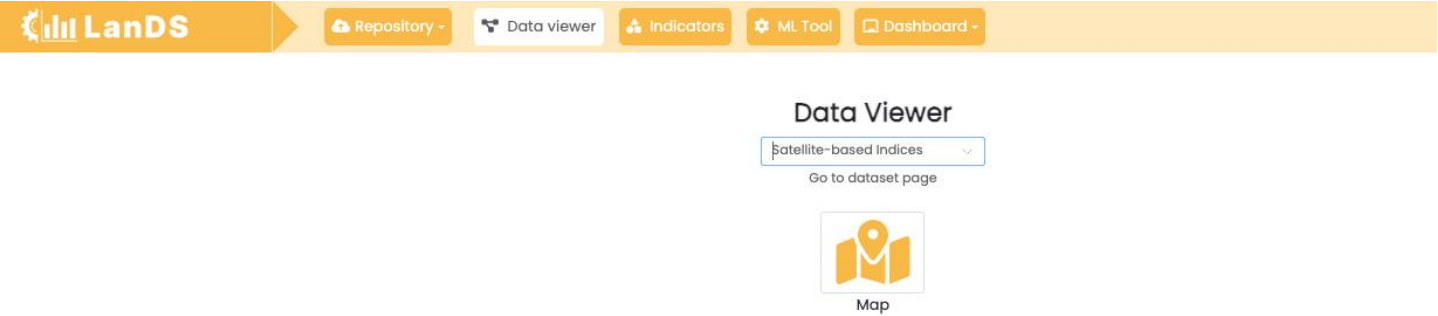


Data Viewer

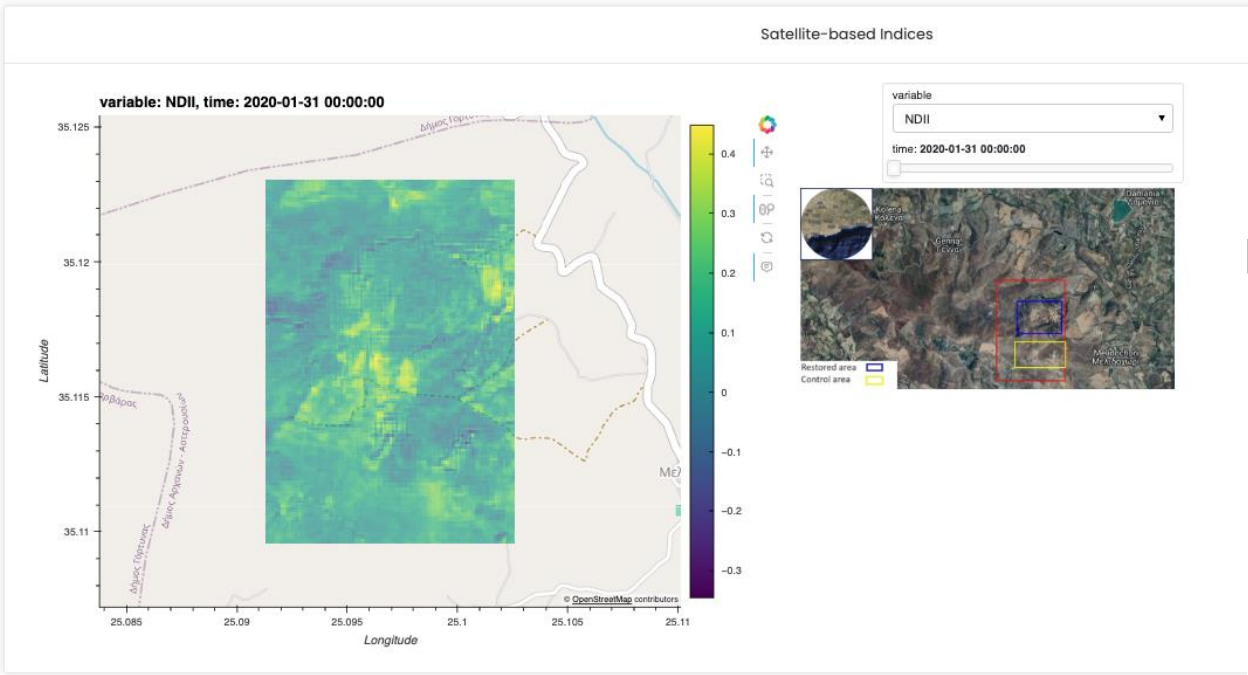
Aridity Index 2015-2100 - M...
Go to dataset page



Data Viewer



Satellite Indicators for **performance assessment** of each restoration action



Web interactive Dashboard

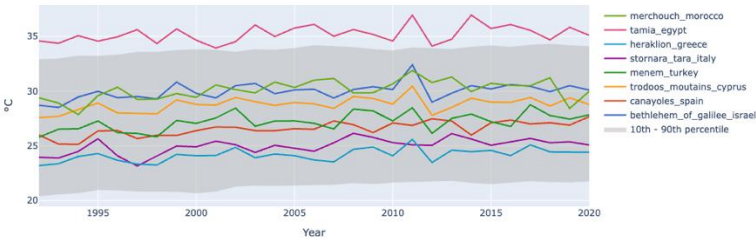
Climate Extremes & Environmental Threats

Understanding Land Degradation in the Mediterranean and REACT4MED pilot areas

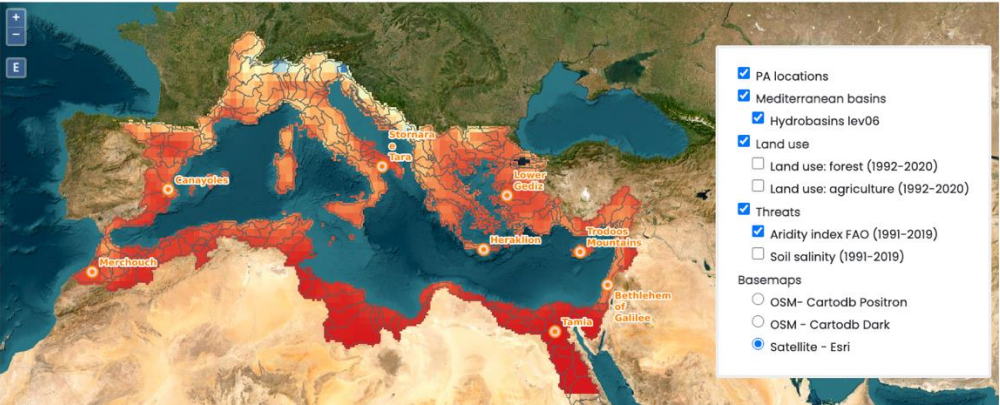
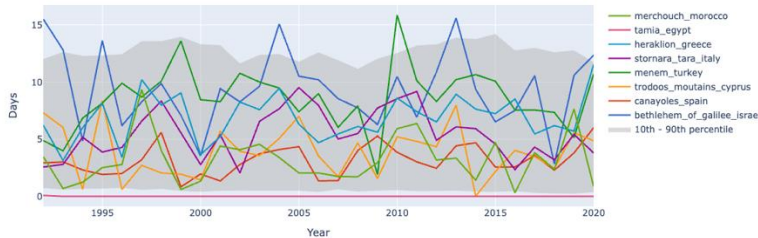
The Mediterranean region is a climate change hotspot, experiencing increasing land degradation driven by a combination of anthropogenic pressures, extreme weather events, and shifting climate patterns. Rising temperatures, prolonged droughts, and unsustainable land use threaten ecosystems, biodiversity, and local livelihoods, making effective land restoration strategies more urgent than ever.

The LandS Dashboard is an innovative decision-support tool designed to tackle not only land degradation and desertification in the Mediterranean, but also its great potential for land restoration. This ensures a comprehensive approach, combining scientific analysis with expert knowledge to support sustainable land restoration strategies.

Monthly maximum value of daily maximum temperature



Annual count of days when precipitation is greater than or equal to 20 mm

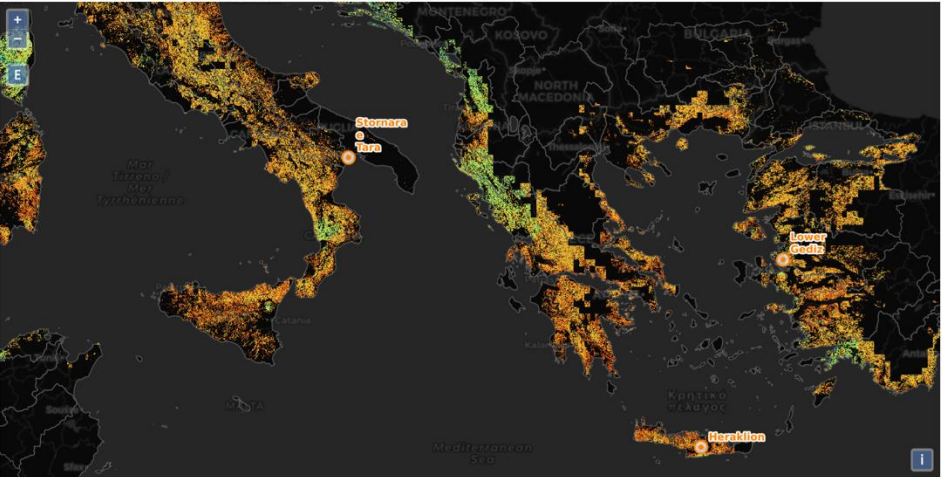


Expert-Based Filtering Map

Refining Restoration Suitability Integrating Expert Knowledge & High-Resolution Data

Troodos Mountains (CY) Heraklion (GR) Stormara and Tara (IT) Canayoles (ES) Merchouch (MO) Bethlehem of Galilee (IL) Lower Gediz (TR) Tamia (EG)

Restoration action: Terraced agriculture partially protected by dry-stone walls, established on abandoned slopes or degraded agricultural land, to combat soil erosion and land abandonment.



- ☒ Mediterranean basins
 - ☒ PA locations
 - ☒ Hydrobasins06
 - ☒ PAI - Troodos Mountains (Cyprus)
 - ☒ Suitability map: all filters
- ☐ Suitability map: all filters (sum)
- ☐ Core filters
 - ☐ Filter: Slope
 - ☐ Filter: PAI Clusters
- ☐ Complementary filters
 - ☐ Filter: Soil Depth
 - ☐ Filter: Precipitation
 - ☐ Filter: Land Cover

Technologies

- Open-source fully integrated technology stack
- LanDS repository on GitLab





SoftWater

THANKS!



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