

A new approach for an adaptive forest management planning to improve resilience of beech forests in relation to climate change : The LIFE AForClimate project

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WHAT

The AForClimate project, co-funded by the LIFE Program of the European Union in 2015, aims to provide concrete solutions to **achieve effective forestry and forest planning in adaptation to climate change in progress**

THE PROBLEM

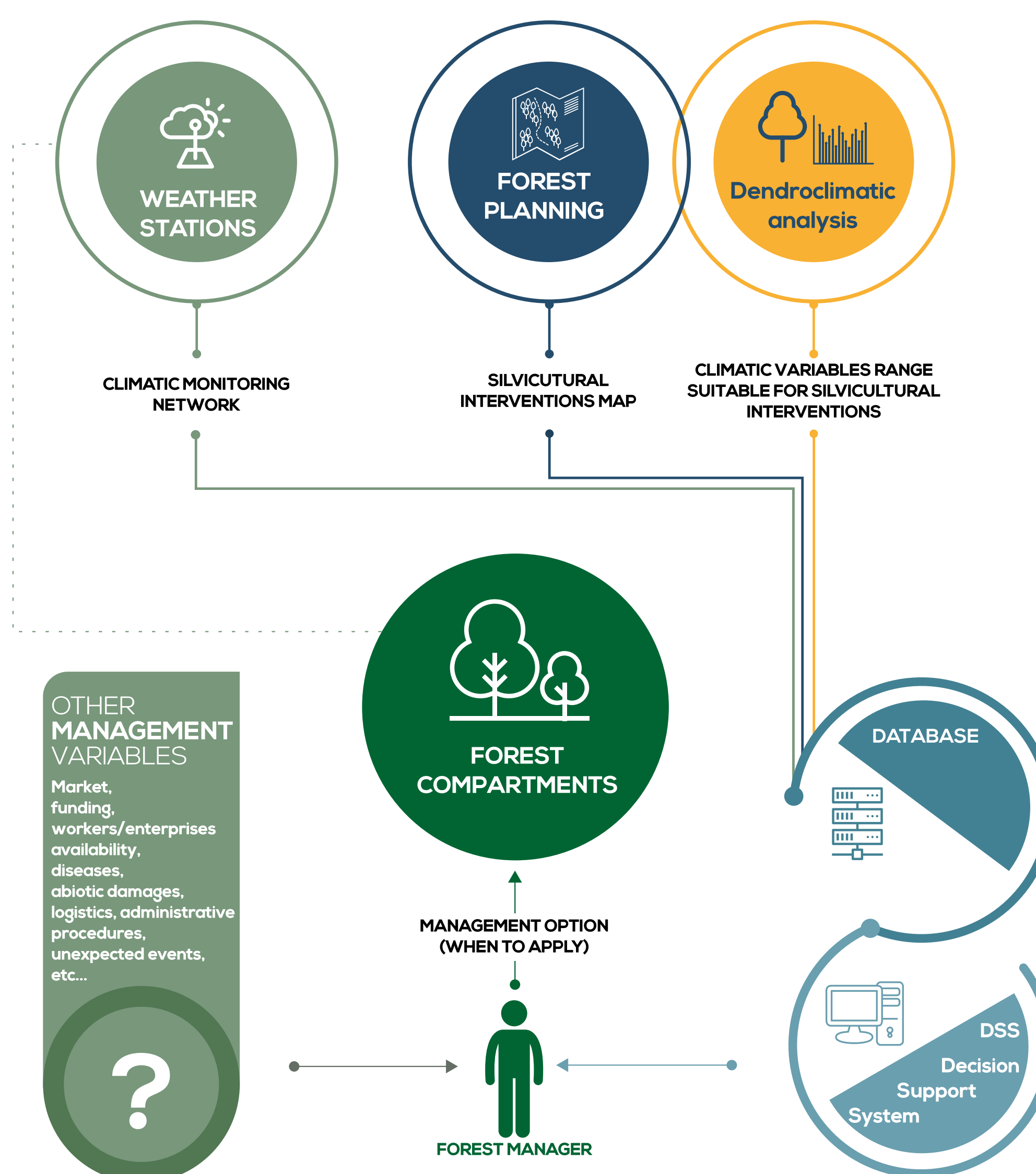
Climatic variables, mainly temperature and rainfall, directly influence the growth of plants. However, the planning of silvicultural interventions is not based on these parameters today. The period in which to use a forest is established, for operational simplicity, hypothesizing an average and constant growth of forest stands, something that does not always have direct results in reality. In an era characterized by **climate change** the gap between reality and hypothesis may be ever wider. In this context, intervening at the wrong time can be unfavorable for forest stands.

THE SOLUTION

Knowing the response of trees to climate variability and constantly monitoring variables such as temperature and rainfall, **it is possible to intervene only in the high reactivity phases of the forest**, where it can better respond to the stress caused by the cut. On this basis, the AForClimate project aims to spread an **innovative forest planning and management methodology** designed to ensure better adaptation of forests to current climate

HOW

The method proposed by AForClimate allows to know when certain portions of forest are in a phase of high or low reactivity and consequently suggests the most suitable moments to apply silviculture, based on the management plan.



WHAT WE NEED

- A **dendroclimatological analysis** able to determine thresholds plant growth criticisms based on climatic variables
- A **silviculture options map** (harvesting map)
- A **climate monitoring network** with weather stations placed at strategic points of the forest area (different altitudinal belts)

THE OPERATIONAL TOOL

The information described above, merged into a **database**, is processed by a **decision support system** that can indicate the right moments to intervene in a specific area. This is the **operational tool** that the project will deliver to the forest managers

WHERE

The effectiveness of the method proposed by AForClimate will be demonstrated in the beech forests of three very different geographical areas. A total of 1400 hectares will be planned and demonstrative silvicultural interventions will be carried out on 78 hectares.

- 1 species**
Beech (*Fagus sylvatica*)
- 2 silvicultural options**
72 ha of thinning
6 ha of preparatory cutting
- 3 demonstration areas**

TOSCANA

Mugello

Forest type: Northern-Appennines beech forest

Mean altitude: 900 m a.s.l.

Ownership: Public

Municipality: Borgo San Lorenzo (FI)

SICILIA

Nebrodi Mountains

Forest type: Mediterranean beech forest

Mean altitude: 1,450 m a.s.l.

Ownership: Public

Municipality: Militello Rosmarino - Cesarò (ME)

MOLISE

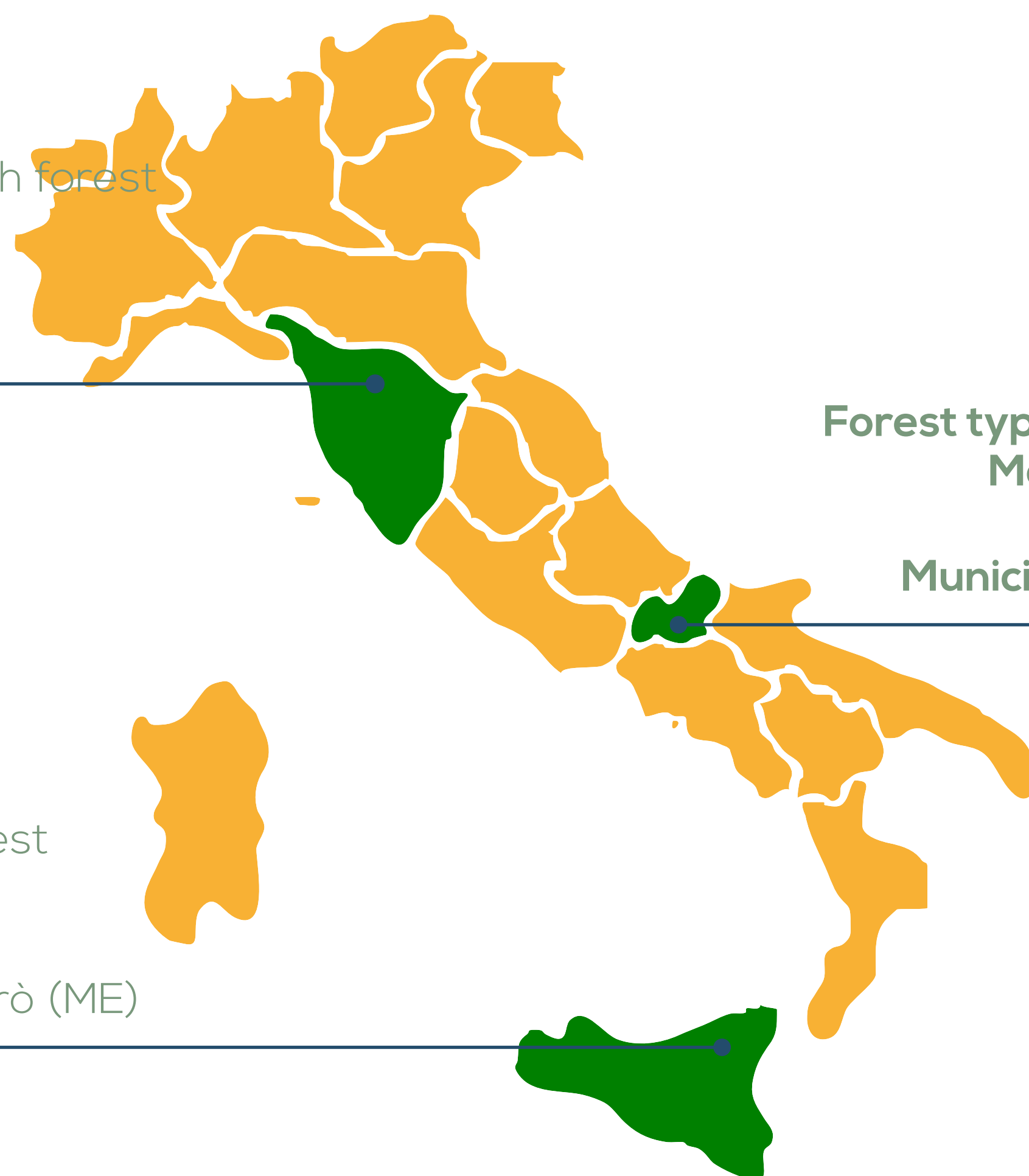
Matese Mountains

Forest type: Apennine beech forest

Mean altitude: 1,300 m a.s.l.

Ownership: Public

Municipality: Roccamandolfi (IS)



WHO

The project team consists of scientific institutions, forest managers, forest planning and communication experts.

PROJECT PARTNERS



Coordinator

CREA
Consiglio per la Ricerca in Agricoltura e l'analisi dell'Economia Agraria
Viale Santa Margherita 80, Arezzo

Responsible

Dott. Ugo Chiavetta ugo.chiavetta@crea.gov.it

Partners responsible for management and planning



Unione Montana dei Comuni del Mugello



Regione Molise Government



Regione Siciliana Government
Assessorato Regionale dell'Agricoltura, dello Sviluppo rurale e della Pesca Mediterranea

Scientific partners



University of Molise
Centro di ricerca per le Aree Interne e gli Appennini - ArIA



University of Palermo - Dipartimento Scienze Agrarie, Alimentari e Forestali



Partner responsible for technical implementation
D.R.E.Am. Italia
Società cooperativa agricolo forestale



Partner responsible for communication and dissemination
Compagnia delle Foreste S.r.l.

