LIFE RESIL FOR MED

LIFE 11 ENV/IT000215

Resilienza delle Foreste Mediterranee
ai cambiamenti climatici

Resilience of Mediterranean Forests
to Climate Change

GUIDA AL PROGETTO | PROJECT GUIDE

RESILIENZA DELLE FORESTE MEDITERRANEE AI CAMBIAMENTI CLIMATICI

RESILIENCE OF MEDITERRANEAN FORESTS TO CLIMATE CHANGE

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Questo lavoro è dedicato
alla memoria di Sebastiano Cullotta,
che ha contribuito in modo sostanziale
allo sviluppo e alla realizzazione
del progetto ResilForMed,
con grande competenza scientifica,
passione personale e dedizione.

La sua profonda conoscenza
dei boschi siciliani è stata fondamentale
per lo sviluppo delle azioni di studio
e di intervento nel territorio,
il suo spirito forestale determinante
per l'interpretazione dei risultati.

A lui va il nostro ringraziamento
e il nostro pensiero.

This work is dedicated
to the memory of Sebastiano Cullotta,
which has substantially contributed
into the development and implementation
of the ResilForMed project,
with his great scientific expertise,
personal passion and dedication.

His deep knowledge
of the Sicilian forests, has been fundamental
for the development of study actions
and for the intervention in the territory;
his forestry spirit has been determinant
for the interpretation of the results.

Our thanks and thought
are for him.

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Dipartimento dello Sviluppo Rurale e Territoriale

UNIVERSITÀ DEGLI STUDI DI PALERMO
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3.1
Sensitivity to desertification risk of Sicilian forests

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The project starting point has been the cartographic identification on a regional and landscape scale of the forest areas more sensible to climate change (Action A1).

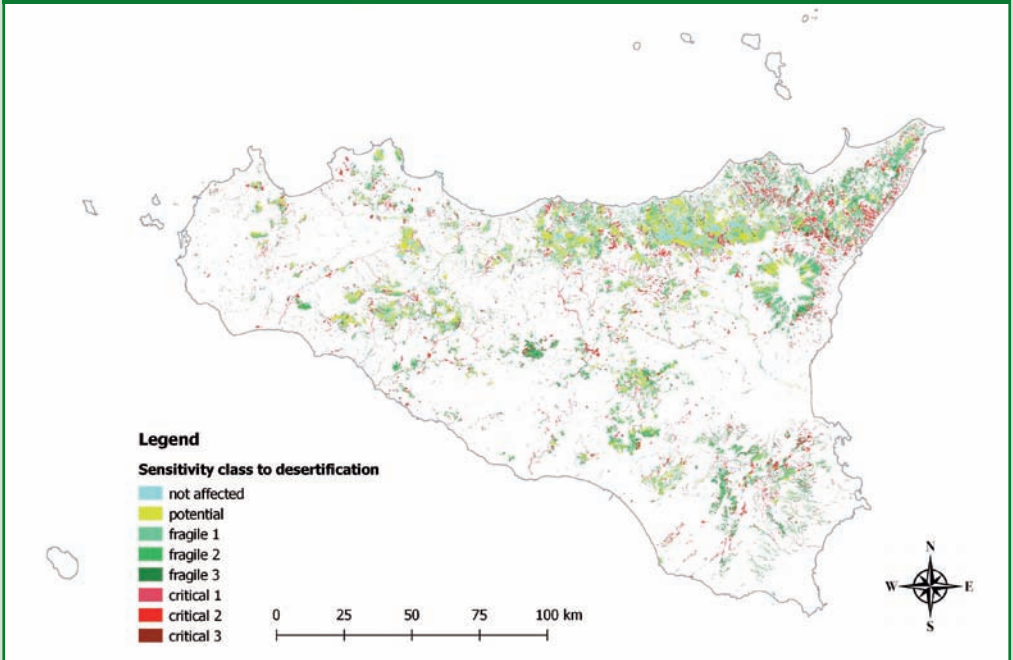
At this end, we decided to use the information provided by the Environmental Sensitivity Areas (ESAs) to desertification of Sicilian region [1] and by the Regional Forest map [2]. Intersecting the two charts on a GIS environment, associating to each forest category the desertification risk class for the territory, we obtained the Sensitivity Forest Areas to desertification of Sicilian region at a scale of 1:25'000 (Fig. 3.1.1).

The classification and distribution of forest areas in terms of sensitivity to desertification is shown in Tab. 3.1.1 [3]: most of Sicilian forest areas (49%) have been classified as "fragile", 2% as "critical", 17% as "potential" and only 5% as "not affected".

Moreover, the 14 Sicilian Forest categories have been classified according to their sensitivity to desertification (Fig. 3.1.2).

The categories showing the highest percentage of "critical" areas, that is characterized by advanced forms of decay, are the Mediterranean shrublands, the riparian formations, the Mediterranean pine forests, the pioneer vegetations and supra-Mediterranean shrublands. These last are, very probably, the result of degraded successional stages

Fig. 3.1.1 **Sensitivity Forest Areas to desertification of Sicily**



Tab. 3.1.1 **Classification and distribution of forest areas in terms of sensitivity to desertification [3]**

Sensitivity class	Sensitivity sub-class	Description	Forest areas (ha)	Forest areas (%)
Not affected	Not affected	Areas non threatened	25368.13	5.2
Potential	Potential	Areas threatened under climate and land use/land cover changes	81908.48	16.7
Fragile	F1	Areas in which any changes in the delicate balance of natural and human activities is likely to bring	82015.64	16.7
	F2		103607.96	21.1
	F3		53825.26	11.0
Critical	C1	Areas already degraded through past actions, showing a threat to the environment of the surrounding lands	39097.44	8.0
	C2		89053.35	18.1
	C3		16141.68	3.3

of old Mediterranean forests exposed to natural and anthropogenic disturbances. Downy oak forests and Plantations too are characterized by a high sensitivity to desertification because 80% of their surface is at "fragile" and "critical" risk. While, Turkey oak and beech forests have showed a lower level of sensitivity to desertification, thus suggesting the positive contribution of quite steady forest formations in preventing desertification in the Mediterranean area. At last, the sensitivity to desertification risk

Fig. 3.1.2 **Classifications of forest categories according to the level of sensitivity to desertification and their representativeness in Sicily region [3]**

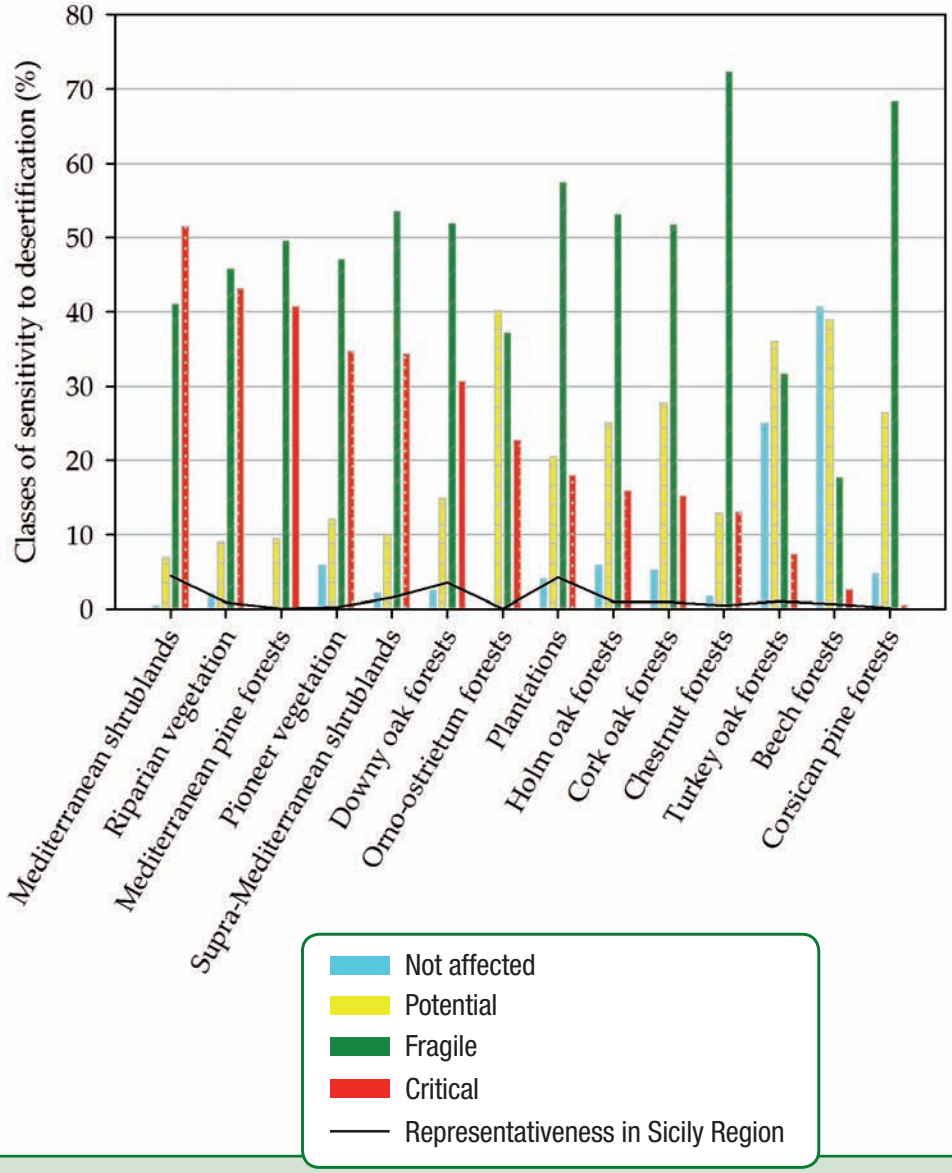
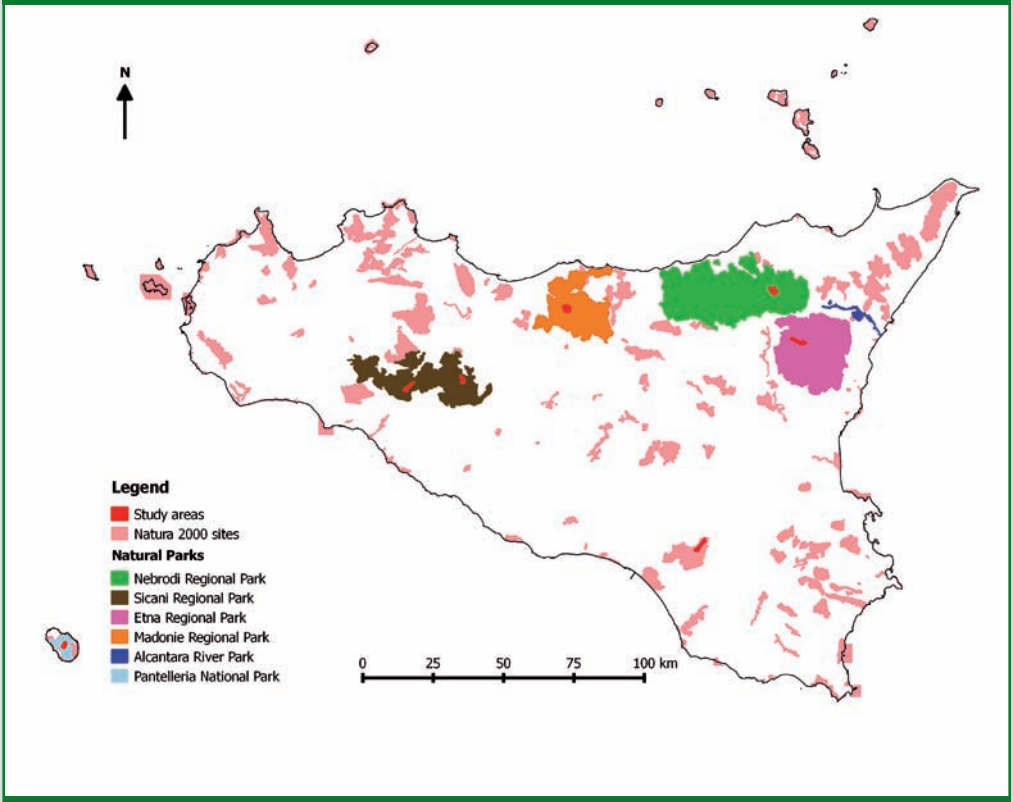


Chart of forest areas in Sicily has been used to identify the intervention demonstration areas where to implement the optimal management models for the forests resilience. These areas have been selected according to the following criteria: a) high sensitivity to desertification; b) location within protected areas (Natura 2000 sites, parks, reserves); c) wide representativeness of the main regional forest categories; d) identification of diversified silvicultural contexts; e) territorial proximity and location within a single mu-

Tab. 3.1.2 **Forest types and main features of the study areas.**

Study Area	Name of Municipality	Surface Area (ha)	Forest Type (main)
Pantelleria	Pantelleria (TP)	233.2	Mediterranean pines forests
Iblei	Caltagirone (CT)	421.3	Plantations; Cork oak forests; Mediterranean shrublands
Nebrodi	Tortorici (ME)	436.8	Beech forests; Turkey oak forests; Supra-Mediterranean shrublands
Madonie	Isnello (PA)	526.8	Beech forests; Holm oak forests
Etna	Maletto (CT)	421.7	Corsican pine forests; Holm oak forests; Downy oak forests; Plantations
Sicani PA	Palazzo Adriano (PA)	317.7	Plantations; Holm oak forests; Downy oak forests
Sicani CS	Castronovo di Sicilia (PA)	261.2	Plantations

Fig. 3.1.3 **Location of the study areas within the Sicilian territory**



nicipality. On the basis of the above criteria, on the whole, seven study areas have been located within the Madonie Mts., Nebrodi Mts., Mt Etna, Sicani Mts., Calatino district and in the island of Pantelleria (Tab. 3.1.2, Fig. 3.1.3), which have been considered as representative of the island's main ecological and socio-cultural features. ■

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