

## CHALLENGES FOR THE MEDITERRANEAN FORESTS

Mediterranean forests provide multiple goods and services for multiple users, including water cycle regulation and carbon sequestration at national and global level, fuelwood, forage and other products that contribute significantly to the income of the local human population that. However, climate change is expected to be particularly severe at these latitudes and, furthermore, climatic fluctuations have a higher impact in those fragile areas : tipping points can be crossed with low fluctuation. Therefore, advancing on the understanding of the resilience mechanisms of Mediterranean forest social-ecological systems is a general concern but also a potential relevant source of information.

Mediterranean climate regions are considered as a hotspot for biodiversity, with many endemic species adapted to their hot dry summers and mild winter conditions. There, human societies have for centuries adapted their socio-economic systems to constrained climatic conditions and related risks (drought, fire, etc.) that now, under most climate change scenarios, are expected to expand rapidly at a larger scale. Thus, Mediterranean climate regions are a reservoir of resources and experience of potential interest for adaptation to climate change in other areas.



10 - Resilience : post-fire *Pinus nigra* regeneration from unburned edges in areas affected by a large wildfires,

## PARTNERSHIP

INFORMED is conducted by a multidisciplinary consortium of 21 research groups from 10 countries around the Mediterranean Basin with expertise in biology, ecology, forest sciences and economy. Empirical research and modelling approaches are combined. The project also involves a Stakeholder Panel where forest owners and managers, regional administrations, NGO's, forestry journals and international organizations are represented. It is advised by an international Scientific Advisory Group where other regions of Mediterranean climate are represented.

Algeria (INRF, UMMTO)  
Bulgaria (UF)  
Croatia (IAC, CFRI, UZ)  
France (INRA coord., AgroParisTech)  
Greece (AUTH)  
Italy (CNR, UNIPD)  
Portugal (ISA)  
Slovenia (SFI, ULJ-BF)  
Spain (CREAF, CTFC, INIA, UVA, CETEMAS)  
Tunisia (INRAT, INRGREF)

Web site :  
[http://www6.inra.fr/informed-foresterra\\_eng](http://www6.inra.fr/informed-foresterra_eng)



12 - Prescribed burning is an example of controlled disturbance used as a forest management tool for fire prevention, sometimes also used for biodiversity management.



11 - Resilience: this oak had dropped its leaves during a severe drought event to avoid waste of water by transpiration, it now recovers,



1 - Mediterranean forests provide multiple goods and services



2 - Biodiversity is a trajectory : this old *Quercus pubescens* tree inside a *Pinus sylvestris* stand is a legacy of past Coppice management.



3 - Biodiversity is not only a reservoir of different living forms but also a set of processes that permanently puts the system in evolution,



4 - Severe climatic events now occur more frequently (here 2003 heat wave), Mediterranean forest ecosystems respond in terms of biodiversity and function,



INFORMED is a multidisciplinary research project funded by the ERA-Net FORESTERRA aiming to propose solutions to foster resilience of Mediterranean forest systems in the context of climate change. The **objectives** of the project INFORMED are :

- 1) to produce global change **scenarios** specifically dedicated to the Mediterranean forests,
- 2) to develop quantitative assessment of **biodiversity and functional response** of Mediterranean forests to disturbance and management,
- 3) to develop integrated assessment of **ecosystem services** and their dynamics based on ecosystem functions and their economic evaluation, and
- 4) to evaluate **adaptive management strategies, policy and governance options** for their expected impact on resilience of Mediterranean forests.

## DISSEMINATION

INFORMED will provide the scientific community with dedicated methodologies for the assessment of Mediterranean forest functions and ecosystem services, and it will also develop an open data management strategy.

Based on multi-site empirical approaches and process-based modelling, INFORMED will provide local and national stakeholders with operational decision tools to guide their decisions on forest management and planning: scenarios, management strategies, policy and governance options.

INFORMED will contribute to the training of students and professionals on the concepts, methods and tools for an integrated approach of resilience in the Mediterranean forests.

INFORMED will more generally contribute to raise awareness about the challenges of global change, and the possible options to face these challenges, in each of its case studies.