



LIFE FoResMit - Recovery of degraded coniferous Forests for environmental sustainability Restoration and climate change Mitigation

LIFE14 CCM/IT/000905



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Project description:

Background

Carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) are the most important greenhouse gases (GHGs) emitted from agricultural and forest soils, contributing 60%, 15% and 5%, respectively, towards global warming.

Forest ecosystems generally act as a net sink for CO₂, contributing to climate change mitigation by removing atmospheric CO₂ and storing it in different carbon pools (i.e. biomass, soil, dead organic matter, litter). Moreover, forests comprise an important carbon reservoir, since they store about twice the amount present in the atmosphere. The capacity of ecosystems to store carbon depends on the balance between net primary productivity (NPP) and heterotrophic respiration. Whether a particular ecosystem is functioning as sink or source of GHG emission may change over time, depending on its vulnerability to climate change and other stressors and disturbances.

Since deforestation and forest degradation are important contributors to global GHG emissions, but if these processes are controlled, forests can significantly contribute to climate change mitigation. To reverse current forest degradation, there is a need for an innovative management plan aimed at supporting and facilitating all the functionalities of peri-urban forests in the context of climate change mitigation. The reduction in the capacity of these forests to provide goods and services is often related to the absence of proper silviculture practices, which increases the risk of fires and compromises their value for recreational

purposes.

Objectives

The LIFE FoResMit project aims to define the guidelines of good silvicultural practices for the restoration of peri-urban degraded coniferous forests in Italy and Greece with native broadleaved species, improving the ecological stability and climate change mitigation potential of these ecosystems.

The project aims at testing and verifying in the field the effectiveness of management options for the conversion of degraded coniferous forests in meeting climate change mitigation objectives. It will provide data on vegetation structure, biomass increment, carbon accumulation in all relevant pools of vegetation and soil, and CO₂ and other greenhouse gas emissions, thus giving a complete picture of mitigation potential of management practices.

Expected results: The project will implement an innovative thinning treatment, quantify and report on specific performance indicators for three climate change mitigation options, and provide ‘guidelines of good and sustainable silvicultural practices’ for degraded coniferous forest restoration.

p>Specific expected results include:

- Demonstration of results concerning the three mitigation options: i) reduction/ prevention of emissions, ii) sequestration – enhancing uptake of carbon and iii) substitution of fossil fuels for energy production with biological products;
- Increased net primary production of the forest ecosystem, due to the removal of non-growing or dead trees and the higher growth rates of remained vegetation, with an increment of productivity of up to 40-60%;
- An initial increase of greenhouse gas emissions, followed by a stabilisation towards a reduction after the thinning treatment;
- The decrease of standing biomass due to harvesting will be counterbalanced by the energy cogeneration of wood material as a fossil fuels substitution option, with an expected neutral balance from living plants and a positive balance from dead trees, corresponding to 40% of forest biomass;
- Carbon credits deriving from the thinning intervention will be quantified;
- Selective thinning and harvesting to reduce tree densities and remove deadwood material will reduce the probability and intensities of fires; and
- Guidelines of good and sustainable silvicultural practices for degraded coniferous forests restoration. This will update knowledge about the effectiveness of new forest management practices in meeting climate change mitigation objectives.

Results

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Environmental issues addressed:

Themes

Climate change Mitigation - GHG reduction in non EU ETS sectors

Climate change Mitigation - Carbon sequestration

Keywords

periurban space, emission reduction, greenhouse gas, forest management, biomass energy, restoration measure, carbon sequestration

Target EU Legislation

- Land & Soil
- COM(2013)659 - A new EU Forest Strategy: for forests and the forest-based sector (20.09.2013)
- Climate Change & Energy efficiency
- Decision 529/2013 - Accounting rules on greenhouse gas emissions and removals resulting from acti ...

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria
Type of organisation	Research institution
Description	The CRA-ABP research centre of Florence carries out research on soil ecosystem functions and their conservation, through the study of physical, chemical, biological and mineralogical characteristics and processes, as well as soil genesis, classification, degradation and mapping. Its research work is aimed at improving the sustainability and quality of agricultural and forest production and services.

Partners PROVIFI(Città Metropolitana di Firenze), Italy
DUTH(Department of Forestry and Management of ENvironment and Natural Resources, Democritus University of Thrace), Greece
DAMT(Decentralized Administration of Macedonia & Trace , Xanthi Forest Directorate), Greece

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Administrative data:

Project reference	LIFE14 CCM/IT/000905
Duration	01-SEP-2015 to 31-AUG -2019
Total budget	1,480,568.00 €
EU contribution	879,264.00 €
Project location	Anatoliki Makedonia, Thraki(Ellas) Toscana(Italia)

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Read more:

Leaflet	Title: Leaflet of the project Year: 2016 No of pages: 2
Poster	Title: Project's poster (354 KB) Editor: FORESMIT No of pages: 1
Poster	Title: Project's roll-up Year: 2016 No of pages: 1
Project web site	Project's website
Project web site - 2	Project's Facebook page
Video link	"Life FoResMit - Soil and forest floor sampling" (link to the project' video)

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