



ABSTRACTS BOOK



12th SERE CONFERENCE
7th – 10th SEP 2021
online



A NEW GREEN DEAL FOR EUROPE'S NATURE

Science and political action towards socio-ecological restoration

Dear colleagues.

The organizing committee and the University of Alicante welcome you to the 12th European Conference on Ecological Restoration SERE2021.

Between September 7 and 10 2021, we will discuss challenges facing ecological restoration in post-2020 Europe, and particularly, how can ecological restoration promote the recovery of damaged, degraded and destroyed socio-ecological systems in these critical times.

Ecological restoration is increasingly present in our lives. UN Declaration of 2021-2030 as the Decade of Ecological Restoration clearly responds to social concerns and illustrates commitment towards using ecological restoration to fight major environmental problems. Yet, international high-level initiatives should scale down and translate into concrete actions.

The advance of ecological restoration in Europe has been slow for reasons that are political and socio-economical, rather than ecological. Because of the onset of the UN Decade, and ongoing discussions on the EU Biodiversity Strategy for 2030, the Farm-to-Fork Strategy, and the Action Plan for Disaster Risk Reduction (2015-2030), 2021 should be the turning point to develop ambitious European legislative and funding frameworks for ecological restoration that will help Member States respond to current environmental crises.

In parallel, our societies are undergoing profound changes. The diversity of policies concerning nature and environmental protection in EU Member States clearly illustrates the search for new ways to understand growth and re-define human role in the Biosphere, and the tensions behind them. Europeans look astonished at the magnitude of the global challenge and must find ways to establish a healthier relation between culture and nature before it is too late.

In SERE, we know about this, and the way ecological restoration can sustain the new deal. For almost 30 years, our Society has helped to bridge the gap between humans and nature, and we know firsthand that ecological restoration can contribute to adapt and mitigate climate change, halt species extinction and combat desertification, while contributing to reduce poverty and inequality.

For some late-summer days, academics and practitioners from Europe and beyond will meet to discuss these topics and advance the theory and practice of socio-ecological restoration in Europe. This book summarizes the contributions of more than 300 experts from a wide range of geographic contexts and sectors. Abstracts refer to video-recorded presentations that will soon be freely available on the web, to promote knowledge exchange and upscale ecological restoration in Europe.

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Contribution of planted fields at a Lignite Center to climate change mitigation and atmospheric quality

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ABSTRACT

The COFORMIT research project assesses the contribution of tree plantations at restored areas to the mitigation of climate change and to the improvement of air quality. Forests and plantations, through photosynthesis, absorb and store CO₂, which is the main greenhouse gas in the atmosphere. Carbon is stored in the above and below-ground biomass, the dead wood, the litter and the soil. Furthermore, restoration plantations capture particulate matter (PM) produced by anthropogenic activities and, thus, contribute to the reduction of atmospheric pollution. The studied plantations were established after the end of the mining activity at the Lignite Center of Western Macedonia, at an area of about 2,000 hectares. The aims of the COFORMIT project are the estimation of (a) the carbon dioxide assimilation and storage from the plantations of this Lignite Center, both in long term and dynamic time periods and (b) the amount of PM particles that can be retained by these plantations. To this direction, a holistic approach is used that includes the estimation of the five carbon pools, the use of remote sensing (with the use of a field phenology camera and satellite images), eddy covariance and soil respiration methods, micrometeorological and analytical measurements for the estimation of canopy and soil CO₂ and H₂O fluxes, as well as of the retention of PM by the restoration plantations. This research has been co-financed by the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship, and Innovation, under the call RESEARCH- CREATE-INNOVATE (project: COFORMIT. T1EDK-02521).

Key words: Forest biomass, Carbon sequestration, *Robinia pseudoacacia*, Eddy covariance, PM pollution,

