BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: T16b

Incentivizing tree-based solutions: PES schemes for engaging society and nature

Hosts:

	Title	Name	Organisation	E-mail
Host:		Cláudia Carvalho-Santos	Centre for Molecular and Environmental Biology, University of Minho, Braga, Portugal	c.carvalho.santos@bio.uminho.pt
Co-host(s):		Benedetto Ruganni	Environmental Research & Innovation (ERIN), Luxembourg Institute of Science and Technology	benedetto.rugani@list.lu
		Paola Ovando Pol	Institute of Public Goods and Policies of the Spanish National Research Council (CSIC), Madrid, Spain	paola.ovando@csic.es

Abstract:

Tree-based solutions, especially forests are well known for providing benefits for human well-being, and traditionally used as a nature-based solution to mitigate the undeniable effects of climate and environmental change. At the local scale, several forestation projects and restoration actions are taking place intending for biodiversity conservation and the provision of ecosystem services, with very important outcomes that sometimes are underestimated and valued. It's important to identify where tree-based solutions could be operationalized, assessing their benefits and co-benefits, including ecosystem services and biodiversity, financing mechanisms and possible new market incentives.

In this session, we want to bring together researchers and practitioners (decision-makers, corporate sector, NGO's) with experience on PES schemes application or wiling to know more about on environmental effectiveness, cost-effectiveness, design and governance of PES schemes, especially using tree-based solutions. Works on mapping and modelling environmental effectiveness of forest options are also welcome. We would like to receive contributions representative of different geographical and economical contexts.

Goals and objectives of the session:

- Learn about the theory and practice of PES (payments for ecosystem services) schemes and other financial incentives using forests as ecosystem, to contribute for the state-of-the-art on this topic, especially bringing concrete examples and applications.
- Publicize the new working-group ESP TWG 16A – Tree-based PES (PESFOR-W), and the work developed under the former PESFOR-W COST Action.
- Attract new members to the new working group ESP TWG 16A – Tree-based PES (PESFOR-W) interested in this thematic.

Planned output / Deliverables:

The outcomes of this session (a summary of the session with information about the participants, the topics presented and the take home messages from each oral/poster communication) will be advertised in social-media, in the webpage of the ESP TWG 16A – Tree-based PES (PESFOR-W), and the ESP monthly newsletter. We will also explore the possibility of a joint publication resulting from the different talks in the session. By the end of the session, we want to allocate 1hour for a panel session to discuss on the topic: Nature-Based Solutions and the role of trees: successes & failures, barriers & opportunities.

Session format:

Standard session (presentations)

Voluntary contributions accepted:

Yes, I allow any abstract to be submitted to my session for review

Related to ESP Working Group/National Network:

Thematic Working Groups: TWG 16 – ES Financing mechanisms (incl. PES)

II. SESSION PROGRAM

Date of session: Wednesday, 12 October 2022
Time of session: 16:00 – 18:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
16:00 – 16:05	Claudia	Carvalho-Santos	CBMA & IBS, University of Minho, Portugal	Opening and welcome. Introduction to TWG 16A – Tree-based PES (PESFOR-W) Working group and to the session topic.
16:05 – 16:15	Claudia	Carvalho-Santos	CBMA & IBS, University of Minho, Portugal	Trees4Water – Tree-based solutions for water quality improvement
16:15 – 16:30	Pham	Thu Thuy	Center for International Forestry Research (CIFOR)	The role of Payment for Forest Environmental Services in addressing Covid-19 impacts in Son La and Thua Thien Hue provinces, Vietnam
16:30 – 16:45	Alessandro	Gimona	The James Hutton Institute, Scotland	Beyond carbon: benefits and trade-offs of broadleaved woodland expansion for multifunctional landscapes
16:45 – 17:00	Paula	Castro	CFE, University of Coimbra, Portugal.	Engaging key stakeholders in promoting multifunctional forests: from perceived value of ecosystem services to financial return
17:00 – 17:15	Kateřina	Mácová	Charles University Environment Centre, Czech Republic	Methodology for non-forest woody plants appraisal: tree valuation for calculation of environmental damage applicable in legal norms
17:15 – 17:30	Jomme	Desair	INBO (Research Institute for Nature and Forest), Belgium	Short rotation woody crops as a tree-based solution for biomass production and agricultural (bio)diversity
17:30 – 17:45	Gregory	Valatin	Forest Research, Alice Holt Lodge, Farnham GU10 4LH, UK	Incentivising Tree Planting for climate change mitigation and wider benefits in the UK
17:45 – 18:00	Click here to enter text.	Click here to enter text.	Click here to enter text.	General Discussion: Tree-based solutions and PES: successes & failures, barriers & opportunities

III. ABSTRACTS

Abstracts are ordered based on the session program. The first author is the presenting author unless indicated otherwise.

1. Type of submission: Abstract

T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

Incentivising Tree Planting for climate change mitigation and wider benefits in the UK

Presenting author: Gregory Valatin
Affiliation: Forest Research,
Contact: gregory.valatin@forestresearch.gov.uk

In 2019 the UK Government committed to ending the country's contribution to global warming, adopting a legal target of achieving 'net zero' emissions by 2050, with an interim target set in 2021 of a 78% reduction by 2035. Drawing upon advice of the Committee on Climate Change concerning the role of planting trees in helping meet carbon net zero targets, increased Government financial support is being offered for woodland creation and tree planting in the wider landscape - including through a £750m Nature for Climate Fund in England, with the UK aiming to plant an additional 30,000 ha of woodlands (90 million to 120 million trees) each year by 2025. In addition to grants for tree planting, the government is seeking to encourage novel financial mechanisms to lever in greater private sector investment for tree planting, including supporting piloting of a range of payments for ecosystem services schemes, with an Impact Fund also planned to lever greater private finance into new natural capital markets.

Building on the success of the UK Woodland Carbon Code (https://woodlandcarboncode.org.uk) - introduced in 2011 to underpin investment in tree planting for carbon sequestration, as well as the work of the PESFOR-W COST Action in developing look-up tables for the water quality benefits of woodland creation, the UK government has committed to supporting the development of a Woodland Water Code. This aims to provide a crediting mechanism for the water benefits associated with UK woodland creation.

This paper describes some of the recent UK initiatives in developing incentive schemes that encourage tree-based solutions for climate change mitigation and wider benefits, including work to help progress the development of a Woodland Water Code.

Keywords: Tree-based solutions, Woodland Water Code, Woodland Creation, Payments for Ecosystem Services schemes

2. Type of submission: Abstract

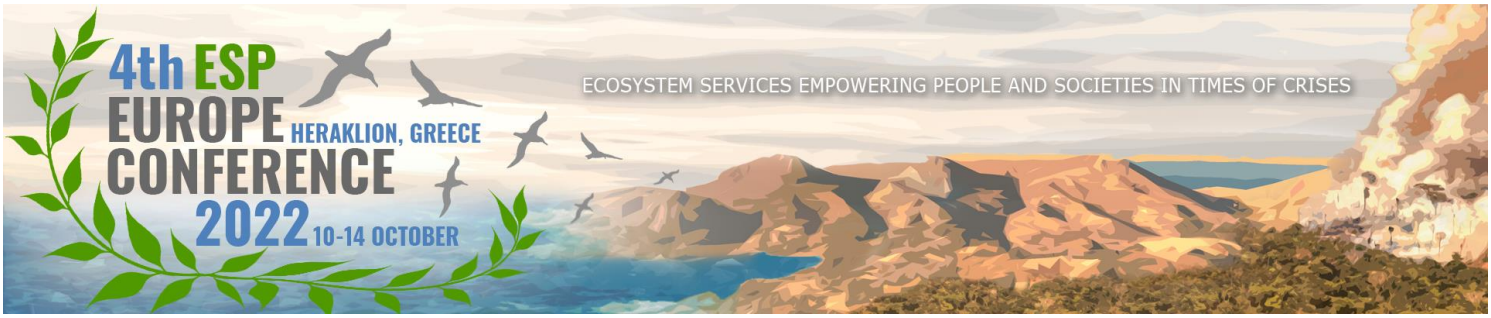
T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

Engaging key stakeholders in promoting multifunctional forests: from perceived value of ecosystem services to financial return

Presenting author: Paula Castro
Other author(s): Fernanda Follmann, António Alves da Silva
Affiliation: Centre for Functional Ecology - Science for People & the Planet (CFE), TERRA Associate Laboratory, Department of Life Sciences, University of Coimbra, Portugal
Contact: pcastro@ci.uc.pt

The compatibility of the uses and management of forests and agroforestry systems with biodiversity conservation and the valuation of ecosystem services (SE) is challenging. Analysing how key stakeholders perceive the value of these ecosystems in providing goods and services is crucial to understanding how decisions are made, complementing the more traditional economic evaluations of those services. This study aimed to: a) analyse the value of forest and agroforestry ES perceived by entities linked to the sector and by forest owners/producers in different regional and local contexts in mainland Portugal; b) understand the determinants of their conservation and valorisation; and c) identify potential constraints and challenges to their management. Two questionnaire surveys tailored to each stakeholder's typology were conducted. Biodiversity conservation and valorisation of forest ES are relevant topics, although the community linked to the forestry sector is still poorly aware of these issues. Respondents recognise of several challenges/problems in managing their forest properties. The most mentioned were droughts, difficulties finding labourers, pest and disease control, and weed/invasive control. Although there are specificities related to forest types and sociodemographic contexts, most respondents remark that the investment in forest management is not worth the financial return. It is stated that owners committed to promoting the conservation of biodiversity, its ecological functions, and their services should be recognised for their efforts through benefiting when they resort to financial subsidies or via payment for the conservation or promotion of ES. Participatory approaches and their outputs are necessary for a better understanding of the diversity of forest spaces and the management practices applied at local and regional levels to formulate forest conservation/restoration strategies and to design tailored PES programmes that can leverage the multifunctionality of forests.

Keywords: Forest ecosystem services, Participatory approaches, stakeholders' perceptions, PES



3. Type of submission: Abstract

T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

Beyond carbon: benefits and trade-offs of broadleaved woodland expansion for multifunctional landscapes

Presenting author: Alessandro Gimona
Other author(s): Marie Castellazzi, Andrea Baggio
Affiliation: The James Hutton Institute, United Kingdom
Contact: alessandro.gimona@hutton.ac.uk

Woodlands can provide multiple benefits at the landscape level, such as habitat for multiple species, carbon storage, mitigation of diffuse pollution and of soil erosion. Recognising this, the Scottish and UK government have the ambition to plant several thousand hectares a year over the next decades, both to store carbon to contribute to climate mitigation, .and to supports the rural economy, the environment, and communities.

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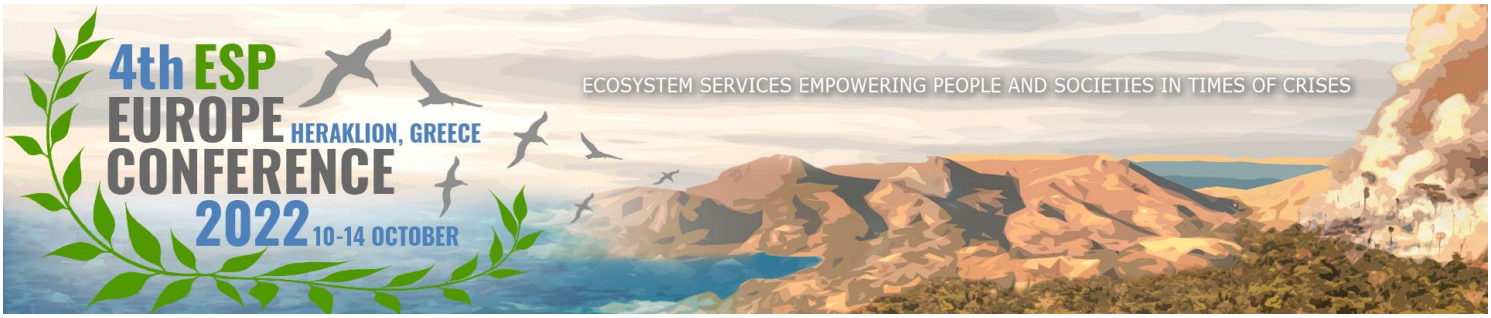
However, to realise such benefits it is important to recognise that landscapes are heterogeneous and provide spatially variable opportunities, and also spatially variable risks to be detrimental, thus causing trade-offs between benefits.

We present the results of a large modelling exercise for Scotland, investigating how several benefits and constraints interact spatially at the landscape level and propose an approach to synthesise a large amount of information to produce mapped suggestions regarding where (not) to expand woodlands according to which benefits and disbenefits are prioritised.

We also present an interactive web-based tool that facilitates the analysis and exploration of different expansion strategies that prioritise different criteria.

Keywords: Afforestation, Net Zero, Spatial Targeting, Multifunctional Landscapes, Interactive Maps



4. Type of submission: Abstract

T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

The role of Payment for Forest Environmental Services in addressing Covid-19 impacts in Son La and Thua Thien Hue provinces, Vietnam

Presenting author: Pham Thu Thuy
Affiliation: CGIAR
Contact: t.pham@cgiar.org

This paper investigates the role of Payment for Forest Environmental Services (PFES) in addressing Covid-19 impacts, particularly on women, in Son La and Thua Thien Hue provinces, Vietnam. We conducted in-depth interviews with 33 key informants, surveyed 239 households and held 29 focus group discussions with 366 male and female participants in both PFES and non-PFES sites across the two provinces. The study reveals Covid-19 contributing to negative impacts on household earnings, creating health risks and mental stress, affecting social networks, restricting people's access to job opportunities, and forcing villagers to take high-interest loans. It also shows Covid-19 affecting men and women differently, with more women than men perceiving it to have negative impacts on their lives. Men and women in study villages have both become more appreciative of PFES since Covid-19. Although PFES was not meant to be the only source of income for local people during Covid-19, it has become so for some villagers. Even though PFES payments cannot fully meet villagers' needs after Covid-19, they can help people purchase food for their daily needs and supplement villagers' earnings to help meet some household needs during the pandemic.

Due to the paternal nature of the existing land tenure system, far fewer women than men receive PFES payments. When women do receive payments from the PFES programme, in most cases the amounts they receive are lower than those received by men. Our paper shows the role of PFES in addressing Covid-19 impacts, and highlights the need to address existing institutional challenges, such as land tenure, for women to get equitable access to benefits from PFES.

The Government of Vietnam and donors have launched numerous programmes and policies to support vulnerable communities' livelihoods, nutrition and agency and to cope with the pandemic. To address the consequences of Covid-19, the Government of Vietnam and the people's committees of Son La and Thua Thien Hue provinces have implemented a variety of

policies in order to support businesses and individuals financially, such as reducing taxes and financial responsibilities; ensuring social security for underprivileged groups including women, children and ethnic minorities; and guaranteeing agroforestry and production areas. Support from the government can potentially help in reducing the impacts of Covid-19 on businesses and individuals, but vulnerable groups and local people still face many challenges in accessing these programmes, including (i) having no timely access to information or the capacity to complete administrative procedures; (ii) state agencies' implementation processes slowly falling behind schedule and being untimely due to overlapping and inconsistent instructions; and (iii) support being so slow that it only assists people in purchasing daily necessities but not in recovering from Covid. The paper also highlights the need to design appropriate and gender-sensitive policies and interventions, including PFES to support both men and women in coping with Covid-19.

Keywords: PES, PFES, COVID-19

5. Type of submission: Abstract

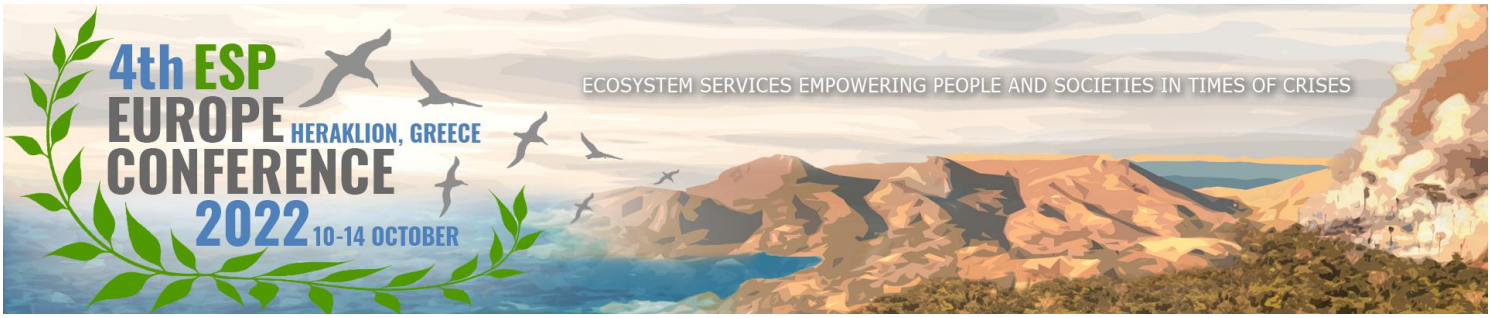
T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

Methodology for non-forest woody plants appraisal: tree valuation for calculation of environmental damage applicable in legal norms

Presenting author: Kateřina Mácová
Other author(s): Jaroslav Kolařík, Andrea Szórádová
Affiliation: Charles University Environment Centre, Czech Republic
Contact: katerina.macova@czp.cuni.cz

We present and discuss the theory and practice of valuing trees and woody plants using the "Methodology for non-forest woody plants appraisal including calculation of compensatory measures for felled or damaged woody plants NCA CR (version 2021/2)".

The valuation approach is methodologically based on a combination of cost-based and expert-based evaluation. This approach is common worldwide among valuation approaches used in arboriculture; and matches also several long existing economic instruments in nature protection or tort law instruments in legal force in CZ (though these legal instruments are rather weakly linked to ES knowledge). However, it is not typically covered by ecosystem services research or environmental economics in the context of total economic value or PES.



This is why we looked at the approach through the lens of social science. We re-assessed the cost-based data to set restoration cost valuation, and revised the expert evaluations using a standardized Delphi procedure, and further compared the overall results with a non-market demand-based evaluation that is generally preferred by environmental economists. For most trees and their locations, the cost-based estimate of value constitutes a lower estimate of the demand-based value of trees.

Based on the results, several changes were made to the previous (mostly arboristic) version of the methodology. In the end, cost-based evaluation remains at its heart, for the approach to remain methodologically transparent and closer to the usual legal practices in the country and other states; it was also found to be more easily explainable to non-economic experts, stakeholders and public, and is thought to better fit into the acceptability level of potential future payment scheme.

Out of all monetary valuations of nature, this approach is by far the most promising to be embedded into Czech environmental law and was designed specifically for this purpose. If so, it would represent the first Czech mandatory approach to calculate environmental damage for setting compensation measures (including a payment scheme) the aim of which is to restore the environment. This can become a win-win situation leading to a breakthrough in science-policy cooperation in ES research, and also to better enforcement of environmental damage liability by Czech law, which is very complex and rather weak in practice also due to a non-detailed system of its financial accountability.

Keywords: Total economic value, Science-policy interface, Environmental damage, Trees, Non-forest vegetation

6. Type of submission: Abstract

T. Thematic Working Group sessions: T16b - Incentivizing tree-based solutions: PES schemes for engaging society and nature

Short rotation woody crops as a tree-based solution for biomass production and agricultural (bio)diversity

Presenting author: Jomme Desair
Other author(s): Julie, Callebaut, Marijke, Steenackers
Affiliation: Instituut voor Natuur- en Bosonderzoek, Belgium
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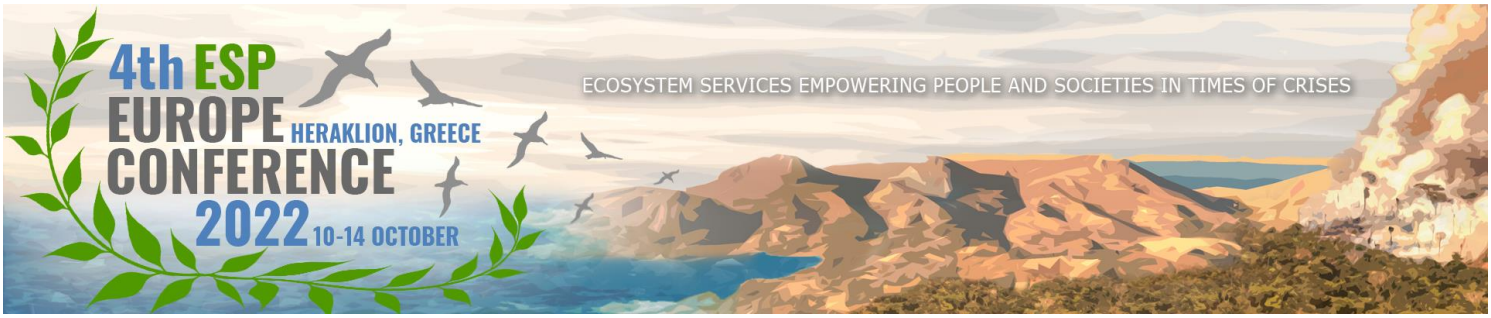

With the race to carbon neutrality, Europe is looking at lignocellulosic biomass to provide a share of the renewable energy package. In Belgium, where there is an urgent need to increase the forest cover while preserving or restoring the ecological value of existing forests, harvesting more wood is a tricky business. In the meantime the agricultural land has, through upscaling and intensification, been deprived of its small landscape elements which used to provide that same biomass.

In our research, we look at the ability of short rotation woody crops (SRWC) as a tree-based solution to simultaneously provide biomass for the much-needed transition towards carbon-neutrality and to restore the ecologically impoverished agricultural landscapes. Prior research has pointed out the many environmental benefits that SRWC can provide. Yet, its use has so far been minimal due to unclear legislation and a variable economic viability. Moreover, Belgium presents a special case with high competition for land. While the energy crises might temporarily increase the competitiveness of SRWC, there is still a need for a stable source of income for farmers before they can invest in SRWC. Payment for Ecosystem Services (PES) could be part of the solution.

In the next part of our research we will select cases using SRWC to analyze and quantify a selection of Ecosystem Services (ES). We will do this through participatory ecosystem service mapping and prioritization. A range of important ecosystem services will be analyzed (e.g. landscape impact) and quantified where possible through field work (e.g. potential for supporting biodiversity, carbon sequestration). This will be supplemented with a financial analysis of the production system at the farm level. Combining these analysis will pave the way to explore what PES systems could be implemented to foster sustainable implementation of SRWC in the Belgian agricultural landscape.

Keywords: Short rotation woody crops, Renewable energy, Agricultural biodiversity, Participatory ecosystem services mapping; Financial analysis