

B3-6	11:30	L. Jägrud	Business model for a blue-green market place to reduce risks for urban flooding.
B3-7	11:45	A. Tóth	Direct Supports of the Slovak Agricultural Paying Agency as Potential Economic Mechanisms for Encouraging Ecosystem Service Provision.
B3-8	12:00	P. Ovando	Optimal harvesting decision paths when timber and water have an economic value.
B3-9	12:15	C. Carvalho-Santos	Forests as promoters of water ecosystem services – insights from Portugal.
12:30		General discussion	

B10c - Implementation of the ecosystem services concept for urban planning and development

11:30-13:00 Tuesday, 16 October

Hosts K. Grunewald, O. Bastian, J. Louda, L. Kümper-Schlake

Time	Name	Title of the Presentation	
B10c-7	11:30	C. Dworczyk	Mapping and assessment of urban ecosystem services in the urban regions of Rostock and Munich.
B10c-8	11:45	J. Jones	Choice of data for urban natural capital can greatly affect estimates of economic value.
B10c-9	12:00	M. Viota	Capacity of the green infrastructure to regulate the heat island effect in the city of Bilbao.
B10c-10	12:15	D. Lameiras	Assessing the potential of roadmapping methodologies to enable cooperative institutions for managing the commons: the case of Nature Based Solutions for urban climate change adaptation.
B10c-11	12:30	A. Mascarenhas	A Green Infrastructure strategy to reduce seismic vulnerability and energy demand of cities.
	12:45		Discussion: ES assessment for new city planning – from knowledge to decision-making.

S1 - Ecosystem service multifunctionality in agroecosystems: can we soften biophysical and social tradeoffs?

11:30-13:00 Tuesday, 16 October

Hosts M. Tichit, S. Lavorel

Time	Name	Title of the Presentation	
S1-6	11:30	C. Pinsard	Multifunctionality of ecosystem services and resilience attributes in a gradient of agroecosystems across Europe.
S1-7	11:45	M. Mouchet	Bundling the ecosystem services supplied by agro-ecosystems as part of the French Evaluation of Ecosystems and Ecosystem Services (EFESE).
S1-8	12:15	T. Poméon	Data engineering and management for an integrated assessment of agricultural ecosystem: a reflection based on the EFESE-EA French experience.
	12:30	L. Sandra M. Tichit	General discussion.

S5 - Promoting sustainability through water-related concepts, approaches and tools for quantifying ES

11:30-13:00 Tuesday, 16 October

Hosts K. Burkhard, P. Guerrero, B. AdemEsmail, C. von Haaren, N. Nagabhatla, D. Vollmer

Time	Name	Title of the Presentation	
S5-7	11:30	B. AdemEsmail	Unpacking the urban water security nexus using ecosystem services and nature-based solutions as guiding frameworks.
S5-8	11:45	B. Gálya	Evaluation of land use changes of inland water areas in the Carpathian Basin.
S5-9	12:15	E. Buday-Bódi	Potential and challenges in geothermal groundwater utilization in the Great Hungarian Plain.



policy goals has been core in the scientific debate on PES implementation. PES effectiveness can be hampered by diverse environmental, institutional and socio-economic factors and drivers operating at different spatial and temporal scales, as well by the potential synergies and trade-offs in the provision of environmental services, and climatic risks and uncertainties. The proposed contribution provides a critical review of relevant studies and findings dealing with the analysis of the environmental and cost effectiveness of PES, with special attention to payments for water purification services. The review takes stock of the theoretical and applied PES evaluation approaches, and examines how to respond to the specific challenges involved in evaluating the performance of forest-based solutions to enhance water quality. Special attention is given to the estimation of additionality in the provision of water services, and to the spatial and temporal heterogeneity of PES opportunity and implementation costs. After having identified the peculiarities and challenges that affect the cost-effectiveness analysis of forest-based solutions for water services, this study develops a general conceptual framework to evaluate cost-effectiveness of forest for water PES. This framework is illustrated applying a case-study to validate the proposed methodology framework. Finally, the authors discuss the implications and lessons drawn from existing approaches to PES cost-effectiveness analysis and identify future research needs to better improve the basis for implementing efficient and sustainable forest and water resources policies.

Keywords: PES assessment, Water quality, Forest for water actions, Nature based Solutions for climate adaptation

2. *Type of submission:* **Abstract**

B. Biome Working Group sessions: B3 Forests for Water scientific evidence and economic mechanisms for encouraging ecosystem service provision

Forests as promoters of water ecosystem services – insights from Portugal

First author: Claudia Carvalho-Santos

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Forests provide multiple ecosystem services, with relevance for the ones related to water. It is widely accepted that forests greatly influence the water cycle, promoting



evapotranspiration, improving infiltration, reducing surface runoff and consequently soil erosion, although sometimes at expenses of a reduction in total water yield. In fact, forests are targeted for several measures to restore freshwater and land ecosystems, conserving biodiversity and at the same time improving the revenues of landowners, especially if Payments for Ecosystem Services (PES) are in place. However, the environmental effectiveness of these measures is not always acknowledged, especially due to the lack of local studies. Therefore, the objective of this presentation is to gather information based on modelling exercises applied to case-studies in Portugal, in which forests influence the provision of ecosystem services related to water in terms of quantity and quality. First, the results from an econometric model based on spatial variables applied to continental Portugal will be presented. Results suggested the existence of a positive and significant effect of local forest cover on water treatment cost savings of 0.056%. Secondly, scenarios of afforestation were simulated in SWAT (Soil and Water Assessment Tool) for two watersheds of northern Portugal. Results revealed that forests have a positive role on the regulation of water, in particular for the scenario of native deciduous type of trees, such as oak. Moreover, forests influence water quality, in terms of less nitrates in the river, and less soil erosion, when compared to a scenario of agricultural expansion. Lastly, a SWAT application in a small watershed in Central Portugal with scenarios of afforestation vs. fires, showed that soil erosion protection and water quality regulation provided by forests might be negatively affected by fire occurrence. Overall, further work should be done to consider fire risk over PES schemes applied to the Mediterranean forest.

Keywords: Forests, Water ecosystem services, Fire, Environmental effectiveness, Modelling

3. *Type of submission: Abstract*

B. Biome Working Group sessions: [B3 Forests for Water scientific evidence and economic mechanisms for encouraging ecosystem service provision](#)

Analysing the effects of policy change on forest–water protection in Sweden over time

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To protect and improve forest water has become a pertinent environmental issue to resolve in national policy, spurred not least the EU Water Framework Directive. Little is known,