# BOOK OF ABSTRACTS

This Book of Abstracts provides a comprehensive overview of the session content and is structured into three main sections:

**I. Session Description –** an introduction to each session, including its objectives and expected outputs
**II. Session Program –** a detailed schedule for each session, including speakers and timing
**III. List of Abstracts –** a complete compilation of all accepted abstracts

## I. SESSION DESCRIPTION

ID: T6b

### Conflicts in the use of ecosystem services

### Hosts:

| | Name | Organisation | E-mail |
|---|---|---|---|
| **Host (s):** | Zita Izakovičová | Institute of Landscape Ecology, SAS | zita.izakovicova@savba.sk |
| **Co-host(s):** | Jana Špulerová | Institute of Landscape Ecology, SAS | jana.spulerova@savba.sk |
| | Jakub Melicher | Institute of Landscape Ecology, SAS | jakub.melicher@savba.sk |
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### Abstract:

Each ecosystem has a certain potential to fulfil multiple functions and subsequently provide many ecosystem services for humans. However, the use of one ecosystem service may threaten, restrict or limit the use of another ecosystem service. The interrelationships between the demand for ecosystem services may have various correlations:

- Mutually supportive, e.g. ecological services aimed at protecting biodiversity may also support the provision of several regulatory services (microclimate regulation, erosion protection, flood protection, etc.).
- Mutually indifferent, these are groups of services that do not influence each other in either a positive or negative direction.
- Mutually threatening, e.g. the demand for many production services is often associated with negative impacts on other ecosystems, which causes conflicts between production and ecological and supporting services (intensive agriculture negatively affects water protection, soil formation, etc.).

The preference for ecosystem service preferred and utilisation of the ecosystem depends only on human decisions. These decisions are not always optimal, which causes various problems in the landscape.
The session will focus on presenting methodological procedures for conflict assessment, on presenting proposals for the effective use of ecosystem services (conflict resolution) as well as on presenting good practices.

### Goals and objectives of the session:

Developing a creative discussion about conflicts in the use of ecosystem services and finding ways to eliminate them - presenting new, innovative approaches

### Planned output / Deliverables:

Selected papers will be published in the journal Ecology (Q3)

**Session format:**
professional section consisting of presentations and discussions

**Related to ESP Working Group:**
TWG 6 – Integrated valuation of ES

## II. SESSION PROGRAM

**Room:** A3
**Date of session:** Tuesday, 19 May 2026
**Time of session:** 11:00 – 12:30

**Timetable speakers:**

| Time | First name | Surname | Organization | Title of presentation |
|---|---|---|---|---|
| 11:00-11:10 | Agnieszka | Nowak-Olejnik | Jagiellonian University Poland | Visitor Perspectives on Conflicts Associated with Cultural Ecosystem Services |
| 11:10-11:20 | Yohannes Ababa | Hamere Addis | University, Ethiopia | Valuing Ecosystem Services in the Konso Cultural Landscape, UNESCO World Heritage Site |
| 11:20-11:30 | Ján | Daněk | CzechGlobe - Global Change Research Institute of the Czech Academy of Sciences, Czech Republic | Enhancing the visibility of cultural ecosystem services for landscape planning and management in protected areas |
| 11:30-11:40 | Ioannis P. | Kokkoris, | University of Patras, Greece | Balancing conservation and nature-based recreation: the fragile coastal forest habitat of Chrissi Island (SE Mediterranean, Greece) |
| 11:40-11:50 | Bruna | Almeida, | PIK, Germany | When Ecosystem Services Compete: Participatory Assessments of Trade-Offs in Agricultural and Mangrove Landscapes |
| 11:50-12:00 | Rositsa | Yaneva | Forest Research Institute, Bulgarian Academy of Sciences, Bulgaria | Application of the ecosystem services approach in integrated decision-support systems for environmental risk assessment and management |
| 12:00-12:10 | Lina | Hoyos-Rojas, | Centre for Innovation in Territory, Urbanim and Architecture - Instituto Superior Técnico, Universidade de Lisboa, | Joining Forces: Stakeholder Contributions to Ecosystem Services in Spatial Planning |

| | | | | |
|---|---|---|---|---|
| 12:10-12:20 | Renata | Włodarczyk -Marciniak, | European Regional Centre for Ecohydrology of the Polish Academy of Sciences, Poland | When Visions Collide: Conflicts over Future Ecosystem Services in Urban River Restoration |
| 12:20-12:30 | Zita | Izakovičová | Institute of Landscape Ecology, SAS, Slovakia | Problems arising from the inefficient use of ecosystem services |
| Poster: | Matúš | Kubica, | Institute of Landscape Ecology, SAS, Slovakia | Assessing the impact of transport on cultural ecosystem services |

## III. ABSTRACTS

*The first author is the presenting author unless indicated otherwise*

### 1. Visitor Perspectives on Conflicts Associated with Cultural Ecosystem Services

***First author***: Agnieszka Nowak-Olejnik
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Rural areas can be viewed as dynamic socio-ecological systems (SES) with multiple, often competing functions, including agriculture, forestry, conservation, and tourism (Grêt-Regamey, 2016), producing trade-offs and tensions among diverse stakeholders. Conflicts emerge when stakeholders such as tourists, residents, and land managers hold diverging opinions, principles or perceptions (Schirpke et al., 2020). This study examines visitor-perceived conflicts and pathways to coexistence in these complex SES. By comparing perceived conflicts with tourism benefits, it highlights sustainability challenges and the need for integrated land management that balances visitor expectations with agricultural, forestry, conservation, and community needs.
We conducted 36 interviews at four rural tourist destinations in Małopolska Province, Poland. Conflicts were grouped into three categories: (1) social conflicts among visitors and other users, (2) land-use and management conflicts, and (3) ecological conflicts, including human–wildlife interactions. Social conflicts, especially overcrowding and disruptive behaviour, were most common. Land-use conflicts were less frequent and involved forest logging, overdevelopment that diminishes a sense of “wildness,” or inadequate infrastructure. These issues most often caused anger or sadness among visitors. Ecological conflicts were least frequent and mainly concerned anxiety about wildlife or irritation from insects. Identified tensions are culturally and socially embedded and require multifaceted responses. Social conflicts often reflect lifestyle changes that drive overcrowding and inappropriate behaviour. To support sustainable coexistence, we recommend visitor education on responsible behaviour, alongside community training and adaptive management as rural areas transition from agriculture to tourism. Participatory planning and public debate can further address land-use tensions and promote multifunctional, sustainable landscapes.

*Keywords*: forest management, green space, mountains, noise, recreation

## 2. Valuing Ecosystem Services in the Konso Cultural Landscape, UNESCO World Heritage Site

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This study provides a comprehensive economic valuation of the ecosystem services (ES) generated by the Konso Cultural Landscape, Ethiopia, a UNESCO-recognized traditional agroecosystem. This study based on 12 villages across the Landscape. The study employed household surveys and applying the mix of direct market pricing, replacement cost, and avoided cost approaches. These methods quantify the direct and indirect benefits underpinning local livelihoods. The findings reveal a total annual ES value of USD 731,776 with mean value of USD 2,092 per household. Provisioning services—especially fodder, wood, and crops—constitute the majority (78.5%) of the total economic value, with significant additional contributions from regulating (11.8%) and supporting services (9.7%). The dominance of provisioning service is highlighting the direct economic reliance on harvestable natural resources. The result also revealed significant spatial disparities across the villages such as Dokatu demonstrate high ES values linked to strong adoption of traditional practices, whereas others like Mecheke show very low adoption and ES outputs. Correlation analysis reveals that tree planting exhibits the strongest positive relationship with ES, particularly supporting services (r = 0.92) and regulating services (r = 0.91). Sacred forest protection and water harvesting ponds also show meaningful positive correlations across service categories (r = 0.61–0.87). Foundational practices such as terracing show moderate correlations, while crop residue management shows the weakest association. These patterns indicate that holistic adoption of complementary practices is associated with significantly higher ecosystem service delivery. This research translates ecological stewardship into economic evidence, demonstrating that the landscape functions as vital natural capital. It concludes that sustaining this capital requires integrated, site-based decisions that protect traditional knowledge and ecological infrastructure to ensure long-term community resilience and food sovereignty. Moreover, conservation planning should integrate economic strategy alongside ecological and cultural goals to underpin resilience.

*Keywords*: ecosystem services valuation, Ethiopia, Konso Cultural Landscape, socio-ecological resilience, spatial variation

## 3. Enhancing the visibility of cultural ecosystem services for landscape planning and management in protected areas

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Participatory and place-based approaches are well suited to map cultural ecosystem services (CES) emerging from experiences and relationships pertaining to the actual use of these non-material, intangible benefits. However, studies often limit the range of mapped CES categories, rarely use multiple geometries which would allow free expression of CES values or include various question-framings to capture various dimensions of place-based CES. To overcome such limitations, we present a comprehensive approach to participatory CES mapping, applying: 1) multi-geometry mapping using points, lines, and polygons; 2) various question-framings capturing motivations for visiting nature and place-based emotions; 3) inclusive CES classification framework.
The aim of our study was to enhance the visibility of CES used by visitors in protected areas and to explore CES interactions in landscape. We apply our aim in the Litovel Morava River Basin protected landscape area in the Czech Republic. We uncover spatial representation of CES that people use in landscape, spatial associations between CES including hotspots and coldspots, and spatial correlations with various levels of small-scale (strict) nature protection. Overall, Recreation was the most frequently used CES, followed by 'uncommon' Ecophilia representing a need to connect with nature. We discuss

some interesting results such as strong role of Ecophilia or Social cohesion in specific small-scale strict reserves and its implications for landscape planning and management.
We suggest that maps of CES can support the development of policies for sustainable management and governance of protected areas. Specifically, maps of CES can be used to assess synergies, trade-offs, and conflicts with local management, or to set priorities for future management. Furthermore, our integrated ecosystem services – nature's contributions to people conceptual and classification framework demonstrates how these approaches can be used synergistically, offering a comprehensive understanding of human-nature relationships.

*Keywords*: participatory mapping, cultural ecosystem services, non-material nature's contributions to people, protected areas, landscape

### 4. Balancing conservation and nature-based recreation: the fragile coastal forest habitat of Chrissi Island (SE Mediterranean, Greece)

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The island of Chrissi, a Natura 2000 protected area site located in the Libyan Sea, just a few miles from the Cretan coast (Greece), hosts unique, priority for conservation in EU, coastal forests with Juniperus spp., that face severe pressures from summertime visitors and harsh climatic (dry) conditions. This study attempts to document how nature-based recreation and climate change constitute an explosive mix of threats that sets the survival of Juniperus forest at the edge of extinction while simultaneously altering the island's cultural identity and its worldwide fame and recognition as one of the last paradises in the Mediterranean Sea. A set of indicators was used to assess the ecosystem's condition and threats, including analysis of remote sensing data obtained by UAV field surveys. Based on the study findings, management and policy recommendations are provided to support local and regional authorities in better allocating human and monetary resources for effective conservation and restoration actions.

*Keywords*: Biodiversity conservation, Coastal managment, Greece, MAES, Natura 2000

### 5. When Ecosystem Services Compete: Participatory Assessments of Trade-Offs in Agricultural and Mangrove Landscapes

***First author*:** Bruna Almeida
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Ecosystems provide multiple services, yet the use of one service often constrains or degrades others, giving rise to conflicts shaped by human decision-making, governance, and production practices. This study examines trade-offs, synergies, and conflicts in ecosystem service use through a comparative, participatory assessment of two LL SYSTAIN pilot regions: crop-based agricultural landscapes in Berlin–Brandenburg (Germany) and mangrove-based crab harvesting systems in the Amazon coastal region around Bragança, Pará (Brazil).
Using a combination of scientific modelling, empirical indicators, and stakeholder and grassroots dialogues, the study applies a conflict-oriented ecosystem services lens to assess how provisioning services interact with regulating, supporting, and cultural services. In Berlin–Brandenburg, integrated climate impact assessments of crop yields, biomass production, and water availability reveal growing conflicts between agricultural production, freshwater regulation, soil functions, and climate regulation under increasing drought and land-use pressures. Participatory workshop were used to jointly interpret model projections, assess their relevance for regional actors, and identify adaptation strategies—such as regenerative agriculture, water-sensitive practices, and circular bioeconomy approaches—that can reduce ecosystem service conflicts and enhance agricultural resilience.

In the Amazon coastal region, small-scale mangrove crab harvesting highlights both synergies and conflicts between provisioning services and regulating services provided by intact mangrove ecosystems, including biodiversity support, carbon storage, and pollution regulation. While well-functioning mangroves enable sustainable livelihoods, the accumulation of crab-processing waste emerged as a locally significant socio-environmental issue, generating pollution risks and undermining regulating ecosystem services when inadequately managed. These pressures are exacerbated by overharvesting, governance gaps, and expanding cold-chain market connections, illustrating how human decisions can shift ecosystem service relationships from mutually supportive to mutually threatening.
By foregrounding co-produced knowledge and participatory validation, the study presents a methodological approach for identifying ecosystem service conflicts, evaluating model-based assessments with stakeholders, and exploring context-specific pathways for conflict mitigation. The findings contribute practical insights and examples of good practice for more effective and balanced use of ecosystem services in agricultural and coastal landscapes.

*Keywords*: food provisioning, carbon regulation, water yield, biomass production

## 6. Application of the ecosystem services approach in integrated decision-support systems for environmental risk assessment and management

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The concept of ecosystem services has gained popularity as a means of linking environmental benefits to human well-being. As natural disturbances are unpredictable and uncontrollable, proper planning and sound, scientifically based decision-making can control disturbances to some extent, drastically reducing the consequences. A decision support system (DSS) integrates scientific results into the overall framework of measures and approaches for sustainable forest management. In this regard, the basis of the DSS is risk assessment and the application of various methods to provide nature-based solutions, improving our understanding of and preparedness for hazardous phenomena.
Some of the most serious disturbances to forest ecosystems are soil erosion and wildfires, which often have long-lasting and irreversible consequences. Integrating various methods and geospatial analysis identifies locations and provides a visual representation of areas where measures to reduce the risk of natural disturbances should be implemented as a priority. In this research, we will assess the risk and rate of soil erosion by considering the impact of wildfires on soil. A biophysical assessment of related ecosystem services will quantify the impact and provide specific recommendations for reducing the risk of unfavourable events occurring. Data from the study can inform nature-based solutions and provide a basis for developing strategies and implementing comprehensive activities to reduce the risk of hazardous events.

*Keywords*: Decision support systems, soil erosion, wildfires fires, ecosystem services

## 7. Joining Forces: Stakeholder Contributions to Ecosystem Services in Spatial Planning

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The policies, practices, and decisions of diverse stakeholders continuously shape territories and ecosystems. Recognizing that ecosystem service (ES) emerges from human–nature interactions, assessing ES governance is a fundamental component of ES co-production. To understand how these interactions influence ES delivery, co-production frameworks have advanced the study of anthropogenic capitals interactions—such as human, social, financial, and physical—that mediate ES production alongside the interaction with natural capital. Anthropogenic capitals encompass sets of actions ranging from knowledge generation and stakeholder collaboration to resource mobilization, political engagement,

and direct physical intervention. Yet, the degree to which such capitals participate in ES-coproduction within spatial planning to support biodiversity remains empirically underexplored.
This study examines how stakeholders contribute to the co-production of ES within spatial planning processes in Mafra, Portugal. A serious game, complemented by semi-structured interviews, was employed to assess the extent to which stakeholders mobilize different forms of capital to enhance ES. Data were analyzed in MAXQDA, linking each capital to the CICES classification of ES.
Results indicate that landowners play a predominant role in governance and spatial-planning dynamics, shaping decisions through land control, and influence over key instruments—particularly those related to regulation, information, and responses to urban pressure. Across co-production processes, human and social capital are the most relevant for supporting habitat provision as well as cultural services like recreation, with particular relevance on the educational activities. In contrast, financial capital is less relevant within co-production from stakeholders' perspective though primarily associated with taxation and the need for external monetary support.

*Keywords*: Actors, Ecosystem Services Co-production, Capitals, Governance, Policy Instruments

## 8. When Visions Collide: Conflicts over Future Ecosystem Services in Urban River Restoration

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This study examines conflicts relating to the provision of ecosystem services during the planning of urban river restoration in a post-industrial city. Focusing on small, highly transformed, concrete-channeled urban rivers in Łódź, Poland, which currently provide limited cultural and regulating services, the study explores competing social visions of how these rivers should be transformed and which ecosystem services they are expected to provide in the future.
Participatory methods were used to collect data from three demographic groups: adults, students, and children. Participants were invited to articulate their expectations regarding the future appearance, functions, and uses of urban rivers. Analysis of the data revealed conflicts and trade-offs between the envisioned ecosystem services, particularly between cultural services such as recreation, aesthetic experience, and the ecological conditions required to restore regulating services, including water retention, water quality, and habitat continuity.
The results reveal clear differences between demographic groups in their preferred river functions and design solutions. Adults prioritize multifunctional recreational spaces, students emphasize event-oriented and socially active riverfronts, while children favor closer integration of natural elements with play infrastructure. While all groups advocate for improved accessibility and functional zoning, some socially preferred design solutions could hinder ecological recovery if ecosystem processes and constraints are not sufficiently considered.
The findings demonstrate that decision made by humans at early stages of planning play a critical role in shaping future trade-offs in terms of ecosystem services. The study highlights the importance of planning approaches that integrate participatory input with ecological expertise in order to avoid suboptimal development trajectories. By focusing on degraded urban rivers during planning process, this study contributes to discussions on assessing conflicts in ecosystem services and supports the development of more balanced, ecologically informed river restoration strategies.

*Keywords*: ecosystem service conflicts, urban river restoration, participatory planning, trade-offs and decision-making

## 9. Problems arising from inefficient use of ecosystem services

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Each ecosystem has a certain potential to fulfil multiple functions and subsequently provide many ecosystem services for humans. However, the use of one ecosystem service may threaten, restrict or limit

the use of another ecosystem service. The interrelationships between the demand for ecosystem services may have various correlations:
• Mutually supportive, e.g. ecological services aimed at protecting biodiversity may also support the provision of several regulatory services (microclimate regulation, erosion protection, flood protection, etc.).
• Mutually indifferent, these are groups of services that do not influence each other in either a positive or negative direction.
• Mutually threatening, e.g. the demand for many production services is often associated with negative impacts on other ecosystems, which causes conflicts between production and ecological and supporting services (intensive agriculture negatively affects water protection, soil formation, etc.).
The preference for ecosystem service preferred and utilisation of the ecosystem depends only on human decisions. These decisions are not always optimal, which causes various problems in the landscape. Landscape-ecological problems resulting from conflicts in the use of individual ecosystems can be divided into the following basic groups:
- problems threatening the spatial stability of the landscape
- problems threatening natural resources
- problems threatening the environment
The paper will present a methodological procedure for evaluating problems resulting from the inefficient use of ecosystem services and its application to the ILTSER site in Trnava

*Keywords*: ecosystem services, conflicts of interest, landscape ecological problems, ILTSER location Trnava