# 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: X1

### Broadening ecosystem services approaches: pathways toward transformative change and just futures

### Hosts:

| | Name | Organisation | E-mail |
|---|---|---|---|
| Host (s): | Celina Aznarez | Aarhus University | caznarez@bio.au.dk |
| Co-host(s): | Liam Vezzani | PBL (Planbureau voor de leefomgeving) | liam.vezzani@pbl.nl |
| | Jomme Desair | Research Institute for Nature and Forest (INBO) | jomme.desair@inbo.be |
| | Cato De Roeck | KU Leuven (and 3BIO) | cato.deroeck@3bio.eu |
| | Julia Fischer | Helmholtz Centre for Environmental Research (UFZ), Leipzig | j.fischer@ufz.de |
| | Songül Sönmez | İstanbul Teknik Üniversitesi | songulsonmez00@gmail.com |
| | Cloé Durieux | Fondation pour la recherche sur la biodiversité | cloe.durieux@fondationbiodiversite.fr |
| | Cristina Cipriano | University of Basel | cristina.cipriano@cmcc.it |
| Other organiser(s): | Emma Shih Mendez | University of Vienna | emma.shih.mendez@univie.ac.at |

### Abstract:

Ecosystem services (ES) research has played a key role in linking nature to human well-being. Yet, today's intertwined challenges of biodiversity loss, climate change, and socio-economic inequality call for approaches that reach beyond existing ES frameworks. Achieving a nature and people-positive Europe (and beyond) will depend on a more meaningful engagement with diverse ways of knowing, valuing, and practicing ecosystem stewardship. This session examines how expanding or even challenging the methodological and conceptual horizons of ES research through underrepresented and cross-cutting approaches can contribute to transformative change. Such broadened approaches can also be aligned with evolving governance and policy frameworks at international and EU levels, which increasingly adopt alternative framings such as nature's contributions to people, to integrate research into evidence-based decision-making.

We invite contributions and experiences that showcase methods and approaches often less visible in ES debates but with strong potential for advancing systemic change by broadening perspectives beyond narrow utilitarian or anthropocentric framings. Examples include participatory action research, co-production with local communities, justice-oriented frameworks, more-than-human perspectives, and arts-based or creative practices that open new spaces for dialogue and ways of relating to nature. We welcome work that explores such alternative approaches, as well as contributions that combine them with more established ES methods, such as (but not restricted to) spatial mapping, biophysical assessments, or ES accounting. Bringing these perspectives together can enrich widely used approaches, strengthen the recognition and representation of diverse value systems, and highlight how socio-ecological relationships and reflexive scientific practice itself can contribute to more inclusive and transformative understandings of ES in both urban and rural contexts.

## Goals and objectives of the session:

The session contributes to the ESP themes ii) of ecosystem services knowledge for a people- and nature-positive future, and iv) on equity, justice, and inclusivity in ecosystem services. Its aims are:

1) to share experiences where broadening methods has enabled the integration of diverse values in ES assessments;

2) to reflect on the challenges and opportunities of applying these approaches in research and policy contexts; and

3) to co-produce perspectives on how integrating less visible methods, along with reflexive scientific practices and relational approaches, can help foster transformative change toward just and sustainable futures in Europe and beyond.

## Planned output / Deliverables:

Expected outcomes include an overview of methodological practices that can both expand and challenge ES research, new and stronger networks among scholars and practitioners working with diverse approaches, and a joint reflection on how these methods can actively contribute (or not) to transformative change. Depending on participants' interest, this may also lead to a co-authored perspective paper.

## Session format:

We agreed to prioritize a standard session format consisting of presentations followed by a Q&A of around 120 min. Toward the end, we'll include a 20-30 minute discussion session, structured around a few guiding questions aligned with the proposed session and informed by the presentations received. Depending on the number of presentations submitted, we may consider organizing a roundtable discussion to structure the discussion and conclude the session.

## Related to ESP Working Group:

Other

## II. SESSION PROGRAM

**Room:** B2
**Date of session:** Tuesday, 19 May 2026
**Time of session:** 15:30 – 17:30

**Timetable speakers:**

| Time | First name | Surname | Organization | Title of presentation |
|---|---|---|---|---|
| 15:30 – 15:35 | Celina | Aznarez | Aarhus University | Introduction to the session |
| **Block 1 — Governance & Justice frameworks** | | | | |
| 15:35 – 15:47 | Solen | Le Clec'h | Wageningen University | Fragmented governance landscapes in agricultural frontier areas: potential of the ecosystem services framework |
| 15:47 – 15:59 | Sudeshna | Kumar | Basque Centre for Climate Change (BC3) | Cooling With Justice: A Co-Designed Heat-Vulnerability Framework for Equitable Urban Tree Prioritization Planning |
| 15:59 – 16:11 | Olalekan | Adekola | York St John University, United Kingdom | Social Justice in Urban Green Spaces: Developing and Applying a Framework in the United Kingdom and Nigeria |
| 16:11 – 16:23 | Zuzana | Harmáčková | Global Change Research Institute CAS - CzechGlobe | Co-creating transformative pathways in food and energy systems: integrating systems thinking and social science approaches through Fuzzy Cognitive Mapping |
| **Block 2 — Participatory & co-creation approaches** | | | | |
| 16:23 – 16:35 | Francis | Turkelboom | INBO (Belgium) | Walking, drawing, talking, reframing: Participatory pathways in a contested creek landscape |
| 16:35 – 16:47 | Annija | Danenberga | Baltic Studies Centre | Listening to the River: Participatory Mapping of Relational Ecosystem Services through Community Co-production in a Freshwater Landscape |
| 16:47 – 16:59 | Eerika | Albrecht | Finnish Environment Institute | Nature Futures Framework to Co-create Desired Futures for Nature and Natures Contribution to People in Boreal Lake Systems |
| 16:59 – 17:11 | Natasha | Pauli | University of Western Australia | A New Vision for Coastal Resilience: Engaging Communities through Art to Design a Transformative Future |
| 17:11 – 17:30 | **Collective discussion** | | | |

## III. ABSTRACTS

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

### 1. Fragmented governance landscapes in agricultural frontier areas: potential of the ecosystem services framework

***First author*:** Solen Le Clec'h
***Other author(s)*:** Helene, Dessard, Lilian, Blanc, Julie, Betbeder, Aritta, Suwarno, Marion, Chesnes
***Affiliation*:** Wageningen University
***Contact*:** solen.leclech@wur.nl

Post-conflict regions represent some of the most complex arenas for ecosystem services (ES) governance, where rapid land-use change, institutional fragility, and competing development priorities challenge the sustainable management of socio-ecological systems. We examined how efforts to stabilize the agricultural frontier in Guaviare, Colombia, a priority policy initiative from the 2016 peace agreement, affect the capacity of landscapes to supply multiple ES, and how governance actors at different levels perceive these changes. By integrating temporal land-use/land-cover analysis with a multi-actor ES matrix assessment, we evaluated both biophysical trends and governance effectiveness in a rapidly transforming post-conflict frontier.
We showed a continued decline in forest cover since 2002, accelerating after the efforts to stabilize the frontier, leading to a corresponding reduction in ES supply. Although alternative land-uses, e.g. agroforestry, had begun to emerge, their spatial extent remained limited. These alternatives nonetheless exhibited promising multifunctional ES profiles, suggesting significant potential for policy instruments that promote diversified, ecologically compatible production systems.
A participatory assessment, combining a stakeholder workshop with local, regional, and national actors, and an online expert elicitation, revealed that, despite differences in governance responsibilities, there were no statistically significant divergences in how groups evaluated ES capacities. However, it uncovered mismatches between national development priorities and local livelihood needs, underscoring the importance of value-sensitive ES assessments to avoid governance conflicts and blind spots during post-conflict transitions.
Spatial overlay of ES hotspots with existing zoning instruments showed only partial overlap, indicating that current land-use regulations insufficiently protect areas with high ecological value. These findings highlight the need for more integrative, participatory, and spatially explicit ES governance approaches. By making trade-offs visible and aligning policy design with stakeholder values, ES assessments can strengthen frontier stabilization efforts and contribute to more sustainable ES supply in post-conflict landscapes.

***Keywords*:** fragmented governance, post-conflict, ecosystem services assessment, spatial zoning, participatory approach

### 2. Cooling With Justice: A Co-Designed Heat-Vulnerability Framework for Equitable Urban Tree Prioritization Planning

***First author*:** Sudeshna Kumar
***Other author(s)*:** Megan Critchley, Celina Aznarez
***Affiliation*:** Basque Centre for Climate Change (BC3), Leioa, Spain
***Contact*:** sudeshna.kumar@bc3research.org

Cities face escalating heat risks driven by climate change and urbanization, disproportionately affecting socio-economically and heat-health vulnerable populations. Addressing these inequities requires approaches that combine biophysical data with local knowledge and community priorities.

Building on prior evidence of mismatches in ecosystem services in Vitoria-Gasteiz, this study develops a co-designed Urban Heat Vulnerability Framework to guide equitable cooling interventions. We integrated high-resolution biophysical indicators (land surface temperature, vegetative scarcity) with socio-demographic and health data to identify spatially-explicit hotspots of exposure and vulnerability. Significantly, this analysis was complemented by participatory workshops and stakeholder surveys,

producing a local knowledge matrix that reflects community-valued outcomes, feasibility constraints, and priority needs.
The framework distinguishes three tiers of intervention: (1) intersections of high heat and social vulnerability, (2) areas of biophysical vulnerability without concentrated social risk, and (3) socially vulnerable populations in cooler areas. Each tier informs targeted actions, ranging from strategic canopy planting and cool corridors to anticipatory equity measures such as school-route greening and micro-parks, while supporting monitoring of canopy cover, shade analysis, and temperature dynamics. During stakeholder workshops, three pilot areas were delineated: Lakua, Zabalgana, and Salburua.
This integrated evidence base informs defensible, tier-specific canopy targets of 25-40%, guides species diversification, supports rapid-cooling interventions (e.g., cool coatings, shade sails, transit shade retrofits), and outlines a monitoring protocol to track NDVI, LST, and canopy-cover change on 2-3-year intervals.
This study exemplifies how integrating justice-oriented, participatory approaches with traditional ecosystem service methods can advance inclusive, evidence-based urban planning. By combining technical assessment with local knowledge, we reveal pathways to align interventions with community priorities, enhance resilience, and avoid maladaptation. Our approach demonstrates that addressing urban heat inequities is not only a matter of ecological optimization but also of embedding socio-ecological values and lived experiences into decision-making.

***Keywords***: urban heat inequity, vulnerability, ecosystem mismatch, tree prioritization, participatory approach

### 3. Social Justice in Urban Green Spaces: Developing and Applying a Framework in the United Kingdom and Nigeria

***First author***: Olalekan Adekola
***Affiliation***: York St John University, United Kingdom
***Contact***: o,adekola@yorksj.ac.uk

Concerns about justice are increasing as countries in both the Global South and Global North rapidly integrate green spaces into urban planning to enhance ecosystem services in cities. However, the social justice implications of these interventions remain underexplored. This paper presents a social justice framework for integrating equity considerations into the design and evaluation of urban green spaces. The framework is informed by the perspectives of diverse stakeholders, including local residents, government officials, and planning practitioners in Nigeria and the United Kingdom. Using this framework, the study analyses two major urban green spaces in each country to assess the extent to which social justice dimensions are embedded in their design and governance. Preliminary findings indicate progress in terms of distributive justice, particularly in the provision and spatial distribution of green spaces. However, significant concerns remain regarding procedural and interactional justice, especially in relation to inclusive decision-making and stakeholder engagement. Ensuring social justice in urban green spaces is critical to achieving Sustainable Development Goal 13 and creating cities that are equitable and inclusive for all. This paper argues that the proposed framework provides a valuable tool for evaluating existing green spaces and guiding the socially just design of future urban green infrastructure.

***Keywords***: Social justice, Urban green space, Ecosystem service, Co-design, Cities

### 4. Co-creating transformative pathways in food and energy systems: integrating systems thinking and social science approaches through Fuzzy Cognitive Mapping

***First author***: Zuzana V. Harmáčková
***Other author(s)***: Lenka Suchá, Pavlína Suchá, Kasper Kok, Eszter Kovacs, Lucy Fisher, Jeanne Nel
***Affiliation***: Global Change Research Institute CAS - CzechGlobe
***Contact***: harmackova.z@czechglobe.cz

Transformative change is vital to ensure sustainable and just futures for people and nature, including the nexus of biodiversity, climate, ecosystem services/nature's contributions to people and good quality of life. To better understand how to transform to trajectories ensuring sustainable levels of ecosystem

services while nurturing justice and safeguarding human quality of life, we urgently need to build on frontier transformation theory in combination with empirical evidence.
This study emerging from the Horizon Europe Transpath project addresses this gap by applying a novel methodological approach merging robust systems-thinking tools with social-science and humanities (SSH) participatory methods. Specifically, we engage an array of change-making actors drawn from food and energy systems to analyse their perceived enablers and disablers of transformative change, and employ a Fuzzy Cognitive Mapping (FCM) approach to convert the identified factors into mapped mechanisms of transformation within these sectors.
Our findings reveal the patterns of interaction between transformation enablers and disablers, including the influence of commonly overlooked factors such as the reputation assigned to active citizenship, alongside public conformity to dominant norms, anti-transformative lobbying and non-market provisioning capacity. We highlight complex dynamics between different levels of leverage, including individual motivation and community capitals, institutional incentives and regulatory frameworks, cultural narratives and infrastructure systems.
Importantly, our approach allows for reflexive knowledge co-creation, yet ensures yielding tangible insights into the mechanisms of change. It thus provides a valuable tool for practitioners and researchers seeking to design interventions for transformative change.
Furthermore, the study identifies similarities and key differences between the transformation enablers and disablers identified on the gradient between Western and Eastern Europe. Thus, this work contributes actionable knowledge to support just pathways towards current biodiversity, climate and sustainability goals.

***Keywords***: transformative pathways, food and energy sectors, just and sustainable futures, participatory systems thinking, Eastern and Western Europe

## 5. Walking, drawing, talking, reframing: Participatory pathways in a contested creek landscape

***First author***: Francis Turkelboom
***Other author(s)***: Louise Vercruysse, Julie Callebaut
***Affiliation***: INBO (Belgium)
***Contact***: francis.turkelboom@inbo.be

Multifunctional landscapes provide a wide range of ecosystem services, but are often subject to competing societal demands. These conflicting interests regularly lead to distrust, friction and even open conflict among stakeholders who hold divergent views on how the land should be managed. Facts and figures alone rarely suffice to reconcile such differences; instead, shared understanding and empathy are essential for co-creating a sustainable common vision.
The Senste Kreken in northern Belgium is a low-lying creek landscape where agriculture, water management, nature conservation and recreation strongly interact, and which has a history of distrust and frictions. We designed a participatory process to build trust and identify shared building blocks for a future vision, based on concepts and ideas from integrated landscape approaches, collaborative governance and conflict transformation.
The approach centred on an interactive workshop that created a safe space for dialogue and empathy. Preparatory interviews helped to map the stakeholder landscape and tailor the process design to local dynamics. The workshop took place on neutral ground and brought together “bridge builders” and “system thinkers”, who were open to explore shared challenges and connections across sectors. Key tools included a joint field visit to experience multiple perspectives through storytelling, collaborative “rich picture” mapping, peer interviewing where participants voiced the other person’s point of view, and formulating consent solutions. The process led to eight jointly defined building blocks for future landscape development (e.g. improvement of water quality, controlled and compartmentalization of water levels, landbank) and enhanced mutual understanding among sectors. The case demonstrates that participatory approaches that foster empathic listening and co-creation can effectively support the development of socially accepted, multifunctional landscapes where societal needs are better understood and balanced. A challenge was to bridge the gap between the participants and stakeholders who were not involved in the workshop.

***Keywords***: Multifunctional landscapes, Empathy-based and visual participatory approaches, Co-creation, Conflict transformation

## 6. Listening to the River: Participatory Mapping of Relational Ecosystem Services through Community Co-production in a Freshwater Landscape

***First author***: Annija Danenberga
***Affiliation***: Baltic Studies Centre
***Contact***: annija.danenberga@bscresearch.lv

Ecosystem services (ES) research has been instrumental in linking ecosystems to human well-being, yet it continues to face challenges in adequately incorporating relational, cultural, and more-than-human dimensions of socio-ecological systems. Freshwater ecosystems, in particular, are increasingly recognised as critical sites for addressing intertwined ecological, social, and justice-related challenges of the Anthropocene. However, when approached through the conventional ES lens, key anthropologically-oriented questions often remain insufficiently engaged: How are human-environment relationships shaped across the space of time? Whose values, memories and experiences are made visible in ecosystem assessments? And how might hydrological embodiments like rivers be understood not only as service-providing systems, but rather as relational agents shaping collective futures?
Responding to calls broadening ES approaches for transformative change, this proposal presents a participatory, design-informed mapping methodology developed through a community workshop centred around the Venta River landscape in the Kuldiga region, Latvia. The approach expands how ecosystem values are identified and reflected upon by framing rivers simultaneously as dynamic ecosystems and living metaphors that connect time, space, and human experience. This perspective enables the articulation of physical, cultural, and emotional traces of past land-use practices, present interactions, and future aspirations. Local inhabitants engaged in co-producing a shared river basin map as a living artefact through facilitated storytelling, symbolic mapping, and collective reflection. Diverse value dimensions were articulated and spatialised, including social and multi-species relations of ecological significance, historically-cultural and economic meaning propositions, as well as non-material values embedded in mythological and experiential narratives.
By combining research-by-design and participatory spatial mapping approaches, this study demonstrates how underrepresented ways of knowing can be systematically integrated into ES research. It highlights both the transformative potential and the practical implications of expanding ES scientific and relational-engagement practices as ethical obligations toward more inclusive people- and nature- positive futures.

***Keywords***: Relational ecosystem services, Participatory mapping, Freshwater socio-ecological systems, More-than-human perspectives, Transformative change

## 7. Nature Futures Framework to Co-create Desired Futures for Nature and Natures Contribution to People in Boreal Lake Systems

***First author***: Eerika Albrecht
***Other author(s)***: Tommi Tikkanen, Virpi Lehtoranta, Marie Korppoo, Enni Ruokamo
***Affiliation***: Finnish Environment Institute
***Contact***: eerika.albrecht@uef.fi

Lakes are essential for maintaining biodiversity and contribute to multiple ecosystem services. They face significant pressures from various human activities causing challenges to their management. This paper studies the multiple values attached to lakes and ecosystem services they provide. We apply the Nature Futures Framework (NFF) of the Intergovernmental Panel for Biodiversity and Ecosystem Services (IPBES) to co-create desired futures in the context of temperate lakes in Northern Europe. The NFF enables co-creation of future scenarios that incorporate multiple types of knowledge values and perspectives towards desired futures for nature and natures contribution to people (Pereira et al., 2020). It identifies three perspectives, i.e. nature for humans, nature for nature and nature as culture, based on which we co-created socio-ecological pathways towards climate-robust nature-inclusive futures for the lake Koitere. The future forward thinking we applied in the workshop allowed stakeholders to overcome societal and conceptual lock-ins and have an open discussion on the shared futures for lake Koitere.

***Keywords*:** Nature Futures Framework, future forward thinking, knowledge co-creation, lakes

## 8. A New Vision for Coastal Resilience: Engaging Communities through Art to Design a Transformative Future

***First author***: Natasha Pauli
***Other author(s)*:** Daniel Jan Martin, Carmen Elrick-Barr, Abbie Rogers, Rosie Halsmith, Arnold van Rooijen, Kate Driver, Sofie Nielsen, Liam Mouritz
***Affiliation*:** University of Western Australia
***Contact*:** natasha.pauli@uwa.edu.au

Coastal zones are experiencing increasing pressure from climate change, environmental change, and population growth. Developing transformative visions for the future that respond to local community values and projected changes can be challenging and even confrontational. This research project presents a novel, interdisciplinary approach drawing on social science, ecosystem science, and landscape architecture, with the goal of providing creative visions for future coasts to inform planning processes.

Two Western Australian case study locations (Cockburn in metropolitan Perth, and Binalup in the regional Albany) provided an opportunity to explore coastal futures in rapidly changing, physically vulnerable areas. Local community members were asked to express their values for the coast through several arts-based methods including paper collage, textile creation, photography and poetry, resulting in over 70 community artworks. Participants were interviewed about the values embodied in the artwork, and the ideal future of depicted locations.

Key themes from the workshops, lectures in nature-based solutions, and yarning with Indigenous Elders informed design briefs for landscape architecture students and staff at the UWA School of Design. Their imaginative, hopeful designs for key public precincts were displayed at public exhibitions in each location, alongside the community artworks. We sought feedback from the general public and from practitioners involved with adaptation planning on whether these representations can spark constructive conversations around adaptation planning. Results indicate positive interest from key stakeholder groups to adapt the approach to envision coastal futures. Encouragingly, 70% of community participants agreed that they could now imagine the future of their coastline in a different way than before the project.

In a world where diverse, nature-based visions for coastal regions are often lacking, this project fostered dialogue and creative, transformative solutions for adapting to change. The approach is adaptable to other regions and is conducive to scaling up.

***Keywords*:** Landscape architecture, arts-based methods, coastal resilience, transformative change, environmental geography