

# 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: T18c

### Governing the Commons for Ecosystem Services: Insights from recent research

**Hosts:**

	Name	Organisation	E-mail
<b>Host (s):</b>	Mateja Šmid Hribar	Research Centre of the Slovenian Academy of Sciences and Arts	<a href="mailto:mateja.smid@zrc-sazu.si">mateja.smid@zrc-sazu.si</a>
	Daniela Ribeiro	Research Centre of the Slovenian Academy of Sciences and Arts	<a href="mailto:daniela.ribeiro@zrc-sazu.si">daniela.ribeiro@zrc-sazu.si</a>

#### Abstract:

In recent years, ecosystem services (ES) have become a major research area. However, mainstream studies often overlook the fact that many commons regimes governing natural resources provide provisioning, regulating, and cultural services, sometimes also called Nature's Contributions to People (Fisher et al., 2009; Barnaud et al., 2018; Šmid Hribar et al., 2023; Tucker et al., 2023). Commons—resources such as forests, pastures, and fisheries that are collectively governed—represent an under-researched yet critical dimension of ES research. It is evident that these ecosystems provide a foundation for biodiversity, as well as a variety of benefits including carbon sequestration, water regulation, fire protection, recreation, and cultural identity.

The objective of this session is to examine the intersections between commons and ES, aiming to understand how community-based and collective management practices influence the provision, distribution, and perception of ES.

We invite contributions that explore:

- Empirical assessments of ES provided by commons across different spatial scales;
- Traditional and new commons management and their impact on ecosystem services across various spatial scales, from local to global, and rural to urban;
- Theoretical and methodological approaches developed to enhance our understanding of the commons-ES nexus.

By convening diverse perspectives, the session will highlight how commons provide unique insights into the governance of ecosystem services, rather than treating ES as abstract concept.

#### Goals and objectives of the session:

The session aims to foster dialogue across disciplines and case studies, offering a platform to identify common challenges and innovative approaches, and to inspire new collaborations between researchers, practitioners, and policymakers working at the interface of commons and ecosystem services.

#### Planned output / Deliverables:

Collection of case studies and conceptual contributions presented in the session into a special issue (e.g., Ecosystem Services, International Journal of the Commons). Or

Co-authored paper synthesizing insights from the presented case studies, focusing on the governance of commons and their role in sustaining ecosystem services.

### Related to ESP Working Group:

TWG 18 – Governance & Institutional aspects

## II. SESSION PROGRAM

**Room:** Lounge

**Date of session:** Tuesday, 19 May 2026

**Time of session:** 16:00 – 17:30

### Timetable speakers:

Time	First name	Surname	Organization	Title of presentation
16:00 – 16:10	Nathan	Namatama	Leibniz Institute of Ecological Urban and Regional Development	Governance for Ecosystem Services from the Perspective of the Local Community Towards Sustainable Provision of Ecosystem Services through Leverage Points
16:10 – 16:20	Mateja	Šmid Hribar	ZRC SAZU, Anton Melik Geographical Institute	Common lands in a protected Alpine landscape: mapping carbon sequestration and recreation potential in Triglav National Park, Slovenia
16:20 – 16:30	Kornelis	Walma	Open Universiteit	Unravelling the Governance of the Agrarian Commons: lessons from the Netherlands
16:30 – 16:40	Diksha	Verma	Forest Research Institute (Deemed) University	Bridging Ecology and Community: Assessing Ecosystem Services in Forest Commons of the Lower Shivaliks of Uttarakhand
16:40 – 16:50	Mir Mehrdad	Mirsanjari	Department of Environmental Sciences and Engineering, Malayer University	Ecosystem Services Governance in World Heritage Landscapes: Integrating Forests, Cultural Agro-Landscapes, and Community-Based Conservation
16:50 – 17:00	Mohammed Muslim	Sheikh	Government Lohia College	Building Climate Resilience In Indian Cities Through Blue-Green
17:00 – 17:30	Discussion			

### III. ABSTRACTS

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

#### 1. Governance for Ecosystem Services from the Perspective of the Local Community Towards Sustainable Provision of Ecosystem Services through Leverage Points

**First author:** Nathan Namatama

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The Rural Livelihoods that are dependent on Ecosystem Services (ES) such as biodiversity products, forests products, products from wetlands for a living that are mostly utilised in an unsustainable way hinder sustainable provision of ES. Thus, the research intends to understand the local community's perceptions in international donor funded projects if they can provide a sustainable conducive environment on governance for ES. In addition, how the perceptions of the local community on Multi-stakeholder Platforms (MSPs) through triple loop learning leverage the governance for ES towards sustainable provision of ES.

The research was a mixed approach of both qualitative and quantitative and 150 questionnaires were administered to the beneficiaries in the seven (7) international donor rural livelihood projects in Zambia. Data collection from the local community (beneficiaries) was in the form of semi structured interviews that focused on themes such as customary practices, protected landscapes, alternative livelihoods and access to ecosystem services. In addition, some observations were made on some of the implemented rural livelihood projects.

The empirical results showed that there is no conducive environment for sustainable provision of ES in the governance for ES. This was due to the perceptions of the local community on the MSPs that did not support triple loop learning in providing a conducive environment on governance for ES. All the perceptions on the MSPs were in form of single loop learning while double-, and triple loop learning were non-existence among the local community.

Therefore, the attainment of sustainable provision of ES in the governance for ES should be considered through policy instruments that support triple loop learning on MSPs that would leverage the governance for ES to a conducive environment.

**Keywords:** Governance for ES, Leverage Points, Local Community, Multi-stakeholder Platforms, Triple Loop Learning

#### 2. Common lands in a protected Alpine landscape: mapping carbon sequestration and recreation potential in Triglav National Park, Slovenia

**First author:** Daniela Ribeiro

**Other author(s):** Mateja Šmid Hribar

**Presenting author:** Mateja Šmid Hribar

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Common lands, mainly forests and mountain pastures managed by agrarian communities, play an important role in sustaining ecosystem services in mountain regions. In Slovenia, these commons represent long-standing governance arrangements that shape land use, landscape structure, and ecosystem functioning. This study examines the contribution of common lands to selected ecosystem services in Triglav National Park (TNP), focusing on carbon sequestration and nature-based recreation. Carbon sequestration was assessed using MODIS net primary production (NPP) as a proxy, downscaled to a spatial resolution of 10 m to ensure consistency with EU Copernicus High Resolution Layers. Nature-based recreation was analysed using the ESTIMAP recreation model, enabling spatially explicit assessment of recreational potential. Spatial analyses were conducted for all common lands within TNP and compared with park-wide patterns. Common lands account for nearly one quarter of the total area of TNP, with forests covering more than half of these areas. Based on this extent and land-cover composition, we expected common lands to play a substantial role in carbon sequestration. However, this potential is moderated by the fact that approximately 35% of common lands consist of dry open areas,

rocky terrain, or sparsely vegetated surfaces, which have significantly lower carbon sequestration capacity. Despite this, communally owned forests – representing just over one fifth of all forested areas in TNP – show relatively high NPP values, resulting in a higher carbon sequestration capacity. Beyond carbon sequestration, the analysis indicates that rocky alpine areas and protective forests within common lands offer high potential for nature-based recreation, highlighting the multifunctional role of common lands in protected mountain landscapes. The findings demonstrate that, despite structural constraints, common lands governed by agrarian communities make a significant contribution to ecosystem services and underline the importance of governance arrangements in sustaining multifunctional landscapes in Alpine protected areas.

*Keywords:* Agrarian communities, mountain commons, carbon sequestration, nature-based recreation, Triglav National Park

### 3. Unravelling the Governance of the Agrarian Commons: lessons from the Netherlands

**First author:** Kornelis Walma

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Agrarian collectives in the Netherlands operate at the forefront of landscape-scale nature conservation, tasked with coordinating ecosystem services for biodiversity. These collectives represent a significant shift towards more community-based governance. However, despite the proliferation and professionalisation of these agricultural collectives, realising ecological goals remains a complex challenge in practice; in many areas, biodiversity loss continues.

This contribution investigates the interplay between these governance arrangements and the dynamic realities of the landscape they manage. Drawing on a processual-relational ontology, we study the "match" between administrative designs and socio-ecological practices. We conceptualise this interaction through the notion of "Living Knots": continuous entanglements of farmers, ecologies, technologies, and social relations.

Central to our analysis is the interaction between two necessary but distinct logics: the "Administrative Grid" and the "Socio-Ecological Meshwork". The Grid represents the logic of legibility, requiring fixed boundaries and accountability metrics; the Meshwork, conversely, embodies the "texture" of the commons: the situated knowledge, informal trust, and ecological flows that bind a community and ecosystem together. Rather than viewing these as mutually exclusive, we examine how they interact, generate friction, and/or align. We explore the risk that when the Grid dominates, it may inadvertently create "hollow collectives": administratively robust but disconnected from the relational intricacies required for ecological impact.

Building on insights from adaptive governance regarding the need for social-ecological fit, this contribution zooms in on the relational dynamics of this alignment. We propose a "governance of textures" as a lens to understand how collectives navigate the tension between administrative stability and ecological dynamism. In this presentation and discussion, we aim to identify the ingredients required to shift policy focus from controlling outcomes to bridging the gap between static administrative accountability requirements and dynamic ecological realities.

*Keywords:* Agrarian commons, landscape governance, processual-relational ontology, socio-ecological meshwork, governance of textures

### 4. Bridging Ecology and Community: Assessing Ecosystem Services in Forest Commons of the Lower Shivaliks of Uttarakhand

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Forests governed under commons regimes in the Lower Shivaliks sustain diverse ecosystem services (ES), interchangeably accepted as Nature's Contribution to People (NCP) in recent ecological research, that are central to both ecological resilience and rural livelihoods. Commons regimes are underexplored yet vital providers of provisioning, regulating, and cultural ecosystem services (ES), exploring how community-based management influences the provision, distribution, and perception of ES. The assessment integrates quantitative household-level valuation of provisioning services with perception-based prioritization of forest ES to bridge ecological metrics and community perspectives. Data collected from 300 households across forest fringe villages revealed that fuelwood and fodder are the most preferred and valued provisioning services, supporting up to 68.33% and 46.75% of households, with average annual benefits of ₹22121.36 and ₹22701.71 per household, respectively. In contrast, non-timber forest products (NTFPs) (~14.25%) and food (~12.25%) from forest has marginal contribution to human sustenance, inferring an evolving livelihood scenario in the Lower Shivaliks where dependency on minor forest produce is declining due to changing market access, socio-economic transitions, and land-use dynamics of the region. Perception-based assessments further revealed that, as per mean responses, water quality maintenance (3.68) and climate regulation (2.83) as regulating, habitat provision (3.77) as supporting, and aesthetic value (3.91) and spiritual significance (3.12) as cultural ES were the most preferred benefits as forest ES by the fringe population. Insights from perception-based assessments are crucial in reshaping ecosystem management priorities to better integrate societal preferences from nature imbued with ecological sustainability. By linking quantitative resource valuation with community perceptions, the study highlights the role of participatory approaches in guiding adaptive forest governance, reinforcing both environmental stewardship and the economic well-being of forest-dependent communities.

*Keywords:* Ecosystem Services, Forest Commons, Community-based resource management, Perception-based, Sustainable Forest Management

## 5. Ecosystem Services Governance in World Heritage Landscapes: Integrating Forests, Cultural Agro-Landscapes, and Community-Based Conservation

**First author:** Mir Mehrdad Mirsanjari

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Ecosystem Services Governance in World Heritage Landscapes: Integrating Forests, Cultural Agro-Landscapes, and Community-Based Conservation

World Heritage landscapes represent globally significant socio-ecological systems where ecosystem services are deeply intertwined with biodiversity conservation, cultural identity, and local livelihoods. This paper presents a comparative ecosystem services framework based on over three decades of research, teaching, and applied conservation experience in forest, agricultural, wetland, and coastal ecosystems. The study synthesizes findings from five doctoral dissertations supervised by the author, focusing on ecosystem services assessment and governance in two UNESCO-recognized landscapes: the Hyrcanian Forests of northern Iran and the cultural vineyard landscape of the Jozan Valley in Malayer. The Hyrcanian Forests, among the oldest temperate forests in the world, provide critical regulating and supporting ecosystem services, including climate regulation, biodiversity conservation, and watershed protection. In contrast, the Jozan Valley vineyards represent a cultural agro-ecosystem where provisioning, cultural, and regulating services are tightly linked to traditional land-use practices and community resilience. Using integrated methodologies—including GIS-based ecosystem services modeling, landscape ecology analysis, socio-economic valuation, and policy analysis—this research highlights how ecosystem services can serve as a bridge between conservation objectives, heritage protection, and local development. The paper further draws on applied experience from community-based conservation efforts in the Ashuradeh Wildlife Refuge in the Caspian Sea, illustrating how ecosystem services concepts can inform participatory governance, wetland protection, and sustainable ecotourism in sensitive coastal environments. The results demonstrate that effective ecosystem services governance in heritage landscapes requires multi-scalar policy integration, recognition of cultural values, and meaningful participation of local communities. By linking forest ecosystems, cultural agricultural landscapes, and coastal wetlands, this

contribution offers transferable insights for ecosystem services science–policy interfaces, particularly in regions facing land-use change, tourism pressures, and climate-related risks.

This paper aligns with the Ecosystem Services Partnership's mission to advance interdisciplinary knowledge and to support evidence-based decision-making for sustainable landscapes worldwide.

*Keywords:* Socio-ecological systems, Participatory environmental governance, Cultural landscapes, Ecosystem services valuation, Community resilience

## 6. Building Climate Resilience In Indian Cities Through Blue-Green Infrastructure

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Rapid urbanization and climate change are placing unprecedented stress on Indian cities, exposing them to frequent floods, rising temperatures, groundwater depletion, and ecosystem degradation. Conventional grey infrastructure, focused primarily on drainage, concrete expansion, and flood control, has proven increasingly inadequate in managing these complex and interconnected challenges. This paper explores the growing role of Nature-Based Solutions (NbS) and Blue-Green Infrastructure (BGI) in enhancing climate resilience in rapidly urbanizing Indian megacities. Drawing upon the "Sponge City" concept adapted to India's monsoon-dominated climate, the study examines key urban interventions, including the restoration of wetlands in Chennai, the revival of traditional water tanks (Kalyani's) in Bengaluru, and green infrastructure initiatives such as vertical forests and green roofs in Mumbai. These interventions demonstrate how urban landscapes can be redesigned to retain, absorb, and recycle water while simultaneously reducing heat stress and improving ecological health. The paper identifies major barriers to effective implementation, including fragmented urban governance, loss of urban commons to real-estate development, and limited integration of traditional ecological knowledge into planning processes. The findings emphasize that urban resilience is not solely a technical or ecological challenge but also a socio-institutional one. The study proposes a multi-scalar resilience approach for Indian cities, advocating for the protection of ecological buffers, community-based stewardship of restored spaces, and performance-linked incentives for green infrastructure adoption.

*Keywords:* Nature-Based Solutions (NbS), Blue-Green Infrastructure, Climate Resilience, Urban Heat Island, Sponge City Approach, Sustainable Urban Planning