

## IALE 2023 World Congress, Nairobi, Kenya

(10th – 15th, July 2023)

### Organized Symposium/Lightning/Panel Sessions

#### Symposium/Paper Sessions (30)

**Title:** GeoAI, machine learning, and Big Data Analyses of Earth Observation Data for Climate Change and Ecosystem Resilience

**Section Format:** Hybrid

**Organizer(s):**

Henry Bulley, BMCC, City University of New York, USA

Phoebe Oduor, AfriGEO, Regional Centre for Mapping of Resources for Development, Nairobi, Kenya

Moses Azong Cho, Council for Scientific and Industrial Research/University of Pretoria, South Africa

Meshack Kinyua Ndiritu, GMES & Africa Support Program, & Space, African Union Commission, Addis Ababa, Ethiopia

Monika Kuffer, University of Twente (ITC), The Netherlands

Naa Dedei Tagoe, University of Mines and Technology, Ghana

**Sub-themes:** Data science and geospatial technology for sustainable landscape management

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**Description:**

The last decade has seen increased focus on integrating Landscape Ecology principles and Geospatial Science techniques to assess landscape change dynamics and resilience of ecosystem services in African Countries. Landscape ecology principles such as scale and heterogeneity are vital for effective analyses and modelling of land use dynamics, and how these affect the provisioning of ecosystem services. Transboundary resources often traverse national and regional boundaries and their effective management require information that are easily provided Earth Observation (EO) data.

Recent developments in the use of Earth Observation (EO) data for natural resource management in Africa is consistent with the Africa Union's Agenda 2063 Flagship [African Outer Space Programme](#). These EO data increasingly available in

various formats, spatial and temporal resolutions. Increased synergies between Geospatial computing and Big Data analytics have emerged as effective ways to harness information from disparate multisensor and multiscale EO data. In particular, Geospatial Artificial Intelligence (GeoAI) and Machine Learning (ML) have become vital tools for geospatial data management, processing via multi-sensor and multiscale data fusion, analyses, modeling, and visualization to improve environmental planning and decision making. This symposium will bring together researchers from different parts of the world to discuss recent developments and challenges in integration of GeoAI, Machine Learning and Big Data Analytics to extract vital information from increasing amount of EO data. We encourage presentations that highlight ongoing applications or potential applications in addressing climate change and ecosystem resilience challenges in the Global South and Africa.

**Title:** Innovative planning and policy approaches for sustainable urbanized landscapes: impact, challenges and opportunities

**Section Format:** Hybrid

**Sub-theme:** Drivers of landscape change and sustainability at multiple scales

**Organizer(s):**

Simona R. Gradinaru - Land-Use Systems Group, Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Switzerland; [simona.gradinaru@g.unibuc.ro](mailto:simona.gradinaru@g.unibuc.ro)

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## **Description**

Worldwide, fast and profound alterations of our human and natural environment take place due to expansion of urban areas into surrounding landscapes. The resulting challenges, including depletion of green spaces, loss of food providing areas and changes to the food systems, amplification of climate change impacts, and soil degradation, among others, have become critical. Thus, great effort needs to be put into understanding how to improve the capacity of the worldwide governments and authorities to formulate, adopt and implement policies that tackle these challenges and help build a sustainable and resilient future. It is in this context that spatial planning and policy, as political drivers, have been proven to influence the patterns of transformations in urbanized landscapes (i.e., urban, peri-urban). The objective of this symposium is to assemble talks that discuss innovative planning and policy approaches, in their various forms ranging from targeted

land-use policies to integrated strategic approaches for setting long-term visions, for better addressing these challenges.

We welcome presentations which address the role of planning and policies as drivers of change at any step in the planning cycle. The discussion will be structured to focus on:

1. approaches for mainstreaming ongoing challenges such as landscape changes, climate change, and food security, into planning and policy documents,
2. novel methods through which landscape ecology could support addressing current challenges during the planning process,
3. evidence on the role of planning and policy in transformations of urbanized areas, including comparative assessments across boundaries,
4. lessons learned from participative/collaborative planning processes.

The organization of this symposium has become a tradition, with the previous symposia being organized during the European or World Landscape Ecology Congresses in Gent (2017), Milan (2019) and Warsaw (2022). We expect that the community of landscape ecologists addressing political drivers of landscape change in their work to strengthen their networks and identify common ground for their research.

Furthermore, this symposium is a contribution of the IALE Working Group Landscape planning (<https://www.landscape-ecology.org/page-18081>).

**Title:** Improving biodiversity and ecosystem services monitoring for sustainable landscapes on the road towards 2030 conservation targets

**Section Format:** Physical

**Organizer(s):** Sandra Luque<sup>1</sup> Jean Baptiste Feret<sup>1</sup> Samuel Alleaume<sup>1</sup>

<sup>1</sup> INRAE National Research Institute on Agriculture, Food & the Environment, **Unit TETIS** Land, environment, remote sensing and spatial information, France

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**Sub-Theme:**

**Description:**

The preservation of biodiversity has become a major challenge for sustainable development from local, national to global levels. To address the current conservation needs, we need to gain real time knowledge on ecosystem conditions, extent and the impacts of various human pressures to be able to plan for more efficient mitigation measures to maintain resilient landscapes. The understanding of complex processes at the landscape level can be supported by the variety of sensors available and the ability to develop original methods to use and combine information resulted in opportunities to predict the consequences of changes in drivers at different scales and plan for more efficient mitigation measures within a context of global change.

This session aims to showcase a series of studies and robust frameworks that demonstrate how coupling remote sensing, with artificial intelligence, ground observations and spatial modelling can provide operational solutions towards a better understanding of complex landscape processes to support efficient planning towards sustainable management. In the end, we aim at discussing the role of innovative tools and coupling models to find ways to better capitalise to monitor Biodiversity and ecosystem services at landscapes at different scales. Using a mixture of remote sensing, field-based data and artificial intelligence requires ecologists, urban planners, remote sensing experts and computer scientists to collaborate closely to make best use of the newest remote sensing capabilities and integrated modelling approaches. We aim this symposium will bring together interdisciplinary fields to share and discuss different operational methods and solutions

The symposium is the centre of **Data science and geospatial technology for sustainable landscape management** but is truly transversal to **Drivers of landscape change and sustainability - urban landscapes and smart cities** and the Nexus approach among the others

We will invite one keynote to open a discussion, a call for Descriptions will be open on Landscape Ecology social media related sites and within the spatial agencies community (CNES, NASA, EEA....).

**Title:** Mountain landscape ecological pattern and function: response to climate change and adaptive management

**Section Format:** Hybrid

**Organizer(s):** Wang Genu - Sichuan University, China

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**Sub-Theme:**

**Description:**

High mountains cover ca. 24% of the Earth's surface land, are hotspot for sensitive to climate change, biodiversity, freshwater generation and are habitat for many creatures. However, the high mountain areas are threatened to, and the landscape pattern is transforming under climate change: glaciers are melting; perennial snow cover and permafrost are disappearing; water availability are changing, plant biodiversity and productivity are changing; landscape ecological pattern and functional integrity are degrading. These changes put local and downstream communities and biodiversity at risk. Degradation of ecosystem and natural resources further aggravate pressures on these high mountain ecosystems. Thus, the theme is objective to, not limited to assess the climate-change-vulnerability of the landscape ecological pattern and function in mountain areas, investigate and illustrate the different response of mountain vertical zonation of landscape ecology to climate changes and its effects on mountain ecological functions, reveal the adaptive responses of ecosystems and communities to global change and the underlying mechanisms, and to explore adaptive management strategies for effectively improving water security, ecosystem conservation and natural resource sustainability in high mountain ranges.

**Title:** Using landscape ecology to build health landscapes for people

**Section Format:** Hybrid

**Organizer(s):** Paula Ribeiro Prist - EcoHealth Alliance

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**Sub-Theme:**

### **Description**

The COVID-19 pandemic has highlighted not only how habitat loss and degradation affect the risk of zoonotic diseases, but more importantly how the presence and contact with green areas affects human health in its fullness. Natural and more biodiverse environments affect mental health, facilitating stress recovery. Green areas can also reduce pollutant concentrations affecting respiratory and cardiovascular diseases. Human exposure to more diverse habitats is critical for the development of human immune responses to allergens and other disease-causing factors. In addition, natural areas also affect the transmission risk of zoonotic diseases. Therefore, natural areas can have a positive impact in the maintenance of human health.

However, a more complete understanding of how these areas should be spatially structured to have positive outcomes on non-communicable diseases and to avoid epidemics and pandemics is still needed. This thematic section aims to present case studies in different countries and landscape contexts relating the landscape structure with human health, proposing explanatory causal models and mechanisms. The goal is to provide strategies for rural and urban landscape planning that can guarantee the maintenance of human health in the long term. The session will begin with an overview of studies showing how to plan landscapes focusing on the maintenance of human health (i.e., including zoonotic and non-communicable diseases), followed by a case study about the effects of urban green areas on non-communicable diseases, aimed at supporting decision-making in Nature Based Solutions programs. Subsequently, we will take a closer look at how to design low pathogenicity landscapes for various zoonotic diseases, and which are the best strategies to evaluate zoonotic spillover risk to inform policies. Ending the session, we will show how the economic burden of human health outcomes can be incorporated into landscape planning, contributing to decision making.

**Title:** Forest fragmentation under climate change and human disturbances: scales, mechanisms and ecosystem resilience

**Section Format:** Hybrid

**Organizer(s):** Zehao Shen, Peking University, China

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**Sub-Theme:**

**Description:**

Fragmented forest and grassland is a characteristic landscape type well-known as savanna in Africa, but forest fragmentation is an increasingly prominent landscape process, under the impacts of climate change and human disturbances, in other continents (Australia, South America, and temperate Eurasia) in semi-arid, semi-humid and even humid regions. Forest fragmentation is fundamentally driven by the competition of forest and grassland ecosystems, but generally regulated by landscape processes such as wildfires, grazing and land use change, which are intensified by global climate change and ecosystem service provision-demanding dynamics. As the dynamic boundary of forest and grassland biomes, the fragmented forest-steppe landscapes represent a unique species pool and are sensitive to global climate change. The top-down climate constraints on fragmentation processes, the bottom-up responses of ecosystem composition, structure and function to forest-steppe mosaic, as well as the scales underpinning the landscape process and patterns, are critical issue to not only the theory of landscape ecology, but also the applied demands in biodiversity conservation and ecosystem service sustainability.



**Title:** Sustaining forests in mosaic landscapes

**Section Format:** Hybrid

**Organizer(s):**

Chinwe Ifejika Speranza - Institute of Geography, University of Bern, Bern, Switzerland

Felicia O. Akinyemi - Institute of Geography, University of Bern, Bern, Switzerland

Denis Sonwa - Center for International Forestry Research (CIFOR), Yaounde, Cameroon

Brice Sinsin - Laboratory of Applied Ecology, University of Abomey-Calavi, Cotonou, Republic of Benin

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**Sub-Theme:**

**Description:**

Mosaic landscapes comprise a mix of different land use-land covers including human-managed and natural ecosystems. Depending on contexts, it is common for agricultural land use to dominate such landscapes, with forests persisting as patches. Otherwise, mosaic landscapes are a patchwork of different land use-land covers including forests, which dynamically evolve.

Forests, irrespective of their size, provide various ecosystem functions and ecosystem services, and support local livelihoods with implications for national economies and the global environment. Changes to human use of land, especially relating to the exploitation of forest resources, climate change, and forest governance affect the ability of forests to maintain their functions and services. Embedded within a nested social-ecological context, forest patches may persist in mosaic landscapes despite pressures from human activities and uncondusive governance, whereas patches may also disappear from the landscape as these become converted to other land uses.

This session invites empirical contributions examining changes to forests and land conditions, the interacting social-ecological factors driving their persistence, regrowth and/or change, Forests' Contributions to People in form of ecosystem services and the dependent livelihoods, and forests patch sustainability under current and future conditions in the face of multi-pressures. Through these perspectives, this session aligns with the sub-theme on "Drivers of landscape change and sustainability at multiple scales" and the sub-theme on "Borderlands, cross-border resources, and environmental resilience: Strengthening resilience in borderlands ecosystems, disturbance of ecosystems". Contributions in form of posters and oral presentations are welcome.

**Title:** Resilience of (agricultural) landscapes: how, when, and what to assess?

**Section Format:** Hybrid

**Organizer(s):**

Markus Meyer & Paula Schatte (Department of Agriculture, Ecotrophology and Landscape Development, Anhalt University of Applied Sciences, Germany)

Ngawo Namukonde & Jane M. Kwenye (School of Natural Resources, Copperbelt University, Zambia)

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**Sub-Theme:**

**Description:**

Resilience is conceptually addressed in multiple fields, but still at edge of conceptual development and quantification. A major challenge of the 21<sup>st</sup> century is to maintain or even enhance the positive contributions of nature to a good quality of life for all living beings. A major research field is the interface of food production and ecosystem integrity and functionality. Here, agroecology and its ten FAO principles call for quantification at different spatial levels. One approach is to analyze agroecosystem resilience by assessing the interactions between biodiversity, ecosystem function or ecosystem services, and food production at landscape level.

A major interest of this session is how major properties of resilience are considered and quantified in from an agroecological perspective: robustness, adaptiveness, and transformability. Robustness is a system's ability to stand shocks and to return to the state prior to the shock. Adaptiveness is a system's ability to offer a preferred level of a resilience item (e.g., new baseline level of ecosystem services (e.g., food, water availability, pest control) or biodiversity) under changing inputs and drivers (e.g., biophysical or economic parameters such climate or market developments). Transformability is the system's ability to offer a preferred state or outcome of a resilience item under altered functioning and arrangements (e.g., does an altered (agricultural) landscape or system still provide desired ecosystem services or biodiversity?).

For this session, we call for studies quantifying resilience at the interface between food production and biodiversity, ecosystem functions or services at different spatial levels (farm, landscape, regional, and global). We encourage submissions taking an integrated perspective of agroecology addressing both food system and ecological dynamics. Potential contributions could propose indicators that identify resilience properties or quantify indicators of resilience of agro-ecosystems. Equally important are studies taking primarily an agricultural or ecological perspective. Further conceptual advancements of agroecological resilience are invited.

Interested participants will be encouraged to contribute to a special issue depending on the contributions either with a focus on modelling (e.g., Ecological Modelling) or on the conceptualization (e.g., Ecology & Society).

**Title:** Publishing and disseminating transboundary landscape ecology and landscape architecture research: challenges and opportunities

**Section Format:** Hybrid

**Co-Organizer(s):** Sara A. Gagné (University of North Carolina at Charlotte) and Jianguo Wu (Arizona State University)

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**Sub-Theme:**

**Description:**

Now more than ever, landscape ecologists and landscape architects enjoy a plethora of venues for the publication of their research. The number of journals and book series that welcome the reporting of landscape ecology and landscape architecture research continues to expand, as do open access options, review procedures, and journal metrics. At the same time, new findings have demonstrated biases in the publication process, e.g., the review of manuscripts, and in the use and interpretation of metrics. In addition, the representation of landscape ecology and landscape architecture research from Western countries is rapidly shifting in favor of research from other parts of the globe and readers are increasingly using new tools, e.g., Google search and social media, to find relevant research. In light of the changing nature of publishing and the dissemination of research, the objectives of this symposium are to 1) introduce Congress attendees to six outlets that focus on the publication and dissemination of landscape architecture and landscape ecology scholarly work (Current Landscape Ecology Reports, Land, Landscape Ecology, Landscape Journal, Landscape and Urban Planning, and Springer's Landscape Series); 2) discuss the role of each outlet in the publication of global, transboundary research that addresses ecosystem management in the Anthropocene; and 3) formulate best practices given current publishing challenges and identify new opportunities that will benefit researchers and readers. An Editor-in-Chief of each outlet will address these objectives in a presentation, followed by a panel discussion during which attendees will have the opportunity to discuss the publication and dissemination of landscape ecology and landscape architecture research and the challenges and opportunities raised during presentations.

**Title:** Landscape Approaches for Nature Conservation, Development and Sustainability

*Multifunctional Landscapes for Resilience, Development and Biodiversity Conservation*

**Section Format:** Hybrid

**Organizer(s):** Terry Sunderland (Faculty of Forestry University of British Columbia)

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**Sub-Theme:**

**Description:**

The increasing global demand for resources creates conflict and trade-offs between dedicating land for biodiversity conservation versus other land uses. These conflicts are exacerbated by rapid socio-economic, demographic, and environmental change, including climate change, in tropical landscapes. In this symposium we will discuss how integrated landscape approaches can help to reconcile social, environmental and biodiversity goals. Researchers will focus on ways to integrate knowledge from landscape ecology, land use planning and socio-ecological systems. This symposium is based on the premise that science of landscape ecology linked to practice of conservation and regional planning can provide mutually supportive outcomes for people and nature and will help for developing pragmatic linkages to decision-making and promote interdisciplinary research and communication among scientists, planners, and other professionals. Otherwise, huge recent efforts by the landscape ecologists will find no place for practical inclusion in land use planning and conservation planning decisions. Participants will consider how best to: facilitate multi-stakeholder dialogue to benefit actors across multiple sectors and decision-making scales; raise awareness of the value of biological diversity in complex landscapes to inform national policies; and empower marginalized groups to effectively participate in decision-making processes. The symposium will critically consider the question "Where are we with decision-relevant, landscape-scale land use planning, and conservation planning" and speakers will present attributes of various methodologies for the development of sustainable landscape approaches.

**Participants are invited to focus on the following issues:**

- Landscapes and livelihoods; poverty and human well-being
- Linking landscape ecology to sustainable land use planning
- Operationalising integrated landscape approaches
- Conservation planning and protected areas in multifunctional landscapes
- Community-Based Natural Resource Management
- Incorporating climate change considerations in landscape planning

**Title:** How do we incorporate vegetation, grazing and landscape heterogeneity to gain a better understanding of both grassland degradation and restoration processes

**Section Format:** Hybrid

**Organizer(s):** Li Li, Department of Ecology and Environmental Sciences, Xi'an-Jiaotong Liverpool University

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**Sub-Theme:**

### **Description**

Grasslands support the livelihoods of over 1 billion people. Grasslands are frequently rich in biodiversity, are important for carbon storage and provide irreplaceable cultural values to local people. However, nearly 50% of the global grasslands are degraded due to overgrazing, soil erosion, pollution, shrub encroachment, biological invasions, etc. Furthermore, climate change is putting novel pressures on grassland ecosystems. Entering the UN "Decade on Ecosystem Restoration 2021-2030", the importance and multi-functionality of grassland has gained worldwide recognition: Grassland restoration programs have been launched or are planned at the regional or national levels. However, ecological processes driving the degradation and successful restoration are diverse and need to be studied and understood within a landscape context, while considering its social and environmental heterogeneity.

In this interdisciplinary symposium we examine multiple ecological and social–ecological processes underlying the degradation and restoration of grasslands. Landscape level topography, vegetation and grazing intensity causes local disturbance heterogeneity which inducing spatial degradation patterns. We need to examine degradation among these scales because processes differ in the scale at which they operate. We argue that grassland degradation can only be understood by explicitly examining these scale dependent processes and their interactions. In contrast to grassland degradation, current restoration efforts largely ignore spatial landscape heterogeneity. We raise the question: can we ignore spatial landscape level heterogeneity in grassland restoration? Or how can we incorporate landscape level topography, vegetation, and grazing heterogeneity in creating successful restoration projects. Learning from a variety of landscape-level degradation and restoration studies we will synthesize our current knowledge of the importance of landscape heterogeneity.

### **Keywords:**

Grassland ecosystem, social–ecological system, biodiversity, multifunctionality, livestock, grazing landscape, UN Decade on Ecosystem Restoration

**Title:** How have coastal ecosystems recovered from low-frequency large-scale disturbances: a report 10 years after the tsunami disaster caused by the Great East Japan Earthquake.

**Section Format:** Hybrid

**Organizer(s):** Hajime Matsushima (Hokkaido University, Japan); Kohei Oka, Yoshihiko Hirabuki, and Hinata Okoshi

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**Sub-Theme:**

Borderlands, cross-border resources, and environmental resilience;  
Transboundary ecosystems in the Anthropocene.

**Description:**

As the boundary between terrestrial and marine areas, coastal beaches are unique ecological landscapes that form ecotones. Exposed to high environmental pressures such as waves, sand transportation, salt spray, aridity and oligotrophic conditions, these areas are dominated by disturbance-dependent species and are highly resilient to such disturbance. The 11 March 2011 earthquake and tsunami off the Pacific coast of eastern Japan (Great East Japan Earthquake) caused severe damage to the coastal cities but was reported to be a low-frequency large-scale disturbance to the coastal ecosystems. In this symposium, we will report on how the coastal ecosystem recovered from the low-frequency large-scale disturbance of the tsunami in 10 years, and the impact of anthropogenic modification on the coastal ecosystem, such as the construction of tidal embankments by the restoration and reconstruction project from the disaster and the creation of coastal forests by the plantation of black pine (*Pinus thunbergii*), from the viewpoint of coastal vegetation, insects and local residents. This symposium also aims to discuss the sustainable management of coastal landscapes, taking into account ecosystem resilience in coastal areas, from the perspective of Nature-based Solutions for disaster prevention and mitigation, based on examples from other countries.

**Keywords:** Great East Japan Earthquake, resilience, ecosystem services, Nature-based Solutions, ecotone

**Title:** Agricultural Landscapes in Europe and Africa for Sustainable Intensification

**Section Format:** Hybrid

**Organizer(s):**

Felix Herzog, Agroscope, Zurich, Switzerland

Felicia O. Akinyemi, University of Bern

Peter Verburg, VU, Amsterdam, The Netherlands

Matthias Bürgi, WSL, Birmensdorf, Switzerland

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**Sub-Theme:**

**Description:**

Sustainable agricultural intensification holds the promise to “produce more with less”. This is a change of paradigm from the conventional intensification approach, which relies on increasing inputs to boost agricultural yields. Conventional intensification has been and still is shaping the agricultural landscapes on both, the European and the African continent. Also, African and European agriculture are connected by trade – imports and exports in both directions. Those trade connections have an influence on the type of agricultural goods that are produced and on their way of production, with strong impacts on the agricultural landscapes.

This symposium invites contributions from both continents that reflect on the past and future development of agricultural landscapes. They need not necessarily address the teleconnections between the two continents explicitly, but they should investigate landscape development under the paradigm change towards sustainable intensification. They should explore past and future pathways towards multifunctional landscapes that provide an equilibrated mixture of ecosystem services to serve the needs of society.

The Symposium will be open for poster and oral presentations of Congress participants.



**Title:** Bottom-up Approaches for Nature Positive - the Way of Co-Design and Co-Research  
**Organizer(s):** Mahito Kamada, Tokushima University, Japan

**Section Format:** Hybrid

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**Sub-Theme:**

**Description:**

Each country is trying to achieve the goals set by the Convention on Biological Diversity (CBD) by establishing national biodiversity and regional biodiversity strategies. Prior to CBD\_COP15, the G7 countries have pledged to prevent biodiversity loss by protecting 30% of their land and sea areas by 2030 and trying to turn positive. In addition, Nature-based Solutions (NbS) should be set as an essential way, and OECMs, which are the areas conserved through activities by local people, business sectors as well as local governments within the regions, should be set in each region. In order to achieve the global goal, landscape ecology researchers are required to develop co-design and co-research methods to promote such as local activities, and for networking these activities for global trends from the bottom-up approach. In this symposium, we would like to present activities that have been developed with researchers in various parts of Japan. We would like to consider how landscape ecology can be used for social implementation of NbS and OECM settings by discussions with researchers in many countries. We also would like to create a platform for networking activities in each country and linking them to global trends.

**Title:** Landscape Ecology for Future of SDGs: A Paradigm Shift to Regenerative Development Goals

**Section Format:** Hybrid

**Organizer(s):**

Ramesh Krishnamurthy<sup>1,2</sup>, Sima Fakheran<sup>2</sup>, Terry Sunderland<sup>2</sup>, Sarah Gergel<sup>2</sup> and Erica Smithwick<sup>3</sup>

<sup>1</sup> Wildlife Institute of India, Dehradun, India

<sup>2</sup> University of British Columbia, Vancouver, Canada

<sup>3</sup> Penn State University, Penn State, United States

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**Sub-Theme:**

**Description:**

**Session I: Towards shared vision and integrated solution: convergence of governance and actions for a sustainable future**

*Coordinators: Ramesh Krishnamurthy, Sima Fakheran and Terry Sunderland*

Sustainable Development Goals (SDGs) encompass diverse environmental, livelihood, and development actions. Similarly, the rapidly emerging concept of one health (OH) aims to link environmental health, animal/plant health, and public health. However, the current pace of climate change, biodiversity loss, and natural resource depletion make SDGs insufficient for addressing global concerns. The world has realized the urgent need for shared visions and convergence to rationalize and optimize the outcomes. Landscape science and management framework is therefore the most compelling option as it allows for clear recognition of diverse stakeholders, shared vision, the convergence of space and resources, and simultaneously exploits the existing governance framework, thereby enabling a smooth transition of inputs and outcomes. Landscape perspective, especially in the search for solutions to reconcile tradeoffs between conservation and development and between multiple ecosystem services, is important to determine the optimal areas for conservation planning considering many conflicts, possibilities, synergies, and trade-offs. In this session, we illustrate various conservation challenges and landscape strategies from different ecoregions and provide the operational framework for taking forward SDGs and OH. Some of the current practices in India, Africa, and other countries gaining ground, and such working models help for reconceptualization and prioritization framework to reconcile the objectives of biodiversity conservation and socio-economic development that remain sustainable and feasible across a range of future climate scenarios.

## **Session II: Towards regenerative landscape futures: the role of policy legacies, environmental stress, and landscape change**

*Coordinators: Sarah Gergel and Erica Smithwick*

Landscapes are increasingly recognized as the key setting for grappling with complex socio-ecological challenges and enhancing sustainability. Approaches in landscape ecology, landscape sustainability science, land change science, spatial resilience, and geodesign have each advanced this opportunity through a different lens, but commonly leverage landscapes as the unit that can coalesce disciplines and methodologies to advance the human and environmental condition. This session advances a new idea: that we must proactively propel landscapes into new states that are just and thriving, incorporating principles of socio-environmental sustainability and design-thinking to imagine landscapes that are regenerative and capable of renewal and transformation into more positive states. Using case studies from Narok, Kenya, we showcase the importance of approaching regenerative landscape futures by integrating the historical time scales of land tenure policies with contemporary landscape configurations that govern ecosystem services in food security and water availability, and alongside changing patterns of precipitation that govern agro-pastoral livelihoods. In this arid agropastoral landscape context, we welcome dialogue and discussion of how landscape patterns and regenerative processes strategies can be co-designed to propel more positive landscape futures.

**Title:** Key messages from global south landscapes: challenges and opportunities in research from Africa and Latin America regions.

**Section Format:** Physical

**Organizer(s):**

- Cristian Echeverría, IALE Chile
- Danilo Boscolo , IALE Brazil
- Dolores Armenteras. IALE Colombia
- Henry Bulley, IALE-Africa

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**Subthemes:** Transboundary ecosystems in the Anthropocene

**Description:**

Global South countries in Africa and Latin America (LATAM) refer to those underdeveloped or economically disadvantaged countries. These nations seek to solve similar challenges such as poverty, population growth, disease, and deforestation. In this symposium we aim to (i) identify the mutual and region-specific challenges in terms of research from a landscape ecology perspective, (ii) identify future trends in research under global change scenarios, and (iii) explore opportunities of south-south collaboration to cope with ecological, human and climate crisis. Through a preliminary systematic review in landscape journals, we found 388 and 339 articles (Web of Science) conducted in LATAM and African landscapes respectively between 1981 and 2023. Overall, cities and forests are among the most studied landscapes in LATAM and Africa. However, articles from Africa exhibit a wider field of research including social-ecological systems, sustainable solutions, and green infrastructure. In LATAM, changes and management in Amazon forest landscapes and studies related to animal ecology and remote sensing represent an active research field. Authors from Brazil are involved in 35% of the LATAM articles, followed by USA with 25%, Mexico 12% and England (6%). A similar trend is observed in African studies, in which South African authors are involved in 31% of the articles, followed by authors from USA (27%) and England (10%). In both regions, landscape research is concentrated in very few countries. Surprisingly, 42% and 43% of the articles are led by researchers affiliated to LATAM and African organizations respectively. We anticipate that future LATAM-Africa collaborative landscape ecology research will provide relevant scientific evidence to support decision making in both regions. During the symposium, we expect to deepen these results and to propose key messages for the international IALE community.

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**Title:** Food sensitive planning levers for sustainability: scales and spaces

**Section Format:** Hybrid

**Organizer(s):**

Esther Sanz Sanz – Avignon France

Claude Napoléone, INRAE UR Ecodéveloppement (Avignon, France)

José Muñoz-Rojas, Universidade de Évora, Department of Geosciences and MED-Mediterranean Institute for Agriculture, Environment and Development, Portugal

Teresa Pinto-Correia, Universidade de Évora, MED-Mediterranean Institute for Agriculture, Environment and Development, Portugal

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**Sub-theme:** Drivers of landscape change and sustainability at multiple scale

**Description:**

We ask for 2-3 integrated paper sessions under the same theme. The Paper session will comprise one session solely of invited speakers (from SUL working group – Southern European Network for Agricultural Landscapes- which is mostly composed by researchers from INRAE and the University of Évora) and another session open to presentations from the general call for Descriptions

The (re)territorialization of food systems, favourable to ensure quality and affordable food while promoting the health of humans and ecosystems, challenges the capacity of agricultural systems to produce local food, especially in periurban contexts. Furthermore, it questions the role of intermediaries between production and consumption in the food supply chain (i.e. the missing middle). In this perspective, foodshed mapping approaches allowing to assess the theoretical food self-sufficiency capacity of a region based on biophysical and ecological conditions, need to be coupled with an analysis of the socio-economic conditions of the development of local food supply chains. Indeed, geographical proximity (i.e. distance), organized proximity (i.e. relational stance), and institutional proximity (i.e. the adherence to common rules), favour the territorialisation of food. This threefold proximity relationship is shaped by drivers at multiple scales, including macro (eg. international and national policies) and mezzo (eg. spatial organization). Furthermore, the territorialized food systems have a spatial translation into the landscape. Beyond land use pattern including crop rotation, physical intermediaries (eg. food processing facilities) and built food environment (ex. street markets), shape foodscapes in rural, and periurban contexts.

The goal of this panel session is to identify spatial patterns and understand social-ecological processes influencing foodscapes, as well to discuss landscape planning and design levers to promote sustainable foodscape change (i.e. Food Sensitive Planning), including support to reconnect food production to consumption areas via proximity food supply chains. A focus will be done on the multiple scales and spatial dimensions of intervention. The goal is to question the possibilities for up-scaling and out-scaling place-based initiatives.

**Title:** Landscape Planning for Transformative Change

**Section Format:** Hybrid

**Symposium Organizer(s):**

Christian Albert, Ruhr-University Bochum, Institute of Geography, Germany

**Primary contact:** [christian.albert@rub.de](mailto:christian.albert@rub.de)

**Sub-Themes:**

Transboundary ecosystems in the Anthropocene

Building resilience and security

Data science and geospatial technology for sustainable landscape management

**Description**

The grand challenges of halting biodiversity loss and enhancing nature's contributions to people have recently raised increasing calls for transformative change in landscape development. Transformative change can be understood as "fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values" (IPBES 2019). Concepts for advancing transformative landscape change are still in their infancy. Nevertheless, it is clear that achieving such transformative change will require ambitious visions as well as novel governance, planning and decision-making processes for advancing both benefits for people and nature.

Landscape planning, as a socio-ecological process to enhance, restore or create landscapes, could arguably serve as a catalyst for advancing urgently needed transformative landscape change.

Landscape planning is well-situated to help co-develop radical visions for the future and support processes of knowledge co-generation and deliberation with diverse actor groups. However, little understanding so far exists on how landscape planning could initiate and foster transformative landscape changes at the scale and pace necessary.

The aim of this symposium is to explore how landscape planning could be advanced to support transformative change. We are interested in theoretical and methodological contributions as well as empirical case studies showcasing novel approaches to landscape planning. Key questions to address include: (i) What is transformative landscape change? (ii) Which theoretical and conceptual innovations does landscape planning for transformative change imply? (iii) Which novel approaches could enhance landscape planning's capacities to meaningfully foster transformative change?

The symposium will be organized in the form of concise talks, followed by a moderated discussion among panelists and the audience. It is associated with the IALE Working Group on Landscape Planning.

**Title:** Landscape solutions to human-wildlife conflict management: Government to grassroots

**Section Format:** Hybrid

**Organizer(s):**

Christine Fürst<sup>1</sup>, Nimisha Srivastava<sup>1</sup> and Ramesh Krishnamurthy<sup>2</sup>

<sup>1</sup> Martin Luther University, Halle, Germany

<sup>2</sup> Wildlife Institute of India, Dehradun, India

**Primary contact:** [christine.fuerst@geo.uni-halle.de](mailto:christine.fuerst@geo.uni-halle.de)

**Sub-Theme:**

**Description**

Increasing fragmentation has resulted in increased interactions between human and wildlife across the world. Such interactions often result in economic losses (in the form of livestock depredation by carnivores, and crop eating by herbivores) and may also pose a potential/real threat to human lives. As a result, negative perception amongst local inhabitants, such as farmers and shepherds reduce their tolerance towards wildlife, hampering the conservation efforts for several species. To resolve the issue, a holistic approach of bridging the policy to grassroots situation at a landscape level is necessary. In our session "Landscape Solutions to human-wildlife conflict management: Government to grassroots", we aim to bring studies that thread together elements of landscape level approach from the grass-roots levels to policy-making scales. The idea of guiding spatial-prioritization for conservation, along with the elements of sustainable landscape-planning to the policy-developers and its implementers is a need of the hour.



**Title:** Equal challenges across equatorial and tropical landscapes: do fire disturbances drive ecosystem degradation or do we need better integrated landscape management?

**Section Format:** Physical

**Organizer(s):** Dolors Armenteras<sup>1</sup>, Tania Marisol Gonzalez<sup>2</sup>, Mike Murray-Hudson<sup>3</sup>

<sup>1</sup> Professor Landscape Ecology, Universidad Nacional de Colombia, Vice-President International Association of Landscape Ecology IALE, Co Chair of Science Panel for the Amazon, Nexus Fulbright Climate Change and Biodiversity Scholar, Member of SPI UNCCD

<sup>2</sup> Assistant professor Landscape Ecology, Pontificia Universidad Javeriana, Bogotá, Colombia. Colombia L'Oreal Women Scientist 2019, Member of Colombia Young Academy of Science

<sup>3</sup> Okavango Research Institute, University of Botswana, Botswana. Member of IPBES

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**Sub theme:** *Drivers of landscape change and sustainability at multiple scales*

### **Description**

The impacts of uncontrolled wildfires are increasingly dramatic all over the world, yet fire has been present in many landscapes as a natural disturbance and has been used traditionally as a tool in land management. Historic and contemporary scientific and technical evidence are still needed to advance in aspects of how to improve its control and use in productive systems, how it impacts biodiversity, how much influence has in water security and sovereignty, among others. On one hand, hydrogeomorphic effects of a wildfire can affect the ability of watersheds to provide drinking water to downstream communities or provide high-quality water to maintain riparian ecosystem health. On the other hand, wildfires affect animal and plants increasing mortality rates or influencing complex ecological interactions such as predator-prey, competence, and behavior. In many countries with limited resources there is an additional critical component and that is the lack of socioeconomic capacity to respond to disasters. This session is designed to provide a space where researchers interested in how fire as a natural disturbance but also as a management tool shape landscapes in tropical countries. Attendees will present, discuss, and exchange ideas on present challenges and brainstorm cross-sector solutions on how to address landscapes fire challenges. We are looking for a session that will foster dialogue between and among different disciplines. We aim to develop an informal network for future south south exchange and collaboration, promote and highlight research of the impacts of wildfires on biodiversity and landscapes to generate knowledge on those areas where lesser studies exist and move towards efficient management and conservation in an increasing flammable world.

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**Title:** Seascape changes and drivers for sustainable resource management

**Section Format:** Hybrid

**Organiser(s):** Gloria Pungetti, University of Sassari, Italy and University of Cambridge, UK

**Primary contact:** [gpungetti@uniss.it](mailto:gpungetti@uniss.it)

**Sub-Theme:** Drivers of landscape change and sustainability at multiple scales

### **Description**

Seascape studies have developed in response to questions arising from composite correlations and different requirements in coastal and marine environments. Apart from ecological and natural values, seascapes are characterised by historical and cultural values of coastal, island and marine ecosystems. Human activity has indeed long contributed to changes in these environments, with surviving traces still visible on the land and underwater. These changes are the basic material for seascape history, the first step towards holistic seascape research.

However, seascapes are dynamic and change rapidly, especially in the last decades, and not always in a sustainable way. This symposium aims to point out drivers of changes, which have been investigated with an innovative biocultural approach useful to support sustainable seascape design and planning, as well as integrated coastal and marine conservation and sustainable development.

Seascapes, besides, have offered in the past, and continue to offer today, not only ecosystem services, but also cultural services, both essential in the view of a sustainable economy and society based on agriculture, aquaculture, fisheries, tourism, tertiary and infrastructural development. The latter involves not only the basic physical facilities, like roads and power supplies needed for territorial and social connection, but also blue and green infrastructures necessary for environmental connectivity. The dynamics of ecological networks and corridors study areas are thus considered in this symposium as strategically planned networks of biocultural changing seascapes, to support future sustainable strategies and resource management.

A few members of a working group in seascape studies, linking nature with culture and theory with practice in different continents, will offer in this symposium examples of changing seascapes, illustrating their research findings as opportunities for future development and conservation at multiple scales. The symposium is open to other scientists, practitioners and governors, as speakers or auditors.

**Title:** The impact of drivers of landscape change on landscape futures

**Section Format:** Hybrid

**Organizer(s):**

- Merham Keleg - Ain Shams University, Egypt; Landscape Research Group, United Kingdom
- Maggie Roe - Newcastle University - Landscape Research Group, United Kingdom
- Tim Waterman - University College London - Landscape Research Group, United Kingdom
- Emma Waterton - University of York - Landscape Research Group, United Kingdom
- Vanesa Castan Broto - The University of Sheffield – Landscape Research Group, United Kingdom

**Primary contact:** [merhamkeleg@eng.asu.edu.eg](mailto:merhamkeleg@eng.asu.edu.eg)

**Sub-Theme:**

**Description:**

In the light of the continuous population increase and rapid urbanization, especially in the global south, accompanied by increasing pressures on natural resources, it is argued that landscape futures are determined and hugely affected by human activities. The gap between nature – human and urban duality is increasing, and it will continue to increase because of the densification of cities, the emerging waves of new cities, the commodification of nature, increasing pollution levels, and the over reliance on technology and indoors entertainment, all leading to the diminishing of nature experiences for people in cities. This will continue to add to the severe diminishing of the human-nature relationship which in return impacts environmentalism, health, and wellbeing among the public as advocated by scholars.

As per Hobbs (1997), landscape ecology and planning should work towards an active role in determining the future of landscapes through increased interaction with policy, planning and management. Otherwise, the discipline would fail to meet or solve the current pressing environmental and social problems (Hobbs, 1997). He proposed a framework for thinking about landscape futures, where he postulated that (1) The future is not somewhere we are going; it is something we are making, and (2) Building paths to the future is easier if we all work together (Hobbs, 1997, pp. 6–7). In accordance, the symposium is inviting submissions that is working on discovering the drivers of landscape changes on the various scales and perceptions by the multiplicity of actors, as a means of understanding the future we are heading to, which would pave the way towards a collaborative and sustainable making of landscape future. The symposium welcomes papers/discussions that seek an in-depth understanding of landscape futures through incorporating different aspects and consequences of environmental changes in relation to global and local efforts and initiatives, public perceptions, everyday messages and

images of future landscapes, various stakeholders, power relations, networks, aims, and ideologies. The symposium is critically questioning the relevance of the various scales when dealing with environmental change. While most environmental debates are discussed, negotiated, and mediated at the global and urban scale, there is a need for a thorough and rich understanding at local levels for a more holistic understanding.

**The symposium is seeking to cover these questions:**

- How to understand the drivers of landscape changes (through the various scales, time dimension, socio-cultural aspects,...etc.)? Frameworks, theories, and case studies are welcomed.
- How are decisions negotiated and implemented for a more sustainable landscape future?
- How are environmental values created among the public in the era of frequent environmental change?
- How do the public (people) perceive environmental change in highly and rapidly urbanized contexts?
- How does public perception of environmental values help in creating a more sustainable future on the various levels?

**Session Outputs:** selected topic will be selected to be published in Landscape Research Journal.

**Title:** Green infrastructure for climate regulation of urban environments: policies, plans and models

**Section Format:** Physical

**Organizer(s):**

Massimo Palme, Universidad Técnica Federico Santa María, Chile

Daniele La Rosa, University of Catania, Italy

Stephan Pauleit, Technische Universität München, Germany

**Primary contact:** [massimo.palme@usm.cl](mailto:massimo.palme@usm.cl)

**Sub-themes:** Managing climate risk in transboundary ecosystems

**Description:**

Over the past decades, intense urbanization processes have produced a severe contraction of green and open spaces in cities, decreasing the potential of urban environments to mitigate the climate changes negative effects of climate changes. Urban heat island and global warming represent hazards for human health and with the increasing urban population, more and more people will be soon exposed to risk of urban heat related illnesses.

Urban energy consumption is predicted to raise worldwide, growing up to 500% in tropical countries and generating an unsustainable snow-ball effect of increasing in outdoor temperatures by final energy dissipation into heat.

Green Infrastructure represents the main provider of ecosystem services in cities and plays a relevant role, among others, in regulating the local microclimate and mitigating the Urban Heat Island effect by different natural processes such as shading, evapotranspiration and wind breaking. However, despite the growing efforts made at international level to develop urban policies focusing on GI, their effective mainstreaming into urban policies, spatial planning and actual deployment on the ground is still limited.

This limited implementation is related to the still limited knowledge among policy makers and practitioners, the lack of binding policies at local scales (i.e. urban scale) and missed or less known recognition of the economic values related to the different services provided.

This symposium aims to discuss the different perspectives of the potential of urban Green Infrastructure to regulate urban climates and welcome inter-disciplinary contributions presenting the state of the art in methods, models, plans and policies proposals to assess and reduce urban heat island. The symposium is envisioned for building and environmental engineers, architects and urban planners, ecologists, urban physicists, and all other scholars interested in the understanding of the entangled complex relations among climate, buildings, and people.

**Title:** Global Change and the Dynamics of African Forest Landscapes

**Section Format:** Physical

**Organizer(s):** Dan Wanyama, Department of Geography and Environmental Sustainability, University of Oklahoma, Norman, Oklahoma, USA.

Michael C. Wimberly, Department of Geography and Environmental Sustainability, University of Oklahoma, Norman, Oklahoma, USA.

Russell Doughty, GeoCarb Project, University of Oklahoma, Norman, Oklahoma, USA.

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**Sub-Theme:**

**Description:**

The forest ecosystems of Africa are highly diverse and distinctive from other tropical regions of the world. In particular, rainfall across much of humid Africa is close to the threshold that can support forest vegetation, making the vegetation highly sensitive to periodic droughts and climate change. African forests are also vulnerable to land use pressures linked to rapidly growing and urbanizing populations. Although wildfires in Africa predominantly occur in drier savannas and grasslands, there is evidence that fires are now encroaching into more humid forested regions where they were previously rare. Despite the global importance of African forests, which make up 20% of the global area of tropical forests, they remain understudied compared to other tropical regions of the world. This symposium will address this gap through presentations and discussions on a variety of topics related to disturbance, productivity, and management in African forest landscapes.

The Organizer(s), Dr. Dan Wanyama, is a Kenyan scientist who has studied montane forests in East Africa as well as tropical forests in West Africa. He will deliver a presentation on the drivers of historical disturbances in Ghanaian forest reserves and their impacts on forest structure. Other participants will include Dr. Mike Wimberly, who will give a presentation on recent changes in fire regimes in African forest and woodland ecosystems, and Dr. Russell Doughty, who will present on the relationships between rainfall and forest productivity in African forests. One or two additional speakers with a focus on forests or woodlands will be selected from the general pool of Descriptions to round out the symposium. We plan to leave time at the end of symposium for a panel discussion to identify key knowledge gaps and directions for future landscape ecology research in African forests.

**Title:** Urbanization and landscape transformation along the rural-urban gradient

**Section Format:** Hybrid

**Organizer(s):**

Vita Bakker - Institute for Environmental Sciences - Vrije Universiteit Amsterdam, Netherlands

Dr. Jasper van Vliet, Institute for environmental sciences, Vrije Universiteit Amsterdam, Netherlands

Dr. Wilfred Ochieng Omollo, Kisii University, Kenya

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**Sub-themes:**

Drivers of landscape change and sustainability at multiple scales

Ecological sustainability in urban landscapes and smart cities

**Description:**

*Urbanization transforms a place demographically, physically, economically, and socially and the place becomes more connected to other places. These transformations alter the landscape and land use along the rural-urban gradient. Therefore, a thorough understanding of all aspects of urbanization is necessary to manage the changes in these landscapes. This session welcomes contributions focusing on the relationship between urbanization and landscape and land use change.*

In the rural-to-urban transition, landscapes change due demographic, physical, economic, social and connectivity transformations. Demographic changes, such as population increase, evoke competition for land resulting in fencing the place and affecting the roaming wildlife. At the same time, physical changes in impervious surface affect urban temperature regimes, water infiltration capacity and soil quality. Furthermore, economic changes, such as the transition from agricultural livelihoods to more industrial and service sector jobs, significantly alter the land use and people's connection to the land. Besides that, urbanization comes with sociocultural changes that result in different consumption patterns of services, food and goods, affecting both landscapes near and distant.

Urbanization of landscapes is ubiquitous, and occurs in metropolises, cities, towns and rural areas. Many studies have focussed on the enormous growth of large metropolises, such as Cairo, Lagos, and Nairobi. Yet, there is increasing evidence that medium-sized cities also experience rapid urbanization, and that similar processes also affect rural landscapes. These processes transform both these settlements themselves and their surrounding areas, which considerably affects food production and the ecology in these areas.

This session welcomes contributions that focus on the rural-to-urban transition of landscapes in all its facets along the rural-urban gradient. These contributions include analyses that touch upon the different aspects of urbanization and their impact to provide an interdisciplinary perspective on the relationship between urbanization processes and landscape change.



**Title:** Promote Ecosystem Services for Sustainable Development Goals

**Section Format:** Virtual/Hybrid

**Organizer(s):**

- Prof. Wenwu Zhao, [zhaoww@bnu.edu.cn](mailto:zhaoww@bnu.edu.cn), Beijing Normal University
- Prof. Paulo Alexandre da Silva, [pereiraub@gmail.com](mailto:pereiraub@gmail.com), Mykolas Romeris University
- Dr. Caichun Yin, [caichun@mail.bnu.edu.cn](mailto:caichun@mail.bnu.edu.cn), Beijing Normal University

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**Sub-Theme:**

**Description:**

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, act as the heart of the 2030 Agenda for Sustainable Development and provide a shared blueprint that incorporates social, economic and environmental dimensions of sustainability. They express the urgent need to end hunger and poverty, improve health and education, promote development and reduce inequality while addressing climate change and land degradation. Embedded in the SDGs agenda, there is a crucial aim to value ecosystem services (ESs) and restore and enhance their integrity and functions. Due to the multifaceted development vision covered by the 17 Goals, achieving the SDGs is an ambitious task that requires multidisciplinary efforts. The ESs that soil provide for agriculture, water conservation, and biodiversity are vital to achieving the SDGs. ESs are the benefits that humans obtain from ecosystems. ESs support human well-being from basic livelihood (e.g., water and food) to higher-level needs (e.g., garden cities and ecotourism), contributing directly or indirectly to SDGs' achievement. ESs are the benefits that humans obtain from ecosystems. ESs support human well-being from basic livelihood (e.g., water and food) to higher-level needs (e.g., garden cities and ecotourism), contributing directly or indirectly to SDGs' achievement. In this session, we welcome multi-disciplinary research to integrate ESs into socio-economic development to promote the SDG achievement. The research on ESs supply and demand, ESs and human wellbeing, Sustainable development evaluation and implementation are also warmly welcome.

The Symposium topic can align well with the following conference sub-themes: Transboundary ecosystems in the Anthropocene; Drivers of landscape change and sustainability at multiple scales.

**References**

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Development Goals in the post-pandemic era. Humanities and Social Sciences Communications 2022,9,258. <https://doi.org/10.1057/s41599-022-01283-5>

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Siqi Yang, Wenwu Zhao, Paulo Pereira. Determinations of environmental factors on interactive soil properties across different land-use types on the Loess Plateau, China. Science of the Total Environment, 2020.<https://doi.org/10.1016/j.scitotenv.2020.140270>

### ***Outcomes of symposium***

We plan to publish a special issue in a scientific journal (Geography and Sustainability, <https://www.sciencedirect.com/journal/geography-and-sustainability>), the special issue title will be: “Promote Ecosystem Services for Sustainable Development Goals”.

**Title:** Co-development of urban NBS in the global south: Challenges, strategies and cases

**Section Format:** Virtual/Hybrid

**Organizer(s):**

Martina van Lierop - Technical University of Munich – Germany

Stephan Pauleit - Technical University of Munich – Germany

**Primary contact:** [martina.van-lierop@tum.de](mailto:martina.van-lierop@tum.de)

**Sub-themes:** Ecological sustainability in urban landscapes and smart cities

**Description:**

Poor planning and rapid urbanization provide a major challenge for environmental sustainability of cities in the global south, which in turn has serious consequences for their liveability and the well-being of their citizens. In Latin America, already more than 80% of the population live in urban areas, while in other parts of the global south, especially Africa, East Asia and South Asia, the urban population is expected to grow increasingly. In the light of climate change and further biodiversity loss, inequality and living conditions for these urban dwellers are likely to worsen.

The concept of nature-based solutions (NBS) has gained increasing interest as a means to mitigate the negative impacts of urbanisation and climate change. To ensure a fair and just urban transformation for all, planning and implementation processes of NBS need to be collaborative and inclusive, with citizen participation, co-production of NBS in living and the involvement of underrepresented and marginalized groups. Yet, the complex socio-political context with its socioeconomic inequalities and weak governance in the global south are still hardly considered in the discussions on co-development processes of urban NBS, while contextualised knowledge supporting practitioners in the global south is still scarce and scattered.

This symposium aims to facilitate a space to present, reflect and discuss on the challenges and opportunities to advance the co-design, co-implement and co-manage NBS on different scales (macro, meso, and micro) in policies and practices of cities in the global south. Speakers are invited to present the lessons learned from detailed cases of collaborative NBS projects and programmes. These case studies enhance understanding how formal and informal procedures as well as short-term interventions and long-term thinking can be skilfully combined to foster NBS. Our interest extends to include co-assessment and co-monitoring of NBS and the related governance processes, as collaborative approaches should be involved across the whole spectrum of a planning process. We in particular welcome insights on innovative strategies to promote procedural and recognition justice in complex socio-political contexts in which marginal groups are given a voice and power imbalances are countervailed. The symposium is organised by the Horizon 2020 project CONEXUS.

**Title:** Improving landscape sustainability and resilience to climate extremes and external shocks across the urban-rural continuum

**Section Format:** Physical

**Organizer(s):**

Organizers: Peilei Fan (Michigan State University),

Jiquan Chen (Michigan State University),

Jianguo (Jingle) Wu (Arizona State University)

**Primary contact:** [fanpeile@msu.edu](mailto:fanpeile@msu.edu)

**Sub-Theme:**

**Description:**

As the world has entered to an urban era with more than half of its population settling in cities, landscape scholars, planners, and policy makers need to better understand what have driven the evolution of landscape sustainability, particularly when we are challenged by climate change and other external shocks. This symposium invites landscape ecologists around the world to examine a variety of processes that transformed global landscapes across the urban-rural continuum (URC), particularly understudied forcings, such as institutional, cultural, religious, and social factors. We aim at advancing the fundamental concept, principles, and methods in understanding the global variations and dynamics of URCs. We will orchestrate leading scholars through this symposium and share the essential lessons they have learned from case studies of different regions with planners and decision makers so that landscapes can become more resilient to severe disturbances such as climate extremes and other external shocks (geopolitical events, financial crises, pandemic, etc.), aiming at a better living experience and environment for all. Depending on the interests and discussion among the workshop participants, a special issue on a credible journal will be organized to promote this scientific topic.

**Title:** Informal Settlements and Urban Landscape Change in the Global South

**Section Format:** Hybrid

**Organizer(s):**

Christine Fürst - Martin Luther University, Halle, Germany

Benjamin Nyarko - University of Cape Coast, Ghana

Yazidhi Bamutaze - Makerere University, Kampala, Uganda

Henry Bulley - BMCC, The City University of New York, USA

Monika Kuffer, University of Twente (ITC), The Netherlands

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**Sub-Themes:**

Drivers of landscape change and sustainability at multiple scales

Ecological sustainability in urban landscapes and smart cities

Building resilience and security: Food security, water security, and livelihoods

**Description:**

Population growth in the Global South already outpace the developed countries, with African emerging as one of the fastest urbanizing regions of the world. Given that more than 68 percent of the world's population projected to live in urban areas by 2050, it is of vital importance to understand how the increasing number and precarious locations of informal settlements (slums) within cities and peri-urban areas. A complex combination of rural-urban population pressure, coupled with problematic urban planning frameworks often culminate in diffused urbanization. This this is manifested in incongruent built urbanization process through both extensification (lateral expansion of urban areas into many rural lands) and densification (uncoordinated self-organizing settlements in the urban core) thereby creating to haphazard urban development. Climate change projections of intense rainfall and major floods, as well as recurrent drought have major implications on the people who live in informal settlements most of which are often located in environmentally sensitive areas.

This symposium is an outgrowth of a Belmont Forum transdisciplinary project, DREAMS ([\*Developing REsilient African cities and their urban environMent facing the pro-vision of essential urban SDGs\*](#)). Presentations from Africa, Latin America and Asia are welcome, and we seek presentations that address how Informal settlements affects landscape change dynamics in urban areas in the Global South. In particular, we seek to explore the influences of climate change on these interactions within the context on achieving Sustainable Development Goals in the developing countries of the Global South.

**Title:** Impacts of armed conflicts on landscapes

**Section format:** Hybrid

**Organizer(s):**

Alexander Prishchepov - University of Copenhagen, Denmark

Lina Eklund - Lund University Sweden

Matthias Baumann - Humboldt University of Berlin, Germany,

Jamon Van Den Hoek - Oregon State University, USA

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**Description:**

Armed conflicts, their duration, intensity, but also locational characteristics may negatively impact landscapes and change their functioning through socio-ecological interaction, resulting in the degradation of landscapes. The diversity in pace and locations of armed conflicts provides room for thought. Also, many land-use transitions following armed conflicts are non-linear and extra efforts are needed to understand common implications of armed conflicts on land systems, duration of degradation or post-conflict recovery, and system shifts associated with landscapes affected by armed conflicts.

The session aims to address key knowledge gaps regarding (a) the systematic mapping of conflict-related land-use land-cover changes, and (b) the identification of causal linkages between conflict outbreaks and land-use land-cover change. The session serves as a platform to discuss the challenges in measuring the implications of armed conflicts in various forms on landscapes.

**We welcome presentations on:**

- Case and synthesis studies on implications of armed conflicts on landscapes
- Evaluation of the processes of resilience, degradation and recovery following armed conflicts
- Interaction of social unrest and political changes, environmental changes and armed conflicts and their impacts on land systems
- Methodological frameworks, and case studies with novel data sets, to evaluate the implications of armed conflicts on landscapes
- Historical land-use legacies of past armed conflicts on contemporary landscapes.

We welcome both quantitative and qualitative studies evaluating armed conflicts' implications on landscapes, including ecological, social and interdisciplinary studies. This session contributes to the activity of IALE and the Global Land Program.