

Title of the symposium:

Reconstructing past landscapes to simulate future sustainable scenarios through multidisciplinary approaches.

Detail of organizer(s):

Responsible

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Co-organizer

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Symposium abstract

Land degradation driven by rapid expansion and unsustainable management of croplands and grazing lands worldwide is leading to loss of biodiversity and ecosystem services – e.g. food security, water purification, the provision of energy etc. According to the recent IPBES Assessment Report on Land Degradation and Restoration, this ongoing process is undermining the well-being of up to two fifths of humanity, driving species extinctions and intensifying climate change impacts, and has reached ‘critical’ levels in many parts of the world. Landscape ecology enquiry contributes to future sustainability objectives by providing tools for understanding past human-nature dynamics and building future sustainable landscape.

In this symposium we aim at encouraging the debate on multidisciplinary frameworks to explore multi-spatial and multi-temporal scales landscape dynamics in the Anthropocene, in particular by linking knowledge from the past with future planning. We will present the case study of East Africa including perspectives from paleoecology, archeology, landscape modeling, participatory appraisal, and scenario analysis.

In the first session of the symposium (3 talks) we will present frameworks to investigate past landscape dynamics (e.g. paleoecological and archeological archives) and we aim to discuss best practices for integration of appropriate range of disciplines through more holistic approaches that go beyond just multidisciplinary team that comes together. Understanding

spatial and temporal patterns of human-nature interactions is essential for landscape sustainability research and practice. Tackling both spatial and temporal scale require multidisciplinary approaches that address the complex interactions between biophysical and socio-economic factors (e.g. including paleoecology, archaeology, sociology, ecology and geoscience). Additionally, integrating appropriate range of disciplines towards addressing challenges is important because it provides a balance between fostering human well-being (e.g. material goods) and nature conservation. Unsustainable natural resources management is largely driven by significantly low uptake of adaptation/conservation practices. Narratives that arise from dissemination and scientific communication are crucial to modifying the values, rules, and knowledge held by the public, stakeholders, and policy makers.

In the second session of the symposium (3 talks) we will present novel frameworks to engage stakeholders in envisioning future landscapes that can contribute to decision-making and planning. We will focus on approaches that combine qualitative with quantitative and spatially explicit methods, and on linkages between the local landscape and the global phenomena that affect it (e.g. international policy or global climate change) and are affected by the landscape (e.g. ecosystem services flow).

Developing a dialogue with mixed groups of stakeholders to connect scientific evidence and traditional knowledge in local landscapes can lead to a better understanding of the long-term social-ecological dynamics and the drivers that have shaped the landscape over time and to the envisioning of future sustainable landscapes. On the one hand, the culture of people who live in the landscape (local stakeholders) as well as others who depend on or have an interest in its resources and functions (regional to global tele-coupled stakeholders) is fundamental to identify problems and solutions that undermine or support landscape functions. On the other hand, designing sustainable solutions for the future implies an understanding of physical patterns of landscape multifunctionality that societies value and so requires spatially explicit approaches.

The two sessions will be followed by an interactive session for discussing on challenges and opportunities of the proposed approach, building a community of practice and collaborative actions (ca. 30').

How your symposia will improve landscape ecology science?

The symposium will contribute to deepen knowledge and foster collaborations on the integration of landscape ecology with other disciplines to achieve a better understanding of human-nature dynamics in the Anthropocene, and so inform planning and decision-making for future sustainable landscape.

Specifically, the symposium will contribute to:

- 1) Better understanding of changes in landscape functions over time and consequent human societies coping and adaptation to natural changes or human-induced landscape changes;

2) Approaches for enhancing local communities capacity for deciding more sustainable pathways and for recognizing the implications for sustainability at global and regional scale levels.

3) Approaches of addressing trade-offs in balancing national economic development with landscape functioning, particularly in rangelands in developing countries that are characterised by high rainfall variability, rapid expansion and intensification of agriculture and high poverty levels.

4) Integration of evidences from multiple disciplines/approaches to overcome challenges of data collection/harmonization, as well as modeling to reconstruct past landscapes and simulate future scenario landscape.

Broad thematic areas

Broad thematic areas 1st choice: History, dynamic and transformations of landscapes

Broad thematic areas 2st choice: Future: scenarios and new landscapes

Outcomes of symposium

Special issue in a scientific journal (to be negotiated)