6th ESP Europe Conference

18-22 May 2026 | Prague, Czechia

SESSION DESCRIPTION

ID: T14a

Mountain landscapes and ecosystem services: resilience, challenges, and solutions

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Abstract:

Mountain landscapes, particularly forested regions, are vital socio-ecological systems that provide essential ecosystem services supporting both upland and lowland communities. Covering nearly 27% of the Earth's land surface, these ecosystems supply a wide range of benefits – from wood and non-wood forest products, freshwater, and hydrological regulation to biodiversity conservation, carbon storage, recreation, and cultural values. Their influence extends far beyond their rugged slopes, nurturing life, livelihoods, and cultural heritage.

However, mountain ecosystems are increasingly challenged by profound environmental and socio-economic transformations. Climate change, altered disturbance regimes, shifting land use, depopulation, disrupted forest-value chains, weak governance systems, and insufficient investment are undermining their resilience and functionality. The rapid pace of climate change in particular threatens to outstrip ecosystems' adaptive capacity, amplifying risks such as floods, landslides, and wildfires, while diminishing the flow of critical ecosystem services.

This session explores how mountain regions can better cope with these mounting challenges by understanding and strengthening the intricate connections between people, communities, and nature. We will examine trade-offs and synergies among ecosystem services, focusing on innovative management, restoration, and governance strategies that enhance resilience and adaptive capacity across mountain landscapes. Special attention will be given to:

1. Managing and restoring mountain forests under changing climate and disturbance regimes to sustain and enhance the flow of ecosystem services;
2. Reconciling competing demands-such as timber production, wildfire risk reduction, biodiversity conservation, recreation, water regulation, and social well-being-through context-sensitive planning, governance innovation, and policy co-design; and
3. Building resilience through participatory approaches that integrate traditional knowledge, scientific insights, and stakeholder collaboration.

Using an interactive, cross-disciplinary format (including World Café discussions), the session will bring together researchers, practitioners, administrators, and policy makers from diverse fields: ecology, forestry, agriculture, economics, geography, and social sciences to exchange knowledge and identify actionable solutions. By fostering dialogue across sectors and scales, this session aims to advance the governance and operationalization of nature-based solutions, strengthen the resilience of mountain socio-ecological systems, and contribute to Europe's ambition for a nature- and people-positive future.

Goals and objectives of the session:

We expect contributions particularly focused on:

- Modelling, mapping and simulation tools, techniques, approaches and frameworks mainly oriented to simulate trade-offs and synergies among conflicting ecosystem services (e.g. timber provision vs. biodiversity conservation) in mountain forested landscapes in Europe, especially in areas / regions under rapidly changing environmental conditions
- Implementing, testing and demonstrating sites showing the effectiveness of nature-based solutions, and climate-smart / biodiversity-smart forestry practices in addressing mountain forests' resilience and adaptation to enhance their beneficial role (i.e. goods and services provision)
- Innovative, trans-disciplinary, comprehensive, multi-scalar studies / research activities targeting the assessment of the suitability / viability of restoration and rewilding strategies / practices in re-establishing the mountain forests' functionality and associated ecosystem services flow, with a specific focus on actions at landscape / watershed scale
- Trans-boundary governance and policy recommendations that empower forests' benefits in European mountains, while balancing environmental, economic and social sustainability. Emphasis is given to unlocking the potential of co-designed and participatory planning, climate and biodiversity finance, innovative and business models for sustainable productions and consumptions throughout the forest-value chain
- Future research directions and operational guidelines in management and planning to empower place-based innovation for a nature- and people-positive mountain forest governance

Planned output / Deliverables:

Upon acceptance, we will propose a dedicated Special Issue to peer-reviewed, indexed and impacting journals in the following fields: ecology, agriculture and forestry, planning, land use policy

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Session format:

40-minute presentations (10 minutes each) + 2-3 presentations in PechaKucha format (15-20 min) + World Cafe discussion for 25-30 min and final discussion for 10 min

Voluntary contributions accepted:

Yes, I allow any abstract to be submitted to my session for review

Related to ESP Working Group:

TWG 14 - Application of ES in Planning & Management