

### Title of the symposium 59:

Understanding the capacity of Landscape connectivity and ecosystem integrity to supply multiple ecosystem services: insights into sustainable landscapes

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## Symposium abstract

Landscape connectivity is a multi-scalar concept allowing the study of how the interaction between species movement abilities and landscape structure affects species survival, gene flow and other key ecological processes in fragmented landscapes. Functional connectivity quantification necessitates also the consideration of the impacts and constraints imposed by the increasing rates of landscape and environmental change, which are ultimately driven by socioeconomic factors and are likely to continue putting more pressures on both managed and natural landscapes. Moreover, landscape connectivity including green and blue (GBI) infrastructures supports multiple ecosystem services. But still the relationships between ecosystem integrity and the capacity of GBI to supply multiple ecosystem services remain vague.

Landscape connectivity is an essential characteristic to maintain species long term viability and ecological integrity. Also, it needs to preserve ecosystem values while maintaining the multifunctionality of the landscape in order to meet the demands of the population. In this sense, it is vital to characterize in detail the functional and structural aspects of ecosystems to provide a conceptual framework for assessing the impact of human activity on biological systems and to identify impacts and practical consequences on ecosystem services stemming from this framework. Thus, connectivity is nowadays an important concern in almost any modern conservation plan around the globe. The challenge of these conservation plans is to identify the spatial scale(s) and key landscape elements needed to maintain or restore connectivity and ultimately ecological integrity. To meet these challenges operational methods are needed to monitor species viability and ecosystem diversity, but also support planning tools. They also need to convincingly demonstrate the effectiveness and benefits of connectivity investments as compared to other competing conservation alternatives. In this context, we welcome presentations considering integrated approaches offering synergies and new capabilities for connectivity conservation planning that should allow to monitor ecosystem integrity and the capacity to support multiple ecosystem services.

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### Why your symposium will improve landscape ecology science?

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Landscape connectivity research still needs a compelled significant interdisciplinary collaboration, not only among researchers but also involving stakeholders and planners. Maintaining landscape connectivity is an essential aspect of landscape management for biodiversity and a step forward towards ecological integrity and sustainable landscapes. Nowadays we can assess GBI and the interplay with the capacity to supply ecosystem services (ES) for a given region. But still operational methods are needed to assess the availability of GBI in tandem with the ES capacity. Innovative integrative approaches are needed in natural and human-modified systems to maintain landscape connectivity and integrity at the scale of the interaction between the organisms, the landscapes and the people. We need to consider and implement connectivity recommendations carefully in each landscape plan by adequately selecting the most appropriate approaches, methods and input data

for the analysis. Hence experience, further advances in research, and monitoring efforts will allow to improve our understanding and refine how to support, maintain and manage sustainable landscapes.

This session will allow discussion while sharing interdisciplinary experiences. We aim at a wide range of authors working on various complex systems in different regions of the world. We do believe that within this topic still key research questions remain open for future collaborative efforts

### **Broad thematic areas**

1-Green and blue infrastructures, 2-Landscape ecosystems functions and services, 3- Ecosystem services,4- Biodiversity conservation

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### **Free Keywords**

Biodiversity conservation, Landscape modelling, Landscape planning, GBI capacity, multiple ecosystem services, ecosystem integrity, fragmentation, planning