

### Title of the symposium:

Multiple roles for landscape ecology in future farming systems

### Detail of organizer(s):

#### Responsible

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### Co-organizer(s)

#### Co-organizer

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#### Symposium abstract

Agriculture is one of the oldest human uses for the land having transitioned through several revolutions to shape what it is today. Current farming systems face new pressures, with mounting social, environmental and economic challenges as we progress through the 21st century. Climate change will alter the prevalence and capacity of farming and forestry across regions; it is likely that flooding and drought events will increase in frequency and water quality and quantity will become increasingly problematic. Additionally biodiversity is declining; biosecurity threats abound; market influences are changing; and there are heightened concerns around the relationship between animal protein and human health contributing to a shift from pastoral economies to meat-free futures. There is also growing public intolerance for the cumulated environmental impacts from the agricultural sector requiring a need to adopt more of a social licence to operate into the future. This is all set in a framework where there is a need to feed a growing global population putting pressure on marginal and previously unproductive land to be considered for production or intensification. The future confronting agriculture is one in which the problems are not

neatly defined or bounded, but rather they are multi-faceted, transdisciplinary and unpredictable. The implications for the landscapes in which current and future farming systems sit are equally uncertain as some face de-intensification whilst others further intensification. To minimise socio-economic and environmental impacts the necessary course of action is to adopt approaches to land management that enable future landscapes to support livelihoods and increase production whilst maintaining the valuable ecosystem goods and services required for sustainability. Recognising that the livelihoods supported and production carried out may be very different to what has occurred before and the resultant landscapes may take on a different form and appearance. To respond to the challenges transdisciplinary research is needed to imagine new futures and pathways for achieving new farm systems set within sustainable landscapes. This means new or adapted production systems being carried out in multi-functional landscapes designed for maximum environmental as well as economic outcomes and value and 'buy in' from rural communities to be part of the new systems. Landscape ecology to date has suggested improved management strategies to facilitate preservation of important landscape structure and function in agricultural landscapes. As an evolving discipline, it also has been increasingly focusing on the socio-economic aspects of landscapes. Given this, it would seem pertinent at a conference focusing on 'Nature and society facing the Anthropocene' to ask what can landscape ecology contribute in response to challenges facing agricultural change, and give further currency and credibility to its pursuit of being a science addressing landscape sustainability by contributing to new sustainable farming systems. Landscape ecology is strategically placed to be able to contribute significantly towards various aspects of the required landscape and societal transformation. It should be able to provide appropriate tools, approaches and frameworks that can facilitate the planning, design and advice required to help work towards the creation of future farming systems that meet societal needs, respond to the environmental challenges and that can sit within sustainable landscapes. The aim of this symposium is to explore this contribution and to flesh out the evolving roles for landscape ecology. The symposium will cover environmental impacts and considerations for a broad spectrum of landscapes ranging from ones under intensive farm production to those where development has yet to occur, and will explore how landscape ecology can assist in the transformative change required to the socio-economic systems of rural areas.

### **How your symposia will improve landscape ecology science?**

Landscape ecology is a young science that is still evolving. It has been evolving since its inception and continues to evolve in response to the challenges that face landscapes and the people that reside within them. Through its early focus on landscape pattern and habitat fragmentation caused by productive landscapes, landscape ecology has a long association to agriculture and farming systems. However, this association has largely been one of focusing on restoration and trying to improve already degraded landscapes.

Landscape ecology arose out of a need to address these problems. To date it has not had much opportunity to work in a more constructive sense and actually play a role in creating landscapes. With agriculture now on the brink of what could be described as yet another revolution, farming practices and systems are set to change with new implications for landscapes and the communities residing in them. The holistic and multidisciplinary nature of landscape ecology science positions it well to be ready to not only address the challenges but also to give advice on how to plan, design, modify and develop new landscapes with best environmental, economic and social outcomes in mind. This symposium will add to the body of knowledge required in landscape ecology science to move the discipline to an appropriate stage ready to work closely with, and appropriately inform, an agricultural sector facing difficult challenges – the most significant challenge being an ability to increase food production in the face of market and climatic variability whilst reducing environmental impact. This symposium will identify roles, quantify the priorities for landscape ecology science and help to develop a research agenda that can support farming systems and rural communities through the transformative change that is required.

### **Broad thematic areas**

Broad thematic areas 1st choice: Future: scenarios and new landscapes

Broad thematic areas 2st choice: Socio-economic-ecological systems

### **Free Keywords**

Agricultural landscapes, sustainable landscapes and livelihoods, landscape planning and design, dynamic systems

### **Outcomes of symposium**

Special issue in a scientific journal (to be negotiated)