

Title of the symposium:

Land-use legacies and forest change: understanding the past to forecast the future

Detail of organizer(s):

Responsible

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Co-organizer

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Symposium abstract

The ecological importance of land-use legacy effects has become widely recognized, and there are many examples where reconstruction of historical land use has proved instrumental for developing an in-depth understanding of contemporary landscape dynamics. However, it remains challenging to assess the implications of historical land-use processes for how a given landscape may respond to future environmental change. In the case of forest landscapes, for example, it is often not well understood under what conditions particular types of historical land-use will reduce or increase sensitivity to global climate change drivers. Our era has been defined as the Anthropocene because it is strongly determined by a significant human impact on the Earth's ecosystems and even geology. The legacy of human impact on forest landscapes can persist over long time scales (decades to centuries). Management for forest landscapes that are resilient to global environmental change requires a nuanced approach incorporating land use history effects in studies of landscape dynamics, including projections of future forest landscape change.

Our symposium will focus on how forest landscape history, arising from past land use, constrains and shapes the future forest response to disturbance, management, and global change. The symposium will be structured with a mix of talks from around the world, to fill a diverse session that encompasses both modeling and empirical approaches to understanding how landscape change in future is strongly dependent upon historical land-use legacies. Although our session will have a focus on forests, we also encourage talks that explore the implications of land-use legacy for non-forested systems, as well as for landscape mosaics that incorporate multiple vegetation types. Finally, we hope to include talks that consider land-use legacies over a range of time spans, including from prehistoric times using paleoecological approaches, as well as from historical times.

How your symposia will improve landscape ecology science?

The symposium “Land-use legacies and forest change: understanding the past to forecast the future” emphasizes the important influences of past human activities on present and future forest landscape dynamics. Ecologists commonly focus their attention on “natural” ecosystems, in which the ecological pattern and process under study is not disturbed by any kind of fuzziness introduced by human activities. However, in several parts of the world the effects of repeated human action have resulted in cultural landscapes that are predominantly defined by the anthropogenic disturbance regime. Historical land uses shape current landscape structure and constrain future ecological processes, resulting in human-modified forest ecosystems that are complex and challenging to study. Historical human influences are difficult to measure and historical data are often scarce, fragmentary or unreliable.

It is now well accepted within the discipline of landscape ecology that land-use legacy effects are pervasive and need to be incorporated into the investigation of contemporary landscape patterns and processes. Our symposium will include empirical and modeling research projects in which a variety of metrics of human impact have been tested and applied to different forest landscapes around the world. The knowledge of new metrics and the implementation of long-term monitoring programs will facilitate to disentangle the interacting effects of climate, natural disturbances and land-use on forest cultural landscapes. Cultural landscapes are complex mosaics characterized by a greater diversity of forest structural types than may otherwise be found in less human disturbed systems. The management of cultural landscapes is a particularly challenging issue in many parts of the world where heavy historical human impact has been followed by a general abandonment. The various papers comprising our symposium include studies that are diverse in time scale, methodological approach, and geographical region. Taken together, these case studies provide a comprehensive survey of the state-of-the-art in using reconstructions of historical land-use to refine our understanding and predictive capacity with regard to future landscape change.

Broad thematic areas

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

Broad thematic areas 2st choice: Disturbances in landscapes

Free Keywords

Historical Ecology, Landscape change, Land-use, Disturbance Ecology

Outcomes of symposium

Special issue in a scientific journal (to be negotiated)