Resilience and the Cultural Landscape

Understanding and Managing Change in Human-Shaped Environments

All over the world, efforts are being made to preserve landscapes facing fundamental change as a consequence of widespread agricultural intensification, land abandonment and urbanisation. The 'cultural landscape' and 'resilience' approaches have, until now, been viewed largely as distinct frameworks for understanding the effects of these dynamics and the ways in which they might be adapted or managed. This book brings together these two perspectives, providing new insights into the social–ecological resilience of cultural landscapes by coming to terms with, and challenging, the concepts of driving forces, thresholds, adaptive cycles and adaptive management.

By linking these research communities, this book develops a new perspective on landscape changes. Based on firm conceptual contributions and rich case studies from Europe, the Americas and Australia, it will appeal to anyone interested in analysing and managing change in human-shaped environments in the context of sustainability.

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Preface

We are living in an era in which human action has developed to be the main driver of global environmental change – the geological epoch of the anthropocene. One-third of terrestrial net primary production[1] is now consumed by humans, and the material equivalent of about one and a half planets is claimed to support human activities. Planetary boundaries to irreversible climate change, biodiversity loss and changes to the global nitrogen cycle have already been transgressed. The terrestrial biosphere has been fundamentally restructured for agriculture and forestry, so that more than four-fifths of the Earth's land surface is now human dominated.

The overall harmful consequences of humanity's influence on global ecosystems in past decades are beyond doubt. However, the prevailing view on human–environment relationships is often overgeneralised. The conceptual framework of the Millennium Ecosystem Assessment exemplifies an understanding of humans that degrade ecosystems, while their well-being critically depends on a sustained delivery of ecosystem services. As true as this perspective is, reducing humans to degrading agents and/or consumers of ecosystem services loses sight of the myriads of cases throughout the world in which land use systems and practices have shaped valued cultural landscapes, which effectively integrate ecology, economics and cultural needs. Fortunately, the idea of cultural landscapes has recently gained ground in science, policy and land use practice. For example, the notion entered the circles around the Convention on Biological Diversity, which now acknowledges that people have developed and sustainably managed outstanding landscapes over a long period. Examples for cultural landscapes that enhance both biodiversity and human well-being include the rice terrace landscapes of the Philippines, extensively used mountain grasslands in the European Alps and the dehesa agroforestry landscapes on the Iberian Peninsula.

Many of these cultural landscapes have experienced rapid and fundamental changes over the past decades: traditional practices characterised by small

spatial scales; mixed cultures; low capital, nutrient and energy inputs; and multiple ecosystem services have been abandoned and replaced by standardised and simplified land uses. These changes have had severe effects on ecosystem services and human well-being. Typical trade-offs involve increases in commodity provisioning services at the cost of regulating, cultural and supporting services. Further, loss of historically grown, regionalised land management practices implies a loss of traditional knowledge systems, which are known to increase a society's capacity to deal with crises and to maintain resource flows in changing and uncertain conditions. Therefore, efforts are being made all over the world to preserve the regional diversity and value of cultural landscapes and their underlying land use practices while, at the same time, seeking to guide landscape changes into sustainable pathways.

The fluid and unfixed character of land uses and landscapes – a result of complex and closely interwoven natural and human processes – can be brought into line with the concept of resilience. From this perspective, social–ecological systems such as landscapes are capable of coping with disturbances (e.g. in the case of cultural landscapes, demographic or economic changes), without changing their structure or functions, until they cross certain thresholds. Beyond these thresholds, however, disturbances cannot be cushioned any more and the system shifts to a different state, often accompanied by a degradation of ecosystem services. Thus far, very few studies have integrated the approaches of, and existing knowledge on, resilience and cultural landscapes.

Building on empirical cases from Europe, but also considering studies from Africa, the Americas and Australia, this book aims to generate or enhance insights into the social–ecological resilience of cultural landscapes. Integrating shared aspects of the case studies, the book develops a thematically focused and coherent outline of resilience and cultural landscapes. In particular, it questions what the resilience toolbox can contribute to the understanding of landscape change. Reciprocally, it asks how the notion of cultural landscape may advance the resilience approach. The contributions are grouped into four parts and around several topics related to the resilience and landscape theme.

Part I reveals theoretical insights into conceptualising human-shaped environments as social–ecological systems and/or cultural landscapes. After the introduction (Chapter 1), a theoretically informed approach to cultural landscapes studies follows, discussing the role of landscape interventions (planning, management and protection) and how these might influence thresholds of landscape change (Chapter 2). Chapter 3 addresses the conceptual history of the cultural landscape and resilience approaches, revealing the normative assumptions behind both concepts and pointing to potential linkages between them. Chapter 4 explores the human–nature relationship in the literature on

landscapes and resilience. Further, potential tensions between the spatial dimension of the landscape and the ecosystem approaches are scrutinised (Chapter 5). Chapter 6 concludes this section with a comparison between resilience and political ecology as theoretical frameworks for understanding the emergence, endurance and decline of land use practices and systems.

Part II illustrates, via a number of regional case studies, how land use change can be analysed from a landscape and resilience perspective. Which fast- and slow-moving variables are the most important drivers of landscape change at various spatial and temporal scales (Chapter 7)? How are cultural landscapes analysed as complex adaptive systems (Chapter 8)? To what extent do path dependencies influence the resilience of landscapes (Chapter 9)? How does the adaptive cycle help in understanding landscape change (Chapter 10)? What regime shifts and corresponding thresholds can be identified for cultural landscapes (Chapter 11)?

In Part III, contributions address issues of landscape management for resilience. How do collective efforts of social networks contribute to the management of landscapes (Chapter 12)? How can the analysis of stakeholders' response strategies to disturbances (coping, adaptation or transformation) act as a tool for addressing resilience in landscape management (Chapter 13)? With a specific view on ecosystem services, how do traditional land use practices contribute to resilience (Chapter 14)? How do social networks and low-input land management support adaptation to conditions of continuous and/or rapid change (Chapter 15)? Can resilience and political ecology be combined to guide land management and land use (Chapter 16)?

Part IV synthesises the main findings of the book. Chapter 17 proposes to abandon 'academia as usual' in the analysis and management of landscape change and, instead, to apply a heterarchy of theoretical, conceptual and methodological tools for preparing a resilient future. Chapter 18 elaborates on the lessons that cultural landscapes research offers for the resilience approach. Finally, Chapter 19 draws conclusions on the possibilities and benefits of linking resilience and landscape research and highlights perspectives for science and practice.

The book's core contributions were commissioned for the workshop *Social–Ecological Resilience of Cultural Landscapes* that took place from 15–16 June, 2010 in Berlin (Germany), organised by the interdisciplinary research group on ecosystem services at the Berlin–Brandenburg Academy of Sciences and Humanities (BBAW). Both the workshop and this book have been made possible thanks to the financial support of the Social–Ecological Research Programme of the German Ministry of Education and Research (BMBF). Since 1999, this programme has supported a broad range of research projects that develop strategies for solving societal sustainability issues. It explicitly builds on cooperation

between natural and social scientists and involves stakeholders beyond the scientific realm. This has been an extraordinarily fruitful environment for our work. Cambridge University Press has published groundbreaking books on the topic of resilience and cultural landscapes. We are proud that this book follows in the line of seminal works such as *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience* (Berkes & Folke, Cambridge, UK: Cambridge University Press, 1998) and *The Cultural Landscape: Past, Present and Future* (Birks *et al.*, Cambridge, UK: Cambridge University Press, 1988).

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Note

1. The net amount of solar energy converted to plant organic matter through photosynthesis.