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978-1-107-02078-8 - Resilience and the Cultural Landscape: Understanding and Managing Change in  
Human-Shaped Environments

Edited by Tobias Plieninger and Claudia Bieling

Excerpt

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PART I CONCEPTUALISING LANDSCAPES  
AS SOCIAL–ECOLOGICAL SYSTEMS

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**1**

## Connecting cultural landscapes to resilience

TOBIAS PLIENINGER AND CLAUDIA BIELING

### Two views on values and changes of cultural landscapes

First-time visitors are fascinated by the traditional dehesa landscapes of Extremadura, the remote southwestern part of Spain (Figure 1.1). Gently rolling hills provide spectacular views of seemingly endless and undisturbed landscapes and wildlife. Globally threatened bird and mammal species such as the Spanish imperial eagle or the Iberian lynx strive over and through this landscape. Shepherds guide their flocks from winter to summer pastures, following historic routes of transhumance often over hundreds of kilometres. Local landraces of sheep, cattle and pigs; scenic stone walls; historic farm estates; ancient oak trees and other traditional landscape elements remind Northern Europeans and Americans of the losses in values that their native landscapes have suffered. All this is not a natural landscape feature, but the result of a ‘10 000 years love story’ between man and nature, as Blondel (2006) notes. The dehesa, which combines livestock husbandry, crop cultivation and management of Holm oaks and Cork oaks in an agroforestry system, is perfectly adapted to the local resource constraints imposed by the rough environmental conditions of a dry Mediterranean climate and shallow, acidic and nutrient-poor soils. Dehesas are described as the material expression of people having shaped their local landscapes in a sustainable way. It is hardly surprising that the dehesa landscape has become the embodiment of a traditional cultural landscape of high nature value in conservation policy and practice, but also in the general public.

Similarly, the landscape of the Black Forest mountain range in southern Germany is an area where man and nature have co-evolved over centuries in a harmonic way. A mosaic of deep forests and flower-spotted grassland, together with impressive traditional farmhouses in a mountain setting, make up the

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**Figure 1.1.** The dehesa of southwestern Spain is a man-made, savanna-like landscape, renowned both for its biological and cultural values. Photo: D. Hilbers.



**Figure 1.2.** A valley in the Black Forest, Germany, with a typical mosaic of farmyards, scattered trees, semi-natural grassland and forest. Photo: C. Bieling.

essential elements of what locals and tourists from all over the world value as an outstanding cultural landscape (Figure 1.2). Because of its rugged geomorphology ranging from 200–1500 m asl (above sea level) within a distance of a few kilometres, the region is very diverse; in the foothills gentle vineyards and

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orchards shape the character, whereas the highest mountains are covered by subalpine vegetation. Faced with, in the greatest part, steep slopes as well as relatively harsh climatic conditions, farmers developed a variety of particular land use practices and forms of social organisation. For example, commonly managed pastures in the southern part of the Black Forest express one strategy of coping with limited and difficult to access grazing resources. Farmers rear the Hinterwälder cattle breed that is smaller than other breeds and, thus, is adapted to steep slopes. Two radically different ways of inheriting land and different farmhouse styles also show human adaptation to the specific conditions of the area. In turn, all these efforts of making the best out of difficult surroundings shape the natural conditions and the overall character of the Black Forest, resulting in both a rich cultural and natural diversity. These landscape values have been acknowledged for a long time. For instance, with the Feldberg peak area, the Black Forest comprises the federal state's first and largest nature reserve, established in 1937. The region is also one of the oldest and most renowned tourist destinations in Germany.

In the past decades, the dehesa landscapes have been exposed to fundamental and rapid changes. Where site conditions allowed, the traditionally multi-functional land use system was simplified and intensified. Many multiple land uses and management practices have ceased; for example, crop cultivation interrupted by extensive fallow periods, firewood and charcoal production, fattening pigs with acorns (pannage) and stone wall building and maintenance. Instead, grazing pressure of cattle and sheep has increased strongly, which has often involved the failure of oaks to regenerate in sufficient numbers. Self-sufficiency of many farms was given up, when local ecosystem services were substituted with farm machinery, supplementary feed, fertiliser and agrochemical inputs from outside. On the more marginal sites, especially in the mountain ranges, farmers abandoned their land so that forests and shrublands encroached and biodiversity and landscape values declined. Many villages lost more than 50% of their population after the 1970s. In consequence of agricultural intensification and land abandonment, many traditional landscape and land use features (e.g. long-distance livestock movements from summer to winter pasture and back (Oteros-Rozas *et al.*, Chapter 14)) and the related localised ecological knowledge have been lost.

The Black Forest likewise experienced major changes. Farming in the Black Forest seems unable to compete on a more and more globalised market for agricultural commodities, and farmers can subsist no longer on their own products. Consequently, numerous farms have been abandoned or turned into part-time enterprises that complement an – usually dominating – off-farm economic activity of the owner. Although especially the central parts of the

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Black Forest face depopulation, it is often possible to stay in the region and commute to a job in the adjacent lowlands, in the Rhine river plains, for example. Many farmhouses remain well tended by the original owner's family. Others are sold and used as second homes by urbanites – a hidden aspect of urbanisation, which takes place mainly in the fast growing villages and cities stretching into the Black Forest foothills. Changes in the agricultural sector are most dramatically reflected by the expansion of forests taking over grassland that is no longer grazed by livestock. The loss of the mosaic of forests and grassland is both bemoaned by the local population and tourists and increasingly taken up by policy makers. The traditional landscape character disappears. More specifically, rare species on marginal grassland as well as familiar and highly estimated landscape views are lost. Sometimes, local climate changes when expanding forests alter airflows. At the same time, wind farming as a new land use is gaining importance in the Black Forest, which frequently provokes conflicts with the preservation of scenic beauty.

However, it turns out to be too simplistic to idealise traditional cultural landscapes and to conserve them in their traditional shape, as a closer look at the *dehesas* and the Black Forest reveals striking inconsistencies. We learn that the traditional *dehesa* landscape has not been there for millennia, but is of rather recent origin, dating back to the Enlightenment of the eighteenth and nineteenth centuries, when common wastelands were privatised, subdivided and converted into *dehesa* estates (Grove & Rackham, 2001). Some oak parklands are as recent as from the 1950s (Plieninger, 2006). The image darkens when we consider that the traditional *dehesa* system was built on massive social injustice from its very beginning, with the prevailing division of land into large private estates (*latifundios*) and often absentee landowners critically depending upon the exploitation of a large number of badly paid labourers. Rather than intact relationships between man and nature, the *dehesas* therefore epitomised hunger and misery in rural communities and represented the primary reason for conflicts in social life and agricultural geography in southern Spain over most of their history (López-Ontiveros, 1978).

In addition, the mosaic of forests and grassland deemed typical for the Black Forest is more a snapshot than a long-lasting situation. In the past centuries, the region dramatically changed its face at least twice. When human civilisation entered the Black Forest in the Middle Ages, people found it largely covered by dense forests. Some centuries later, at the beginning of the nineteenth century, excessive uses in many areas had left almost no forests. Indeed, many of the traditional land use practices, for instance local expressions of slash-and-burn agriculture (*Reutfeldwirtschaft*), had induced massive resource degradation and, thus, were not at all in line with the notion of a harmonic relationship between

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man and nature. Moreover, for most of the times, living in the Black Forest was far from experiencing a fulfilling life in a beautiful surrounding. Living from the land implied extremely hard work, but often it was impossible to acquire enough to meet even the basic needs. For instance, to set up a separate family remained reserved for only few children in a farmer family. Consequently, the Black Forest was a hot spot of emigration.

Dehesas and the Black Forest differ vastly in land use history, stakeholder perspectives, landscape values, economic realities and policy frameworks. However, they also exhibit many key issues of cultural landscape change, which are the subject of this book. Both the park-like dehesas of Extremadura and the forest–grassland landscape of the Black Forest originated from a long-lasting, comprehensive and spatially extensive human land use history. This has created both tangible and intangible landscape values. Both landscapes increasingly experience processes of globalisation that manifest themselves in intensification–extensification and urbanisation–depopulation dichotomies. Loss of landscape character and standardisation follows these trends both in Extremadura and the Black Forest. However, both cases also illustrate that we tend to simplify our view on traditional cultural landscapes. It is often overlooked that the traditional landscapes perceived today as a long-term continuum have experienced far-reaching transformations, often before industrialisation and subsequent human impacts on the environment (Renes, 2011). Many valuable traditional landscapes are, by far, not as ancient as commonly perceived, as exemplified by the dehesas, which were an eighteenth and nineteenth century intensification compared to previously practised land uses. Furthermore, many of the traditional landscapes that are cherished today have come into existence through severe landscape intervention and remodelling (e.g. traditional vineyard terraces), unsustainable and degrading management practices (e.g. litter removal from forests) and/or social injustice (e.g. latifundism).

### Challenges to cultural landscapes

According to UNESCO (2008), cultural landscapes represent the ‘combined works of nature and of man’ and are illustrative of the evolution of human society and settlement over time. They are influenced by the physical constraints and/or opportunities presented by their natural environment and by successive social, economic and cultural forces, both external and internal (Rössler, 2006). The European Landscape Convention (ELC) (Council of Europe, 2000) has defined landscapes as ‘an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’.

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Over millennia, people and their activities have shaped and sculpted landscapes with a distinctly human touch. Given the long-lasting, comprehensive and spatially expansive human land use history on Earth, most of the whole land surface is considered anthropogenic landscape, marked by different stages of influence that have been overlaid, refined, or replaced each other. People and land have become inseparable, with the latter now being considered worthy of protection as such (Figueroa & Aronson, 2006). A result of these interactions has been the gradual development of heterogeneous, multifunctional cultural landscapes in which long-established practices sustain a range of ecosystem services and elevated levels of biodiversity (Jones-Walters, 2008; Krzywinski, 2009). Among their many important values and functions, cultural landscapes are, in particular, appreciated for allowing sustainable use of natural resources; serving as wildlife habitats; providing economic benefits, scenery and open spaces; and possessing cultural heritage (Pretty, 2011).

Landscapes are stamped by sometimes gradual, sometimes rapid reorganisations of the environment in order to adapt their uses and spatial structure better to changing societal demands (Antrop, 2005). Hence, dynamic interactions between natural and cultural forces have brought about constant change throughout history (Dannebeck *et al.*, 2009). However, the speed, scale and magnitude of landscape and ecosystem change in the past 50 to 60 years have been unprecedented (Jansen *et al.*, 2009; MA, 2005). Powerful drivers such as globalisation, agricultural expansion and intensification, land abandonment and urbanisation have impacted on many cultural landscapes. Further, forces designed to respond to global environmental challenges have developed into landscape shaping forces themselves; for example, the establishment of a world-wide network of protected areas or the rapid development of renewable energy supply. Some of these key issues that characterise landscape change will be reviewed, using examples from the case studies displayed in this book. Many if not most of the sketched processes of landscape change are not mutually exclusive, but overlapping and partly reinforcing in a particular landscape. For example, globalisation, agricultural intensification and the rise of renewable energies are closely interlinked.

*Globalisation of landscapes*

As landscapes are increasingly dominated by events and decisions from distant locations, global interconnectedness has become a highly influential phenomenon driving cultural landscape change. Globalisation shapes landscapes through spread of technology, investment in land, information flows, migration patterns and, in particular, increased international commerce and trade. Primdahl and Swaffield (2010) have identified two disparate and partially



counteracting globalisation policy agendas that act upon landscapes: (1) a neo-liberal market agenda that aims to open global markets for agricultural production and in which decision-making is detached from sites of production and determined mainly by financial interest; (2) a sustainability agenda (including the Convention on Biological Diversity and the Framework Convention on Climate Change) that aims to conserve resources, ecosystems and cultural values for future generations and which is typically implemented at national and local levels. Increase and decrease of agricultural production and population patterns are directly related to globalisation processes. For example, global food companies, by promising foreign exchange earnings, have introduced industrial prawn agriculture on Mafia Island, Tanzania, with subsequent processes of social dislocation and ecosystem services degradation (Beymer-Farris *et al.*, Chapter 16). Globalised land connections, commodity markets, labour movements and political action have also stamped Caribbean sugar-cane plantations since the colonial era, as the case study by Found and Berbés-Blázquez (Chapter 10) illustrates.

*Landscapes of agricultural intensification and expansion*

Transitions towards more productive agriculture (either by intensification or expansion of agricultural land uses) have been intricately related to economic development worldwide (DeFries *et al.*, 2004). Directly influencing between 28% and 37% of the global land area (Porter *et al.*, 2009), agricultural production is a most decisive determinant of many cultural landscapes. Most productivity increases in agriculture have brought forward a marked decline of the diversity and complexity of localised farming systems, with a standardisation of crop varieties and livestock breeds, a sharp increase of mechanisation, an intensification of matter inputs and farm specialisation and an increase in farm sizes (IAASTD, 2009). Simplified landscape structure, losses of semi-natural habitats and biodiversity, increased water use, degraded water quality, reduced forest cover, loss of forest products, or release of greenhouse gases are consequences at landscape level (MA, 2005). Pressures to optimise crop productivity have triggered agricultural intensification particularly in the more productive landscapes, such as coastal and river lowlands, wetlands and fertile plains, while cropland expansion affects more marginal areas of the world. For example, agricultural intensification was a major force of recent landscape transformation in southern Burgundy, France (Crumley, Chapter 17). Rescia *et al.* (Chapter 8) find that large-scale land purchase through timber and agricultural companies has expanded intensive and commercial cultivation of cotton, corn and soybean crops in Argentina's Formosa Province, which has been accompanied by extensive deforestation of native forests.

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*Marginalised and abandoned landscapes*

In many remote and mountainous areas of developed countries, where unfavourable soils, slopes, climatic factors, political barriers and obstacles to transportation and distribution have prevented intensification, agriculture has been – and still is – in decline, and land has often been abandoned. Land abandonment is driven mostly by socioeconomic factors such as immigration into areas where new economic opportunities are offered to rural people, but also by ecological determinants (e.g. elevation) or by land mismanagement leading to soil erosion (Rey Benayas *et al.*, 2007). Land abandonment affects landscapes profoundly – but the environmental effects are not always negative – for example, by decreasing soil erosion, increasing carbon sequestration and allowing biodiversity to recover (Baumann *et al.*, 2011). In cultural landscapes, however, it may threaten local ecological knowledge, cultural identities and biodiversity values that are associated with semi-natural ecosystems and traditional land use practices (MacDonald *et al.*, 2000). For instance, Oteros-Rozas *et al.* (Chapter 14) study how traditional livestock movements (transhumance) shaped cultural landscapes in central Spain and state that considerable loss of ecosystem services and increased vulnerability of landscapes accompany the decline of these movements.

*Landscapes of urbanisation and land consumption*

Cities, towns and traffic infrastructures have expanded across many landscapes (Vos & Klijn, 2000). Urbanisation, the process of transforming rural or natural landscapes into urban and industrial ones (Antrop, 2000), has grown almost exponentially since the end of the nineteenth century, when, among others, new modes of transportation were introduced. In the landscape, urbanisation takes the form of commuter settlements, recreational facilities, urban building styles, motorways, power lines, etc. This impacts on landscapes both by land consumption and by fragmentation. Efforts to limit urban sprawl have proven unsuccessful in most developed countries thus far. At the same time, the social values of vernacular urban and peri-urban landscapes have been rediscovered by landscape scholars (Qviström, 2007; Vejre *et al.*, 2010). Stenseke *et al.* (Chapter 5) show that built infrastructure is expanding not only in urban areas, but – in the form of roads, tourism facilities and secondary homes – also comprehensively affects rural landscapes.

*Landscapes of renewable power*

Landscapes in the twenty-first century experience increasing competition for land uses, which entail new actor groups and management practices (Le Dû-Blayo, 2011). One major new agent in global land use is the renewable