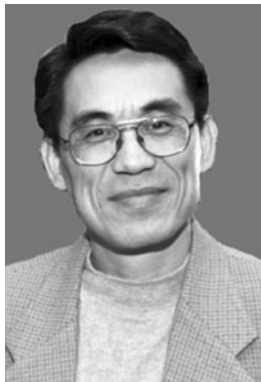


# Landscape of culture and culture of landscape: does landscape ecology need culture?

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Received: 5 August 2010 / Accepted: 7 August 2010 / Published online: 18 August 2010  
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The objects of study in landscape ecology become increasingly “cultural.” Humans now appropriate about 24% the Earth’s terrestrial net primary productivity (Haberl et al. 2007), and almost all ecosystems and landscapes around the world have been influenced or even “domesticated” by humans

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(Kareiva et al. 2007). Landscapes are endowed with, and continue to foster the development of, cultures, legacies, and stories. Landscape ecology needs to incorporate the different dimensions of landscapes, especially those concerning human–environmental relationships. However, the cultural dimension of landscapes has been neither adequately studied nor considered “mainstream” in contemporary landscape ecology. To move forward, we need to develop a deeper understanding of cultural landscapes, and connect culture with nature more consciously and more effectively in landscape ecological research.

## Cultural landscapes—what are they?

The term “cultural landscape” has been a fundamental concept in geography, and was first defined as “landscape modified by human activity” by the German geographer Friedrich Ratzel in the 1890s (Jones 2003). The term was introduced to English-speaking countries in the 1920s by the American geographer Carl O. Sauer who, in his seminal book, stated:

The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural are the medium, the cultural landscape is the result (Sauer 1925).

Since the 1960s, the concept of cultural landscape has been widely used in human geography,

anthropology, environmental management, and other related fields. A major burst of interest in cultural landscapes took place in the early 1990s—“the rise of cultural landscapes” (Jacques 1995). One of the major factors that contributed to the recent popularity of the term on a global scale was the adoption of cultural landscapes in the International Convention for the Protection of the World’s Cultural and Natural Heritage (often referred to as the World Heritage Convention) by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1992. The World Heritage Convention was established in 1972 to recognize and protect the world’s natural and cultural heritage of “outstanding universal value,” and in 1992 it became the first international legal instrument to recognize and protect cultural landscapes (UNESCO 1996).

Three categories of cultural landscapes are included in the World Heritage Convention: (1) “clearly defined landscapes designed and created intentionally by humans” which include mainly garden and parkland landscapes, (2) “organically evolved landscapes” resulting from successive interactions between local people and their natural environment (including “relict” and “continuing” landscapes), and (3) “associative cultural landscapes” that have powerful religious, artistic or cultural associations of the natural element (UNESCO 1996). These categories cover landscapes that are profoundly transformed by human actions (designed and created landscapes) and those that carry significant cultural values primarily in an intangible way (associative cultural landscapes). This implies that culture and nature are not mutually exclusive, and that cultural landscapes do not have to be entirely human-created.

However, the degree of human modification or “fashioning” beyond which a natural landscape should be regarded as a cultural landscape is subjective, and has been a point of debate and a source of confusion. On one hand, cultural landscapes have often referred only to agricultural or rural landscapes that occur between the natural and urban landscapes (Jones 2003). For example, Plachter (1995) advocated a “functional definition” that includes only landscapes in which culture and nature have mutually shaped one another and still do, with modern metropolitan landscapes excluded explicitly. On the other hand, the term has also been used to

include all landscapes that are influenced by human activities and human values (Jones 2003). As a result, some have questioned the usefulness of the term based on the argument that landscapes untouched by humans no longer exist in reality. For instance, Phillips (1998) argued that “Since there are cultural aspects to practically every landscape on earth, it follows that practically all landscapes are cultural landscapes.”

One conclusion from such argument is to abandon the term altogether. However, this does not have to be the case. As Rowntree (1996) stated, “This etymological elusiveness [of cultural landscape] is both a liability and asset; to some, the notion of cultural landscape is an appropriate bridge between space and society, culture and environment, while to others its definitional fluidity weakens the concept and disqualifies it from serious analytical usage.” Indeed, this dialectical, rather than binary, property characterizes many terms that are essential to landscape ecology, including patch, disturbance, resilience, sustainability, and the word of “landscape” itself.

The concept of cultural landscape is useful and effective especially when it is used in the context of a landscape modification gradient. With increasing anthropogenic influences in the biosphere, the nature that we used to know is now composed mainly of habitat islands which are still being encroached by waves of human land uses. A unique and critically important characteristic of the landscape approach in ecological research and practice is its explicit emphasis on the configuration and function of the entire landscape mosaic that contains gradients of different kinds—multi-scaled ecotones and ecosystems with different degrees of human modification. Given the fragmented world today, this landscape mosaic and gradient conceptualization is crucial for future success in biodiversity conservation, ecosystem management, and sustainable development (Wu 2006, 2008, 2010; Opdam 2007; Wiens 2009).

### **Connecting culture with nature in landscape ecology—more consciously and effectively**

A landscape is not merely a geographic space as it has contents, not merely a container as it shapes and is shaped by what it contains, and not merely a human-modified environment as it is a holistic system

in which nature and culture co-evolve. The division between culture and nature, or between people and place is often based on human perception rather than reality. While such division is useful and even necessary in some cases, any artificial separation of constituents without a holistic unifying framework may obstruct a genuine understanding of complex adaptive systems such as landscapes.

In general, landscape ecologists have paid much more attention to the biophysical than cultural aspects of landscapes. In order to understand and improve the relationship between spatial pattern and ecological processes, however, culture and nature (or people and place) in landscapes must be considered simultaneously. Geography has a long history of studying human–environment relationships, and a number of perspectives have been developed, reflecting varying degrees of affinity to either natural sciences or humanities (Turner II 1997). This line of research certainly provides a number of valuable lessons for landscape ecology.

To be sure, the cultural dimension of landscapes has never been completely ignored in landscape ecological research; in fact, it has always been a part of landscape ecology since its inception. Naveh (1982, 1995, 1998) has repeatedly stressed the importance of cultural landscapes, suggesting that cultural landscapes should encompass all landscapes created and modified by humans. Forman and Godron (1986) stated that

To understand why a landscape looks as it does, ... we must also understand human influences and culture. ... In a landscape with people, the human role and the role of nature may be alternatively emphasized but cannot be disentangled.

Tress et al. (2001) pointed out that the separation between nature and culture in landscape research “is counter-productive and must be overcome since all landscapes are multidimensional and multifunctional.” However, Nassauer (1995) noted that “Research in landscape ecology has not focused on culture despite its centrality to the field.” To move forward, she suggested that “We must formulate ecological questions by considering cultural possibilities, and we must formulate cultural questions by considering ecological processes” (Nassauer 1997).

Landscape ecology has evidenced a rapid increase in research emphasis on the integration between the culture and nature of landscapes in recent years. A fundamental reason for this surge of interest is the realization, increasingly shared by landscape ecologists around the world, that the world has been on an unsustainable trajectory particularly since the Industrial Revolution and that landscape ecology can, and must, contribute to regional and global sustainability (Wu 2006, 2010; Naveh 2007; Fu et al. 2008; Barrett et al. 2009; Musacchio 2009).

To achieve its transdisciplinary goals, landscape ecology need to reconnect culture with nature and unite people with place in theory and practice. A landscape gradient approach seems helpful to facilitate this integration. Landscape gradients can be constructed in a number of different ways (McDonnell and Hahs 2008). Two general approaches are relevant to the case in point. The first is the landscape modification gradient approach which reflects the increasing human influences on the structure and function of landscapes (Forman and Godron 1986): natural–managed–cultivated–suburban–urban landscapes. The second is the “regenerative capacities-based” approach that classifies landscapes according to their energy inputs and self-organizing and regenerative capacities through the photosynthetic conversion of solar energy (Naveh 1998): (1) “solar-powered” semi-natural and managed landscapes, (2) “intensive agro-industrial” landscapes, and (3) “technosphere” landscapes. Based on such landscape gradients, different cultural landscapes can be compared, idiosyncratic studies can be synthesized, and our understanding of landscape sustainability can be improved.

No single perspective is sufficient to understanding human–environment relationships, and pluralistic approaches are needed to effectively bridge research cores of different perspectives (Turner II 1997; Wu 2006). Difference is not deficiency; diversity is not divergence. Collaborations between natural and social sciences, which are designed to synthesize and integrate diverse perspectives, are crucial. Landscape ecology can gain much from transdisciplinary collaborations with social sciences such as human geography and design sciences such as landscape architecture and engineering (Wu 2008, 2010; Musacchio 2009; Opdam et al. 2009). A stronger emphasis on the cultural dimension will make

landscape ecology even more relevant to sustainability.

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