The Cultural Landscape as a Model for the Integration of Ecology and Economics

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Human society and nature are the two main forces that shape landscape structure and drive landscape-level processes. Because two-thirds of the terrestrial surface of the planet is covered by agricultural land, livestock grazing areas, and managed forests, human activities clearly play an important role in creating landscapes. A significant fraction of the earth’s biodiversity survives in these human-influenced landscapes, which in many cases can be considered to be “cultural landscapes” that represent a fundamental storehouse of the earth’s natural and cultural capital.

Cultural landscapes are geographic areas in which the relationships between human activity and the environment have created ecological, socioeconomic, and cultural patterns and feedback mechanisms that govern the presence, distribution, and abundance of species assemblages. There are many types of cultural landscapes, but all are historically dependent on initial landscape conditions and on the culture of a given time. Paradigms developed by the field of landscape ecology can be used to explain the ecological relevance of cultural landscapes and their capacity to inform and guide other human activities, especially in the economic sphere (Naveh 1998b).

During the last two decades, economic globalization has produced new driving forces and disturbance regimes that have in turn transformed landscapes around the globe, making them increasingly prone to the risks of rapid resource depletion and biological impoverishment (di Castri 1998, Naveh 1998a). The growing concern about the state of the planet has revealed the ecological importance of feedback mechanisms acting in cultural landscapes, where human and environmental processes interact.

In this article, I describe cultural landscapes and the main processes connecting human and natural realms. I argue that cultural landscapes provide ecologists and economists with a powerful model for understanding the integration of ecology and economics. Such new models are necessary for ecological investigations and innovative management strategies in a world that is dominated by economic globalization.

Structural complexity of cultural landscapes

Substantial parts of cultural landscapes are heterogeneous agricultural areas, in which crop planting and management decisions are based mainly on interactions among soil characteristics, microclimates, and economic convenience. In a cultural landscape, cultivation is the basic activity controlling the size and spatial arrangement of fields and forest remnants. Water fluxes are preserved and soil nutrient cycles are optimized by the presence of hedgerows functioning as ecotones and buffers. Wind action is reduced by tree planting. Terracing of steep slopes provides flat, arable land while maintaining slope stability, decreasing rates of soil erosion, and reducing water and nutrient losses. Remnants of natural open and forested patches provide connectivity for animal assemblages. The “geometric” order exhibited by a cultural landscape reflects the sequence of human actions regulated by seasonal, phenological, and economic cycles.

A cultural landscape is hierarchically organized in micro-units (ecotopes, sensu Zonneveld 1995), which form the structural basis (i.e., the grain) of the cultural landscape. The successive aggregation of these microsystems (mesochores, macrochores, and megachores, sensu Zonneveld 1995) creates the complex landscape that is observed at scales of meters to kilometers. For instance, across western Europe the first level of this hierarchy is represented by the single- or multi-family farm. The intermediate level is represented by farm aggregations of larger properties or by parishes (religious aggregations). The highest level of organization is represented by geographic area, such as watershed, mountain range, intermountain basin, or river delta, in which the human activities take place.

Functional complexity in cultural landscapes

The complexity of the cultural landscape is expressed in three main components: natural, cultural, and economic (see box page 315). Natural complexity is largely represented by forest remnants and by animal assemblages that find suitable seasonal habitats in such forest remnants (Farina 1997). Cultural complexity is intimately linked to the diverse human use of resources and to a wide spectrum of ethical and religious beliefs about land use (Figure 1a). Economic complexity is linked to the diversified use of local resources. Local, seasonally limited resources force local economies to diversify so that they will be sustain-

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