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The Economic Geography of Ecosystem Goods and Services

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Chapter 5

THE ECONOMIC GEOGRAPHY OF ECOSYSTEM GOODS AND SERVICES

Revealing the monetary value of landscapes through transfer methods and Geographic Information Systems

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1. INTRODUCTION

The goods and services provided by natural and cultural landscapes are critical to the functioning of the earth's life support systems. They also contribute significantly to human welfare, both directly and indirectly, and therefore represent a significant portion of the total economic value of the landscapes we live in. While there are many ways that humans can value landscapes – economic, spiritual, and cultural – the ability to estimate the *economic* value of the ecosystem goods and services provided by them is increasingly recognized as a necessary condition for integrated environmental decision-making, sustainable business practice and land-use planning at multiple geographic scales and socio-political levels of analysis – global, national, regional and local[1]. By definition, ecosystem goods and services represent the benefits that humans derive from naturally functioning ecological systems (Costanza et. al., 1997; De Groot; Wilson & Boumans, 2002). As we move into the 21st

[1] See "People and Ecosystems: A Framework for Assessment and Decision-Making" (2003) available at the *Millennium Ecosystem Assessment* website: http://www.millenniumassessment.org

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century, it is clear that better information about the economic benefits that ecosystem goods and services provide for humans is needed by government, business and civil society to more effectively manage our environmental resources in a sustainable manner.

Protecting natural and cultural landscapes is important for non-economic, ecological and even spiritual reasons. The economic valuation of such landscapes is therefore not presented here as an *alternative* to democratic environmental decision making – economic valuation does not, and cannot replace open value-oriented dialogue among concerned stakeholders (Jacobs, 1997). Rather, economic valuation is presented as a complimentary approach, one that explicitly takes into account the simple reality that many day-to-day land use decisions are based on market economics. Landowners, business leaders and local politicians are influenced by land prices as well as property tax assessments, which value land based on its "highest and best" economic use. Similarly, local, state and national governments often weigh the economic costs and benefits of infrastructure development against environmental protection, while policy makers evaluate the tradeoffs between competing stakeholder demands in the marketplace.

Communities must often choose between competing uses of the natural environment and the myriad of goods and services provided by healthy, functioning landscapes. Should this forest be cleared to provide new land for development, or should it be maintained in its current state to serve as wildlife habitat? Should that wetland be drained and converted to agriculture or should more wetland area be created to provide freshwater filtration services? Should this coral reef be mined for building materials and the production of lime, mortar and cement, or should it be sustained to provide renewable seafood products and recreational opportunities?

To choose among these competing alternatives, it is important to know not only what ecosystem goods and services will be affected, but also what they are actually worth to different members of society. When confronting decisions that pit different ecosystem services against one another, politicians and decision makers cannot escape making social choices based on human values: when one alternative is chosen over another, that choice indicates which alternative is deemed to be worth more than others. In short, '*we cannot avoid the valuation issue, because as long as we are forced to make choices, we are doing valuation'* (Costanza & Folke, 1997; p. 50). The challenge is therefore to make the linkages between landscapes and values as explicit and transparent as possible.

For any financial market to act efficiently, both theory and common sense tell us that the transaction costs and benefits associated with trades need to be made transparent to buyers and sellers; if the market is not transparent, inefficiencies arise because people make uninformed choices leading to irrational decisions (Shiller, 2000). Analogously, when we make tradeoffs between alternative ecosystem goods and services, the best available information is needed to avoid systematic biases in our decisions. Yet, today many of the social and ecological costs of development – degradation of water quality, siltation of rivers and streams, increasing levels of air pollution – are simply left out of the tradeoffs accompanying land use decisions. To correct this inadequacy, citizens, business leaders and government decision makers

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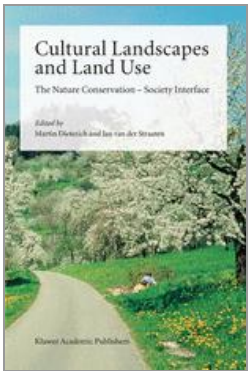
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