

FOREWORD

For the past 20 years, I have spent considerable time evaluating the impact that agriculture production has on environmental quality. Our view of this research and the outcomes was to evaluate how different management systems would impact different environmental endpoints. As the laboratory director of the USDA-Agricultural Research Services National Laboratory for Agriculture and the Environment, I have had not only the responsibility for developing research teams to address these problems but also the personal satisfaction of conducting research on agricultural systems and environmental quality that has fostered a foundation for the ecosystem management.

At the beginning of this century, a whole new series of questions began to emerge when we were asked to quantify not only how much each of the different management practices affected a particular environmental endpoint but also the potential value of these endpoints on the environment. The value assessment has broadened from the concentration of a particular chemical in soil, water, or air, to the monetary value of these constituents. This was the beginning of a whole new series of requests in which the value of environmental components was to be considered as part of the evaluation process. The emergence of the consideration of the ecosystem as part of the agricultural systems was not something that had been part of the vocabulary within the research community. The development of a terminology that describes ecosystem services has created a completely new view of how we merge the ecosystem. We now freely talk about water quality trading, carbon credits, cap and trade, wildlife habitat, ecotourism, and social aspects of landscapes although there is not a common structure of how we view the values of these components. *EcoCommerce 101* provides such a framework, not only for how we value these ecosystem services but for the process through which we quantify this value. This effort can be summarized in the following statement from the beginning of this book. “EcoCommerce is more significant than a compilation or organization of ecoservice markets as it provides the framework to build an ecological intelligence system that allows the public arena of commerce to define sustainability.” This is a unique feature because what has been

lacking in the discussions of ecosystems or their monetary value has been a framework from which the value could be evaluated.

More and more we are examining the links among the monetary value of ecosystems. This book focuses on agricultural systems and their value, bringing the concepts into play in an area in which ecosystem services need to be understood from an economic perspective. There should be a series of questions in everyone's mind: What is the value of soil? What is the value of ton of carbon? What is the value of clean water? We frame these questions but lack a rigorous framework from which to develop a measure of the values. An interesting aspect of this book is the illustration of the role of conservation practices and their monetary value through the history of the Soil Conservation Service extending into the current Natural Resource Conservation Service. Working through this example provides insights into the foundation of EcoCommerce. Producers and landowners have received payments for various conservation practices, and, with the development of a broader set of ecosystem services, there will continue to be questions about the value of these services. This book will be a valuable asset to anyone who wants to understand how this economy will emerge and to anyone who wants to ask the critical questions about the process used to derive the value. There will continue to be expanded discussions on the economic value of ecosystem services, and this book will have value for undergraduates and graduate students to understand how economic services will be generated from components of the ecosystem. However, the greatest value for this book is for those policymakers and traders who will be the driving force in the development of policies and practices associated with ecosystem services. This group will benefit from understanding the complexity of this process because, through this understanding, there will be a more consistent development of the processes used to value ecosystems.

We are moving into a whole new ecosystem structure in which there are both physical and economic values to ecosystem components. What is the value of clean water and the practices that will have to be implemented to garner this value as parts of a viable EcoCommerce? What will be the interaction between soil management practices that sequester carbon or reduce greenhouse gas emissions and the role of these practices as part of the economic structure to value carbon? These are only a couple of the questions that are emerging and ones that we are going to have to answer to develop a strong ecological-based economy. We are all going to have to become conversant in a whole new set of terms in which ecosystem services have monetary value and will enter into the trading picture. For us who have spent a lot of energy investigating the physical, chemical, and biological basis for environmental impacts of different practices, there is

a new set of parameters, which will include the economic value of these environmental impacts. If we are to continue to serve the world by which we are entrusted to be good stewards, then we will have to understand all of the dimensions of sustainable systems, which can only come through understanding the economic value. Those who understand these dynamics will emerge as the leaders in sustainable ecosystems. The challenge will be there, and we need to be ready to evaluate these programs and be able to offer our insights into these dynamics. The question that you can answer from this book is: How will EcoCommerce be developed and how will it function?

Jerry L. Hatfield
Laboratory Director
National Laboratory for Agriculture and the Environment
Ames, Iowa