
Preface

Traditionally, natural resources have been often managed using information collected from small scales, resulting in variable and limited success. To improve these results, many scientists and natural resource managers have recognized the need to adopt a large-scale approach to natural resource management, using the concepts, principles, and methods of landscape ecology. At the same time, many landscape ecologists have also realized that further development of landscape ecology will benefit from better connections with resource management issues. However, as is often the case between academic and non-academic worlds, landscape ecologists and natural resource managers historically have not communicated well. Landscape ecologists often do research without regard to the needs for natural resource management, and managers often do not know how to apply landscape ecology to managing natural resources.

To facilitate the communication between landscape ecologists and natural resource managers, we hosted the 13th annual conference of the US Regional Association of the International Association for Landscape Ecology (US-IALE) on the campus of Michigan State University in 1998. The conference's theme was "Applications of landscape ecology in natural resource management." Clearly, this theme of linking landscape ecology with natural resource management reflected the desire of many others, as more than 500 landscape ecologists and natural resource managers from around the world participated in the conference (the largest number ever to attend a US-IALE annual meeting). The conference was a huge success, but we were urged by many attendees to produce a book expanding upon the ideas presented at the conference, reaching a larger audience, and promoting further communication and collaboration between the landscape ecology and natural resource management communities.

Such impetus and urging from the conference attendees motivated us to edit this book that addresses the gaps and linkages between landscape ecology and natural resource management.

The specific objectives of this book are to: (1) introduce fundamental concepts, principles, and methods of landscape ecology; (2) provide practical information for natural resource managers to use; and (3) offer suggestions for landscape ecologists to carry out research relevant to natural resource management. To accomplish these objectives, this book offers a critical review of past management practices, synthesizes existing information, introduces innovative ideas, presents a large number of case studies, and provides many insightful guidelines and "rules of thumb" for managing natural resources from a landscape perspective. Furthermore, we have designed this book to closely link each major component of landscape ecology to a natural resource management paradigm (i.e., "Landscape structure and multi-scale management," "Landscape function and cross-boundary management," "Landscape change and adaptive management," and "Landscape integrity and integrated management"). To highlight these links, we have chosen a wide range of landscape types (e.g., forested, agricultural, urban, grassland, and aquatic), a diverse set of resources (e.g., land, forests, wildlife, fish, plants, insects, and water), and various management issues (e.g., biodiversity conservation, land use, timber harvesting, fishing, and wildlife management).

This book has been written for a very diverse audience, including landscape ecologists, natural resource managers, conservation biologists, social scientists, non-government organizations, policy-makers, graduate students, and advanced undergraduate students. It will also be helpful as a supplemental text for many graduate and undergraduate courses, such as Landscape Ecology, Natural Resource Management, and Conservation Biology.

We were fortunate that more than 100 landscape ecologists and natural resource managers had enthusiastically participated in this book endeavor, either as contributors (59) or as reviewers (53). To ensure the highest quality possible and the appropriate coverage of perspectives from both landscape ecologists and natural resource managers, two to four experts from both academic institutions and management agencies reviewed each chapter. Thus, it is fair to say that the completion of this book is an excellent example of close collaboration between landscape ecologists and natural resource managers. We hope that this teamwork will continue, and that this book will help to cement the bond between landscape ecology and natural resource management. Ultimately, by doing so, we can better manage the world's natural resources in a sustainable manner.

Jianguo Liu
William W. Taylor