Key Topics in Landscape Ecology, W. Jianguo, R.J. Hobbs (Eds.). Cambridge University Press, Cambridge, UK (2007). 297 pp., ISBN: 9780521616447

Key Topics in Landscape Ecology, edited by Jianguo Wu and Richard J. Hobbs, provides in-depth reviews of the principles and methods for studying landscape patterns and changes, with examples of novel applications. The editors bring together leading scientists from the field to synthesize recent major advances, identify key research problems, and suggest future directions for landscape ecology and enhancement of the field's identity.

This book is based on the selected presentations at the 2003 World Congress of International Association of Landscape Ecology (IALE) symposium entitled "Key Issues and Research Priorities in Landscape Ecology" held in Darwin, Australia in July 2003 with additional invited contributions. The symposium was a follow-up in the sequence of a special session entitled "Top 10 List for Landscape Ecology in the Twenty-First Century" at the 16th Annual Symposium of US-IALE at Arizona State University, Tempe, Arizona in 2001.

In the background of this book, the editors note that, despite tremendous progress in theory and practice in the field of landscape ecology, the diversification of ideas and approaches in landscape ecology has caused confusion among landscape ecologists. What is the identity or scientific core of landscape ecology? How should landscape ecologists solidify the interdisciplinarity or transdisciplinarity of landscape ecology? While all landscape ecologists seem to agree that landscape ecology should be interdisciplinary and transdisciplinary, little consensus can be found in terms of precise meaning and the way to achieve.

Based on the "Top 10 List" symposium, the editors condensed broad landscape ecology subjects into six key issues: (1) interdisciplinarity or transdisciplinarity, (2) integration between basic research and applications, (3) conceptual and theoretical development, (4) education and training, (5) international scholarly communication and collaborations, and (6) outreach and communication with the public and decision makers. They also identified priority research topics that define the fundamental core of the field and developmental fronts: (1) ecological flows in landscape mosaics, (2) causes, processes, and consequences of land use and land cover change, (3) nonlinear dynamics and landscape complexity, (4) scaling, (5) methodological development, (6) relating landscape metrics to ecological processes, (7) integrating humans and their activities into landscape ecology, (8) optimization of landscape pattern, (9) landscape conservation and sustainability, and (10) data acquisition and accuracy assessment (Wu and Hobbs, 2002). The chapters in this book collectively cover most of these issues and research areas. The subject matter varies from questions regarding the collection and analysis of data to the broader application of landscape ecology in complex social–ecological systems in interdisciplinary and transdisciplinary settings.

Today, the most widely used definition of landscape ecology in North America is the study of the relationship between spatial pattern and ecological processes over a range of scales. Several chapters in this book address a series of key issues focusing on the interrelationship among spatial pattern, ecological processes, patch dynamics, and neutral landscape models. Li and Wu, in Chapter 3, critically assessed the current status of landscape pattern analysis (LPA) and reviewed the assumptions, behaviors, and limitations of LPA methods, then provided guidelines for the effective application of landscape pattern analysis in terms of method selection, implementation, and interpretation of results. Chapter 4 by Turner and Cardille, identified key questions that could guide a research agenda in spatial heterogeneity and ecosystem function. Four key research areas were identified: (1) understanding the causes and consequences of spatial heterogeneity in ecosystems process rates, (2) the influence of land-use legacies on current ecosystem condition, (3) horizontal flows of matter and energy in landscape mosaics, and (4) the linkage between species and ecosystems. For the development of landscape population models, Fahrig (Chapter 5) reviewed the original metapopulation model and discussed limitations of the classical metapopulation framework. Gardner et al. (Chapter 6) simulated pattern–process relationships within heterogeneous landscapes using CAPS, an individual based, spatially explicit neutral model for community development.

Scale, one of the most fundamental concepts in landscape ecology, was discussed with a cross-disciplinary perspective and landscape change. In Chapter 7, Wu discussed the conceptual and technical issues of scale and scaling, and identified major research questions and challenges in scaling across heterogeneous landscapes. Wu argued that when scale and scaling are used, terms should be specified to avoid unnecessary confusion and that integrating biophysical with socioeconomic processes is one of the greatest challenges for scaling in real landscapes. Ludwig in Chapter 9 addressed three key challenges facing landscape ecologists: (1) detecting changes in landscape condition at multiple scales, (2) flow-on effects on multiple scales, and (3) ecological processes driving landscape change.

As interdisciplinarity and transdisciplinarity are critically important to landscape ecology, many chapters in this book have made this point clear. Fry et al. (Chapter 14) have provided a much needed clarification on four frequently used terms with increasing degrees of cross-disciplinary integrations: disciplinarity, multidisciplinarity, interdisciplinarity, and transdisciplinarity. Fry et al. also provided outstanding examples showing that natural and social sciences are successfully integrated with direct involvement of stakeholders, policy-makers, and governmental agencies. In Chapter 11, Mackey et al. applied landscape ecology principles such as core protected-area networks, biodiversity conservation assessment and planning, and buffering to sources of disturbance to a regional conservation project in Australia. Vos et al. (Chapter 13) also presented an approach for the transfer of ecological knowledge to planning and design procedures. They discussed the development of planning guidelines for effective corridors and the efficient implementation of these guidelines in a complex multi-actor planning process.

Chapter 15 is the synthesis of contents of this book. In this final chapter, the editors examined definitions of landscape ecology and discussed two major schools of thought in landscape ecology: the European approach and the North American approach. Then, they proposed a hierarchical and pluralistic cross-disciplinary framework for promoting interactions and synergies between different perspectives and methods.

The conclusion of this book emphasizes the diversity of perspectives as an essential characteristic and strength of landscape ecology. The editors argued that as a science of spatial heterogeneity, landscape ecology can benefit from its disciplinary heterogeneity. They also proposed the hierarchical and pluralistic framework that helps unite different approaches in landscape ecology and allows for continuing development of diverse perspectives and approaches. As noted by the editors, "hierarchical" refers to the multiplicity of organizational levels, spatiotemporal scales, degrees of cross-disciplinary interactions, and the relativity of the definition of discipline, while "pluralistic" indicates the necessity to recognize the values of different perspectives and place them in a proper context characterized by a hierarchical cross-disciplinarity.

I applaud the editors for synthesizing major advances and suggesting future directions for landscape ecology. This book is well organized. The chapters cover key issues, including adequacy of landscape data, spatial pattern analysis, heterogeneity and ecosystem processes, metapopulations, scaling, landscape pattern optimization, land-use change and landscape conservation,

management, and planning and design. The only suggestion that I would like to provide is to add more discussions in "education and training." As noted by Fry et al., with no background training or experience in integrative research approaches, researchers often have enormous problems in making the integration work and may return to the relative security of their disciplinary modes of research.

Key Topics in Landscape Ecology provides a collective view of the state-of-the-science of landscape ecology and useful guidelines to graduate students, academic professionals, and practitioners in ecology, landscape architecture, environmental science, and resource management. Even though this book is not intended to provide answers to grand questions such as the identity of landscape ecology, distinctive core and focus, and the way to solidify the interdisciplinarity or transdisciplinarity of the field, a series of key issues and perspectives addressed by a group of leading scientists are crucial to finding ways of conducting research in inter- and transdisciplinary settings.

Reference

Wu, J., Hobbs, R., 2002. Key issues and research priorities in landscape ecology: an idiosyncratic synthesis. Landscape Ecology 17, 355–365.

Jinki Kim*
Landscape Architecture, Division of Resource Management, PO Box 6108, West Virginia University, Morgantown, WV 26506-6108, United States

*Tel.: +1 304 293 4832x4488; fax: +1 304 293 3752.
E-mail address: Jinki.Kim@mail.wvu.edu

7 December 2008
Available online 14 February 2009
doi:10.1016/j.landurbplan.2009.01.005

The Living Landscape: An Ecological Approach to Landscape Planning, F. Steiner (Ed.)., second ed. Island Press, Washington (2008). 471 pp

In the preface of the second edition of *The Living Landscape: An Ecological Approach to Landscape Planning*, Steiner emphasizes the critical role of using ecological approaches in landscape planning to address the many challenges in our rapidly evolving communities. He stresses the need for professions involved in creating these communities to use knowledge from diverse disciplines to lead our actions related to the development of ecologically based landscape plans. With that in mind, he has provided a clear, well-organized text that includes information and tools for a range of inexperienced and experienced landscape architects, architects, and planners to reference in order to meet future planning needs. This edition has been extensively updated since the first edition was released in 2000, and many areas have been greatly expanded due to their increasing use in the planning process of landscapes, this includes geographic information systems (GIS), citizen participation and design charettes.

The first eleven chapters of the book are structured to present basic concepts and definitions of the organizational framework of the planning process with an ecological emphasis in mind. Formal presentation of concepts in each chapter is followed by examples. Each chapter starts with a short dialogue for the reader that describes how the information will build on previous chapters—I find this approach particularly useful to readers who may be relatively new to the planning process. Conclusions are presented in Chapter 12, followed by appendices, a glossary of terms, acronyms, bibliography, and an index. Chapter 1, the *Introduction*, acquaints readers with the organization of the book, followed by basic concepts and terminology of ecologically oriented planning. This chapter also provides the reader with a brief history of land-use planning in the United States and discusses why there is a need for an approach with stronger links to ecological processes in the landscape.

Identification of issues to be addressed in and establishing goals of a plan are the focus of Chapter 2, beginning with techniques for involving various groups in goal establishment. Specific forums, such as task forces, advisory committees and focus groups, are discussed. I find these discussions particularly constructive in their definition and comparison of each of these forums. This chapter closes with two examples of goal-oriented planning.

Chapter 3 focuses on the *Inventory and Analysis of the Biophysical Environment*. Here, Steiner emphasizes critical linkages among the ecological information, reminding readers about the hierarchical nature of ecological systems, exemplified by the various levels of focus in the inventory of a watershed. This is followed with a discussion with identification of base map characteristics and the process for inventorying relevant elements. Questions posed and definitions and research sources provided throughout this chapter present a relatively extensive foundation for conducting a biophysical inventory and analysis. Two examples of inventory and analysis are discussed, one being the New Jersey Pinelands Comprehensive Management Plan (New Jersey Pinelands Commission, 1998). The author reviews the natural resource approach used for inventorying the ecosystem from early geological processes to present time, including human influences.

Human Community Inventory and Analysis is discussed in Chapter 4. The author considers the need to relate social characteristics to ecological phenomena, for example, how various sectors of agriculture are related to certain biophysical processes and elements. This information can then be used to foresee how these relationships may be altered by changes in the landscape. Usefulness of existing information such as population and economic data and potential sources are discussed, along with how such data can be further analyzed to generate new information. The text is effective in outlining action-based examples; how to gather new information and how to conduct face-to-face interviews are examples of methods of inquiry are covered. The chapter closes with specific examples of human community analyses.

Chapter 5, *Suitability Analysis*, reinforces the importance of conducting more detailed studies of inventoried information related to the potential suitability of a landscape. This step is considered critical for presenting the opportunities relative to future use of a landscape. Chapter 6, *Planning Options and Choices*, guides readers through techniques used for making decisions about choosing a planning option. Two examples are discussed, illustrating in detail how the selection of a land-use plan was accomplished. The Alternative Land-Use Plans of Portland, OR emphasizes the effectiveness of neighborhood involvement and flexibility in the process of selecting planning options and preferences.

Definition of *Landscape Plans* and their key components are discussed in Chapter 7. An outline is provided, giving the reader a checklist to use for plan development, followed by two plans briefly covered to emphasize the usefulness of such plans for guiding actions in a community. Emphasis in Chapter 8 is placed on sometimes challenging tasks of consistently involving citizens throughout the planning process, and providing ongoing citizen education about community plans as they evolve. Steiner briefly discusses a range of approaches for reaching various audiences and ends the chapter with two examples of education programs. Chapter 9 focuses on how professionals can demonstrate planning options through a number of design strategies. Each strategy is defined relative to how it can be used to demonstrate planning concepts, such as the use of a computer simulation to demonstrate the