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## Ecological Scale: Theory and Applications

Edited by David L. Peterson and V. Thomas Parker. 1998. Published by Columbia University Press, 562 West 113th Street, New York 10025 ([www.columbia.edu/cu/cup](http://www.columbia.edu/cu/cup)). xvii + 615 p., illus. \$35.00 (pb). ISBN 0-231-10503-7.

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"WHY ARE WE STILL PUBLISHING BOOKS ON SCALE?" Upon encountering this recent addition to the ecological literature, the reader might well ask this question, posed by O'Neill and King in Chapter 1. As the editors state, the book was motivated by the fact that scale issues are implicit in nearly all ecological studies and applications, but such issues still are rarely articulated or quantified adequately. Furthermore, there existed no single source on how to deal with scale in a variety of disciplines, nor from both theoretical and empirical perspectives. Hitting closer to home for readers of *Forest Science*, Lertzman and Fall assert in Chapter 16 that scale has rarely been dealt with explicitly in traditional studies of forestry and forest ecology. The editors aim to improve this situation by presenting a collection of papers that will raise awareness of the importance of incorporating scale concepts in ecological studies and applications.

The book is the fifth volume, and the only edited collection, in the series *Complexity in Ecological Systems*. The book's 22 chapters were contributed by scholars and resource managers representing a wide range of disciplines. The chapters are divided into four parts that trend from theoretical to more applied treatments of the subject. Part I contains a synthesis of principles and terminology associated with ecological scale, an overview of methods for detecting scale-dependent patterns, a clarification of relationships between levels in spatial ecology, and a conceptual approach to the problem of community organization. Part II focuses on the interpretation of multiple scales in particular ecological systems or areas of study, including paleoecology, soils, lakes and rivers, plant communities, animal populations, food-webs, and ecological monitoring. Part III considers moving across scales in ecological inference and applications, from a variety of perspectives that include remote sensing, large mobile organisms, trees, forest stands and landscapes, and experimental design and data analysis. In Part IV, several examples of applications of scale concepts and issues to real-world problems are presented.

There is something for everyone in *Ecological Scale*—researchers, students, and resource managers alike, including those who do not consider themselves ecologists.

The chapters emphasizing theory and principles should have broad interest for theoreticians, applied scientists, and practitioners wanting to keep abreast of current thinking. Of the chapters that focus on specific areas of study, readers of *Forest Science* will undoubtedly find some more relevant than others. In particular, Chapter 8 by Parker and Pickett covers dynamics within plant communities, Chapter 15 by Hinckley et al. deals with scaling and integration in trees, and Chapter 16 by Lertzman and Fall addresses spatial scales and the roles of disturbance from forest stands to landscapes. Other chapters may be of interest from a research methods standpoint, for example Chapter 5 (paleoecology), Chapter 13 (remote sensing), and Chapters 17–18 (experimental design and data analysis). Readers concerned primarily with the application of scale concepts to natural resource management and other real-world problems will find several interesting examples in the book, such as the chapters on global change, ecosystem management, and policy and decision-making processes.

The book synthesizes a diverse and scattered literature on scale in ecology. The editors and authors have largely succeeded in making this collection of papers as much like an authored book as possible: the individual authors address a strongly unifying theme, references between chapters in the book are frequent, and the index and single reference section facilitate reading the book as a whole unit. Nevertheless, the reader should not expect to find consensus among the wide-ranging views, investigative styles, or terminology, and that was not the book's intent. Rather, the book captures current thinking on ecological scale from a wide variety of perspectives and disciplines, and as such can serve as a useful reference. However, the lack of abstracts does make it more difficult to identify particular chapters and topics of interest. Many of the chapters provide reviews or primers of current concepts and methods, and several go farther and suggest new models or conceptual frameworks. The combined reference section is an excellent selection from the scale literature of many disciplines.

As the editors preface the book, only time will tell whether the range of viewpoints on ecological scale represented in

*Ecological Scale* will coalesce into a coherent body of theory and applications, or into a unified approach for more specific models. At minimum, however, the book provides welcome stimulation for ongoing dialogue on ecological scale and for critically examining one's own research or management

practices, and contributes to a broad-based understanding for resource managers and other ecological professionals. Solutions to many real-world problems, which often are large in scale, will demand that we become more adept at translating information across scales.