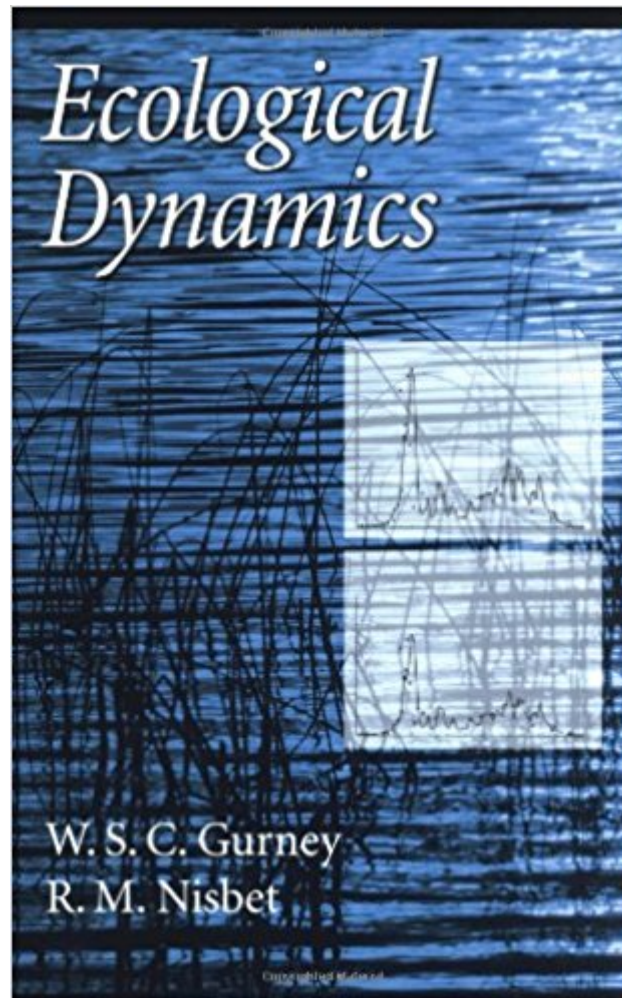




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Ecological Dynamics



Synopsis

Ecological Dynamics is unique in that it can serve both as an introductory text in numerous ecology courses and as a resource for more advanced work. It provides a flexible introduction to ecological dynamics that is accessible to students with limited previous mathematical and computational experience, yet also offers glimpses into the state of the art in the field. The book is divided into three parts: Part I, Methodologies and Techniques, defines the authors' modeling philosophy, focusing on models rather than ecology, and introduces essential concepts for describing and analyzing dynamical systems. Part II, Individuals to Ecosystems, the core of the book, describes the formulation and analysis of models of individual organisms, populations, and ecosystems. Part III, Focus on Structure, introduces more advanced readers to models of 'structured' and spatially extended populations. Approximately 25% of the book is devoted to case studies drawn from the authors' research. Readers are guided through the many judgment calls involved in model formulation, shown the key steps in model analysis, and offered the authors' interpretation of the results. All chapters end with exercises and projects. While the book is designed to be independent of any particular computing environment, a well-tested software package (SOLVER), including programs for solution of differential and difference equations, is available via the World Wide Web at <http://www.stams.strath.ac.uk/external/solver>. Ideal for courses in modeling ecological and environmental change, Ecological Dynamics can also be used in other courses such as theoretical ecology, population ecology, mathematical biology and ecology, and quantitative ecology.

Book Information

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Customer Reviews

"An excellent text for graduate students in ecology! For the first time one book presents both population ecology and ecosystem dynamics in one easily accessible format. It is hoped that this text will lead to a new generation of ecologists who can integrate these two approaches to ecological systems for a richer understanding."--Stefan A. Sommer, Idaho State University

W. S. C. Gurney is at University of Strathclyde. Roger M. Nisbet is at University of California, Santa Barbara.

I have used the text, *Ecological Dynamics*, for two graduate-level courses in ecological modeling. I have found it to be an excellent introduction into the realm of mathematical modeling, with plenty of detail to launch more advanced inquiries into the subject material. The authors use actual models as the means for presenting the tools and mechanisms behind mathematical modeling. They use a balanced combination of qualitative explanations of ecological theory and underlying assumptions in addition to more quantitative analyses. There are case studies throughout the book which serve as useful ways in which students can apply learned skills to model organismal growth, trophic interactions, metapopulations, and ecosystem dynamics. Not having a strong undergraduate background in such material, I've come to appreciate the approach taken towards modeling in *Ecological Dynamics*.

Product arrived in good time, but I haven't had it long enough to really judge it's overall value.

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