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BOOK REVIEWS

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An Introduction to Mathematical Models in Ecology and Evolution. Time and Space. Second edition. By M. Gillman. Chichester, UK: Wiley-Blackwell (2009), pp. 158, £29.95 (paperback). ISBN 978-1-4051-7515-9.

This book is a brief, yet efficient, introduction to the workings of ecological models. The author introduces the main classes of deterministic and stochastic methods currently in use in ecological research, e.g. matrix models, random walks, Markov processes, systems of ordinary differential equations and partial differential equations. The book uses simple, classic approaches found in the literature to introduce the fundamental principles underlying even the most advanced approaches (density dependence and regulation, population structure, equilibrium and stability, convergence, dispersion and diffusion). It always keeps a close connection with experimental data and quickly gives a feel for the practical issues involved in modelling specific systems.

The merit of the book is the clear focus on concepts rather than on the details of implementing modelling techniques. This allows the author to cover a broad spectrum of approaches without the need for advanced mathematics and makes the book an interesting groundwork for more advanced textbooks covering topics such as spatial, numerical and computational modelling.

In conclusion, this book contains the most essential information to decrypt the current mathematical literature in ecology. It is presented simply, with applications in mind. It should be of great use to newcomers wanting to get started in ecological modelling.

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Arsenic Pollution: A Global Synthesis. By P. Ravenscroft, H. Brammer and K. Richards. Chichester, UK: Wiley-Blackwell, (2009), pp. 588. £65.00 (paperback). ISBN 978-1-4051-8602-5.

The book is an up-to-date synthesis of research on the causes and results of arsenic (As) pollution. Arsenic pollution has many adverse consequences for human health and among the global poor it is especially significant. Over 50 million people in South and East Asia have drunk As-contaminated water for decades at levels above 50 ppb, greatly in excess of WHO and other health guidelines. Such a problem reflects one of the most serious human impacts on environmental systems and has been referred to as history's largest mass poisoning. The problem is complex and highly multidisciplinary: this book attempts to integrate the burgeoning geochemical, hydrological and biological research findings to understand the causes, consequences and prevention of As pollution. The book provides global geographical information on As pollution, geochemistry and hydrogeology, health effects of As in food and water, mitigation of As contamination and As-removal technologies. One area that receives less attention is microbial involvement in As mobility despite microbes being involved in most As transformations in the environment, their intimate relationships with plants and their potential as bioremediation agents. This perhaps reflects the predominantly geographical nature of the treatise but means that readers should seek additional information on this topic from other sources for a fuller picture. Despite this, the book is an excellent contribution to the field, and is clear and well written with ample figures and tables, and an extensive bibliography.

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