

## Ecology

In the 1890s, several initiatives in American botany converged. The creation of new institutions, such as the New York Botanical Garden, coincided with radical reforms in taxonomic practice and the emergence of an experimental program of research on evolutionary problems. Sharon Kingsland explores how these changes gave impetus to the new field of ecology that was defined at exactly this time. She argues that the creation of institutions and research laboratories, coupled with new intellectual directions in science, were crucial to the development of ecology as a discipline in the United States. The main concern of ecology -- the relationship between organisms and environment -- was central to scientific studies aimed at understanding and controlling the evolutionary process. Kingsland considers the evolutionary context in which ecology arose, especially neo-Lamarckian ideas and the new mutation theory, and explores the relationship between scientific research and broader theories about social progress and the evolution of human civilization. By midcentury, American ecologists were leading the rapid development of ecosystem ecology. At the same time, scientists articulated a sharp critique of modern science and society in the postwar context, foreshadowing the environmental critiques of the 1960s. As the ecosystem concept evolved, so too did debates about how human ecology should be incorporated into the biological sciences. Kingsland concludes with an examination of ecology in the modern urban environment, reflecting on how scientists are now being challenged to overcome disciplinary constraints and produce innovative responses to pressing problems. *The Evolution of American Ecology, 1890--2000* offers an innovative study not only of the scientific landscape in turn-of-the-century America, but of current questions in ecological science.

This important new work--the first of its kind--focuses on the distribution patterns of landscape elements or ecosystems; the flows of animals, plants, energy, mineral nutrients and water; and the ecological changes in the landscape over time. Includes over 1,200 references from current ecology, geography, forestry, and wildlife biology literature.

Discusses the fundamental relationship between human beings and nature, and suggests an ethical and philosophical foundation for environmental protection in the next hundred years

A prominent scientist and scholar documents and explains the thoughts, actions, and legacies of spiritual ecology's pioneers from ancient times to the present, demonstrating how the movement may offer the last chance to restore a healthy relationship between humankind and nature. \* Clear, concise, and captivating essays on well-known, as well as little-known, pioneers in spiritual ecology \* Chapter-long treatment of each individual's contributions, allowing for in-depth coverage \* An extensive resource guide, including films and websites \* An appendix listing approximately 100 pioneers in spiritual ecology

Features review questions at the end of each chapter; Includes suggestions for recommended reading; Provides a glossary of ecological terms; Has a wide audience as a textbook for advanced undergraduate students, graduate students and as a reference for practicing scientists from a wide array of disciplines

This volume is a comprehensive synthesis of the latest research achievements concerning harmful algae (HA) ecology. Experts provide an in-depth analysis of HA topics including: global distribution, ecology of major HA groups, ecology and physiology of HA, HA and the food web, the human impact on HA and HA impact on human activity. This volume is intended for researchers in HA ecology as well as for advanced students, lecturers, and environmental managers.

A straight-forward introduction to the fundamental principles of GIS, this text focuses on data acquisition, handling and analysis. It contains checklists and bullet points, and draws on the experiences of ecologists who have learned how to use GIS.

Revised edition of: Introduction to molecular ecology / Trevor J. C. Beebee, Graham Rowe. 2008. 2nd ed.

With chapters on the conservation of habitats, the modelling of pollutant impact on ecosystems and the ecology of waste treatment, this textbook is the first to review the relationship between ecology in theory and practice.

A fully updated guide to the increasingly prevalent use of molecular data in ecological studies Molecular ecology is concerned with how molecular biology and population genetics may help us to better understand aspects of ecology and evolution including local adaptation, dispersal across landscapes, phylogeography, behavioral ecology, and conservation biology. As the technology driving genetic science has advanced, so too has this fast-moving and innovative discipline, providing important insights into virtually all taxonomic groups. This third edition of Molecular Ecology takes account of the breakthroughs achieved in recent years to give readers a thorough and up-to-date account of the field as it is today. New topics covered in this book include next-generation sequencing, metabarcoding, environmental DNA (eDNA) assays, and epigenetics. As one of molecular ecology's leading figures, author Joanna Freeland also provides those new to the area with a full grounding in its fundamental concepts and principles. This important text: Is presented in an accessible, user-friendly manner Offers a comprehensive introduction to molecular ecology Has been revised to reflect the field's most recent studies and research developments Includes new chapters covering topics such as landscape genetics, metabarcoding, and community genetics Rich in insights that will benefit anyone interested in the ecology and evolution of natural populations, Molecular Ecology is an ideal guide for all students and professionals who wish to learn more about this exciting field. Illustrations and text provide information about ecology in general, specific ecosystems, and our changing understanding of life around us.

Product information not available.

Metacommunity ecology links smaller-scale processes that have been the provenance of population and community ecology—such as birth-death processes, species interactions, selection, and stochasticity—with larger-scale issues such as dispersal and habitat heterogeneity. Until now, the field has focused on evaluating the relative importance of distinct processes, with niche-based environmental sorting on one side and neutral-based ecological drift and dispersal limitation on the other. This book moves beyond these artificial categorizations, showing how environmental sorting, dispersal, ecological drift, and other processes influence metacommunity structure simultaneously. Mathew

Leibold and Jonathan Chase argue that the relative importance of these processes depends on the characteristics of the organisms, the strengths and types of their interactions, the degree of habitat heterogeneity, the rates of dispersal, and the scale at which the system is observed. Using this synthetic perspective, they explore metacommunity patterns in time and space, including patterns of coexistence, distribution, and diversity. Leibold and Chase demonstrate how these processes and patterns are altered by micro- and macroevolution, traits and phylogenetic relationships, and food web interactions. They then use this scale-explicit perspective to illustrate how metacommunity processes are essential for understanding macroecological and biogeographical patterns as well as ecosystem-level processes. Moving seamlessly across scales and subdisciplines, *Metacommunity Ecology* is an invaluable reference, one that offers a more integrated approach to ecological patterns and processes.

'*Elements of Ecology*' presents a clear, modular approach using explanatory writing style to focus non-majors students on the core concepts of ecology. An accessible, focused exploration of the field of political ecology The third edition of *Political Ecology* spans this sprawling field, using grounded examples and careful readings of current literature. While the study of political ecology is sometimes difficult to fathom, owing to its breadth and diversity, this resource simplifies the discussion by reducing the field down into a few core questions and arguments. These points clearly demonstrate how critical theory can make pragmatic contributions to the fields of conservation, development, and environmental management. The latest edition of this seminal work is also more closely focused, with references to recent work from around the world. Further, *Political Ecology* raises critical questions about "traditional" approaches to environmental questions and problems. This new edition: Includes international work in the field coming out of Europe, Latin America, and Asia Explains political ecology and its tendency to disrupt the environmental research and practice by both advancing and undermining associated fields of study Contains contributions from a wide range of diverse backgrounds and expertise Offers a resource that is written in highly-accessible, straightforward language Outlines the frontiers of the field and frames climate change and the end of population growth with the framework of political ecology An excellent resource for undergraduates and academics, the third edition of *Political Ecology* offers an updated edition of the guide to this diverse, quickly growing field that is at the heart of how humans shape the world and, in turn, are shaped by it.

Series blurb: The *Ecology of Indonesia* series explores one of the most biologically diverse areas of the world, incorporating current research from Western and Indonesian specialists. Each book describes in detail, Indonesia's fragile ecosystems, its unparalleled biodiversity, its peoples and their use of natural resources, and the ecological problems which have resulted from rapid economic development.

*Terrestrial Plant Ecology* synthesizes the literature pertaining to the ecology of

wild plants into a survey for the undergraduate student to teach them the essentials of the interactions between plants and their environment.

Although interest in ecological restoration has grown rapidly in recent years, restoration efforts have been highly empirical and have therefore been of only marginal interest to theoretical ecologists concerned with the structure and dynamics of communities. The ability to reassemble a community or ecosystem and to make it function properly actually represents a critical test of ecological understanding in the most fundamental sense. It is this idea of restoration as a technique - and even a paradigm - for ecological studies, leading in turn to improved restoration methods, that is the subject of this book.

Winner, 2020 Isaac and Tamara Deutscher Memorial Prize A fascinating reinterpretation of the radical and socialist origins of ecology Twenty years ago, John Bellamy Foster's *Marx's Ecology: Materialism and Nature* introduced a new understanding of Karl Marx's revolutionary ecological materialism. More than simply a study of Marx, it commenced an intellectual and social history, encompassing thinkers from Epicurus to Darwin, who developed materialist and ecological ideas. Now, with *The Return of Nature: Socialism and Ecology*, Foster continues this narrative. In so doing, he uncovers a long history of efforts to unite issues of social justice and environmental sustainability that will help us comprehend and counter today's unprecedented planetary emergencies. *The Return of Nature* begins with the deaths of Darwin (1882) and Marx (1883) and moves on until the rise of the ecological age in the 1960s and 1970s. Foster explores how socialist analysts and materialist scientists of various stamps, first in Britain, then the United States, from William Morris and Frederick Engels to Joseph Needham, Rachel Carson, and Stephen J. Gould, sought to develop a dialectical naturalism, rooted in a critique of capitalism. In the process, he delivers a far-reaching and fascinating reinterpretation of the radical and socialist origins of ecology. Ultimately, what this book asks for is nothing short of revolution: a long, ecological revolution, aimed at making peace with the planet while meeting collective human needs.

A study on the hunters and food gatherers of Similipal hills, Orissa, India.

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