

Illustrated Guide To Theoretical Ecology

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Control Theory Tutorial Oxford University Press

Gregory Bateson was a philosopher, anthropologist, photographer, naturalist, and poet, as well as the husband and collaborator of Margaret Mead. This classic anthology of his major work includes a new Foreword by his daughter, Mary Katherine Bateson. 5 line drawings.

Metabolic Ecology CRC Press

The third edition of this successful textbook looks again at the influence of natural selection on behavior - an animal's struggle to survive by exploiting resources, avoiding predators, and maximizing reproductive success. In this edition, new examples are introduced throughout, many illustrated with full color photographs. In addition, important new topics are added including the latest techniques of comparative analysis, the theory and application of DNA fingerprinting techniques, extensive new discussion on brood parasite/host coevolution, the latest ideas on sexual selection in relation to disease resistance, and a new section on the intentionality of communication. Written in the lucid style for which these two authors are renowned, the text is enhanced by boxed sections illustrating important concepts and new marginal notes that guide the reader through the text. This book will be essential reading for students taking courses in behavioral ecology. The leading introductory text from the two most prominent workers in the field. Second colour in the text. New section of four colour plates. Boxed sections to illustrate difficult and important points. New larger format with marginal notes to guide the reader through the text. Selected further reading at the end of each chapter.

Steps to an Ecology of Mind John Wiley & Sons

An ideal text for students taking a course in landscape ecology. The book has been written by very well-known practitioners and pioneers in the new field of ecological analysis. Landscape ecology has emerged during the past two decades as a new and exciting level of ecological study. Environmental problems such as global climate change, land use change, habitat fragmentation and loss of biodiversity have required ecologists to expand their traditional spatial and temporal scales and the widespread availability of remote imagery, geographic information systems, and desk top computing has permitted the development of spatially explicit analyses. In this new text book this new field of landscape ecology is given the first fully integrated treatment suitable for the student. Throughout, the theoretical developments, modeling approaches and results, and empirical data are merged together, so as not to introduce barriers to the synthesis of the various approaches that constitute an effective ecological synthesis. The book also emphasizes selected topic areas in which landscape ecology has made the most contributions to our understanding of ecological processes, as well as identifying areas where its contributions have been limited. Each chapter features questions for discussion as well as recommended reading.

The Past and Future of Landscapes and Regions John Wiley & Sons

This major reference is an overview of the current state of theoretical ecology through a series of topical entries centered on both ecological and statistical themes. Coverage ranges across scales—from the physiological, to populations, landscapes, and ecosystems. Entries provide an introduction to broad fields such as Applied Ecology, Behavioral Ecology, Computational Ecology, Ecosystem Ecology, Epidemiology and Epidemic Modeling, Population Ecology, Spatial Ecology and Statistics in Ecology. Others provide greater specificity and depth, including discussions on the Allee effect, ordinary differential equations, and ecosystem services. Descriptions of modern statistical and modeling approaches and how they contributed to advances in theoretical ecology are also included. Succinct, uncompromising, and authoritative—a "must have" for those interested in the use of theory in the ecological sciences.

From Theory to R Tools John Wiley & Sons

The author walks students through the most common models in ecology, beginning with first principles and then gently making each formulation accessible through a step-by-step development of equations paired with illustrations."

From Individuals to Ecosystems Routledge

Terminology, conceptual overview, biogeography, modeling.

From Applications to Theory John Wiley & Sons

This is an up-to-date study of patterns and processes involving two or more species. The book strikes a balance between plant and animal species and among studies of marine, freshwater and terrestrial communities.

Allee Effects in Ecology and Conservation Harpercollins College Division

Introduction to Population Ecology, 2nd Edition is a comprehensive textbook covering all aspects of population ecology. It uses a wide variety of field and laboratory examples, botanical to zoological, from the tropics to the tundra, to illustrate the fundamental laws of population ecology. Controversies in population ecology are brought fully up to date in this edition, with many brand new and revised examples and data. Each chapter provides an overview of how population theory has developed, followed by descriptions of laboratory and field studies that have been inspired by the theory. Topics explored include single-species population growth and self-limitation, life histories, metapopulations and a wide range of interspecific interactions including competition, mutualism, parasite-host, predator-prey and plant-herbivore. An additional final chapter, new for the second edition, considers multi-trophic and other complex interactions among species. Throughout the book, the mathematics involved is explained with a step-by-step approach, and graphs and other visual aids are used to present a clear illustration of how the models work. Such features make this an accessible introduction to population ecology; essential reading for undergraduate and graduate students taking courses in population ecology, applied ecology, conservation ecology, and conservation biology, including those with little mathematical experience.

Theory-Based Ecology Springer

Ecology is in a challenging state as a scientific discipline. While some theoretical ecologists are attempting to build a definition of ecology from first principles, many others are questioning even the feasibility of a general and universal theory. At the same time, it is increasingly important that ecology is accurately and functionally defined for a generation of researchers tackling escalating environmental problems in the face of doubt and disagreement. The authors of Theory-Based Ecology have written a textbook that presents a robust, modern, and mathematically sound theory of ecology, maintaining a strong link between empirical data, models, and theory. It is firmly based in Darwinian thought, since it was Darwin who first revealed the ecological principles of the origin of species, and gave the evolution of diversity a process-based, mechanistic explanation. The authors base their synthetic theory of Darwinian ecology on seven key principles: exponential growth, growth regulation, inherited individual differences, finiteness and stochasticity, competitive exclusion, robust coexistence, and constraints and trade-offs. Within this solid conceptual framework, they integrate classic and actual empirical knowledge from ecology and evolutionary biology, clarifying methodological and mathematical detail in clear and helpful text boxes. A wealth of illustrated examples pertaining to different organisational levels (alleles, clones and species) helps to explain how the principles operate. This is an invaluable resource for graduate level students as well as professional researchers in the fields of ecology, genetics, evolutionary ecology, and mathematical biology.

Ecosystem Collapse and Recovery Oxford University Press

Provides simple explanations of the important concepts in population and community ecology. Provides R code throughout, to illustrate model development and analysis, as well as appendix introducing the R language. Interweaves ecological content and code so that either stands alone. Supplemental web site for additional code.

Processes, Models, and Applications Oxford University Press on Demand

The Description for this book, *Stability and Complexity in Model Ecosystems*. (MPB-6), will be forthcoming.

Stochastic Processes Princeton University Press

Allee effects are (broadly) defined as a decline in individual fitness at low population size or density. They can result in critical population thresholds below which populations crash to extinction. As such, they are very relevant to many conservation programmes, where scientists and managers are often working with populations that have been reduced to low densities or small numbers. There are a variety of mechanisms that can create Allee effects including mating systems, predation, environmental modification, and social interactions. The abrupt and unpredicted collapses of many exploited populations is just one illustration of the need to bring Allee effects to the forefront of conservation and management strategies. *Allee Effects in Ecology and Conservation* provides a concise yet authoritative overview of the topic, collating and integrating a widely dispersed literature from various fields - marine and terrestrial, plant and animal, theoretical and empirical, academic and applied. This accessible text, with its clear and simple explanations of both empirical observations and theoretical predications is particularly suitable for professional and academic ecologists requiring an overview of the state-of-the-art in Allee effect research, as well as for graduate students in population ecology and conservation biology. It will also be of relevance to a wide readership of professionals in conservation and management requiring a concise summary of the topic.

Theoretical Ecology An Illustrated Guide to Theoretical Ecology

Why do species live where they live? What determines the abundance and diversity of species in a given area? What role do species play in the functioning of entire ecosystems? All of these questions share a single core concept—the ecological niche. Although the niche concept has fallen into disfavor among ecologists in recent years, Jonathan M. Chase and Mathew A. Leibold argue that the niche is an ideal tool with which to unify disparate research and theoretical approaches in contemporary ecology. Chase and Leibold define the niche as including both what an organism needs from its environment and how that organism's activities shape its environment. Drawing on the theory of consumer-resource interactions, as well as its graphical analysis, they develop a framework for understanding niches that is flexible enough to include a variety of small- and large-scale processes, from resource competition, predation, and stress to community structure, biodiversity, and ecosystem function. Chase and Leibold's synthetic approach will interest ecologists from a wide range of subdisciplines.

Issues and Concepts in Historical Ecology Cambridge University Press

The increasingly rapid destruction of the ecological systems that support life is calling into question some of the fundamental stories that we live by: stories of unlimited economic growth, of consumerism, progress, individualism, success, and the human domination of nature. *Ecolinguistics* shows how linguistic analysis can help reveal the stories we live by, open them up to question, and contribute to the search for new stories. Bringing together the latest ecolinguistic studies with new theoretical insights and practical analyses, this book charts a new course for ecolinguistics as an engaged form of critical enquiry. Featuring: A framework for understanding the theory of ecolinguistics and applying it practically in real life; Exploration of diverse topics from consumerism in lifestyle magazines to Japanese nature haiku; A comprehensive glossary giving concise descriptions of the linguistic terms used in the book; Discourse analysis of a wide range of texts including newspapers, magazines, advertisements, films, nonfiction books, and visual images. This is essential reading for undergraduates, postgraduates and researchers working in the areas of Discourse Analysis and Language and Ecology.

Language, Ecology and the Stories We Live By Springer Science & Business Media

Unlike traditional books presenting stochastic processes in an academic way, this book includes concrete applications that students will find interesting such as gambling, finance, physics, signal processing, statistics, fractals, and biology. Written with an important illustrated guide in the beginning, it contains many illustrations, photos and pictures, along with several website links. Computational tools such as simulation and Monte Carlo methods are included as well as complete toolboxes for both traditional and new computational techniques.

Using R as a Simulation Platform Cambridge University Press

Evolutionary ecology is the study of how natural selection has moulded the major adaptive ecological and behavioural traits of plants and animals. This book covers the topics of major interest in contemporary research - life-history evolution, optimal foraging, kin selection and inclusive fitness, the evolution of sex, the sex ratio, sexual selection and the application of game theory to evolutionary problems. It provides an account of the theoretical models underpinning our understanding of evolutionary adaptation.

A Scaling Approach Springer Science & Business Media

A definitive guide to the depth and breadth of the ecological sciences, revised and updated The revised and updated fifth edition of *Ecology: From Individuals to Ecosystems* - now in full colour - offers students and practitioners a review of the ecological sciences. The previous editions of this book earned the authors the prestigious 'Exceptional Life-time Achievement Award' of the British

Ecological Society - the aim for the fifth edition is not only to maintain standards but indeed to enhance its coverage of Ecology. In the first edition, 34 years ago, it seemed acceptable for ecologists to hold a comfortable, objective, not to say aloof position, from which the ecological communities around us were simply material for which we sought a scientific understanding. Now, we must accept the immediacy of the many environmental problems that threaten us and the responsibility of ecologists to play their full part in addressing these problems. This fifth edition addresses this challenge, with several chapters devoted entirely to applied topics, and examples of how ecological principles have been applied to problems facing us highlighted throughout the remaining nineteen chapters. Nonetheless, the authors remain wedded to the belief that environmental action can only ever be as sound as the ecological principles on which it is based. Hence, while trying harder than ever to help improve preparedness for addressing the environmental problems of the years ahead, the book remains, in its essence, an exposition of the science of ecology. This new edition incorporates the results from more than a thousand recent studies into a fully up-to-date text. Written for students of ecology, researchers and practitioners, the fifth edition of *Ecology: From Individuals to Ecosystems* is an essential reference to all aspects of ecology and addresses environmental problems of the future.

A Primer of Ecology with R John Wiley & Sons

A one-of-a-kind guide to using deterministic and probabilistic methods for solving problems in the biological sciences Highlighting the growing relevance of quantitative techniques in scientific research, *Mathematical Methods in Biology* provides an accessible presentation of the broad range of important mathematical methods for solving problems in the biological sciences. The book reveals the growing connections between mathematics and biology through clear explanations and specific, interesting problems from areas such as population dynamics, foraging theory, and life history theory. The authors begin with an introduction and review of mathematical tools that are employed in subsequent chapters, including biological modeling, calculus, differential equations, dimensionless variables, and descriptive statistics. The following chapters examine standard discrete and continuous models using matrix algebra as well as difference and differential equations. Finally, the book outlines probability, statistics, and stochastic methods as well as material on bootstrapping and stochastic differential equations, which is a unique approach that is not offered in other literature on the topic. In order to demonstrate the application of mathematical methods to the biological sciences, the authors provide focused examples from the field of theoretical ecology, which serve as an accessible context for study while also demonstrating mathematical skills that are applicable to many other areas in the life sciences. The book's algorithms are illustrated using MATLAB®, but can also be replicated using other software packages, including R, Mathematica®, and Maple; however, the text does not require any single computer algebra package. Each chapter contains numerous exercises and problems that range in difficulty, from the basic to more challenging, to assist readers with building their problem-solving skills. Selected solutions are included at the back of the book, and a related Web site features supplemental material for further study. Extensively class-tested to ensure an easy-to-follow format, *Mathematical Methods in Biology* is an excellent book for mathematics and biology courses at the upper-undergraduate and graduate levels. It also serves as a valuable reference for researchers and professionals working in the fields of biology, ecology, and biomathematics.

A Biologist's Guide to Mathematical Modeling in Ecology and Evolution Univ of California Press

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

Community Ecology Princeton University Press

Your one-stop, comprehensive guide to commercial doors and door hardware from the brand you trust *Illustrated Guide to Door Hardware: Design, Specification, Selection* is the only book of its kind to compile all the relevant information regarding design, specifications, crafting, and reviewing shop drawings for door openings in one easy-to-access place. Content is presented consistently across chapters so professionals can find what they need quickly and reliably, and the book is illustrated with charts, photographs, and architectural details to more easily and meaningfully convey key information. Organized according to industry standards, each chapter focuses on a component of the door opening or door hardware and provides all options available, complete with everything professionals need to know about that component. When designing, specifying, creating, and reviewing shop drawings for door openings, there are many elements to consider: physical items, such as the door, frame, and hanging devices; the opening's function; local codes and standards related to fire, life safety, and accessibility; aesthetics; quality and longevity versus cost; hardware cycle tests; security considerations; and electrified hardware requirements, to name a few. Until now, there hasn't been a single resource for this information. The only resource available that consolidates all the door and hardware standards and guidelines into one comprehensive publication. Consistently formatted across chapters and topics for ease of use Packed with drawings and photographs Serves as a valuable study aid for DHI's certification exams If you're a professional tired of referring to numerous product magazines or endless online searches only to find short, out-of-date material, *Illustrated Guide to Door Hardware: Design, Specification, Selection* gives you everything you need in one convenient, comprehensive resource.

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