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[Mathematical Models in Population Biology and Epidemiology](#) Springer

Australia invoked the ANZUS Alliance following the Al Qaeda attacks in the United States on 11 September 2001. But unlike the calls to arms at the onset of the world wars, Australia decided to make only carefully calibrated force contributions in support of the US-led coalition campaigns in Afghanistan and Iraq. Why is this so? *Niche Wars* examines Australia's experience on military operations in Afghanistan and Iraq from 2001 to 2014. These operations saw over 40 Australian soldiers killed and hundreds wounded. But the toll since has been greater. For Afghanistan and Iraq the costs are hard to measure. Why were these forces deployed? What role did Australia play in shaping the strategy and determining the outcome? How effective were they? Why is so little known about Australia's involvement in these campaigns? What lessons can be learned from this experience? *Niche Wars* commences with a scene-setting overview of Australia's military involvement in the Middle East over more than a century. It then draws on unique insights from many angles, across a spectrum of men and women, ranging from key Australian decision makers, practitioners and observers. The book includes a wide range of perspectives in chapters written by federal government ministers, departmental secretaries, service commanders, task force commanders, sailors, soldiers, airmen and women, international aid workers, diplomats, police, journalists, coalition observers and academics. *Niche Wars* makes for compelling reading but also stands as a reference work on how and why Australia became entangled in these conflicts that had devastating consequences. If lessons can be learned from history about how Australia uses its military forces, this book is where to find them.

[Encyclopedia of Biology](#) John Wiley & Sons

The goal of this book is to search for a balance between simple and analyzable models and unsolvable models which are capable of addressing important questions on population biology. Part I focusses on single species simple models including those which have been used

to predict the growth of human and animal population in the past. Single population models are, in some sense, the building blocks of more realistic models -- the subject of Part II. Their role is fundamental to the study of ecological and demographic processes including the role of population structure and spatial heterogeneity -- the subject of Part III. This book, which will include both examples and exercises, is of use to practitioners, graduate students, and scientists working in the field.

[General College Biology Laboratory Manual](#) John Wiley & Sons

As Ecology teachers ourselves we have become increasingly aware of the lack of a single comprehensive textbook of Ecology which we can recommend unreservedly to our students. While general, review texts are readily available in other fields, recent publications in Ecology have tended for the most part to be small, specialised works on single aspects of the subject. Such general texts as are available are often rather too detailed and, in addition, tend to be somewhat biased towards one aspect of the discipline or another and are thus not truly balanced syntheses of current knowledge. Ecology is, in addition, a rapidly developing subject: new information is being gathered all the time on a variety of key questions; new approaches and techniques open up whole new areas of research and establish new principles. Already things have changed radically since the early '70s and we feel there is a need for an up to date student text that will include some of this newer material. We have tried, therefore, to create a text that will review all the major principles and tenets within the whole field of Ecology, presenting the generally accepted theories and fundamentals and reviewing carefully the evidence on which such principles have been founded. While recent developments in ecological thought are emphasised, we hope that these will not dominate the material to the extent where the older-established principles are ignored or overlooked.

[Molecular Biology of The Cell](#) Franklin Classics Trade Press

Historically, tropical ecology has been a science often content with descriptive and demographic approaches, which is understandable given the difficulty of studying these ecosystems and the need for basic demographic information. Nonetheless, over the last several years, tropical ecologists have begun to test more sophisticated ecological theory and are now beginning to address a broad array of questions that are of particular importance to tropical systems, and ecology in general. Why are there are so many species in tropical forests and what mechanisms are responsible for the maintenance of that vast species diversity? What factors control species coexistence? Are there common patterns of species abundance and distribution across broad geographic scales? What is the role of trophic interactions in these complex ecosystems? How can these fragile ecosystems be

conserved? Containing contributions from some of the world's leading tropical ecologists, *Tropical Forest Community Ecology* provides a summary of the key issues in the discipline of tropical ecology: Includes contributions from some of the world's leading tropical ecologists Covers patterns of species distribution, the maintenance of species diversity, the community ecology of tropical animals, forest regeneration and conservation of tropical ecosystems

Niche Wars Springer Science & Business Media

Francis BACON, in his *Novum Organum*, Robert BOYLE, in his *Skeptical Chemist* and Ren é DESCARTES, in his *Discourse on Method*; all of these men were witnesses to the th scientific revolution, which, in the 17 century, began to awaken the western world from a long sleep. In each of these works, the author emphasizes the role of the experimental method in exploring the laws of Nature, that is to say, the way in which an experiment is designed, implemented according to tried and tested techniques, and used as a basis for drawing conclusions that are based only on results, with their margins of error, taking into account contemporary traditions and prejudices. Two centuries later, Claude BERNARD, in his *Introduction to the Study of Experimental Medicine*, made a passionate plea for the application of the experimental method when studying the functions of living beings. Twenty-first century Biology, which has been fertilized by highly sophisticated techniques inherited from Physics and Chemistry, blessed with a constantly increasing expertise in the manipulation of the genome, initiated into the mysteries of information technology, and enriched with the ever-growing fund of basic knowledge, at times appears to have forgotten its roots.

Human Anatomy Benjamin-Cummings Publishing Company

Evolutionary developmental biology or evo-devo is a field of biological research that compares the underlying mechanisms of developmental processes in different organisms to infer the ancestral condition of these processes and elucidate how they have evolved. It addresses questions about the developmental bases of evolutionary changes and evolution of developmental processes. The book's content is divided into three parts, the first of which discusses the theoretical background of evo-devo. The second part highlights new and emerging model organisms in the evo-devo field, while the third and last part explores the evo-devo approach in a broad comparative context. To the best of our knowledge, no other book combines these three evo-devo aspects: theoretical considerations, a comprehensive list of emerging model species, and comparative analyses of developmental processes. Given its scope, the book will offer readers a new perspective on the natural diversity of processes at work in cells and during the development of various animal groups, and expand the horizons of seasoned and young researchers alike.

Word Searches For Dummies NSTA Press

Studies of mechanisms in the brain that allow complicated things to happen in a coordinated fashion have produced some of the most spectacular discoveries in neuroscience. This book provides eloquent support for the idea that spontaneous neuron activity, far from being mere noise, is actually the source of our cognitive abilities. It takes a fresh look at the coevolution of structure and function in the mammalian brain, illustrating how self-emerged oscillatory timing is the brain's fundamental organizer of neuronal information. The small-world-like connectivity of the cerebral cortex allows for global computation on multiple spatial and temporal scales. The perpetual interactions among the multiple network oscillators keep cortical systems in a highly sensitive "metastable" state and provide energy-efficient synchronizing mechanisms via weak links. In a sequence of "cycles," György Buzsáki guides the reader from the physics of oscillations through neuronal assembly organization to complex cognitive processing and memory storage. His clear, fluid writing-accessible to any reader with some scientific knowledge-is supplemented by extensive footnotes and references that make it just as gratifying and instructive a read for the specialist. The coherent view of a single author who has been at the forefront of research in this exciting field, this volume is essential reading for anyone interested in our rapidly evolving understanding of the brain.

Ecology Springer Nature

Contains approximately 800 alphabetical entries, prose essays on important topics, line illustrations, and black-and-white photographs.

Evo-Devo: Non-model Species in Cell and Developmental Biology Macmillan Higher Education

In a book that promises to change the way we think and talk about genes and genetic determinism, Evelyn Fox Keller, one of our most gifted historians and philosophers of science, provides a powerful, profound analysis of the achievements of genetics and molecular biology in the twentieth century, the century of the gene. Not just a chronicle of biology's progress from gene to genome in one hundred years, *The Century of the Gene* also calls our attention to the surprising ways these advances challenge the familiar picture of the gene most of us still entertain. Keller shows us that the very successes that have stirred our imagination have also radically undermined the primacy of the gene—word and object—as the core explanatory concept of heredity and development. She argues that we need a new vocabulary that includes concepts such as robustness, fidelity, and evolvability. But more than a new vocabulary, a new awareness is absolutely crucial: that understanding the components of a system (be they individual genes, proteins, or even molecules) may tell us little about the interactions among these components. With the Human Genome Project nearing its first and most publicized goal, biologists are coming to realize that they have reached not the end of biology but the beginning of a new era. Indeed, Keller predicts that in the new century we will witness another Cambrian era, this time in new forms of biological thought rather than in new forms of biological life.

Alternatives to Animal Use in Research, Testing, and Education ANU Press

Containing 57 thoroughly class-tested and easily customizable exercises, *Laboratory Experiments in Microbiology*, Tenth Edition, provides engaging labs with instruction on performing basic microbiology techniques and applications for undergraduate students in diverse areas, including the biological sciences, allied health sciences, agriculture, environmental science, nutrition, pharmacy, and various pre-professional programs. The perfect companion to Tortora/Funke/Case's *Microbiology: An Introduction* or any introductory microbiology text, the Tenth Edition features an updated art program and a full-color design, integrating valuable micrographs throughout each exercise. Additionally, many of the illustrations have been re-rendered in a modern, realistic, three-dimensional style to better visually engage students. Laboratory Reports for each exercise have been enhanced with new Clinical Applications questions, as well as questions relating to Hypotheses or Expected Results. Experiments have been refined throughout the manual and the Tenth Edition includes an extensively revised exercise on transformation in bacteria using pGLO to introduce students to this important technique.

Discovering Reality Springer Science & Business Media

Endosymbiosis is a primary force in eukaryotic cell evolution. In order to understand the molecular mechanisms involved in this mutualistic relationship, experiments to reproduce endosymbiosis are indispensable. The ciliate "Paramecium" is an ideal host for performing such studies. Topics presented in this volume are: the origins of algal and bacterial symbionts in "Paramecium", the diversity of endosymbiotic bacteria, such as "Holospora" bacteria and especially "Chlorella" species, as well as the infection and maintenance processes. The metabolic control, the regulation of circadian rhythms and photobiological aspects of the mutualistic association, as well as the killer effect of "Paramecium" and its causative agents are further points discussed.

MCQs in Microbiology Springer Science & Business Media

Like other books in the *Laboratory Animal Pocket Reference Series*, this guide covers all aspects pertaining to the use of these organisms including their basic biology, humane care and management, husbandry, life support systems, regulatory compliance, technical procedures, veterinary care, and water quality management. In the relatively brief span

A Hatchery Manual for the Common, Chinese, and Indian Major Carps Springer Science &

Business Media

Descriptions of summer research programs: The AIM REU: Individual projects with a common theme by D. W. Farmer The Applied Mathematical Sciences Summer Institute by E. T. Camacho and S. A. Wirkus Promoting research and minority participation via undergraduate research in the mathematical sciences. MTBI/SUMS-Arizona State University by C. Castillo-Chavez, C. Castillo-Garsow, G. Chowell, D. Murillo, and M. Pshaenich Summer mathematics research experience for undergraduates (REU) at Brigham Young University by M. Dorff Introducing undergraduates for underrepresented minorities to mathematical research: The CSU Channel Islands/California Lutheran University REU, 2004-2006 by C. Wyels The REUT and NREUP programs at California State University, Chico by C. M. Gallagher and T. W. Mattman Undergraduate research at Canisius. Geometry and physics on graphs, summer 2006 by S. Prassidis The NSF REU at Central Michigan University by S. Narayan and K. Smith Claremont Colleges REU, 2005-07 by J. Hoste The first summer undergraduate research program at Clayton State University by A. Lanz Clemson REU in computational number theory and combinatorics by N. Calkin and K. James Research with pre-mathematicians by C. R. Johnson Traditional roots, new beginnings: Transitions in undergraduate research in mathematics at ETSU by A. P. Godbole Undergraduate research in mathematics at Grand Valley State University by S. Schlicker The Hope College REU program by T. Pennings The REU experience at Iowa State University by L. Hogben Lafayette College's REU by G. Gordon LSU REU: Graphs, knots, & Dessins in topology, number theory & geometry by N. W. Stoltzfus, R. V. Perlis, and J. W. Hoffman Mount Holyoke College mathematics summer research institute by M. M. Robinson The director's summer program at the NSA by T. White REU in mathematical biology at Penn State Erie, The Behrend College by J. P. Previte, M. A. Rutter, and S. A. Stevens The Rice University Summer Institute of Statistics (RUSIS) by J. Rojo The Rose-Hulman REU in mathematics by K. Bryan The REU program at DIMACS/Rutgers University by B. J. Latka and F. S. Roberts The SUNY Potsdam-Clarkson University REU program by J. Foisy The Trinity University research experiences for undergraduates in mathematics program by S. Chapman Undergraduate research in mathematics at the University of Akron by J. D. Adler The Duluth undergraduate research program 1977-2006 by J. A. Gallian Promoting undergraduate research in mathematics at the University of Nebraska-Lincoln by J. L. Walker, W. Ledder, R. Rebarber, and G. Woodward REU site: Algorithmic combinatorics on words by F. Blanchet-Sadri Promoting undergraduate research by T. Aktosun Research experiences for undergraduates inverse problems for electrical networks by J. A. Morrow Valparaiso experiences in research for undergraduates in mathematics by R. Gillman and Z. Szaniszló Wabash Summer Institute in Algebra (WSIA) by M. Axtell, J. D. Phillips, and W. Turner THE SMALL program at Williams College by C. E. Silva and F. Morgan Industrial mathematics and statistics research for undergraduates at WPI by A. C. Heinricher and S. L. Weekes Descriptions of summer enrichment programs: Twelve years of summer program for women in mathematics-What works and why? by M. M. Gupta Research experience for undergraduates in numerical analysis and scientific computing: An international program by G. Fairweather and B. M. Moskal Articles: The Long-Term Undergraduate Research (LURE) model by S. S. Adams, J. A. Davis, N. Eugene, K. Hoke, S. Narayan, and K. Smith Research with students from underrepresented

groups by R. Ashley, A. Ayela-Uwangue, F. Cabrera, C. Callesano, and D. A. Narayan Research classes at Gettysburg College by B. Bajnok Research in industrial projects for students: A unique undergraduate experience by S. Beggs What students say about their REU experience by F. Connolly and J. A. Gallian Diversity issues in undergraduate research by R. Cortez, D. Davenport, H

Endosymbionts in Paramecium S. Chand Publishing

This book has been prepared under the auspice of the European Low Gravity Research Association (ELGRA). The main task of ELGRA is to foster the scientific community in Europe and beyond in conducting gravity and space-related research. This publication is dedicated to the science community, and especially to the next generation of scientists and engineers interested in space research and in the means to use Earth to reproduce the space environment. ELGRA provides a comprehensive description of space conditions and the means that have been developed on Earth to perform space environmental and (micro-) gravity related research. The book covers ground-based research instruments and environments for both life and physical sciences research. It discusses the opportunities and limitations of protocols and instruments to compensate gravity or simulate microgravity, such as clinostats, random positioning machines, levitating magnets, electric fields, vibrations, tail suspension or head down tilt, as well as centrifuges for hyper-g studies. Other space environmental conditions are addressed too, like cosmic radiation or Mars atmospheric and soil properties to be replicated and simulated on Earth. Future long duration of manned missions, personal well-being and crew interaction are major issues dealt with.

Principles of Ecology CRC Press

Explores the appearance, characteristics, and behavior of protists and fungi, lifeforms which are neither plants nor animals, using specific examples such as algae, mold, and mushrooms.

Biological Physics Open Road Media

Written by leading international experts in the field of plant metabolic engineering, this book discusses how the technology can be applied. Applications resulting from metabolic engineering are expected to play a very important role in the future of plant breeding: for example, in the fields of improved resistance or improved traits concerning health promoting constituents, as well as in the production of fine chemicals such as medicines, flavors and fragrances.

A Manual of Practical Zoology: INVERTEBRATES New Age International

“ If you liked Chaos, you ’ ll love Complexity. Waldrop creates the most exciting intellectual adventure story of the year ” (The Washington Post). In a rarified world of scientific research, a revolution has been brewing. Its activists are not anarchists, but rather Nobel Laureates in physics and economics and pony-tailed graduates, mathematicians, and computer scientists from all over the world. They have formed an iconoclastic think-tank and their radical idea is to create a new science: complexity. They want to know how a primordial soup of simple molecules managed to turn itself into the first living cell—and what the origin of life some four billion years ago can tell us about the process of technological innovation today. This book is their story—the story of how they have tried to forge what they like to call the science of the twenty-first century. “ Lucidly shows physicists, biologists, computer scientists and economists swapping metaphors and reveling in the sense that epochal discoveries are just around the corner . . . [Waldrop] has a special talent for relaying the exhilaration of moments of intellectual insight. ” —The New York Times Book Review “ Where I enjoyed the book was when it dove into the actual question of complexity, talking about complex systems in economics, biology, genetics, computer

modeling, and so on. Snippets of rare beauty here and there almost took your breath away. ” —Medium
“ [Waldrop] provides a good grounding of what may indeed be the first flowering of a new science. ”
—Publishers Weekly

Protists and Fungi Springer

This best-selling majors ecology book continues to present ecology as a series of problems for readers to critically analyze. No other text presents analytical, quantitative, and statistical ecological information in an equally accessible style. Reflecting the way ecologists actually practice, the book emphasizes the role of experiments in testing ecological ideas and discusses many contemporary and controversial problems related to distribution and abundance. Throughout the book, Krebs thoroughly explains the application of mathematical concepts in ecology while reinforcing these concepts with research references, examples, and interesting end-of-chapter review questions. Thoroughly updated with new examples and references, the book now features a new full-color design and is accompanied by an art CD-ROM for instructors. The field package also includes The Ecology Action Guide, a guide that encourages readers to be environmentally responsible citizens, and a subscription to The Ecology Place (www.ecologyplace.com), a web site and CD-ROM that enables users to become virtual field ecologists by performing experiments such as estimating the number of mice on an imaginary island or restoring prairie land in Iowa. For college instructors and students.

Biological and Medical Research in Space Harvard University Press

Author Page Keeley continues to provide KOC012 teachers with her highly usable and popular formula for uncovering and addressing the preconceptions that students bring to the classroom. OCothe formative assessment probe OCo in this first book devoted exclusively to life science in her Uncovering Student Ideas in Science series. Keeley addresses the topics of life and its diversity; structure and function; life processes and needs of living things; ecosystems and change; reproduction, life cycles, and heredity; and human biology."

Complexity Springer Science & Business Media

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