

Biology Of Populations

General Biology Chapter 13 How Populations Evolve Population Ecology: The Texas Mosquito Mystery - Crash Course Ecology #2
 Biology - Population Ecology Population Ecology Scales of Ecology Part 1: Organisms and Populations Population Ecology (Life Tables, Age Structure, Population Growth) Organisms and Populations Audio Book | Ecology NCERT AudioBook| Biology NCERT Reading Only | NCERT POPULATIONS: Abiotic and Biotic factors A-level Biology. Competition and predator-prey relationships Biology in Focus Chapter 21: The Evolution of Populations Populations How Did We Save the Bald Eagle? (Population Ecology) Crash Course Biology #7
 POPULATIONS IN ECOSYSTEMS - AQA A LEVEL BIOLOGY + EXAM QUESTIONS RUN THROUGH Organisms and Populations Class 12 | Biology NCERT Chapter 11 Bio | CBSE NEET - One Shot Population Biology A2 Biology - Population size (OCR A Chapter 24.1)
 Population Genetics and Microevolutionary Theory
 Population Harvesting
 Population Dynamics
 On the Wings of Checkerspots
 Mathematics in Population Biology
 Population Biology of Plants
 Concepts of Biology
 Population Biology
 The Biology of Population Growth
 Population Biology
 Mechanistic Home Range Analysis
 From Populations to Ecosystems
 Modelling Biological Populations in Space and Time
 Food Webs and Niche Space. (MPB-11), Volume 11
 Populations, Species, and Evolution
 Theories of Populations in Biological Communities
 Species Concepts in Biology

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OMB No. 3499582027641 edited by

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Population Genetics and Microevolutionary Theory Springer
 Population Biology Springer Science & Business Media
Population Harvesting Cambridge University Press
 Updated to include two new chapters, a modified Part II structure, more recent empirical examples, and online spreadsheet simulations.

POPULATION DYNAMICS

Cambridge University Press
 Hanski, a leading thinker in metapopulation ecology, studies checkerspot butterfly populations in Finland. Ehrlich, one of the leading ecologists and conservation biologist, investigates checkerspot butterfly populations in California. This book reports on and synthesizes the major long-term research of both workers' careers on the population biology of checkerspot butterflies.
On the Wings of Checkerspots John Wiley & Sons
 When we wrote this book it was, admittedly, first of all for the sake of our own enjoyment and enlightenment. We will, however, add our sincerely meant (but rather traditional) hope that it will prove interesting to graduate students, to colleagues and to anyone else, who will bother to read it. The book was written as a joint effort by a theoretically inclined population geneticist and an experimental ecologist who share opinions on what is interesting in the field of theoretical ecology. While we believe that qualified natural history is of indisputable intrinsic value, we think that ecology is a natural science which should have a theoretical framework. On the other hand, theoretical ecology must draw its inspiration from nature and yield results which give insight into the findings of the naturalist and inspire him to make new observations and experiments. Without this relationship between field biology and theory, mathematical ecology may become a

discipline totally divorced from biology and solve-albeit interesting-mathematical problems without significance for ecology. Therefore, in addition to theoretical population biology (including some original models) the book also discusses observational data from nature to show how the theoretical models give new insight and how observations give rise to new theoretical thought. While no book on ecology could do without the mention of the hare-lynx example (and ours is, therefore, no exception) we have tried to bring new examples mainly derived from one of the authors' field of experience: microbial ecology and marine biology.

Mathematics in Population Biology Springer Science & Business Media

This book, written in 1977, brought together for the first time, the current knowledge of plants that might be relevant to understanding their population biology. This monumental volume did more than summarize the state of plant biology; it linked the conceptual and theoretical developments in population ecology, mostly derived from the study of animals, with field observations and experimental evidence of population regulation and life history evolution in plants. The field of population biology was already well established in the 1960s although with a clear zoocentric emphasis, however, it is because of Harper's work that the field experienced a veritable explosion, reached maturity and became a mainstream scientific endeavour worldwide. This field is so vast now that it would be pointless, if not impossible, for someone to summarise it. It is precisely because of this that PBP is as relevant now as it was in 1977. John Harper's style of highlighting unanswered questions and the limitations of both theory and empirical evidence served and still serves as foundation for research agendas worldwide. Much remains to be done in this field and this alone makes PBP an essential element in the library of every student/researcher of population biology, whether interested in plants or animals.

From the ¿Preface to the 2010 Printing¿ written by José Sarukhán, Rodolfo Dirzo and Miguel Franco.

Population Biology of Plants Springer Science & Business Media

A knowledge of animal population dynamics is essential for the proper management of natural resources and the environment. This book, now available in paperback, develops basic concepts and a rigorous methodology for the analysis of animal population dynamics to identify the underlying mechanisms.

CONCEPTS OF BIOLOGY

Springer Science & Business Media

This unique collection of essays deals with the foundation and historical development of population biology and its relationship to population genetics and population ecology on one hand and to the rapidly growing fields of molecular quantitative genetics, genomics and bioinformatics on the other. Such an interdisciplinary treatment has never been attempted before. The volume is set in a historical context, but has up-to-date coverage of material in various related fields, bringing out the central role of population biology in all aspects of its connection to population genetics and population ecology.

Population Biology Princeton University Press

Frank E. Zachos offers a comprehensive review of one of today's most important and contentious issues in biology: the species problem. After setting the stage with key background information on the topic, the book provides a brief history of species concepts from antiquity to the Modern Synthesis, followed by a discussion of the ontological status of species with a focus on the individuality thesis and potential means of reconciling it with other philosophical approaches. More than 30 different species concepts found in the literature are presented in an annotated list, and the most important ones, including the Biological, Genetic, Evolutionary and different versions of the Phylogenetic Species Concept, are discussed in more detail. Specific questions addressed include the problem of asexual and prokaryotic species, intraspecific categories like subspecies and Evolutionarily Significant Units, and a potential solution to the species problem based on a hierarchical approach that distinguishes between ontological and operational species concepts. A full chapter is dedicated to the challenge of delimiting species by means of a discrete taxonomy in a continuous world of inherently fuzzy boundaries. Further, the book outlines the practical ramifications for ecology and evolutionary biology of how we define the species category, highlighting the danger of an apples and oranges problem if what we subsume under the same name ("species") is in actuality a variety of different entities. A succinct summary chapter, glossary and annotated list of references round out the coverage, making the book essential reading for all biologists looking for an accessible introduction to the historical, philosophical and practical dimensions of the species problem.

THE BIOLOGY OF POPULATION GROWTH

John Wiley & Sons

Fascinated by the diversity of living organisms, humans have always been curious about its origin. Darwin was the first to provide the scholarly and persuasive thesis for gradual evolution and speciation under natural selection. Although we now have much information on evolution, we still don't understand it in detail. Many questions still remain open due to the complexity and multiplicity of interacting factors. Several approaches mainly arising from population ecology and genetics are presented in this book in order to help understand genetic variation and evolution.

Population Biology Springer

Population genomics is revolutionizing wildlife biology, conservation, and management by providing key and novel insights into genetic, population and landscape-level processes in wildlife, with unprecedented power and accuracy. This pioneering book presents the advances and potential of population genomics in wildlife, outlining key population genomics concepts and questions in wildlife biology, population genomics approaches that are specifically applicable to wildlife, and application of population genomics in wildlife population and evolutionary biology, ecology, adaptation and conservation and management. It is important for students, researchers, and wildlife professionals to understand the growing set of population genomics tools that can address issues from delineation of wildlife populations to assessing their capacity to adapt to environmental change. This book brings together leading experts in wildlife population genomics to discuss the key areas of the field, as well as challenges, opportunities and future prospects of wildlife population genomics.

Mechanistic Home Range Analysis Springer

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.

From Populations to Ecosystems Springer

In the 50 years that have passed since Alfred Latka's death in 1949 his position as the father of mathematical demography has been secure. With his first demographic papers in 1907 and 1911 (the latter co authored with F. R. Sharpe) he laid the foundations for stable population theory, and over the next decades both largely completed it and found convenient mathematical approximations that gave it practical applications. Since his time, the field has moved in several directions he did not foresee, but in the main it is still his. Despite Latka's stature, however, the reader still needs to hunt through the old journals to locate his principal works. As yet no extensive collections of his papers are in print, and for his part he never assembled his contributions into a single volume in English. He did so in French, in the two part *Theorie Analytique des Associations Biologiques* (1934, 1939). Drawing on his *Elements of Physical Biology* (1925) and most of his mathematical papers, Latka offered French readers insights into his biological thought and a concise and mathematically accessible summary of what he called recent contributions in demographic analysis. We would be accurate in also calling it Latka's contributions in demographic analysis.

Modelling Biological Populations in Space and Time Springer

In this new century mankind faces ever more challenging environmental and public health problems, such as pollution, invasion by exotic species, emergence of new diseases or the emergence of diseases into new regions (West Nile virus, SARS, Anthrax, etc.), and the resurgence of existing diseases (infectious diseases, malaria, TB, HIV/AIDS, etc.). Mathematical models have been successfully used to study many biological, epidemiological and medical problems, and nonlinear and complex dynamics have been observed in all of those contexts. Mathematical studies have helped us not only to better understand these

problems but also to find solutions in some cases, such as the prediction and control of SARS outbreaks, understanding HIV infection, and the investment of antibiotic-resistant infections in hospitals.

Structured population models distinguish individuals from one another according to characteristics such as age, size, location, status, and movement, to determine the birth, growth and death rates, interaction with each other and with environment, infectivity, etc. The goal of structured population models is to understand how these characteristics affect the dynamics of these models and thus the outcomes and consequences of the biological and epidemiological processes. There is a very large and growing body of literature on these topics. This book deals with the recent and important advances in the study of structured population models in biology and epidemiology. There are six chapters in this book, written by leading researchers in these areas.

FOOD WEBS AND NICHE SPACE. (MPB-11), VOLUME 11

Princeton University Press

Provides a quantitative and Darwinian perspective on population biology, with problem sets, simulations and worked examples to aid the student.

Populations, Species, and Evolution Princeton University Press

Introduction to Population Biology provides a quantitative and Darwinian perspective of population processes. Packed full of worked examples, step-by-step simulations and problem sets, this book will allow the student to gain a good grasp of the fundamentals of this important area.

Theories of Populations in Biological Communities Springer Science & Business Media

The populations of many species of animals and plants are age-structured, i.e. the individuals present at any one time were born over a range of different times, and their fertility and survival depend on age. The properties of such populations are important for interpreting experiments and observations on the genetics of populations for animal and plant breeding, and for understanding the evolution of features of life-histories such as senescence and time of reproduction. In this new edition Brian Charlesworth provides a comprehensive review of the basic mathematical theory of the demography and genetics of age-structured populations. The mathematical level of the book is such that it will be accessible to anyone with a knowledge of basic calculus and linear algebra.

Species Concepts in Biology Harvard University Press

'Species' are central to understanding the origin and dynamics of biological diversity; explaining why lineages split into multiple distinct species is one of the main goals of evolutionary biology. However the existence of species is often taken for granted, and precisely what is meant by species and whether they really exist as a pattern of nature has rarely been modelled or critically tested. This novel book presents a synthetic overview of the evolutionary biology of species, describing what species are, how they form, the consequences of species boundaries and diversity for evolution, and patterns of species accumulation over time. The central thesis is that species represent more than just a unit of taxonomy; they are a model of how diversity is structured as well as how groups of related organisms evolve. The author adopts an intentionally broad approach, stepping back from the details to consider what species constitute, both theoretically and empirically, and how we detect them, drawing on a wealth of

examples from microbes to multicellular organisms.

Analytical Population Dynamics Princeton University Press

The advances made possible by the development of molecular techniques have in recent years revolutionized quantitative genetics and its relevance for population genetics. Population Genetics and Microevolutionary Theory takes a modern approach to population genetics, incorporating modern molecular biology, species-level evolutionary biology, and a thorough acknowledgment of quantitative genetics as the theoretical basis for population genetics. Logically organized into three main sections on population structure and history, genotype-phenotype interactions, and selection/adaptation Extensive use of real examples to illustrate concepts Written in a clear and accessible manner and devoid of complex mathematical equations Includes the author's introduction to background material as well as a conclusion for a handy overview of the field and its modern applications Each chapter ends with a set of review questions and answers Offers helpful general references and Internet links

Structured Population Models in Biology and Epidemiology

Cambridge University Press

Population biology has been investigated quantitatively for many decades, resulting in a rich body of scientific literature. Ecologists often avoid this literature, put off by its apparently formidable mathematics. This textbook provides an introduction to the biology and ecology of populations by emphasizing the roles of simple mathematical models in explaining the growth and behavior of populations. The author only assumes acquaintance with elementary calculus, and provides tutorial explanations where needed to develop mathematical concepts. Examples, problems, extensive marginal notes and numerous graphs enhance the book's value to students in classes ranging from population biology and population ecology to mathematical biology and mathematical ecology. The book will also be useful as a supplement to introductory courses in ecology.

Population Biology of Grasses John Wiley & Sons

Spatial patterns of movement are fundamental to the ecology of animal populations, influencing their social organization, mating systems, demography, and the spatial distribution of prey and competitors. However, our ability to understand the causes and consequences of animal home range patterns has been limited by the descriptive nature of the statistical models used to analyze them. In Mechanistic Home Range Analysis, Paul Moorcroft and Mark Lewis develop a radically new framework for studying animal home range patterns based on the analysis of correlated random walk models for individual movement behavior. They use this framework to develop a series of mechanistic home range models for carnivore populations. The authors' analysis illustrates how, in contrast to traditional statistical home range models that merely describe pattern, mechanistic home range models can be used to discover the underlying ecological determinants of home range patterns observed in populations, make accurate predictions about how spatial distributions of home ranges will change following environmental or demographic disturbance, and analyze the functional significance of the movement strategies of individuals that give rise to observed patterns of space use. By providing researchers and graduate students of ecology and wildlife biology with a more illuminating way to analyze animal movement, Mechanistic Home Range Analysis will be an indispensable reference for years to come.

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