

# Biogeography Ecological And Evolutionary Approach

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**Conservation Biogeography** - Richard J. Ladle 2011-06-09

CONSERVATION BIOGEOGRAPHY The Earth's ecosystems are in the midst of an unprecedented period of change as a result of human action. Many habitats have been completely destroyed or divided into tiny fragments, others have been transformed through the introduction of new species, or the extinction of native plants and animals, while anthropogenic climate change now threatens to completely redraw the geographic map of life on this planet. The urgent need to understand and prescribe solutions to this complicated and interlinked set of pressing conservation issues has led to the transformation of the venerable academic discipline of biogeography - the study of the geographic distribution of animals and plants. The newly emerged sub-discipline of conservation biogeography uses the conceptual tools and methods of biogeography to address real world conservation problems and to provide predictions about the fate of key species and ecosystems over the next century. This book provides the first comprehensive review of the field in a series of closely interlinked chapters addressing the central issues within this exciting and important subject.

**Conceptual Breakthroughs in Evolutionary Ecology** - Laurence Mueller 2019-11-25

Although biologists recognize evolutionary ecology by name, many only have a limited understanding of its conceptual roots and historical development. *Conceptual Breakthroughs in Evolutionary Ecology* fills that knowledge gap in a thought-provoking and readable format. Written by a world-renowned evolutionary ecologist, this book embodies a unique blend of expertise in combining theory and experiment, population genetics and ecology. Following an easily-accessible structure, this book encapsulates and chronologizes the history behind evolutionary ecology. It also focuses on the integration of age-structure and density-dependent selection into an understanding of life-history evolution. Covers over 60 seminal breakthroughs and paradigm shifts in the field of evolutionary biology and ecology Modular format permits ready access to each described subject Historical overview of a field whose concepts are central to all of biology and relevant to a broad audience of biologists, science historians, and philosophers of science

**Evolutionary Biogeography** - Juan Morrone 2009

"Rather than favoring only one approach, Juan J. Morrone proposes a comprehensive treatment of the developments and theories of evolutionary biogeography. Evolutionary biogeography uses distributional, phylogenetic, molecular, and fossil data to assess the historical changes that have produced current biotic patterns. Panbiogeography, parsimony analysis of endemism, cladistic biogeography, and phylogeography are the four recent and most common approaches. Many conceive of these methods as representing different "schools," but Morrone shows how each addresses different questions in the various steps of an evolutionary biogeographical analysis. Panbiogeography and parsimony analysis of endemism are useful for identifying biotic components or areas of endemism. Cladistic biogeography uses phylogenetic data to determine the relationships between these biotic components. Further information on fossils, phylogeographic patterns, and molecular clocks can be incorporated to identify different cenocrons. Finally, available geological knowledge can help construct a geobiotic scenario that may explain how analyzed areas were put into contact and how the biotic components and cenocrons inhabiting them evolved. Morrone compares these methods and employs case studies to make it clear which is best for the question at hand. Set problems, discussion sections, and glossaries further enhance classroom use."--Publisher's description.

**Biogeography** - C. Barry Cox 2020-01-07

Through nine successful editions, and for over 45 years, *Biogeography: An Ecological and Evolutionary Approach* has provided a thorough and comprehensive exploration of the varied scientific disciplines and research that are essential to understanding the subject. The text, noted for its clear and engaging style of writing, has been praised for its solid background in historical biogeography and basic biology, that is enhanced and illuminated by discussions of current research. This new edition incorporates the exciting changes of the recent years and presents a thoughtful exploration of the research and controversies that have transformed our understanding of the biogeography of the world. New themes and topics in this tenth edition include: Next generation genetic technologies and their use in historical biogeography, phylogeography and population genomics Biogeographical databases and biodiversity information systems, which are becoming increasingly important for biogeographical research An introduction to functional biogeography and its applications to community assembly, diversity gradients and the analysis of ecosystem functioning Updated case studies focusing on island biogeography, using the latest phylogenetic studies *Biogeography: An Ecological and Evolutionary Approach* reveals how the patterns of life that we see today have been created by the two great Engines of the Planet: the Geological Engine, plate tectonics, which alters the conditions of life on the planet, and the Biological Engine, evolution, which responds to these changes by creating new forms and patterns of life.

**Evolutionary Theory** - Niles Eldredge 2016-09-23

The natural world is infinitely complex and hierarchically structured, with smaller units forming the components of larger systems: genes are components genomes, cells are building blocks of tissues and organs, individuals are members of populations, which, in turn, are parts of species. In the face of such awe inspiring complexity, scientists need tools like the hierarchy theory of evolution, which provides a theoretical framework and an interdisciplinary research program that aims to understand the way complex biological systems work and evolve. The multidisciplinary approach looks at the structure of the myriad intricate interactions across levels of organization that range from molecules to the biosphere. *Evolutionary Theory: A Hierarchical Perspective* provides an introduction to the theory, which is currently driving a great deal of research in bioinformatics and evolutionary theory. Written by a diverse and renowned group of contributors, and edited by the founder of Hierarchy Theory Niles Eldredge, this work will help make transparent the fundamental patterns driving living systems.

**Island Biogeography** - Robert J. Whittaker 2007

Isolation, extinction, conservation, biodiversity, hotspots.

[Molecular Approaches to Ecology and Evolution](#) - R. deSalle 2012-12-06

Four years ago we edited a volume of 36 papers entitled *Molecular Approaches to Ecology and Evolution* (Schierwater et al., 1994), in which we attempted to put together a diverse array of papers that demonstrated the impact that the technological revolution of molecular biology has had on the field of evolutionary biology and ecology. The present volume borrows from that theme but attempts to focus more sharply on the impact that molecular biology has had on our understanding of different hierarchical levels important in evolutionary and ecological studies. Because DNA sequence variation is at the heart of every paper in the present volume, we feel it necessary to examine how DNA has affected study at various levels of biological organization. The majority of the chapters in the present volume follow themes es

established in the earlier volume; all chapters by authors in the previous volume are either fully updated or entirely new and expand into areas that we felt were important for a more complete understanding of the impact of DNA technology on ecology and evolution. The collection of papers in this volume cover a diverse array of ecological and evolutionary questions and demonstrates the breadth of coverage molecular technology has imparted on modern evolutionary biology. There are also a broad range of hierarchical questions approached by the 17 papers in this volume.

Origins of Biogeography - Malte Christian Ebach 2015-07-03

This book presents a revised history of early biogeography and investigates the split in taxonomic practice, between the classification of taxa and the classification of vegetation. It moves beyond the traditional belief that biogeography is born from a synthesis of Darwin and Wallace and focuses on the important pioneering work of earlier practitioners such as Zimmermann, Stromeier, de Candolle and Humboldt. Tracing the academic history of biogeography over the decades and centuries, this book recounts the early schisms in phyto and zoogeography, the shedding of its bonds to taxonomy, its adoption of an ecological framework and its beginnings at the dawn of the 20th century. This book assesses the contributions of key figures such as Zimmermann, Humboldt and Wallace and reminds us of the forgotten influence of plant and animal geographers including Stromeier, Prichard and de Candolle, whose early attempts at classifying animal and plant geography would inform later progress. The Origins of Biogeography is a science historiography aimed at biogeographers, who have little access to a detailed history of the practices of early plant and animal geographers. This book will also reveal how biological classification has shaped 18th and 19th century plant and animal geography and why it is relevant to the 21st biogeographer.

**Corals in Space and Time** - John Edward Norwood Veron 1995

As concerns about the change in global climate and the loss of biodiversity have mounted, attention has focused on the depletion of the ozone layer and the destruction of tropical rainforests. But recently scientists have identified another seriously endangered ecosystem: coral reefs. In *Corals in Space and Time*, J.E.N. Veron provides a richly detailed study of corals that will inform investigations of these fragile ecosystems. Drawing on twenty-five years of research, Veron brings together extensive field observations about the taxonomy, biogeography, paleontology, and biology of corals. After introducing coral taxonomy and biogeography, as well as relevant aspects of coral biology for the non-specialist, he provides an interpretation of the fossil record and paleoclimates, an analysis of modern coral distribution, and a discussion of the evolutionary nature and origins of coral species. Revealing a sharp conflict between empirical observations about the geographical variation within species, Veron introduces a non-Darwinian theory of coral evolution. He proposes that the evolution of coral species is driven not primarily by natural selection, but by constantly shifting patterns of ocean circulation, which produce changing variations of genetic connectivity. This mechanism of speciation and hybridization has far-reaching consequences for the study of all types of corals and potentially many other groups of organisms as well.

**Biogeography 5e** - Mark V Lomolino 2016-12-01

**An Introduction to Methods and Models in Ecology, Evolution, and Conservation Biology** - Stanton Braude 2010-01-04

An innovative introduction to ecology and evolution This unique textbook introduces undergraduate students to quantitative models and methods in ecology, behavioral ecology, evolutionary biology, and conservation. It explores the core concepts shared by these related fields using tools and practical skills such as experimental design, generating phylogenies, basic statistical inference, and persuasive grant writing. And contributors use examples from their own cutting-edge research, providing diverse views to engage students and broaden their understanding. This is the only textbook on the subject featuring a collaborative "active learning" approach that emphasizes hands-on learning. Every chapter has exercises that enable students to work directly with the material at their own pace and in small groups. Each problem includes data presented in a rich array of formats, which students use to answer questions that illustrate patterns, principles, and methods. Topics range from Hardy-Weinberg equilibrium and population effective size to optimal foraging and indices of biodiversity. The book also includes a comprehensive glossary. In addition to the editors, the contributors are James Beck, Cawas Behram Engineer, John Gaskin, Luke

Harmon, Jon Hess, Jason Kolbe, Kenneth H. Kozak, Robert J. Robertson, Emily Silverman, Beth Sparks-Jackson, and Anton Weisstein. Provides experience with hypothesis testing, experimental design, and scientific reasoning Covers core quantitative models and methods in ecology, behavioral ecology, evolutionary biology, and conservation Turns "discussion sections" into "thinking labs" Professors: A supplementary Instructor's Manual is available for this book. It is restricted to teachers using the text in courses. For information on how to obtain a copy, refer to:

[http://press.princeton.edu/class\\_use/solutions.html](http://press.princeton.edu/class_use/solutions.html)

*Carabid Beetles: Ecology and Evolution* - K. Desender 2013-04-17

The Carabidae form one of the largest and best studied families of insects, occurring in nearly every terrestrial habitat. The contributions included in this book cover a broad spectrum of recent research into this beetle family, with an emphasis on various aspects of ecology and evolution. They deal both with individual carabid species, for example in studies on population and reproductive biology or life history in general, and with ground beetle communities, as exemplified in papers treating assemblages in natural habitats, on agricultural land and in forests. Disciplines range from biogeography and faunistics, over morphology, taxonomy and phylogenetics, ecophysiology and functional ecology, to population, community, conservation and landscape ecology. This volume is the result of the 8th European Carabidologists' Meeting, 2nd International Symposium of Carabidology, September 1-4, 1992, Belgium.

**The Evolving World** - David P MINDELL 2009-06-30

Today, evolutionary biology is much more than an explanatory concept. It is indispensable to the world we live in. This book provides the first truly accessible and balanced account of how evolution has become a tool with applications that are thoroughly integrated, and deeply useful, in our everyday lives and our societies, often in ways that we do not realize. The Evolving World convinces us as never before that evolutionary biology has become absolutely necessary for human existence.

**Biogeography** - Eric Guilbert 2022-01-26

The recent progress in analytical methods, aided by bringing in a wide range of other disciplines, opens up the study to a broader field, which means that biogeography now goes far beyond a simple description of the distribution of living species on Earth. Originating with Alexander von Humboldt, biogeography is a discipline in which ecologists and evolutionists aim to understand the way that living species are organized in connection with their environments. Today, as we face major challenges such as global warming, massive species extinction and devastating pandemics, biogeography offers hypotheses and explanations that may help to provide solutions. This book presents as wide an overview as possible of the different fields that biogeography interacts with. Sixteen authors from all over the world offer different approaches based on their specific areas of knowledge and experience; thus, we intend to illustrate the vast number of diverse aspects covered by biogeography.

**Evolutionary Community Ecology, Volume 58** - Mark A. McPeck 2017-08-29

Cover -- Title -- Copyright -- Dedication -- Contents -- Acknowledgments -- 1. Ecological Opportunities, Communities, and Evolution -- 2. The Community of Ecological Opportunities -- 3. Evolving in the Community -- 4. New Species for the Community -- 5. Differentiating in the Community -- 6. Moving among Communities -- 7. Which Ways Forward? -- Literature Cited -- Index

*Macroecology* - James H. Brown 1995-06

In *Macroecology*, James H. Brown proposes a radical new research agenda designed to broaden the scope of ecology to encompass vast geographical areas and very long time spans. While much ecological research is narrowly focused and experimental, providing detailed information that cannot be used to generalize from one ecological community or time period to another, macroecology draws on data from many disciplines to create a less detailed but much broader picture with greater potential for generalization. Integrating data from ecology, systematics, evolutionary biology, paleobiology, and biogeography to investigate problems that could only be addressed on a much smaller scale by traditional approaches, macroecology provides a richer, more complete understanding of how patterns of life have moved across the earth over time. Brown also demonstrates the advantages of macroecology for conservation, showing how it allows scientists to look beyond endangered species and ecological communities to consider the long history and large geographic scale of human impacts. An important reassessment of the direction of

ecology by one of the most influential thinkers in the field, this work will shape future research in ecology and other disciplines. "This approach may well mark a major new turn in the road in the history of ecology, and I find it extremely exciting. The scope of Macroecology is tremendous and the book makes use of its author's exceptionally broad experience and knowledge. An excellent and important book."—Lawrence R. Heaney, Center for Environmental and Evolutionary Biology, the Field Museum

**Biogeography** - Christopher Barry Cox 1976

**Ecological Niches and Geographic Distributions (MPB-49)** - A. Townsend Peterson 2011-11-20

Terminology, conceptual overview, biogeography, modeling.

Analytical Biogeography - A.A. Myers 2013-12-11

Biogeography may be defined simply as the study of the geographical distribution of organisms, but this simple definition hides the great complexity of the subject. Biogeography transcends classical subject areas and involves a range of scientific disciplines that includes geography, geology and biology. Not surprisingly, therefore, it means rather different things to different people. Historically, the study of biogeography has been concentrated into compartments at separate points along a spatio-temporal gradient. At one end of the gradient, ecological biogeography is concerned with ecological processes occurring over short temporal and small spatial scales, whilst at the other end, historical biogeography is concerned with evolutionary processes over millions of years on a large, often global scale. Between these end points lies a third major compartment concerned with the profound effects of Pleistocene glaciations and how these have affected the distribution of recent organisms. Within each of these compartments along the scale gradient, a large number of theories, hypotheses and models have been proposed in an attempt to explain the present and past biotic distribution patterns. To a large extent, these compartments of the subject have been non-interactive, which is understandable from the different interests and backgrounds of the various researchers. Nevertheless, the distributions of organisms across the globe cannot be fully understood without a knowledge of the full spectrum of ecological and historical processes. There are no degrees in biogeography and today's biogeographers are primarily born out of some other discipline.

**Studyguide for Biogeography** - Cram101 Textbook Reviews 2013-05

Never HIGHLIGHT a Book Again Virtually all testable terms, concepts, persons, places, and events are included. Cram101 Textbook Outlines gives all of the outlines, highlights, notes for your textbook with optional online practice tests. Only Cram101 Outlines are Textbook Specific. Cram101 is NOT the Textbook. Accompanys: 9780521673761

**Neotropical Diversification: Patterns and Processes** - Valentí Rull 2020-03-30

This book provides a comprehensive overview of the patterns of biodiversity in various neotropical ecosystems, as well as a discussion on their historical biogeographies and underlying diversification processes. All chapters were written by prominent researchers in the fields of tropical biology, molecular ecology, climatology, paleoecology, and geography, producing an outstanding collection of essays, synthetic analyses, and novel investigations that describe and improve our understanding of the biodiversity of this unique region. With chapters on the Amazon and Caribbean forests, the Atlantic rainforests, the Andes, the Cerrado savannahs, the Caatinga drylands, the Chaco, and Mesoamerica – along with broad taxonomic coverage – this book summarizes a wide range of hypotheses, views, and methods concerning the processes and mechanisms of neotropical diversification. The range of perspectives presented makes the book a truly comprehensive, state-of-the-art publication on the topic, which will fascinate both scientists and general readers alike.

Geoecology: An Evolutionary Approach - Richard Huggett 2002-09-11

Animals, plants and soils interact with one another, with the terrestrial spheres, and with the rest of the Cosmos. On land, this rich interaction creates landscape systems or geoecosystems. Geoecology investigates the structure and function of geoecosystems, their components and their environment. The author develops a simple dynamic systems model, the 'brash' equation, to form the conceptual framework for the book suggesting an 'ecological' and 'evolutionary' approach. Exploring internal of 'ecological' interactions between geoecosystems and their near-surface environments - the atmosphere, hydrosphere, toposphere, and lithosphere - and external influences, both geological and cosmic, Geoecology presents

geoecosystems as dynamic entities constantly responding to changes within themselves and their surroundings. An 'evolutionary' view emerges of geoeological systems, and the animals, plants, and soils comprising them, providing a new way of thinking for the whole environmental complex and the rich web of interdependencies contained therein.

**Encyclopedia of Evolutionary Biology** - 2016-04-14

Encyclopedia of Evolutionary Biology is the definitive go-to reference in the field of evolutionary biology. It provides a fully comprehensive review of the field in an easy to search structure. Under the collective leadership of fifteen distinguished section editors, it is comprised of articles written by leading experts in the field, providing a full review of the current status of each topic. The articles are up-to-date and fully illustrated with in-text references that allow readers to easily access primary literature. While all entries are authoritative and valuable to those with advanced understanding of evolutionary biology, they are also intended to be accessible to both advanced undergraduate and graduate students. Broad topics include the history of evolutionary biology, population genetics, quantitative genetics; speciation, life history evolution, evolution of sex and mating systems, evolutionary biogeography, evolutionary developmental biology, molecular and genome evolution, coevolution, phylogenetic methods, microbial evolution, diversification of plants and fungi, diversification of animals, and applied evolution. Presents fully comprehensive content, allowing easy access to fundamental information and links to primary research Contains concise articles by leading experts in the field that ensures current coverage of each topic Provides ancillary learning tools like tables, illustrations, and multimedia features to assist with the comprehension process

The Unified Neutral Theory of Biodiversity and Biogeography (MPB-32) - Stephen P. Hubbell 2011-06-27

Despite its supreme importance and the threat of its global crash, biodiversity remains poorly understood both empirically and theoretically. This ambitious book presents a new, general neutral theory to explain the origin, maintenance, and loss of biodiversity in a biogeographic context. Until now biogeography (the study of the geographic distribution of species) and biodiversity (the study of species richness and relative species abundance) have had largely disjunct intellectual histories. In this book, Stephen Hubbell develops a formal mathematical theory that unifies these two fields. When a speciation process is incorporated into Robert H. MacArthur and Edward O. Wilson's now classical theory of island biogeography, the generalized theory predicts the existence of a universal, dimensionless biodiversity number. In the theory, this fundamental biodiversity number, together with the migration or dispersal rate, completely determines the steady-state distribution of species richness and relative species abundance on local to large geographic spatial scales and short-term to evolutionary time scales. Although neutral, Hubbell's theory is nevertheless able to generate many nonobvious, testable, and remarkably accurate quantitative predictions about biodiversity and biogeography. In many ways Hubbell's theory is the ecological analog to the neutral theory of genetic drift in genetics. The unified neutral theory of biogeography and biodiversity should stimulate research in new theoretical and empirical directions by ecologists, evolutionary biologists, and biogeographers.

**Evolution Driven by Organismal Behavior** - Rui Diogo 2017-03-08

This book proposes a new way to think about evolution. The author carefully brings together evidence from diverse fields of science. In the process, he bridges the gaps between many different--and usually seen as conflicting--ideas to present one integrative theory named ONCE, which stands for Organic Nonoptimal Constrained Evolution. The author argues that evolution is mainly driven by the behavioral choices and persistence of organisms themselves, in a process in which Darwinian natural selection is mainly a secondary--but still crucial--evolutionary player. Within ONCE, evolution is therefore generally made of mistakes and mismatches and trial-and-error situations, and is not a process where organisms engage in an incessant, suffocating struggle in which they can't thrive if they are not optimally adapted to their habitats and the external environment. Therefore, this unifying view incorporates a more comprehensive view of the diversity and complexity of life by stressing that organisms are not merely passive evolutionary players under the rule of external factors. This insightful and well-reasoned argument is based on numerous fascinating case studies from a wide range of organisms, including bacteria, plants, insects and diverse examples from the evolution of our own species. The book has an appeal to researchers, students, teachers, and those with an interest in the history and philosophy of science, as well as to the broader public, as it

brings life back into biology by emphasizing that organisms, including humans, are the key active players in evolution and thus in the future of life on this wonderful planet.

**Comparative Biogeography** - Lynne Parenti 2009-11-18

To unravel the complex shared history of the Earth and its life forms, biogeographers analyze patterns of biodiversity, species distribution, and geological history. So far, the field of biogeography has been fragmented into divergent systematic and evolutionary approaches, with no overarching or unifying research theme or method. In this text, Lynne Parenti and Malte Ebach address this discord and outline comparative tools to unify biogeography. Rooted in phylogenetic systematics, this comparative biogeographic approach offers a comprehensive empirical framework for discovering and deciphering the patterns and processes of the distribution of life on Earth. The authors cover biogeography from its fundamental ideas to the most effective ways to implement them. Real-life examples illustrate concepts and problems, including the first comparative biogeographical analysis of the Indo-West Pacific, an introduction to biogeographical concepts rooted in the earth sciences, and the integration of phylogeny, evolution and earth history.

Behavioural Ecology - Etienne Danchin 2008-02-14

Behavioural Ecology gives a fresh, contemporary account of the evolutionary and ecological processes that underpin animal behaviour. Contributions from subject experts and meticulous editing yield a text with all the qualities of a multi-author book, but without the potential drawbacks.

**Animal Diversity and Biogeography of the Cuatro Ciénegas Basin** - Fernando Álvarez 2019-05-09

This volume investigates the contemporary fauna that inhabit the Cuatro Ciénegas Basin. Divided into 15 chapters, it addresses and describes their diversity, taxonomic and biogeographic affinities, and ecological characteristics. The Cuatro Ciénegas Valley is a unique oasis in the south-central region of the State of Coahuila, part of the Sonoran Desert, in Mexico. Several clues, specially derived from the study of the microbiota, suggest a very ancient origin of the valley and its permanence through time. This condition had promoted a high level of endemism and led to unique interactions between the resident species.

Biogeography - C. Barry Cox 2014-12-31

Dispersal Ecology and Evolution - Jean Clobert 2012-09-27

Now that so many ecosystems face rapid and major environmental change, the ability of species to respond to these changes by dispersing or moving between different patches of habitat can be crucial to ensuring their survival. Understanding dispersal has become key to understanding how populations may persist. Dispersal Ecology and Evolution provides a timely and wide-ranging overview of the fast expanding field of dispersal ecology, incorporating the very latest research. The causes, mechanisms, and consequences of dispersal at the individual, population, species, and community levels are considered. Perspectives and insights are offered from the fields of evolution, behavioural ecology, conservation biology, and genetics. Throughout the book theoretical approaches are combined with empirical data, and care has been taken to include examples from as wide a range of species as possible - both plant and animal.

**Rodent Societies** - Jerry O. Wolff 2008-09-15

Rodent Societies synthesizes and integrates the current state of knowledge about the social behavior of rodents, providing ecological and evolutionary contexts for understanding their societies and highlighting emerging conservation and management strategies to preserve them. It begins with a summary of the evolution, phylogeny, and biogeography of social and nonsocial rodents, providing a historical basis for comparative analyses. Subsequent sections focus on group-living rodents and characterize their reproductive behaviors, life histories and population ecology, genetics, neuroendocrine mechanisms, behavioral development, cognitive processes, communication mechanisms, cooperative and uncooperative behaviors, antipredator strategies, comparative socioecology, diseases, and conservation. Using the highly diverse and well-studied Rodentia as model systems to integrate a variety of research approaches and evolutionary theory into a unifying framework, Rodent Societies will appeal to a wide range of disciplines, both as a compendium of current research and as a stimulus for future collaborative and interdisciplinary investigations.

**Quaternary Ecology, Evolution, and Biogeography** - Valenti Rull 2020-03-06

Quaternary Ecology, Evolution, and Biogeography is an introduction on the study of the ecological and evolutionary processes that have shaped our present biosphere under the influence of glacial-interglacial cycles. Written by a renowned ecologist with paleoecological expertise, the book reviews the climatic changes that have occurred during the last million years, along with the responses of organisms and ecosystems. The book offers an understanding of the evolutionary origin of extant biodiversity, its biogeographical patterns, and the composition of modern ecological communities. In addition, it explores human evolution and the influence of our activities on the biosphere, especially in the last millennia. The valuable resource is intended for a wide audience, including researchers and students in natural sciences. It offers the latest information on how studying the past can contribute to our understanding of present climate issues for a better future.

**Biogeography** - Christopher Barry Cox 1980

*Cladistic Biogeography* - Christopher J. Humphries 1999-04-15

The distribution and classification of life on earth has long been of interest to biological theorists, as well as to travellers and explorers. Cladistic biogeography is the study of the historical and evolutionary relationships between species, based on their particular distribution patterns across the earth. Analysis of the distributions of species in different areas of the world can tell us how those species and areas are related, what regions or larger groups of areas exist, and what their origins might be. The first edition of Cladistic Biogeography was published in 1986. It was a concise exposition of the history, methods, applications of, and prospects for cladistic biogeography. Well reviewed, and widely used in teaching, Cladistic Biogeography is still in demand, despite having been out of print for some time. This new edition draws on a wide range of examples, both plant and animal, from marine, terrestrial, and freshwater habitats. It has been updated throughout, with the chapters being rewritten and expanded to incorporate the latest research findings and theoretical and methodological advances in this dynamic field.

**Theoretical Ecology** - Kevin S. McCann 2020-04-29

Theoretical Ecology: concepts and applications continues the authoritative and established sequence of theoretical ecology books initiated by Robert M. May which helped pave the way for ecology to become a more robust theoretical science, encouraging the modern biologist to better understand the mathematics behind their theories. This latest instalment builds on the legacy of its predecessors with a completely new set of contributions. Rather than placing emphasis on the historical ideas in theoretical ecology, the Editors have encouraged each contribution to: synthesize historical theoretical ideas within modern frameworks that have emerged in the last 10-20 years (e.g. bridging population interactions to whole food webs); describe novel theory that has emerged in the last 20 years from historical empirical areas (e.g. macroecology); and finally to cover the rapidly expanding area of theoretical ecological applications (e.g. disease theory and global change theory). The result is a forward-looking synthesis that will help guide the field through a further decade of discovery and development. It is written for upper level undergraduate students, graduate students, and researchers seeking synthesis and the state of the art in growing areas of interest in theoretical ecology, genetics, evolutionary ecology, and mathematical biology.

*Historical Biogeography* - Jorge CRISCI 2009-06-30

Though biogeography may be simply defined--the study of the geographic distributions of organisms--the subject itself is extraordinarily complex, involving a range of scientific disciplines and a bewildering diversity of approaches. For convenience, biogeographers have recognized two research traditions: ecological biogeography and historical biogeography. This book makes sense of the profound revolution that historical biogeography has undergone in the last two decades, and of the resulting confusion over its foundations, basic concepts, methods, and relationships to other disciplines of comparative biology. Using case studies, the authors explain and illustrate the fundamentals and the most frequently used methods of this discipline. They show the reader how to tell when a historical biogeographic approach is called for, how to decide what kind of data to collect, how to choose the best method for the problem at hand, how to perform the necessary calculations, how to choose and apply a computer program, and how to interpret results.

**The Theory of Island Biogeography** - Robert H. MacArthur 2001

Population theory.

**Island Ecology** - M. Gorman 2012-12-06

The islands of the Pacific and East Indies made an enormous and fateful impact on the minds of Charles Darwin and Alfred Wallace, the fathers of modern evolutionary theory. Since then island floras and faunas have continued to play a central role in the development of evolutionary, and more recently ecological thought. For much of this century island ecology was a descriptive science and a wealth of information has been amassed on patterns of species distributions, on the composition of island floras and faunas, on the classification of islands into types such as oceanic and continental, on the taxonomic description of insular species and sub-species and on the adaptations, often bizarre, of island creatures. However, biologists are not satisfied for long with the mere collection of data and the description of patterns, but seek unifying theories. Island ecology was transformed into a predictive science by the publication, in 1967, of MacArthur and Wilson's Theory of Island Biogeography. This, perhaps the most influential book written on island ecology, has been the stimulus for a generation of theoretical ecologists and gifted field workers. The books listed below in the bibliography will indicate to the reader the vast scope of island ecology and the changes in approach that have taken place over the years.

*Biogeography: A Very Short Introduction* - Mark V. Lomolino 2020-07-23

Biogeography is the study of geographic variation in all characteristics of life - ranging from genetic, morphological and behavioural variation among regional populations of a species, to geographic trends in diversity of entire communities across our planet's surface. From the ancient hunters and gatherers to the earliest naturalists, Charles Darwin, Alfred Russel Wallace, and scientists today, the search for patterns in

life has provided insights that proved invaluable for understanding the natural world. And many, if not most, of the compelling kaleidoscope of patterns in biological diversity make little sense unless placed in an explicit geographic context. The Very Short Introduction explains the historical development of the field of biogeography, its fundamental tenets, principles and tools, and the invaluable insights it provides for understanding the diversity of life in the natural world. As Mark Lomolino shows, key questions such as where species occur, how they vary from place to place, where their ancestors occurred, and how they spread across the globe, are essential for us to develop effective strategies for conserving the great menagerie of life across our planet. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

*Panbiogeography* - Robin C. Craw 1999-04-15

Biogeography is a diverse subject, traditionally focusing on the distribution of plants and animals at different taxonomic levels, past and present. Modern biogeography also puts emphasis on the ecological character of the world vegetation types, and on the evolving relationship between humans and their environment. Panbiogeography describes a new synthesis of sciences of plant and animal distribution. The book emphasizes that the geographical patterns of animal and plant distribution contribute directly to the understanding and interpretation of evolutionary history. Geographic location is reintroduced as a critical element of both biogeography and evolutionary biology. The authors present chapters exploring the roles of geology, ecology, evolution in panbiogeographic theory, and introduce new methods, modes of classification, and ways of measuring biodiversity.