

## An Introduction To Applied Biogeography

This ism-busting text is an enormously accessible account of the key philosophical and theoretical ideas that have informed geographical research. It makes abstract ideas explicit and clearly connects it with real practices of geographical research and knowledge. Written with flair and passion, *A Student's Introduction to Geographical Thought*: Explains the key ideas: scientific realism, anti-realism and idealism / positivism / critical rationalism / Marxism and critical realism/ social constructionism and feminism / phenomenology and post-phenomenology / postmodernism and post-structuralism / complexity / moral philosophy. Uses examples that address both physical geography and human geography. Use a familiar and real-world example - 'the beach' - as an entry point to basic questions of philosophy, returning to this to illustrate and to explain the links between philosophy, theory, and methodology. All chapters end with summaries and sources of further reading, a glossary explaining key terms, exercises with commentaries, and web resources of key articles from the journals *Progress in Human Geography* and *Progress in Physical Geography*. *A Student's Introduction to Geographical Thought* is a completely accessible student A-Z of theory and practice for both human and physical geography.

Biogeography is the study of geographic variation in all characteristics of life - ranging from genetic, morphological and behavioural variation among regional populations of a

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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.

History and Philosophy of Science and Technology is a component of Encyclopedia of Physical Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one

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Encyclopedias. The Theme on History and Philosophy of Science and Technology in four volumes covers several topics such as: Introduction to the Philosophy of Science; The Nature and Structure of Scientific Theories Natural Science; A Short History of Molecular Biology; The Structure of the Darwinian Argument In The Origin of Species; History of Measurement Theory; Episodes of XX Century Cosmology: A Historical Approach; Philosophy of Economics; Social Sciences: Historical And Philosophical Overview of Methods And Goals; Introduction to Ethics of Science and Technology; The Ethics of Science and Technology; The Control of Nature and the Origins of The Dichotomy Between Fact And Value; Science and Empires: The Geo-Epistemic Location of Knowledge; Science and Religion; Scientific Knowledge and Religious Knowledge - Significant Epistemological Reference Points; Thing Called Philosophy of Technology; Transitions from Function-Oriented To Effect-Oriented Technologies. Some Thought on the Nature of Modern Technology; Technical Agency and Sources of Technological Pessimism These four volumes are aimed at a broad spectrum of audiences: University and College Students, Educators and Research Personnel

Biological diversity, the variety of living organisms on Earth, is traditionally viewed as the diversity of taxa, and species in particular. However, other facets of diversity also need to be considered for a comprehensive understanding of evolutionary and ecological processes. This novel book demonstrates the advantages of adopting a functional approach to diversity in order to improve our understanding of the functioning

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of ecological systems and their components. The focus is on plants, which are major components of these systems, and for which the functional approach has led to major scientific advances over the last 20 years. *Plant Functional Diversity* presents the rationale for a trait-based approach to functional diversity in the context of comparative plant ecology and agroecology. It demonstrates how this approach can be used to address a number of highly debated questions in plant ecology pertaining to plant responses to their environment, controls on plant community structure, ecosystem properties, and the services these deliver to human societies. This research level text will be of particular relevance and use to graduate students and professional researchers in plant ecology, agricultural sciences and conservation biology.

A textbook about the mathematical modelling of biological and physiological phenomena for mathematically sophisticated students.

This edited volume demonstrates how the latest developments in biogeography (for example in phylogenetics, macroecology, and geographic information systems) can be applied to studies in the evolutionary ecology of host-parasite interactions in order to integrate spatial patterns with ecological theory.

Illustrative examples from recent research publications and "classic" studies are prominently featured throughout the book. Research techniques are highlighted in "special interest" boxes. Illustrations and descriptions of research techniques are provided with examples such as fire-scars from trees used to reconstruct disturbance,

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fossil pollen used to reconstruct vegetation change and plant migration, transect and quadrat sampling. Includes key biogeographical theories that link space and time to the distribution of life. Some of these theories include: 1. Ranges, Refugia, Refuges, Corridors, Barriers, 2. Centers of Origins, 3. Cladistics, 4. Variance, 5. Island Biogeography, 6. Diversity Theory, 7. Gap Analysis for Conservation.

Ecology is a component of Encyclopedia of Environmental and Ecological Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Ecology is the study of the interrelationships between living organisms and their environment. The term "ecology" was introduced by Ernst Haeckel, at the end of the nineteenth century. Since that time spectacular advances have been made. Much has been learned about the relationship between organisms and environmental factors, and about the processes that regulate the abundance and distribution of species. The Theme on Ecology with contributions from distinguished experts in the field discusses the Science of Ecology for a Sustainable World. The two volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

Myxomycetes: Biology, Systematics, Biogeography and Ecology, Second Edition provides a complete collection of general and technical information on

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myxomycetes microorganisms. Its broad scope takes an integrated approach, considering a number of important aspects surrounding their genetics and molecular phylogeny. The book treats myxomycetes as a distinct group from fungi and includes molecular information that discusses systematics and evolutionary pathways. Written and developed by an international team of specialists, this second edition contains updated information on all aspects of myxomycetes. It incorporates relevant and new material on current barcoding developments, plasmodial network experimentation, and non-STEM disciplinary assimilation of myxomycete information. This book is a unique and authoritative resource for researchers in organismal biology and ecology disciplines, as well as students and academics in biology, ecology, microbiology, and similar subject areas. Written in a simple, concise and relatively non-technical style, allowing for a broad readership within biological, environmental and life science programs at academic and research institutions Contains the comprehensive body of information available on myxomycetes under one cover, with contributions from the leading authorities in their respective areas of expertise Provides straightforward, compiled information about myxomycetes and the potential of this group for basic and applied research Offers completely updated material in every chapter, including new material on barcoding and *Physarum polycephalum*

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biological factors

Geography is a component of Encyclopedia of Earth and Atmospheric Sciences in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Geographical perceptions can be traced from very ancient cultures, although geography as a science started its development during the eighteen century, it was firmly established after the Darwinian revolution and many of its fundamentals appeared during the nineteenth century. The history of geography is closely connected with the history of human society Geography embraces both the physical and human worlds, and aims to bridge natural and human sciences. For a geographer, although the environment and its conservation is a crucial item, it is also fundamentally concerned with the living standards of humankind. Although its wide embrace may be seen as a weakness, diversification is also strength and an attraction. Approaches are multidisciplinary, exploring the complex linkages between the cultural and the natural. These favor cross-cultural communication and mutual understanding at a global scale. There is a geographical basis to most of the outstanding political problems, and geographical reasons to explain them. The subject matter of the geography theme is presented basically on how the subject matter is taught presently at the universities, and following the many paths its

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practitioners are following in doing research. It introduces modern subject matters and goes much further than a simple description of places and travels. The theme has been divided into four main topics: Foundations, Physical Geography, Human Geography, and Technical matters. The scope of the foundation topic is to present an overview of the basis of the geographical field, its scope, history, methods, and its importance in education. The chapters included are Main Stages of the Development, Theory and Methods, and Geographical Education. The Physical Geography topic includes the historical background of the geographical study of the Earth natural environment, and the main fields cultivated by geographers. It consists of eight chapters on basic research fields, which are Geomorphology, Climatology, Hydrology, Biogeography, Soil Geography, Coastal Systems, Ocean Geography, Mountain Geoecology, and two chapters on environmental issues: Natural Hazards and Land Degradation and Desertification. In the Human Geography topic six chapters discuss the more current fields, that is: Population, Cultural and Social, Agricultural and Rural, Industries and Transport, Economic Activities and Urban Geography. Three chapters present subjects developed more recently: Medical, Political and Tourism geographies. Finally, the Regional approach is presented as the most traditional and integrative field. These volumes are aimed at the following five

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major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

Outlines the ecological fundamentals, assumptions, and techniques for reconstructing past environments using fossil animals from archaeological and paleontological sites.

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

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phylogeny, evolution and earth history.

Species distribution, conservation management, landscape planning.

Ecosystems introduces the basic concepts and processes in the ecosystem and explores its role in solving environmental problems. Examining the development of the ecosystem concept, the book explains how ecosystems function and analyzes the complex interactions between life and its physical environment. Presenting examples from all parts of the world within lively case studies and illustrations, Ecosystems focuses on 'real world' problems and topical and controversial issues, particularly on human impacts on the natural environment, and the consequences of environmental change.

Robert H. MacArthur and Edward O. Wilson's *The Theory of Island Biogeography*, first published by Princeton in 1967, is one of the most influential books on ecology and evolution to appear in the past half century. By developing a general mathematical theory to explain a crucial ecological problem--the regulation of species diversity in island populations--the book transformed the science of biogeography and ecology as a whole. In *The Theory of Island Biogeography Revisited*, some of today's most prominent biologists assess the continuing impact of MacArthur and Wilson's book four decades after its publication. Following an opening chapter in which Wilson reflects on island

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biogeography in the 1960s, fifteen chapters evaluate and demonstrate how the field has extended and confirmed--as well as challenged and modified--MacArthur and Wilson's original ideas. Providing a broad picture of the fundamental ways in which the science of island biogeography has been shaped by MacArthur and Wilson's landmark work, *The Theory of Island Biogeography Revisited* also points the way toward exciting future research.

In this innovative, wide-ranging synthesis of anthropology and biogeography, Alexander Harcourt tells how and why our species came to be distributed around the world. He explains our current understanding of human origins, tells how climate determined our spread, and describes the barriers that delayed and directed migrating peoples. He explores the rich and complex ways in which our anatomy, physiology, cultural diversity, and population density vary from region to region in the areas we inhabit. The book closes with chapters on how human cultures have affected each other's geographic distributions, how non-human species have influenced human distribution, and how humans have reduced the ranges of many other species while increasing the ranges of others. Throughout, Harcourt compares what we understand of human biogeography to non-human primate biogeography.

"A superb resource for understanding the diversity of the modern discipline of

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biogeography, and its history and future, especially within geography departments. I expect to refer to it often." - Professor Sally Horn, University of Tennessee "As you browse through this fine book you will be struck by the diverse topics that biogeographers investigate and the many research methods they use.... Biogeography is interdisciplinary, and a commonly-voiced concern is that one biogeographer may not readily understand another's research findings. A handbook like this is important for synthesising, situating, explaining and evaluating a large literature, and pointing the reader to informative publications." - Geographical Research "A valuable contribution in both a research and teaching context. If you are biologically trained, it provides an extensive look into the geographical tradition of biogeography, covering some topics that may be less familiar to those with an evolution/ecology background. Alternatively, if you are a geography student, researcher, or lecturer, it will provide a useful reference and will be invaluable to the non-biogeographer who suddenly has the teaching of an introductory biogeography course thrust upon them." - Adam C. Algar, *Frontiers of Biogeography* The SAGE Handbook of Biogeography is a manual for scoping the past, present and future of biogeography that enable readers to consider, where relevant, how similar biogeographical issues are tackled by researchers in different 'schools'. In line with the concept of all SAGE Handbooks, this is a retrospective and prospective overview of biogeography that will: Consider the main areas of biogeography researched by geographers Detail a global perspective by incorporating the work of

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different schools of biogeographers Explore the divergent evolution of biogeography as a discipline and consider how this diversity can be harnessed Examine the interdisciplinary debates that biogeographers are contributing to within geography and the biological sciences. Aimed at an international audience of research students, academics, researchers and practitioners in biogeography, the text will attract interest from environmental scientists, ecologists, biologists and geographers alike.

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.”/p>  
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

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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 bio geographer.

Mediterranean islands exhibit many similarities in their biotic ecological, physical and environmental characteristics. There are also many differences in terms of their human colonization and current anthropogenic pressures. This book addresses in three sections these characteristics and examines the major environmental changes that the islands experienced during the Quaternary period. The first section provides details on natural and cultural factors which have shaped island landscapes. It describes the environmental and cultural changes of the Holocene and their effects on biota, as well as on the current human pressures that are now threats to the sustainability of the island communities. The second section focuses on the landscapes of the largest islands namely Sicily, Sardinia, Corsica, Cyprus, Crete, Malta and the Balearics. Each island chapter includes a special topic reflecting a particular characteristic of the island. Part three presents strategies for action towards sustainability in Mediterranean islands and concludes with a comparison between the largest islands. Despite several published books on Mediterranean ecosystems/landscapes there is no existing book dealing with Mediterranean islands in a collective manner. Students, researchers and university lecturers in environmental science, geography, biology and ecology will find this work invaluable as a cross-disciplinary text while planners and politicians will

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welcome the succinct summaries as background material to planning decisions.

Population theory.

The first edition of *Tropical Rain Forests: an Ecological and Biogeographical Comparison* exploded the myth of 'the rain forest' as a single, uniform entity. In reality, the major tropical rain forest regions, in tropical America, Africa, Southeast Asia, Madagascar, and New Guinea, have as many differences as similarities, as a result of their isolation from each other during the evolution of their floras and faunas. This new edition reinforces this message with new examples from recent and on-going research. After an introduction to the environments and geological histories of the major rain forest regions, subsequent chapters focus on plants, primates, carnivores and plant-eaters, birds, fruit bats and gliding animals, and insects, with an emphasis on the ecological and biogeographical differences between regions. This is followed by a new chapter on the unique tropical rain forests of oceanic islands. The final chapter, which has been completely rewritten, deals with the impacts of people on tropical rain forests and discusses possible conservation strategies that take into account the differences highlighted in the previous chapters. This exciting and very readable book, illustrated throughout with color photographs, will be invaluable reading for undergraduate students in a wide range of courses as well as an authoritative reference for graduate and professional ecologists, conservationists, and interested amateurs.

Biogeography may be defined simply as the study of the geographical distribution of

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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. Global Advances in Biogeography brings together the work of more than 30 scientific

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authorities on biogeography from around the world. The book focuses on spatial and temporal variation of biological assemblages in relation to landscape complexity and environmental change. *Global Advances* embraces four themes: biogeographic theory and tests of concepts, the regional biogeography of individual taxa, the biogeography of complex landscapes, and the deep-time evolutionary biogeography of macrotaxa. In addition, the book provides a trove of new information about unusual landscapes, the natural history of a wide array of poorly known plant and animal species, and global conservation issues. This book is well illustrated with numerous maps, graphics, and photographs, and contains much new basic biogeographical information that is not available elsewhere. It will serve as an invaluable reference for professionals and members of the public interested in global biogeography, evolution, taxonomy, and conservation.

Biogeography is about the geographical distribution, both past and present, of plants, animals and other organisms. In this undergraduate textbook, Spellerberg and Sawyer bring a modern approach to a developing subject, writing in a lively and sometimes provocative manner. Throughout the text, the authors emphasize the applications of biogeography to conservation management, economic production, environmental assessment, sustainable use of resources, landscape planning, and public health. They discuss applications of island biogeography in conservation, the concept of wildlife corridors, the analysis of biogeographical data, and the role of humans and their

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cultures in biogeography. The applied approach of this textbook, along with its numerous illustrative examples and figures, make it a unique introduction to the field for many geography, biology and environmental science students.

"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.

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,

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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. View <http://www.wiley.com/go/ladle/biogeography> to access the figures from the book.

A single-resource volume of information on the most current and effective techniques of wildlife modeling, *Models for Planning Wildlife Conservation in Large Landscapes* is appropriate for students and researchers alike. The unique blend of conceptual, methodological, and application chapters discusses research, applications and concepts of modeling and presents new ideas and strategies for wildlife habitat models used in conservation planning. The book makes important contributions to wildlife conservation of animals in several ways: (1) it highlights historical and contemporary advancements in the development of wildlife habitat models and their implementation in conservation planning; (2) it provides practical advice for the ecologist conducting such studies; and (3) it supplies directions for future research

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including new strategies for successful studies. Intended to provide a recipe for successful development of wildlife habitat models and their implementation in conservation planning, the book could be used in studying wildlife habitat models, conservation planning, and management techniques. Additionally it may be a supplemental text in courses dealing with quantitative assessment of wildlife populations. Additionally, the length of the book would be ideal for graduate student seminar course. Using wildlife habitat models in conservation planning is of considerable interest to wildlife biologists. With ever tightening budgets for wildlife research and planning activities, there is a growing need to use computer methods. Use of simulation models represents the single best alternative. However, it is imperative that these techniques be described in a single source. Moreover, biologists should be made aware of alternative modeling techniques. It is also important that practical guidance be provided to biologists along with a demonstration of utility of these procedures. Currently there is little guidance in the wildlife or natural resource planning literature on how best to incorporate wildlife planning activities, particularly community-based approaches. Now is the perfect time for a synesthetic publication that clearly outlines the concepts and available methods, and illustrates them. Only single resource book of information not only on various wildlife modeling techniques, but also with practical guidance on the demonstrated utility of each based on real-world conditions. Provides concepts, methods and applications for wildlife ecologists and others within a GIS context. Written by a team of subject-area experts

Current Progress in Biological Research presents new insights into key topics from different areas of the biological sciences. Some of the topics covered in the book are antibiotic susceptibility, genomic rearrangement, historical biogeography, biogeographic patterns,

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endemism and the use of microorganisms for pest control. The book is an interesting collection of 16 original research articles written by respected experts in their fields. It is hoped that readers will be stimulated and challenged by the contents of this book.

J. L. Gressitt New Guinea is a fantastic island, unique and fascinating. It is an area of incredible variety of geomorphology, biota, peoples, languages, history, traditions and cultures. Diversity is its prime characteristic, whatever the subject of interest. To a biogeographer it is tantalizing, as well as confusing or frustrating when trying to determine the history of its biota. To an ecologist, and to all biologists, it is a happy hunting ground of endless surprises and unanswered questions. To a conservationist it is like a dream come true, a "flash-back" of a few centuries, as well as a challenge for the future. New Guinea is so special that it is hard to compare it with other islands or tropical areas. It is something apart, with its very complicated history (chapters I: 2-4, II: 1-4, III: I, VI: I, 2). It is partly old but to a great extent very young, yet extremely rich and complex. It has biota of different sources - to such a degree that it is still disputed in this volume as to what Realm it belongs to: the Paleotropical or Notogaeon (Australian); or what Region: Oriental, "Oceanic," Papuan or Australian. The terms Papuan, Indo-Australian and Australasian also have been applied to the area.

Why do we find polar bears only in the Arctic and penguins only in the Antarctic? Why do oceanic islands often have many types of birds but no large native mammals? As Charles Darwin and Alfred Russel Wallace travelled across distant lands studying the wildlife they both noticed that the distribution of plants and animals formed striking patterns - patterns that held strong clues to the past of the planet. The study of the spatial distribution of living things is known as biogeography. It is a field that could be said to have begun with Darwin and Wallace.

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In this lively book, Denis McCarthy tells the story of biogeography, from the 19th century to its growth into a major field of interdisciplinary research in the present day. It is a story that encompasses two great, insightful theories that were to provide the explanations to the strange patterns of life across the world - evolution, and plate tectonics. We find animals and plants where we do because, over time, the continents have moved, separating and coalescing in a long, slow dance; because sea levels have risen, cutting off one bit of land from another, and fallen, creating land bridges; because new and barren volcanic islands have risen up from the sea; and because animals and plants vary greatly in their ability to travel, and separation has caused the formation of new species. The story of biogeography is the story of how life has responded and has in turn altered the ever changing Earth. It is a narrative that includes many fascinating tales - of pygmy mammoths and elephant birds; of changing landscapes; of radical ideas by bold young scientists first dismissed and later, with vastly growing evidence, widely accepted. The story is not yet done: there are still questions to be answered and biogeography is a lively area of research and debate. But our view of the planet has been changed profoundly by biogeography and its related fields: the emerging understanding is of a deeply interconnected system in which life and physical forces interact dynamically in space and time. Southern Africa is certainly not a naturally bounded area so that there are several possibilities for delineating it and concepts about its extent. Wellington\* discussed the various possibilities for delineation and suggested that one line stands out more clearly and definitely as a physical boundary than any other, namely the South Equatorial Divide, the watershed between the Zaire, Cuanza and Rufiji Rivers on the one hand and the Zambezi, Cunene and Rovuma Rivers on the other. This South Equatorial Divide is indeed a major line of separation for some

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organisms and is also applicable in a certain geographical sense, though it does not possess the slightest significance for many other groups of organisms, ecosystems or geographical and physical features of Africa. The placing of the northern boundary of southern Africa differs in fact strongly per scientific discipline and is also influenced by practical considerations regarding the possibilities of scientific work as subordinate to certain political realities and historically grown traditions. This is illustrated, for example, in such works as the Flora of Southern Africa, where the northern boundary of the area is conceived as the northern and eastern political boundaries of South West Africa, South Africa and Swaziland. Botswana, traditionally included in the area covered by the Flora Zambesiaca, thus forms a large wedge in 'Southern Africa'.

The species-area relationship (SAR) describes a range of related phenomena that are fundamental to the study of biogeography, macroecology and community ecology. While the subject of ongoing debate for a century, surprisingly, no previous book has focused specifically on the SAR. This volume addresses this shortfall by providing a synthesis of the development of SAR typologies and theory, as well as empirical research and application to biodiversity conservation problems. It also includes a compilation of recent advances in SAR research, comprising novel SAR-related theories and findings from the leading authors in the field. The chapters feature specific knowledge relating to terrestrial, marine and freshwater realms, ensuring a comprehensive volume relevant to a wide range of fields, with a mix of review and novel material and with clear recommendations for further research and application.

Isolation, extinction, conservation, biodiversity, hotspots.

This book describes the outstanding features of the ecology and biogeography of the

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Indian region, comprising former British India, Nepal, Bhutan, Ceylon and Burma. It summarizes the results of nearly four decades' studies and field explorations and discussions with students on the distribution of plants and animals, practically throughout this vast area and on the underlying factors. A number of specialists in geology, meteorology, botany, zoology, ecology and anthropology have also actively collaborated with me and have contributed valuable chapters in their respective fields. India has an exceptionally rich and highly diversified flora and fauna, exhibiting complex composition, character and affinities. Although the fauna of the Indian region as a whole is less completely known than its flora, we are nevertheless fairly well acquainted with at least the salient features of its faunal characters to enable us to present a meaningful discussion on some of the outstanding peculiarities of the biogeography of India. A general synthesis of the available, though much scattered, information should prove useful to future students of biogeography throughout the world.

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

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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)

This book, *Pure and Applied Biogeography*, gives a very interesting report and overview about the frontiers of such parts of recent biogeographical research, which plays important roles in solving our most pressing global problems (biodiversity crisis, climate change, water issues, and sustainable agriculture). Our book consists of three

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sections: "Introduction", "Pure Biogeography and Global Patterns" and "Applied Biogeography and Regional Issues." After the introductory chapter, which is about the main branches and aims of biogeography in service of solving global problems, - we can find three chapters as parts of the first section. First chapter in this section is in close relation with the origin of biodiversity and conservation. The second and third chapters are about the biogeographical aspects of climate change and biodiversity. In the second section of this book three applied biogeographical chapters can be found, which are related to agriculture, theoretical background of biological plant protection against herbivores, and regional patterns in ecological biogeography.

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,

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how to perform the necessary calculations, how to choose and apply a computer program, and how to interpret results.

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