

Habitat Structure Mediates Biodiversity Effects On

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Habitat Heterogeneity as a Mechanism Determining Plant Species Diversity Ronja Ratzbor 2021 Biodiversity is a major topic for humanity as it maintains important ecosystem services. However, biodiversity is declining dramatically. Plant species diversity is a crucial component of overall biodiversity because it determines also biodiversity at higher trophic levels. For the maintenance of biodiversity, it is important to understand the mechanisms driving plant community structure and dynamics, especially those mechanisms that affect plant species coexistence. Heterogeneity of the habitat is a key mechanism affecting biodiversity and it is generally assumed to increase plant species diversity. Because habitat heterogeneity is influenced by land use both on a local and a landscape scale, land use may influence diversity directly and indirectly via habitat heterogeneity. Understanding these impacts is important because it would enable us to manage biodiversity via land use. Grasslands are an ideal model system to experimentally test the mechanisms by which land use affects diversity, because on the one hand, we know quite a lot about direct land use effects, e.g. of mowing or fertilization, on biodiversity and on the other hand, indirect effects on biodiversity that are mediated by homogenization of habitat conditions are likely. Here, I investigated both experimentally and in an observational study the effects of land use on habitat heterogeneity and the mechanisms by which heterogeneity influences plant species diversity. For the experimental part, I created grassland microcosms in which two different types of heterogeneity were manipulated. In a first experiment five levels of compositional heterogeneity, i.e. increasing numbers of patches of different habitat types were created, ranging from a single to 16 habitat types per plot. In a second experiment, I manipulated the configurational heterogeneity by creating increasingly fragmented lots composed of two habitat types each. The habitat types in both experiments were created by imitating common land-use practices (mowing/ grazing, trampling, fertilization) as well as soil depth. The observational study looked at how land use intensity affects habitat heterogeneity across several scales. It took place in two regions of Germany along local gradients of the intensity of three common land-use practices mowing, fertilization, and grazing. The experiments showed no change in diversity with heterogeneity. A switch from deterministic extinction in homogeneous habitats to stochastic extinction in heterogeneous habitats where habitat patches were smaller was observed. This is in line with recent theory. In the second experiment, fragmentation effects interacted with the contrast between habitat types and suggest that spatial mass effects are most important for increasing diversity at high fragmentation and intermediate habitat contrasts. In the observational study, I showed homogenizing effects of fertilization and mowing on habitat characteristics, as well as an increase of habitat heterogeneity due to grazing, as suggested by previous studies. Overall, plant species diversity was more directly affected by the mean of the habitat parameters than by indirect effects caused by changes in small-scale habitat heterogeneity.

Carnivores of Australia Alistair Glen 2014-11-05 The Australian continent provides a unique perspective on the evolution and ecology of carnivorous animals. In earlier ages, Australia provided the arena for a spectacular radiation of marsupial and reptilian predators. The causes of

their extinctions are still the subject of debate. Since European settlement, Australia has seen the extinction of one large marsupial predator (the thylacine), another (the Tasmanian devil) is in danger of imminent extinction, and still others have suffered dramatic declines. By contrast, two recently-introduced predators, the fox and cat, have been spectacularly successful, with devastating impacts on the Australian fauna. *Carnivores of Australia: Past, Present and Future* explores Australia's unique predator communities from pre-historic, historic and current perspectives. It covers mammalian, reptilian and avian carnivores, both native and introduced to Australia. It also examines the debate surrounding how best to manage predators to protect livestock and native biodiversity. Readers will benefit from the most up-to-date synthesis by leading researchers and managers in the field of carnivore biology. By emphasising Australian carnivores as exemplars of flesh-eaters in other parts of the world, this book will be an important reference for researchers, wildlife managers and students worldwide.

Impact of Agricultural Practices on Biodiversity of Soil Invertebrates Stefano Bocchi 2021-01-06 Soil fauna plays a key role in many soil functions, such as organic matter decomposition, humus formation, and nutrient release, modifying soil structure, and improving its fertility. Soil invertebrates play key roles in determining soil suitability for agricultural production and realizing sustainable farming systems. They include an enormous diversity of arthropods, nematodes, and earthworms. However, this fauna suffers from the impact of agricultural activities with implications for the capacity of soil to maintain its fertility and provide ecosystem services. Some agricultural practices may create crucial soil habitat changes, with consequences for invertebrate biodiversity. In the few last decades, especially under intensive and specialized farming systems, a loss in soil ecosystem services has been observed, as a result of the reduction in both the abundance and taxonomic diversity of soil faunal communities. On the other hand, agricultural practices, based on sustainable soil management, can promote useful soil fauna. Therefore, the concerns about the sensibility of soil biota to the agricultural practices make it urgent to develop sustainable management strategies, able to realize favorable microclimate and habitats, and reduce the soil disturbance.

The Ecological Status of European Rivers: Evaluation and Intercalibration of Assessment Methods Mike T. Furse 2009-03-20 The monitoring of benthic diatoms, macrophytes, macroinvertebrates and fish will be the backbone of future water management in Europe. This book describes and compares the relevant methodologies and tools, based on a large data set covering rivers in most parts of Europe. The 36 articles presented will provide scientists and water managers with a unique insight into background and application of state-of-the-art monitoring tools and techniques.

Fundamentals of Ecosystem Science Kathleen C. Weathers 2021-07-30 Fundamentals of Ecosystem Science, Second Edition provides a comprehensive introduction to modern ecosystem science covering land, freshwater and marine ecosystems. Ecosystem science is now applied to address a wide range of environmental problems. Written by a group of experts, this updated edition covers major concepts of ecosystem science, biogeochemistry, and energetics. Case studies of important environmental problems offer personal insights into how adopting an

ecosystem approach has helped solve important intellectual and practical problems. For those choosing to use the book in a classroom environment, or who want to enrich further their reading experience, teaching and learning assets are available at Elsevier.com. Covers both aquatic (freshwater and marine) and terrestrial ecosystems with updated information Includes a new chapter on microbial biogeochemistry Features vignettes throughout the book with real examples of how an ecosystem approach has led to important change in policy, management, and ecological understanding Demonstrates the application of an ecosystem approach in synthesis chapters and case studies Contains new coverage of human-environment interactions

Wetlands: Functioning, Biodiversity Conservation, and Restoration Roland Bobbink

2007-06-19 This book gives a broad and well-integrated overview of recent major scientific results in wetland science and their applications in natural resource management. After an introduction into the field, 12 chapters contributed by internationally known experts summarize the state of the art on a multitude of topics. The coverage is divided into three sections: Functioning of Plants and Animals in Wetlands; Conservation and Management of Wetlands; and Wetland Restoration and Creation.

Biodiversity Takuya Abe 2012-12-06 Despite acknowledgment that loss of living diversity is an international biological crisis, the ecological causes and consequences of extinction have not yet been widely addressed. In honor of Edward O. Wilson, winner of the 1993 International Prize for Biology, an international group of distinguished biologists bring ecological, evolutionary, and management perspectives to the issue of biodiversity. The roles of ecosystem processes, community structure and population dynamics are considered in this book. The goal, as Wilson writes in his introduction, is "to assemble concepts that unite the disciplines of systematics and ecology, and in so doing to create a sound scientific basis for the future management of biodiversity."

Animal-Mediated Dispersal in Understudied Systems Casper H. A. Van Leeuwen 2020-02-13

This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact.

Urban Agroecology Monika Egerer 2020-12-16 Today, 20 percent of the global food supply relies on urban agriculture: social-ecological systems shaped by both human and non-human interactions. This book shows how urban agroecologists measure flora and fauna that underpin the ecological dynamics of these systems, and how people manage and benefit from these systems. It explains how the sociopolitical landscape in which these systems are embedded can in turn shape the social, ecological, political, and economic dynamics within them. Synthesizing interdisciplinary approaches in urban agroecology in the natural and social sciences, the book explores methodologies and new directions in research that can be adopted by scholars and practitioners alike. With contributions from researchers utilizing both social and natural science approaches, Urban Agroecology describes the current social-environmental understandings of the science, the movement and the practices in urban agroecology. By investigating the role of agroecology in cities, the book calls for the creation of spaces for food to be sustainably grown in urban spaces: an Urban Agriculture (UA) movement. Essential reading for graduate students, practitioners, policy makers and researchers, this book charts the course for accelerating this movement.

IMPACTS OF ANTHROPOGENIC ENVIRONMENTAL CHANGES ON BIODIVERSITY, ECOSYSTEM PROCESSES, AND TROPHIC INTERACTIONS. Grace Murphy 2016 Habitat loss, climate change, invasive species, nitrogen deposition, and over-exploitation are all contributing to a global biodiversity crisis. Yet, there is high uncertainty in regards to which drivers exert the largest

influence on local biodiversity and ecosystem processes, and how the magnitude, direction, and consistency of responses compares across drivers, habitats, and trophic groups. In this thesis, I generated worldwide databases of empirically derived ecosystem responses to global change and evaluated general trends in local biodiversity and ecosystem responses to several human-induced environmental changes. I then used projections of future environmental change across the Earth's biomes to assess biases in the spatial distribution of local biodiversity change studies. Lastly, My results revealed widespread decline in local species richness from human-induced environmental changes by an average 18%. Species loss was greatest following land-use change and species invasions. In contrast, species invasions had little consistent impact on several ecosystem processes, and instead warming was the major driver of ecosystem function change. I also observed strong, yet opposite, trends in the predictability of biodiversity responses for species invasions and removals, suggesting that accuracy in forecasting community change is dependent on habitat and trophic role. My analyses emphasized that the biodiversity data used in current biodiversity change syntheses is not geographically representative and I provide recommendations for where future studies should be conducted. Finally, my experiments revealed a strong impact of warming on top predators that cascaded to lower trophic levels. This demonstrates how ecosystem responses to global change are influenced by trophic structure and shows that indirect effects mediated by species interactions can be equally important as direct effects of global change drivers in restructuring ecological communities. My thesis represents a comprehensive empirical evaluation of how contemporary ecosystems respond to human-induced environmental changes. I have illustrated several general trends of local biodiversity and ecosystem process responses across drivers, habitats, biomes, and trophic groups that may inform future predictive analyses of how global change impacts ecosystems around the globe.

Organism and Environment Sonia E. Sultan 2015-09-10 Over the past decade, advances in both molecular developmental biology and evolutionary ecology have made possible a new understanding of organisms as dynamic systems interacting with their environments. This innovative book synthesizes a wealth of recent research findings to examine how environments influence phenotypic expression in individual organisms (ecological development or 'eco-devo'), and how organisms in turn alter their environments (niche construction). A key argument explored throughout the book is that ecological interactions as well as natural selection are shaped by these dual organism-environment effects. This synthesis is particularly timely as biologists seek a unified contemporary framework in which to investigate the developmental outcomes, ecological success, and evolutionary prospects of organisms in rapidly changing environments. *Organism and Environment* is an advanced text suitable for graduate level students taking seminar courses in ecology, evolution, and developmental biology, as well as academics and researchers in these fields.

Trophic Ecology Torrance C. Hanley 2015-05-07 Examining the interaction of bottom-up and top-down forces, it presents a unique synthesis of trophic interactions within and across ecosystems.

Moving from a Curative to Preventative Pest Management Paradigm Helda Morales 2022-01-21

Economy and Ecology of Heathlands W. Herbert Diemont 2013-01-01 Heathlands in Europe reflect a long history of human activity. This book shows us both the diversity in use all over Europe combining this with the newest insights in ecology. Central theme is how to cover the costs of maintenance of these heathlands. Is their future in new types of commons, or do other types of land ownership using the revenues of heathland ecosystem services give better opportunities?

Brazilian Central Cerrado Lizards in Introduced Eucalyptus Plantations Alison Melissa Gainsbury 2012 Approximately two thirds of the world's land is directly supporting human population contributing to an accumulation of disturbed habitats. This dissertation investigates the impact of human mediated habitat disturbance, in introduced Eucalyptus plantations, on community diversity and population divergence using Brazilian Cerrado lizards as a model. Data was collected along a gradient from undisturbed cerrado to disturbed Eucalyptus plantations. Community diversity differences and indicator species were identified. Furthermore, the role of

phenotypic divergences were determined based on populations able to persist in disturbed habitats. Dispersal, food availability (body condition), competition and predation (caudal autotomy) were tested as potential mechanisms driving phenotypic divergences. Additionally, I investigated phylogenetic community structure differences between habitats to test for a phylogenetic signal to disturbance. The evidence showed community diversity indices were significantly lower in Eucalyptus plantations with a decrease along the cerrado-Eucalyptus gradient. Furthermore, 29 % of the Cerrado species suffered local extinctions in the disturbed habitat and of these 80 % are endemic species. One indicator species was identified for the disturbed habitat and seven species were identified for the undisturbed habitat. Species able to persist in both habitats demonstrated morphological trait divergences. These species showed short dispersal distances with only two individuals dispersing between habitats indicating a mechanism driving the observed phenotypic divergences. Another mechanism is body condition, which was higher in the disturbed habitats, reflecting increased food availability possibly due to the decreased abundances. Caudal autotomy showed no difference between the habitats indicating that competition and predation are not driving phenotypic divergences. Phylogenetic community structure demonstrated a phylogenetic signal to disturbance. The undisturbed habitat consists of communities with more closely related species compared to the disturbed habitat: indicating evolutionary forces such as habitat filtering as the stronger process structuring these communities. Whereas, disturbed communities are structured by ecological forces such as competition. This research provides information for the preservation and maintenance of the Cerrado biodiversity and has an even broader impact since habitat change caused by human activities touches a plethora of ecosystems.

Marine Ecology in a Changing World Andrés Hugo Arias 2013-12-04 With contributions from an impressive group of Argentinean and German oceanographers, this book examines classical ecological issues relating to marine ecosystems in the context of climate change. It paints a picture of marine ecology at the crossroads of global warming. The book examines the fundamentals of marine ecology: ecosystem stability, water quality, and biodiversity in the context of the changes taking place globally. It then reviews the major marine ecosystems in the same context, from the primary producers to the big marine mammals. The chapters cover primary consumers level, benthic communities, seaweeds assemblages and wetlands ecology, fisheries, and seabirds.

Management of Freshwater Biodiversity Julian Reynolds 2011-11-10 Integrating research into freshwater biodiversity and the role of keystone species, this fascinating book presents freshwater crayfish as representatives of human-exacerbated threats to biodiversity and conservation. It uses examples from these and other large decapod invertebrates to explore how communities function and are controlled, alongside the implications of human demands and conflicts over limited resources, notably the severe impacts on biodiversity. The discussion is structured around three key topics – the present situation of crayfish in world freshwater ecosystems, the applications of science to conservation management and knowledge transfer for successful crayfish management. It outlines the historic exploitation of crayfish, addressing the problems caused by invasive alien forms and explaining the importance of correct identification when dealing with conservation issues. Offering a global perspective on freshwater systems, the book ultimately highlights how the conservation of such large and long-lived species will help protect ecosystem quality in the future.

Ecosystem Services and River Basin Ecohydrology Luis Chicharo 2015-07-17 This book provides an integrated analysis of the methodologies and main processes occurring at the entire river basin, from upstream until the coast, by merging the biological and hydrological processes with the social and economic components, thus providing an integrated framework for river basin management, integrating the ecohydrology approach with the ecosystem services concept.

Trait-Mediated Indirect Interactions Takayuki Ohgushi 2012-12-06 This book reviews state-of-the-art research into trait-based effects and their importance in community and ecosystem ecology.

Conservation Clive Hambler 2013-01-03 A compact overview of the process, theory and practice of conservation and its central place in environmental issues.

Oceanography and Marine Biology R.N. Hughes 2014-09-02 Ever-increasing interest in oceanography and marine biology and their relevance to global environmental issues creates a demand for authoritative reviews summarising the results of recent research. Oceanography and Marine Biology: An Annual Review has catered to this demand since its founding by the late Harold Barnes fifty years ago. Its objectives are to consider, annually, the basic areas of marine research, returning to them when appropriate in future volumes; to deal with subjects of special and topical importance; and to add new subjects as they arise. The favourable reception accorded to all the volumes shows that the series is fulfilling a very real need: reviews and sales have been gratifying. The fifty-second volume follows closely the objectives and style of the earlier volumes, continuing to regard the marine sciences—with all their various aspects—as a unity. Physical, chemical, and biological aspects of marine science are dealt with by experts actively engaged in these fields. The series is an essential reference text for researchers and students in all fields of marine science and related subjects, and it finds a place in libraries of not only marine stations and institutes, but also universities. It is consistently among the highest ranking impact factors for the marine biology category of the citation indices compiled by the Institute for Scientific Information.

Marine Biodiversity and Ecosystem Functioning Martin Solan 2012-07-19 The biological composition and richness of most of the Earth's major ecosystems are being dramatically and irreversibly transformed by anthropogenic activity. Yet, despite the vast areal extent of our oceans, the mainstay of research to-date in the biodiversity-ecosystem functioning arena has been weighted towards ecological observations and experimentation in terrestrial plant and soil systems. This book provides a framework for extending these concepts to a variety of marine systems. Marine Biodiversity and Ecosystem Functioning is the first book to address the latest advances in biodiversity-function science using marine examples. It brings together contributions from the leading scientists in the field to provide an in-depth evaluation of the science, before offering a perspective on future research directions for some of the most pressing environmental issues facing society today and in the future.

Ecology and Conservation of Great Plains Vertebrates Fritz L. Knopf 2013-04-17 The frontier images of America embrace endless horizons, majestic herds of native ungulates, and romanticized life-styles of nomadic peoples. The images were mere reflections of vertebrates living in harmony in an ecosystem driven by the unpredictable local and regional effects of drought, fire, and grazing. Those effects, often referred to as ecological "disturbances," are rather the driving forces on which species depended to create the spatial and temporal heterogeneity that favored ecological prerequisites for survival. A landscape viewed by European descendants as monotony interrupted only by extremes in weather and commonly referred to as the "Great American Desert," this country was to be rushed through and cursed, a barrier that hindered access to the deep soils of the Oregon country, the rich minerals of California and Colorado, and the religious freedom sought in Utah. Those who stayed (for lack of resources or stamina) spent a century trying to moderate the ecological dynamics of Great Plains prairies by suppressing fires, planting trees and exotic grasses, poisoning rodents, diverting waters, and homogenizing the dynamics of grazing with endless fences—all creating bound and otherwise boundless vistas. Historically, travelers and settlers referred to the area of tallgrasses along the western edge of the deciduous forest and extending midway across Kansas as the "True Prairie." The grasses thinned and became shorter to the west, an area known then as the Great Plains.

Impacts of Habitat Transformation on Species, Biodiversity and Ecosystems in Asia

Emilio Pagani-Núñez 2021-12-20

Microbial Diversity in Time and Space R.R. Colwell 2007-08-20 The symposium, "Microbial Diversity in Time and Space," was held in the Sanjo Conference Hall, University of Tokyo, Tokyo, Japan, October 24-26, 1994. The symposium was organized under the auspices of the Japanese

Society of Microbial Ecology and co-sponsored by the International Union of Biological Sciences (IUBS), International Union of Microbiological Societies (IUMS), International Committee on Microbial Ecology (ICOME), and the Japanese Society of Ecology. The aim of the symposium was to stress the importance of the global role of microorganisms in developing and maintaining biodiversity. Twenty-four speakers from seven countries presented papers in the symposium and in the workshop, "Microbial Diversity and Cycling of Bioelements," that followed the symposium. Papers presented at the symposium are published in this proceedings. Discussions of the workshop, which were energetic and enthusiastic, are also summarized in this proceedings. The symposium provided an opportunity to address the role of microorganisms in global cycles and as the basic support of biodiversity on the planet. Previously unrecognized as both contributing to and sustaining biodiversity, microorganisms are now considered to be primary elements of, and a driving force in, biodiversity. Financial support was provided for the symposium by the CIBA GEIGY Foundation for the Promotion of Science, Naito Foundation, and the Uchida Foundation of the Ocean Research Institute, University of Tokyo. Support from these foundations is gratefully acknowledged.

CONTENTS Microbial Biodiversity-Global Aspects 1 Rita R. Colwell
 2. Importance of Community Relationships in Biodiversity
Effects of Ice Loss on Marine Biodiversity Katrin Linse 2022-01-06
Coastal Conservation Brooke Maslo 2014-03-27 Coastal ecosystems are centres of high biological productivity, but their conservation is often threatened by numerous and complex environmental factors. Citing examples from the major littoral habitats worldwide, such as sandy beaches, salt marshes and mangrove swamps, this text characterises the biodiversity of coastline environments and highlights important aspects of their maintenance and preservation, aided by the analysis of key representative species. Leaders in the field provide reviews of the foremost threats to coastal networks, including the effects of climate change, invasive species and major pollution incidents such as oil spills. Further discussion underscores the intricacies of measuring and managing coastline species in the field, taking into account the difficulties in quantifying biodiversity loss due to indirect cascading effects and trophic skew. Synthesising the current state of species richness with present and projected environmental pressures, the book ultimately establishes a research agenda for implementing and improving conservation practices moving forward.
The Hadal Zone Alan Jamieson 2015-01-29 A long overdue collation of all that is known about life in the trenches and the hadal communities therein.

Insect Biodiversity Robert G. Foottit 2017-10-02 Volume One of the thoroughly revised and updated guide to the study of biodiversity in insects The second edition of *Insect Biodiversity: Science and Society* brings together in one comprehensive text contributions from leading scientific experts to assess the influence insects have on humankind and the earth's fragile ecosystems. Revised and updated, this new edition includes information on the number of substantial changes to entomology and the study of biodiversity. It includes current research on insect groups, classification, regional diversity, and a wide range of concepts and developing methodologies. The authors examine why insect biodiversity matters and how the rapid evolution of insects is affecting us all. This book explores the wide variety of insect species and their evolutionary relationships. Case studies offer assessments on how insect biodiversity can help meet the needs of a rapidly expanding human population, and also examine the consequences that an increased loss of insect species will have on the world. This important text: Explores the rapidly increasing influence on systematics of genomics and next-generation sequencing Includes developments in the use of DNA barcoding in insect systematics and in the broader study of insect biodiversity, including the detection of cryptic species Discusses the advances in information science that influence the increased capability to gather, manipulate, and analyze biodiversity information Comprises scholarly contributions from leading scientists in the field *Insect Biodiversity: Science and Society* highlights the rapid growth of insect biodiversity research and includes an expanded treatment of the topic that addresses the major insect groups, the zoogeographic regions of biodiversity, and the scope of systematics approaches for handling

biodiversity data.

Key Topics in Conservation Biology 2 David W. Macdonald 2013-02-06 Following the much acclaimed success of the first volume of *Key Topics in Conservation Biology*, this entirely new second volume addresses an innovative array of key topics in contemporary conservation biology. Written by an internationally renowned team of authors, *Key Topics in Conservation Biology 2* adds to the still topical foundations laid in the first volume (published in 2007) by exploring a further 25 cutting-edge issues in modern biodiversity conservation, including controversial subjects such as setting conservation priorities, balancing the focus on species and ecosystems, and financial mechanisms to value biodiversity and pay for its conservation. Other chapters, setting the framework for conservation, address the sociology and philosophy of peoples' relation with Nature and its impact on health, and such challenging practical issues as wildlife trade and conflict between people and carnivores. As a new development, this second volume of *Key Topics* includes chapters on major ecosystems, such as forests, islands and both fresh and marine waters, along with case studies of the conservation of major taxa: plants, butterflies, birds and mammals. A further selection of topics consider how to safeguard the future through monitoring, reserve planning, corridors and connectivity, together with approaches to reintroduction and re-wilding, along with managing wildlife disease. A final chapter, by the editors, synthesises thinking on the relationship between biodiversity conservation and human development. Each topic is explored by a team of top international experts, assembled to bring their own cross-cutting knowledge to a penetrating synthesis of the issues from both theoretical and practical perspectives. The interdisciplinary nature of biodiversity conservation is reflected throughout the book. Each essay examines the fundamental principles of the topic, the methodologies involved and, crucially, the human dimension. In this way, *Key Topics in Conservation Biology 2*, like its sister volume, *Key Topics in Conservation Biology*, embraces issues from cutting-edge ecological science to policy, environmental economics, governance, ethics, and the practical issues of implementation. *Key Topics in Conservation Biology 2* will, like its sister volume, be a valuable resource in universities and colleges, government departments, and conservation agencies. It is aimed particularly at senior undergraduate and graduate students in conservation biology and wildlife management and wider ecological and environmental subjects, and those taking Masters degrees in any field relevant to conservation and the environment. Conservation practitioners, policy-makers, and the wider general public eager to understand more about important environmental issues will also find this book invaluable.

One Health Ronald M. Atlas 2020-07-24 Emerging infectious diseases are often due to environmental disruption, which exposes microbes to a different niche that selects for new virulence traits and facilitates transmission between animals and humans. Thus, health of humans also depends upon health of animals and the environment – a concept called One Health. This book presents core concepts, compelling evidence, successful applications, and remaining challenges of One Health approaches to thwarting the threat of emerging infectious disease. Written by scientists working in the field, this book will provide a series of "stories" about how disruption of the environment and transmission from animal hosts is responsible for emerging human and animal diseases. Explains the concept of One Health and the history of the One Health paradigm shift. Traces the emergence of devastating new diseases in both animals and humans. Presents case histories of notable, new zoonoses, including West Nile virus, hantavirus, Lyme disease, SARS, and salmonella. Links several epidemic zoonoses with the environmental factors that promote them. Offers insight into the mechanisms of microbial evolution toward pathogenicity. Discusses the many causes behind the emergence of antibiotic resistance. Presents new technologies and approaches for public health disease surveillance. Offers political and bureaucratic strategies for promoting the global acceptance of One Health.

Coffee Agroecology Ivette Perfecto 2015-02-11 Based on principles of the conservation and optimization of biodiversity and of equity and sustainability, this book focuses on the ecology of the coffee agroecosystem as a model for a sustainable agricultural ecosystem. It draws on the

authors' own research conducted over the last twenty years as well as incorporating the vast literature that has been generated on coffee agroecosystems from around the world. The book uses an integrated approach that weaves together various lines of research to understand the ecology of a very diverse tropical agroforestry system. Key concepts explored include biodiversity patterns, metapopulation dynamics and ecological networks. These are all set in a socioeconomic and political framework which relates them to the realities of farmers' livelihoods. The authors provide a novel synthesis that will generate new understanding and can be applied to other examples of sustainable agriculture and food production. This synthesis also explains the ecosystem services provided by the approach, including the economic, fair trade and political aspects surrounding this all-important global commodity.

Vegetation Mitteleuropas mit den Alpen Heinz Ellenberg 2010-09-15 Die aktuelle Gesamtschau der Vegetationsökologie Zentraleuropas, jetzt in der vollständig überarbeiteten, stark erweiterten 6. Auflage! Dieses Handbuch behandelt die naturräumlichen und pflanzengeographischen Grundlagen Mitteleuropas sowie die Entwicklung unter dem Einfluss des Menschen in den letzten 7000 Jahren – in den Bereichen Vegetations- und Standortkunde, Ökophysiologie, Populationsökologie, Ökosystemforschung und Naturschutzbiologie. Ein Schwerpunkt liegt auf den aktuellen Umweltbelastungen und der daraus resultierenden hohen Dynamik der Lebensgemeinschaften in heutiger Zeit. Mit rund 1000 gut erläuterten Abbildungen und Tabellen, einer überarbeiteten Version der Zeigerwerte der Pflanzen Mitteleuropas, 5300 Literaturzitate und umfangreichem Register. Ein unverzichtbares Nachschlagewerk und Lehrbuch für Studierende und Wissenschaftler der Ökologie, Forst- und Agrarwissenschaften und Geographie sowie für im Umwelt- und Naturschutz Wirkende.

Ecological Communities Takayuki Ohgushi 2007-01-04 To gain a more complete understanding of plant-based ecological community structure requires knowledge of the integration of direct and indirect effects in plant herbivore systems. Trait modification of plants as a result of herbivory is very common and widespread in terrestrial plants, and this initiates indirect interactions between organisms that utilise the same host plant. This 2007 book argues that food webs by themselves are inadequate models for understanding ecological communities, because they ignore important indirect, nontrophic links. This subject is of great importance in understanding not only community organisation but also in identifying the underlying mechanisms of maintenance of biodiversity in nature. This book will be an invaluable resource for researchers and graduate students interested in community and population ecology, evolutionary biology, biodiversity, botany and entomology.

Oceanography and Marine Biology S. J. Hawkins 2019-08-02 *Oceanography and Marine Biology: An Annual Review* remains one of the most cited sources in marine science and oceanography. The ever increasing interest in work in oceanography and marine biology and its relevance to global environmental issues, especially global climate change and its impacts, creates a demand for authoritative reviews summarizing the results of recent research. This volume covers topics that include resting cysts from coastal marine plankton, facilitation cascades in marine ecosystems, and the way that human activities are rapidly altering the sensory landscape and behaviour of marine animals. Guidelines for contributors, including information on illustration requirements, can be downloaded on the Downloads/Updates tab on the books webpage. For more than 50 years, OMBAR has been an essential reference for research workers and students in all fields of marine science. From Volume 57 a new international Editorial Board ensures global relevance, with editors from the UK, Ireland, Canada, Australia and Singapore. The series volumes find a place in the libraries of not only marine laboratories and institutes, but also universities. Chapters 3, 4, 5 and 7 of this book are freely available as a downloadable Open Access PDF under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license. The links can be found on the book's Routledge web page at <https://www.routledge.com//9780367134150>

Forest Diversity and Management David L. Hawksworth 2007-04-06 Drawing on research from biodiversity experts around the world, this book reflects the diversity of forest types and forest

issues that concern forest scientists. Coverage ranges from savannah and tropical rainforests to the ancient oak forests of Poland; issues explored include the effects of logging, management practices, forest dynamics and climate change on forest structure and biodiversity. Here is a useful overview of current science, for researchers and educators alike.

Freshwater Biodiversity David Dudgeon 2020-05-21 Fresh waters are disproportionately rich in species, and represent global hotspots of biodiversity. However, they are also hotspots of endangerment.

Issues in Global Environment—Biodiversity, Resources, and Conservation: 2012 Edition 2013-01-10 *Issues in Global Environment—Biodiversity, Resources, and Conservation: 2012 Edition* is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Conservation Research. The editors have built *Issues in Global Environment—Biodiversity, Resources, and Conservation: 2012 Edition* on the vast information databases of ScholarlyNews.™ You can expect the information about Conservation Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of *Issues in Global Environment—Biodiversity, Resources, and Conservation: 2012 Edition* has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

River Sedimentation Silke Wieprecht 2016-11-30 Sediment dynamics in fluvial systems is of great ecological, economic and human-health-related significance worldwide. Appropriate management strategies are therefore needed to limit maintenance costs as well as minimize potential hazards to the aquatic and adjacent environments. Human intervention, ranging from nutrient/pollutant release to physical modifications, has a large impact on sediment quantity and quality and thus on river morphology as well as on ecological functioning. Truly understanding sediment dynamics requires as a consequence a multidisciplinary approach. *River Sedimentation* contains the peer-reviewed scientific contributions presented at the 13th International Symposium on River Sedimentation (ISRS 2016, Stuttgart, Germany, 19-22 September 2016), and includes recent accomplishments in theoretical developments, numerical modelling, experimental laboratory work, field investigations and monitoring as well as management methodologies. The book is divided into six topics: A - Integrated sediment management at the river basin scale B - Sediment transport C - River morphodynamics D - Hydromorphology meets ecology E - Reservoir sustainability F - Social, economic and political aspects of sediment management The book also includes five special topics: 1 - Hydropower and sediment management, 2 - Navigation and river morphology, 3 - Innovative measurement techniques, 4 - SEDITRANS - Sediment transport in fluvial, estuarine and coastal environment, 5 - Sustainable land management. The aforementioned subject areas will be of interest to academics, engineers and professionals.

Stressors in the Marine Environment Martin Solan 2015-08-01 A multitude of direct and indirect human influences have significantly altered the environmental conditions, composition, and diversity of marine communities. However, understanding and predicting the combined impacts of single and multiple stressors is particularly challenging because observed ecological feedbacks are underpinned by a number of physiological and behavioural responses that reflect stressor type, severity, and timing. Furthermore, integration between the traditional domains of physiology and ecology tends to be fragmented and focused towards the effects of a specific stressor or set of circumstances. This novel volume summarises the latest research in the physiological and ecological responses of marine species to a comprehensive range of marine stressors, including chemical and noise pollution, ocean acidification, hypoxia, UV radiation, thermal and salinity stress before providing a perspective on future outcomes for some of the most pressing environmental issues facing society today. *Stressors in the Marine Environment* synthesises the combined expertise of a range of international researchers, providing a truly interdisciplinary and

accessible summary of the field. It is essential reading for graduate students as well as professional researchers in environmental physiology, ecology, marine biology, conservation

biology, and marine resource management. It will also be of particular relevance and use to the regulatory agencies and authorities tasked with managing the marine environment, including social scientists and environmental economists.