Anaerobic Fungi Biology Ecology And Function Mycology

Insects and Ecosystem Function Biodiversity and Ecosystem Function Ecosystem Function & Human Activities **Mechanisms Underlying the Relationship Between Biodiversity and Ecosystem Function** Ecosystem Function in Heterogeneous Landscapes *Stream Ecology Ecosystem Function in Savannas* Functional and Phylogenetic Ecology in R **Conservation Biology for All Why Birds Matter Body Size: The Structure and Function of Aquatic Ecosystems** *Anthropogenic Impacts on the Microbial Ecology and Function of Aquatic Environments Plant Functional Diversity Fundamentals of Soil Ecology* **Soil Microbiology, Ecology and Biochemistry Aquatic Functional Biodiversity** *Mangrove Ecosystem Ecology and Function* **Stream Ecology** *Ecology of Coastal Marine Sediments Ecology Documentaries* From Populations to Ecosystems Insect Ecology **Structure and Function of a Chihuahuan Desert Ecosystem Diversity of Functional Traits and Interactions Biodiversity, Ecosystem Functioning, and Human Wellbeing** Ecology of Coastal Marine Sediments **Structure and Function of an Alpine Ecosystem** Biodiversity in Ecosystems Predator Ecology **Handbook of Functional Plant Ecology** *Anaerobic Fungi* **Oaks Physiological Ecology. Exploring the Functional Diversity of Genus Quercus L. Anaerobic Fungi Marine Biology** *Biodiversity and Ecosystem Functioning* **Freshwater Ecology and Conservation** *Ecosystems Trait-Based Ecology - From Structure to Function* **Remote Sensing of Plant Biodiversity** *The Functional Consequences of Biodiversity*

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Freshwater Ecology and Conservation Oct 27 2019 This practical manual of freshwater ecology and conservation provides a state-of-the-art review of the approaches and techniques used to measure, monitor, and conserve freshwater ecosystems. It offers a single, comprehensive, and accessible synthesis of the vast amount of literature for freshwater ecology and conservation that is currently dispersed in manuals, toolkits, journals, handbooks, 'grey' literature, and websites. Successful conservation outcomes are ultimately built on a sound ecological framework in which every species must be assessed and understood at the individual, community, catchment and landscape level of interaction. For example, freshwater ecologists need to understand hydrochemical storages and fluxes, the physical systems influencing freshwaters at the catchment and landscape scale, and the spatial and temporal processes that maintain species assemblages and their dynamics. A thorough understanding of all these varied processes, and the techniques for studying them, is essential for the effective conservation and management of freshwater ecosystems.

Structure and Function of an Alpine Ecosystem Aug 06 2020 This book will provide a complete overview of an alpine ecosystem, based on the long-term research conducted at the Niwot Ridge LTER. There is, at present, no general book on alpine ecology. The alpine ecosystem features conditions near the limits of biological existence, and is a useful laboratory for asking more general ecological questions, because it offers large environmental change over relatively short distances. Factors such as macroclimate, microclimate, soil conditions, biota, and various biological factors change on differing scales, allowing insight into the relative contributions of the different factors on ecological outcomes.

Ecology of Coastal Marine Sediments Apr 13 2021 Marine sediments dominate the global seabed, creating the largest ecosystem on earth. Seafloor biodiversity is a key mediator of ecosystem functioning, yet critical processes are often excluded from global biogeochemical budgets or simplified to black boxes in ecosystem models. This accessible textbook provides an ideal point of entry into the field, providing basic information on the nature of soft-sediment ecosystems, examples of how and why we research them, the new questions these studies inspire, and the applications that ultimately benefit society. While focussing on coastal habitats (

Remote Sensing of Plant Biodiversity Jul 25 2019 This Open Access volume aims to methodologically improve our understanding of biodiversity by linking disciplines that incorporate remote sensing, and uniting data and perspectives in the fields of biology, landscape ecology, and geography. The book provides a framework for how biodiversity can be detected and evaluated--focusing particularly on plants--using proximal and remotely sensed hyperspectral data and other tools such as LiDAR. The volume, whose chapters bring together a large cross-section of the biodiversity community engaged in these methods, attempts to establish a common language across disciplines for understanding and implementing remote sensing of biodiversity across scales. The first part of the book offers a potential basis for remote detection of biodiversity. An overview of the nature of biodiversity is described, along with ways for determining traits of plant biodiversity through spectral analyses across spatial scales and linking spectral data to the tree of life. The second part details what can be detected spectrally and remotely. Specific instrumentation and technologies are described, as well as the technical challenges of detection and data synthesis, collection and processing. The third part discusses spatial resolution and integration across scales and ends with a vision for developing a global biodiversity monitoring system. Topics include spectral and functional variation across habitats and biomes, biodiversity variables for global scale assessment, and the prospects and pitfalls in remote sensing of biodiversity at the global scale.
Ecosystem Function in Savannas Apr 25 2022 Fascinating and diverse, savanna ecosystems support a combination of pastoral and agropastoral communities alongside wild and domestic herbivores that can be found nowhere else. This diversity has made the study of these areas problematic. Ecosystem Function in Savannas: Measurement and Modeling at Landscape to Global Scales addresses some of the discontinuities in the treatment of savannas by the scientific community and documents a range of measurements, methods, technologies, applications, and modeling approaches. Based on contributions from leading authorities and experts on savanna systems worldwide, the book describes the global savanna biome in terms of its broad ecological properties, temporal dynamics, disturbance levels, and human dimensions. The text examines carbon, water, energy, and trace gas fluxes for major global savanna regions. It looks at quantitative surface properties of savannas that can be retrieved using remote sensing and numerical approaches used to explore savanna dynamics. The authors also discuss how savanna modeling and measurement approaches might be unified. By presenting this confluence of information in a single resource, the book provides a platform for examining synergies, connections, integrative opportunities, and complementarities among approaches and data sources. This information can then be used to harmonize measurement and modeling methods among scales and across disciplinary boundaries. The book builds a bridge across the markedly different perspectives on savannas by which ecologists, biogeochemists, remote sensors, geographers, anthropologists, and modelers approach their science.
Structure and Function of a Chihuahuan Desert Ecosystem Dec 10 2020 The Jornada Basin LTER is located in the Chihuahuan Desert, the largest in North America. This region of south central New Mexico has a history of nearly 100 years as the basis for scientific research. This work gives a thorough, encompassing review of the tremendous array of observations resulting from experiments conducted in this ecosystem. Beginning with thorough descriptions of the most salient features of the region, the book then reviews a wide range of archived and active data sets on a diversity of biotic and abiotic features. It next presents a syntheses of important topics including livestock grazing and remediation efforts. A concluding chapter provides a synthesis of the principles that have emerged from this body of work, and how these relate to the broader fields of ecology and natural resource management. It concludes with recommendations for future research directions. The insightful views expressed in this volume should guide management of arid landscapes globally. This is the sixth volume in the Long Term Ecological Network Series.
Ecosystems Sep 26 2019 The book explores the relationship between biodiversity and ecosystem functional attributes, with the goal of understanding potential conflicts between managing for biodiversity and managing ecosystems. It concludes with innovative approaches that can be developed and incorporated into any framework for ecosystem management.
Biodiversity in Ecosystems Jul 05 2020 The term biodiversity has become a mainstream concept that can be found in any newspaper at any given time. Concerns on biodiversity protection are usually linked to species protection and extinction risks for iconic species, such as whales, pandas and so on. However, conserving biodiversity has much deeper implications than preserving a few (although important) species. Biodiversity in ecosystems is tightly linked to ecosystem functions such as biomass production, organic matter decomposition, ecosystem resilience, and others. Many of these ecological processes are also directly implied in services that the humankind obtains from ecosystems. The first part of this book will introduce different concepts and theories important to understand the links between ecosystem function and ecosystem biodiversity. The second part of the book provides a wide range of different studies showcasing the evidence and practical implications of such relationships.
Biodiversity, Ecosystem Functioning, and Human Wellbeing Oct 08 2020 The book starts by summarizing the development of the basic science and provides a meta-analysis that quantitatively tests several biodiversity and ecosystem functioning hypotheses.

From Populations to Ecosystems Feb 09 2021 The major subdisciplines of ecology--population ecology, community ecology, ecosystem ecology, and evolutionary ecology--have diverged increasingly in recent decades. What is critically needed today is an integrated, real-world approach to ecology that reflects the interdependency of biodiversity and ecosystem functioning. From Populations to Ecosystems proposes an innovative theoretical synthesis that will enable us to advance our fundamental understanding of ecological systems and help us to respond to today's emerging global ecological crisis. Michel Loreau begins by explaining how the principles of population dynamics and ecosystem functioning can be merged. He then addresses key issues in the study of biodiversity and ecosystems, such as functional complementarity, food webs, stability and complexity, material cycling, and metacommunities. Loreau describes the most recent theoretical advances that link the properties of individual populations to the aggregate properties of communities, and the properties of functional groups or trophic levels to the functioning of whole ecosystems, placing special emphasis on the relationship between biodiversity and ecosystem functioning. Finally, he turns his attention to the controversial issue of the evolution of entire ecosystems and their properties, laying the theoretical foundations for a genuine evolutionary ecosystem ecology. From Populations to Ecosystems points the way to a much-needed synthesis in ecology, one that offers a fuller understanding of ecosystem processes in the natural world.

Functional and Phylogenetic Ecology in R Mar 25 2022 Functional and Phylogenetic Ecology in R is designed to teach readers to use R for phylogenetic and functional trait analyses. Over the past decade, a dizzying array of tools and methods were generated to incorporate phylogenetic and functional information into traditional ecological analyses. Increasingly these tools are implemented in R, thus greatly expanding their impact. Researchers getting started in R can use this volume as a step-by-step entryway into phylogenetic and functional analyses for ecology in R. More advanced users will be able to use this volume as a quick reference to understand particular analyses. The volume begins with an introduction to the R environment and handling relevant data in R. Chapters then cover phylogenetic and functional metrics of biodiversity; null modeling and randomizations for phylogenetic and functional trait analyses; integrating phylogenetic and functional trait information; and interfacing the R environment with a popular C-based program. This book presents a unique approach through its focus on ecological analyses and not macroevolutionary analyses. The author provides his own code, so that the reader is guided through the computational steps to calculate the desired metrics. This guided approach simplifies the work of determining which package to use for any given analysis. Example datasets are shared to help readers practice, and readers can then quickly turn to their own datasets.

Body Size: The Structure and Function of Aquatic Ecosystems Dec 22 2021 Ecologists have long struggled to predict features of ecological systems, such as the numbers and diversity of organisms. The wide range of body sizes in ecological communities, from tiny microbes to large animals and plants, is emerging as the key to prediction. Based on the relationship between body size and features such as biological rates, the physics of water and the amount of habitat available, we may be able to understand patterns of abundance and diversity, biogeography, interactions in food webs and the impact of fishing, adding up to a potential 'periodic table' for ecology. Remarkable progress on the unravelling, describing and modelling of aquatic food webs, revealing the fundamental role of body size, makes a book emphasising marine and freshwater ecosystems particularly apt. In this 2007 book, the importance of body size is examined at a range of scales that will be of interest to professional ecologists, from students to senior researchers.

Mangrove Ecosystem Ecology and Function Jun 15 2021 Mangrove Ecosystem Ecology and Function deals with several aspects of mangrove science, as well as conservation, management, and related policies. The book is divided into six sections and structured into 10 chapters. The first section discusses mangrove ecology, structure, and function; the second section explains mangrove physiology related to salt accumulation; the third section focuses on mangrove polychaetes; the fourth section talks about the bioprospect of mangrove microbes; the fifth section discusses soil geochemistry; and the sixth section elucidates mangrove management and conservation. Researchers from different countries and fields of mangrove ecosystem exploration have contributed their findings. This book would be an ideal source of scientific information to graduate students, advanced students, researchers, scientists, and stakeholders involved in mangrove ecosystem research.

Aquatic Functional Biodiversity Jul 17 2021 Aquatic Functional Biodiversity: An Ecological and Evolutionary Perspective provides a general conceptual framework by some of the most prominent investigators in the field for how to link eco-evolutionary approaches with functional diversity to understand and conserve the provisioning of ecosystem services in aquatic systems. Rather than producing another methodological book, the editors and authors primarily concentrate on defining common grounds, connecting conceptual frameworks and providing examples by a more detailed discussion of a few empirical studies and projects, which illustrate key ideas and an outline of potential future directions and challenges that are expected in this interdisciplinary research field. Recent years have seen an explosion of interest in using network approaches to disentangle the relationship between biodiversity, community structure and functioning. Novel methods for model construction are being developed constantly, and modern methods allow for the inclusion of almost any type of explanatory variable that can be correlated either with

biodiversity or ecosystem functioning. As a result these models have been widely used in ecology, conservation and eco-evolutionary biology. Nevertheless, there remains a considerable gap on how well these approaches are feasible to understand the mechanisms on how biodiversity constrains the provisioning of ecosystem services. Defines common theoretical grounds in terms of terminology and conceptual issues Connects theory and practice in ecology and eco-evolutionary sciences Provides examples for successful biodiversity conservation and ecosystem service management

Anaerobic Fungi Apr 01 2020 Uniting-for the first time-current information on anaerobic fungi from a number of different disciplines, this unique reference examines the taxonomy, physiology, biochemistry, molecular biology, and ecology of anaerobic fungi-focusing on fungi from the rumen and other gut environments such as the cecum and hindgut of nonruminant herbivores. Anaerobic Fungi Presents new techniques for culturing anaerobic fungi! analyzes the isolation, culture, and survival of anaerobic fungi describes the nucleic acids of anaerobic fungi, gene cloning, and the establishment of molecular phylogeny discusses the fermentation of carbohydrates explains how anaerobic fungi interact with other microorganisms investigates the ultrastructure of plant cell walls degraded by fungi details the effects of diet on fungal populations delineates specific procedures for quantifying anaerobic fungi outlines potential directions for future research in molecular genetics and more!

Mechanisms Underlying the Relationship Between Biodiversity and Ecosystem Function Jul 29 2022 Advances in Ecological Research, Volume 61, the latest release in this ongoing series includes specific chapters on the Mechanistic links between biodiversity and ecosystem function, A multitrophic, eco-evolutionary perspective on biodiversity–ecosystem functioning research, Linking species coexistence to ecosystem functioning - a conceptual framework from ecological first principles, Species contributions to above and below ground biodiversity effects in the Trait-Based Experiment, Plant diversity effects on element cycling, Plant diversity effects on consumer community structure, stability, and ecosystem function, Plant community assembly and the consequences for ecosystem function, and more. Provides information that relates to a thorough understanding of the field of ecology Deals with topical and important reviews on the physiologies, populations and communities of plants and animals

Anthropogenic Impacts on the Microbial Ecology and Function of Aquatic Environments Nov 20 2021 Aquatic ecosystems are currently experiencing unprecedented levels of impact from human activities including over-exploitation of resources, habitat destruction, pollution and the influence of climate change. The impacts of these activities on the microbial ecology of aquatic environments are only now beginning to be defined. One of the many implications of environmental degradation and climate change is the geographical expansion of disease- causing microbes such as those from the Vibrio genus. Elevating sea surface temperatures correlate with increasing Vibrio numbers and disease in marine animals (e.g. corals) and humans. Contamination of aquatic environments with heavy metals and other pollutants affects microbial ecology with downstream effects on biogeochemical cycles and nutrient turnover. Also of importance is the pollution of aquatic environments with antibiotics, resistance genes and the mobile genetic elements that house resistance genes from human and animal waste. Such contaminated environments act as a source of resistance genes long after an antibiotic has ceased being used in the community. Environments contaminated with mobile genetic elements that are adapted to human commensals and pathogens function to capture new resistance genes for potential reintroduction back into clinical environments. This research topic encompasses these diverse topics and describes the affect(s) of human activity on the microbial ecology and function in aquatic environments and, describes methods of restoration and for modelling disturbances.

Oaks Physiological Ecology. Exploring the Functional Diversity of Genus Quercus L. Mar 01 2020 With more than 500 species distributed all around the Northern Hemisphere, the genus Quercus L. is a dominant element of a wide variety of habitats including temperate, tropical, subtropical and mediterranean forests and woodlands. As the fossil record reflects, oaks were usual from the Oligocene onwards, showing the high ability of the genus to colonize new and different habitats. Such diversity and ecological amplitude makes genus Quercus an excellent framework for comparative ecophysiological studies, allowing the analysis of many mechanisms that are found in different oaks at different level (leaf or stem). The combination of several morphological and physiological attributes defines the existence of different functional types within the genus, which are characteristic of specific phytoclimates. From a landscape perspective, oak forests and woodlands are threatened by many factors that can compromise their future: a limited regeneration, massive decline processes, mostly triggered by adverse climatic events or the competence with other broad-leaved trees and conifer species. The knowledge of all these facts can allow for a better management of the oak forests in the future.

Soil Microbiology, Ecology and Biochemistry Aug 18 2021 The fourth edition of Soil Microbiology, Ecology and Biochemistry updates this widely used reference as the study and understanding of soil biota, their function, and the dynamics of soil organic matter has been revolutionized by molecular and instrumental techniques, and information technology. Knowledge of soil microbiology, ecology and biochemistry is central to our understanding of organisms and their processes and interactions with their environment. In a time of great global change and increased emphasis on biodiversity and food security, soil microbiology and ecology has become an increasingly important topic. Revised by a group of world-renowned authors in many institutions and disciplines, this work relates the

breakthroughs in knowledge in this important field to its history as well as future applications. The new edition provides readable, practical, impactful information for its many applied and fundamental disciplines. Professionals turn to this text as a reference for fundamental knowledge in their field or to inform management practices. New section on "Methods in Studying Soil Organic Matter Formation and Nutrient Dynamics" to balance the two successful chapters on microbial and physiological methodology Includes expanded information on soil interactions with organisms involved in human and plant disease Improved readability and integration for an ever-widening audience in his field Integrated concepts related to soil biota, diversity, and function allow readers in multiple disciplines to understand the complex soil biota and their function

Fundamentals of Soil Ecology Sep 18 2021 This fully revised and expanded edition of Fundamentals of Soil Ecology continues its holistic approach to soil biology and ecosystem function. Students and ecosystem researchers will gain a greater understanding of the central roles that soils play in ecosystem development and function. The authors emphasize the increasing importance of soils as the organizing center for all terrestrial ecosystems and provide an overview of theory and practice of soil ecology, both from an ecosystem and evolutionary biology point of view. This volume contains updated and greatly expanded coverage of all belowground biota (roots, microbes and fauna) and methods to identify and determine its distribution and abundance. New chapters are provided on soil biodiversity and its relationship to ecosystem processes, suggested laboratory and field methods to measure biota and their activities in ecosystems.. Contains over 60% new material and 150 more pages Includes new chapters on soil biodiversity and its relationship to ecosystem function Outlines suggested laboratory and field methods Incorporates new pedagogical features Combines theoretical and practical approaches

The Functional Consequences of Biodiversity Jun 23 2019 Does biodiversity influence how ecosystems function? Might diversity loss affect the ability of ecosystems to deliver services of benefit to humankind? Ecosystems provide food, fuel, fiber, and drinkable water, regulate local and regional climate, and recycle needed nutrients, among other things. An ecosyste's ability to sustain functioning may depend on the number of species residing in the ecosystem--its biological diversity--but this has been a controversial hypothesis. There are many unanswered questions about how and why changes in biodiversity could alter ecosystem functioning. This volume, written by top researchers, synthesizes empirical studies on the relationship between biodiversity and ecosystem functioning and extends that knowledge using a novel and coordinated set of models and theoretical approaches. These experimental and theoretical analyses demonstrate that functioning usually increases with biodiversity, but also reveals when and under what circumstances other relationships between biodiversity and ecosystem functioning might occur. It also accounts for apparent changes in diversity-functioning relationships that emerge over time in disturbed ecosystems, thereby addressing a major controversy in the field. The volume concludes with a blueprint for moving beyond small-scale studies to regional ones--a move of enormous significance for policy and conservation but one that will entail tackling some of the most fundamental challenges in ecology. In addition to the editors, the contributors are Juan Armesto, Claudia Neuhauser, Andy Hector, Clarence Lehman, Peter Kareiva, Sharon Lawler, Peter Chesson, Teri Balser, Mary K. Firestone, Robert Holt, Michel Loreau, Johannes Knops, David Wedin, Peter Reich, Shahid Naeem, Bernhard Schmid, Jasmin Joshi, and Felix Schläpfer.

Stream Ecology May 15 2021 Channels and flow. Streamwater chemistry. Physical factors of importance to the biota. Plants and their ecology. Non-living organic matter. Trophic relationships. Predation and its consequences. Plant-herbivore interations. Competition. Drift. Lotic communities, Organic carbon. Nutrient dynamics. Modifications of rivers over human history.

Marine Biology Dec 30 2019 Widely regarded as the most captivating, accessible and comprehensive text for undergraduate marine biology courses, Marine Biology examines the subject from a unique global and evolutionary perspective. Written in clear, conversational style, this highly acclaimed volume emphasizes the principles and processes that underlie - and unify - vastly different marine communities.

Biodiversity and Ecosystem Functioning Nov 28 2019 "A conference, entitled 'Biodiversity and ecosystem functioning: synthesis and perspectives', was held in Paris, France, on 6-9 December 2000 ... This volume provides overviews,position papers, and reports from the synthesis workshops of the conference, which together give a synthetic and balanced account of the current knowledge and future challenges in the fast growing area of biodiversity and ecosystem functioning."--Pref.

Anaerobic Fungi Jan 29 2020 Uniting-for the first time-current information on anaerobic fungi from a number of different disciplines, this unique reference examines the taxonomy, physiology, biochemistry, molecular biology, and ecology of anaerobic fungi-focusing on fungi from the rumen and other gut environments such as the cecum and hindgut of nonruminant herbivores. Anaerobic Fungi Presents new techniques for culturing anaerobic fungi! analyzes the isolation, culture, and survival of anaerobic fungi describes the nucleic acids of anaerobic fungi, gene cloning, and the establishment of molecular phylogeny discusses the fermentation of carbohydrates explains how anaerobic fungi interact with other microorganisms investigates the ultrastructure of plant cell walls degraded by fungi details the effects of diet on fungal populations delineates specific procedures for quantifying anaerobic fungi outlines potential directions for future research in molecular genetics and more!

Diversity of Functional Traits and Interactions Nov 08 2020 This book presents new theoretical perspectives on ecological community dynamics and in so doing casts fresh light on the enduring complexity–stability debate. Real ecological communities do not simply comprise diverse species and interactions, which respectively represented the nodes and links of the classic network theory. Rather, they are characterized by different types of complexity, and this book explains how this diversity of complexity is key to understanding the dynamics of ecological communities. It is shown how various properties in natural communities, such as life history, adaptation, density dependence, sex, interaction types, space, functional traits, and microbial processes, can dramatically increase the complexity in ecological communities. Furthermore, innovative methods are introduced that may be applied to cast light on very complex communities. With each chapter presenting the latest advances and approaches, the book sets the direction for future research on ecological community dynamics. It will be a “must read” for researchers and students in the field of ecology.

Insect Ecology Jan 11 2021 Dr. Timothy Schowalter has succeeded in creating a unique, updated treatment of insect ecology. This revised and expanded text looks at how insects adapt to environmental conditions while maintaining the ability to substantially alter their environment. It covers a range of topics- from individual insects that respond to local changes in the environment and affect resource distribution, to entire insect communities that have the capacity to modify ecosystem conditions. Insect Ecology, Second Edition, synthesizes the latest research in the field and has been produced in full color throughout. It is ideal for students in both entomology and ecology-focused programs. NEW TO THIS EDITION: * New topics such as elemental defense by plants, chaotic models, molecular methods to measure disperson, food web relationships, and more * Expanded sections on plant defenses, insect learning, evolutionary tradeoffs, conservation biology and more * Includes more than 350 new references * More than 40 new full-color figures

Stream Ecology May 27 2022 Running waters are enormously diverse, ranging from torrential mountain brooks, to large lowland rivers, to great river systems whose basins occupy subcontinents. While this diversity makes river ecosystems seem overwhelmingly complex, a central theme of this volume is that the processes acting in running waters are general, although the settings are often unique. The past two decades have seen major advances in our knowledge of the ecology of streams and rivers. New paradigms have emerged, such as the river continuum and nutrient spiraling. Community ecologists have made impressive advances in documenting the occurrence of species interactions. The importance of physical processes in rivers has attracted increased attention, particularly the areas of hydrology and geomorphology, and the inter-relationships between physical and biological factors have become better understood. And as is true for every area of ecology during the closing years of the twentieth century it has become apparent that the study of streams and rivers cannot be carried out by excluding the role of human activities, nor can we ignore the urgency of the need for conservation. These developments are brought together in Stream Ecology: Structure and function of running waters, designed to serve as a text for advanced undergraduate and graduate students, and as a reference book for specialists in stream ecology and related fields.

Conservation Biology for All Feb 21 2022 Conservation Biology for All provides cutting-edge but basic conservation science to a global readership. A series of authoritative chapters have been written by the top names in conservation biology with the principal aim of disseminating cutting-edge conservation knowledge as widely as possible. Important topics such as balancing conversion and human needs, climate change, conservation planning, designing and analyzing conservation research, ecosystem services, endangered species management, extinctions, fire, habitat loss, and invasive species are covered. Numerous textboxes describing additional relevant material or case studies are also included. The global biodiversity crisis is now unstoppable; what can be saved in the developing world will require an educated constituency in both the developing and developed world. Habitat loss is particularly acute in developing countries, which is of special concern because it tends to be these locations where the greatest species diversity and richest centres of endemism are to be found. Sadly, developing world conservation scientists have found it difficult to access an authoritative textbook, which is particularly ironic since it is these countries where the potential benefits of knowledge application are greatest. There is now an urgent need to educate the next generation of scientists in developing countries, so that they are in a better position to protect their natural resources.

Ecology of Coastal Marine Sediments Sep 06 2020 This accessible textbook provides an ideal point of entry into the field, providing basic information on the nature of soft-sediment ecosystems, examples of how and why we research them, the new questions these studies inspire, and the applications that ultimately benefit society.

Trait-Based Ecology - From Structure to Function Aug 25 2019 The theme of this volume is Trait-Based Ecology - From Structure to Function. Advances in Ecological Research is one of the most successful series in the highly competitive field of ecology Each volume publishes topical and important reviews, interpreting ecology as widely as in the past, to include all material that contributes to our understanding of the field Topics in this invaluable series include the physiology, populations, and communities of plants and animals, as well as landscape and ecosystem ecology

Handbook of Functional Plant Ecology May 03 2020 "Offers the latest findings and research breakthroughs in

plant ecology, as well as consideration of classic topics in environmental science and ecology. This wide-ranging compendium serves as an extremely accessible and useful resource for relative newcomers to the field as well as seasoned experts. Investigates plant structure and behavior across the ecological spectrum, from the leaf to the ecosystem levels."

Biodiversity and Ecosystem Function Sep 30 2022 The biota of the earth is being altered at an unprecedented rate. We are witnessing wholesale exchanges of organisms among geographic areas that were once totally biologically isolated. We are seeing massive changes in landscape use that are creating even more abundant succes sional patches, reductions in population sizes, and in the worst cases, losses of species. There are many reasons for concern about these trends. One is that we unfortunately do not know in detail the conse quences of these massive alterations in terms of how the biosphere as a whole operates or even, for that matter, the functioning of localized ecosystems. We do know that the biosphere interacts strongly with the atmospheric composition, contributing to potential climate change. We also know that changes in vegetative cover greatly influence the hydrology and biochemistry ofa site or region. Our knowledge is weak in important details, however. How are the many services that ecosystems provide to humanity altered by modifications of ecosystem composition? Stated in another way, what is the role of individual species in ecosystem function? We are observing the selective as well as wholesale alteration in the composition of ecosystems. Do these alterations matter in respect to how ecosystems operate and provide services? This book represents the initial probing of this central ques tion. It will be followed by other volumes in this series examining in depth the functional role of biodiversity in various ecosystems of the world.

Predator Ecology Jun 03 2020 Predator-prey interactions are ubiquitous, govern the flow of energy up trophic levels, and strongly influence the structure of ecological systems. They are typically quantified using the functional response - the relationship between a predator's foraging rate and the availability of food. As such, the functional response is central to how all ecological communities function - since all communities contain foragers - and a principal driver of the abundance, diversity, and dynamics of ecological communities. The functional response also reflects all the behaviors, traits, and strategies that predators use to hunt prey and that prey use to evade predation. It is thus both a clear reflection of past evolution, including predator-prey arms races, and a major force driving the future evolution of both predator and prey. Despite their importance, there have been remarkably few attempts to synthesize or even briefly review functional responses. This novel and accessible book fills this gap, clearly demonstrating their crucial role as the link between individuals, evolution, and community properties, representing a highly-integrated and measurable aspect of ecological function. It provides a clear entry point for students, a refresher for more advanced researchers, and a motivator for future research. Predator Ecology is an advanced textbook suitable for graduate students and researchers in ecology and evolutionary biology seeking a broad, up-to-date, and authoritative coverage of the field. It will also be of relevance and use to mathematical ecologists, wildlife biologists, and anyone interested in predator-prey interactions.

Ecosystem Function & Human Activities Aug 30 2022 The innovative book examines a problem of growing concern and importance: obtaining accurate estimates of the ecological costs of human activities. The book covers a wide range of subjects, from the management and function of ecosystems to ecological issues affecting public policy. It focuses on the trade-offs inherent in environmental and conservation policy. Ecosystems provide resources that can be extracted and are valued in the market place, but the delivery of those resources depends on the functioning of natural processes whose maintenance may involve substantial costs. Investigating state-of-the-art analyses in ecology, ecological risk assessment, and environmental economics, this pioneering resource will be of value to economists, ecologists, environmental policy makers, and resource management professionals.

Ecology Documentaries Mar 13 2021 This companion piece to Susan Hayward’s Film Ecology focuses on ecology documentaries produced in the first 20 years of the new millennium (2000–19). Using Kate Raworth’s regenerative economic theoretical model as set out in Doughnut Economics, this book examines 57 films emanating from Europe and the 4 areas of concern they raise about energy production, pollution and waste management, agribusiness, disrupted ecosystems and the migratory f low. These ecology documentaries make explicit the damage done to our planet thanks to growth capitalism and neoliberal globalisation. But they also provide the evidence that solutions to this planetary abuse exist. The book demonstrates how these documentaries reveal the process of humankind’s planetary plundering and explores the structuring of the eco-doc as a new generic type in the domain of documentary practice. Using Raworth’s model allows us to measure the tentacular extent of the planetary harm growth economics induces and, too, by way of contrast, perceive how regenerative economics can work to redress this harm, heal the Earth and make it a safe place for humanity. This book is ideal for film studies scholars and students, including those teaching or studying film practice, documentary film, European cinema and environmental studies, as well as economists interested in regenerative economic models. It also has general appeal to all who are concerned about some of the major causes of planetary degradation and its impact on humanity and Earth.

Insects and Ecosystem Function Nov 01 2022 Insects are a dominant component of biodiversity in terrestrial ecosystems and play a key role in mediating the relationship between plants and ecosystem processes. This volume examines their effects on ecosystem functioning, focusing mainly, but not exclusively, on herbivorous insects.

Renowned authors with extensive experience in the field of plant-insect interactions, contribute to the volume using examples from their own work.

Ecosystem Function in Heterogeneous Landscapes Jun 27 2022 This groundbreaking work connects the knowledge of system function developed in ecosystem ecology with landscape ecology's knowledge of spatial structure. The book elucidates the challenges faced by ecosystem scientists working in spatially heterogeneous systems, relevant conceptual approaches used in other disciplines and in different ecosystem types, and the importance of spatial heterogeneity in conservation resource management.

Why Birds Matter Jan 23 2022 For over one hundred years, ornithologists and amateur birders have jointly campaigned for the conservation of bird species, documenting not only birds' beauty and extraordinary diversity, but also their importance to ecosystems worldwide. But while these avian enthusiasts have noted that birds eat fruit, carrion, and pests; spread seed and fertilizer; and pollinate plants, among other services, they have rarely asked what birds are worth in economic terms. In Why Birds Matter, an international collection of ornithologists, botanists, ecologists, conservation biologists, and environmental economists seeks to quantify avian ecosystem services—the myriad benefits that birds provide to humans. The first book to approach ecosystem services from an ornithological perspective, Why Birds Matter asks what economic value we can ascribe to those services, if any, and how this value should inform conservation. Chapters explore the role of birds in such important ecological dynamics as scavenging, nutrient cycling, food chains, and plant-animal interactions—all seen through the lens of human well-being—to show that quantifying avian ecosystem services is crucial when formulating contemporary conservation strategies. Both elucidating challenges and providing examples of specific ecosystem valuations and guidance for calculation, the contributors propose that in order to advance avian conservation, we need to appeal not only to hearts and minds, but also to wallets.

Plant Functional Diversity Oct 20 2021 "This book is based on 'Diversitae fonctionnelle des Plantes - Traits des Organismes, Structure des Communautaes, Propriaetaes des Ecosystaemes' authored by Eric Garnier and Marie-Laure Navas, and published in 2013 by De Boeck. It has been substantially enriched compared to the French version, and some chapters have been extensively revised and completed"--Page vii.