Tropical Ecosystems And Ecological Concepts

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Ecosystem Processes and Global Challenges
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An Integrative Overview of Species Interactions from Some of the Most Species-Rich Habitats on Earth
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Forests, Water and People in the Humid Tropics
Open Ecosystems

MILLS DOMINIK

Theory, Tools and Applications Oxford University Press, USA
Caused in part by the slash-and-burn practices of both large- and small-scale farmers, the environmental implications of tropical deforestation remain a worldwide concern. Yet the small-scale farmers who use slash-and-burn agriculture depend on it to produce food and make a living for their families. With contributions from scientists, economists, ecologists, and anthropologists, this book provides an overall analysis of the environmental, economic, and social reasons for why slash and burn is so common and presents alternatives to this destructive practice.

The Search for Alternatives Cambridge University Press
Aquatic ecosystems are rich in biodiversity and home to a diverse array of species and habitats, providing a wide variety of benefits to human beings. Many of these valuable ecosystems are at risk of being irreversibly damaged by human activities and pressures, including pollution, contamination, invasive species, overfishing and climate change. Such pressures threaten the sustainability of these ecosystems, their provision of ecosystem services and ultimately human well-being. Ecosystem-based management (EBM) is now widely considered the most promising paradigm for balancing sustainable development and biodiversity protection, and various international strategies and conventions have championed the EBM cause and the inclusion of ecosystem services in decision-making. This open access book introduces the essential concepts and principles required to implement ecosystem-based management, detailing tools and techniques, and describing the application of these concepts and tools to a broad range of aquatic ecosystems, from the shores of Lough Erne in Northern Ireland to the estuaries of the US Pacific Northwest and the tropical Mekong Delta.

Biodiversity and Ecosystem Function CRC Press
Throughout its history, the discipline of ecology has always been profoundly entangled with the history of space and place. On the one hand, ecology is a field science that has thrived on the study of concrete spatial entities, such as islands, forests or rivers. These spaces are the workplaces in which ecological phenomena are identified, observed and experimented on. They provide both epistemic opportunities and constraints that structure the agenda and the analytical sensibilities of ecological researchers. On the other hand, ecological knowledge and practices have become important resources through which spaces and places are classified, delineated, explained, experienced and managed. The impact of these activities reaches far beyond the realms of the ecological discipline. Many ecological concepts such as "biotopes," "ecosystems" and "the biosphere" have become entities that widely resonate in public life and policy making. This book explores the mutual entanglement between space and knowledge-making in the history of ecology. Its first goal is to explore to which extent a spatial perspective can shed new light on the history of ecological science. Second, it uses ecology as a critical site to gain broader insights into the history of the environment in the nineteenth and twentieth centuries. Via a series of case studies - discussing topics that range from ecological field stations in the early-twentieth century Caribbean over wisent breeding in Nazi Germany to computer modelling in North American deserts - the book offers a tour through the changing landscapes of modern ecology.

An Introduction to Ecological Anthropology Cambridge University Press
Situating forests in the context of larger landscapes, they reveal the complex patterns and processes observed in tree-dominated habitats. The updated and expanded second edition covers; Conservation; Ecosystem services ; Climate change; Vegetation classification; Disturbance; Species interactions; Self-thinning; Genetics; Soil influences; Productivity; Biogeochemical cycling; Mineralization; Effects of herbivory; Ecosystem stability

Tropical Ecosystems: Structure, Functions and Challenges in the Face of Global Change Elsevier
Savannas form one of the largest and most important of the world's ecological zones. Covering one fifth of the Earth's land surface, they are home to some of the world's most iconic animals and form an extremely important global resource for plants and wildlife. However, increasing recognition of their land potential means that they are extremely vulnerable to accelerating pressures on usable land. This Very Short Introduction considers savannas as landscapes. Discussing their origin, topography, and global distribution, Peter A. Furley explores the dynamic nature of savannas and illustrates how they have shaped human evolution and movements. He goes on to discuss the unrelenting pressures that confront conservation and management and considers the future for savannas. 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.

Tropical Ecology Frontiers Media SA
An introductory textbook on tropical ecology, unique in its international scope and balanced coverage of both aquatic and terrestrial systems.

Trends in Terrestrial and Aquatic Research Springer
Tropical Stream Ecology describes the main features of tropical streams and their ecology. It covers the major physico-chemical features, important processes such as primary production and organic-matter transformation, as well as the main groups of consumers: invertebrates, fishes and other vertebrates. Information on concepts and paradigms developed in north-temperate latitudes and how they do not match the reality of ecosystems further south is expertly addressed. The pressing matter of conservation of tropical streams and their biodiversity is included in almost every chapter, with a final chapter providing a synthesis on conservation issues. For the first time, Tropical Stream Ecology places an important emphasis on viewing research carried out in contributions from international literature. First synthetic account of the ecology of all types of tropical streams Covers all of the major tropical regions Detailed consideration of possible fundamental differences between tropical and temperate stream ecosystems Threats faced by tropical stream ecosystems and possible conservation actions Descriptions and synstheses life-histories and breeding patterns of major aquatic consumers (fishes, invertebrates)

Environmental Sciences Oxford University Press
This Encyclopedia of Tropical Biology and Conservation Management is a component of the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Tropical environments cover the most part of still preserved natural areas of the Earth. The greatest biodiversity, as in terms of animals and plants, as microorganisms, is placed in these hot and rainy ecosystems spread up and below the Equator line. Additionally, the most part of food products, with vegetal or animal origin, that sustain nowadays human beings is direct or undirected dependent of tropical productivity. Biodiversity should be looked at and evaluated not only in terms of numbers of species, but also in terms of the diversity of interactions among distinct organisms that it maintains. In this sense, the complexity of web structure in tropical systems is a promise of future to nature preservation on Earth. In the chemicals of tropical plant and animals, could be the cure to infinite number of diseases, new food sources, and who knows what more. Despite these facts tropical areas have been exploited in an irresponsible way for more than 500 years due the lack of an ecological conscience of men. Exactly in the same way we did with temperate areas and also tropical areas in the north of Equator line. Nowadays, is estimated that due human exploitation, nation conflicts and social problems, less than 8% of tropical nature inside continental areas is still now untouchable. The extension of damage in the tropical areas of oceans is unknown. Thus so, all knowledge we could accumulate about tropical systems will help us, as in the preservations of these important and threatened ecosystems as in a future recuperation, when it was possible. Only knowing the past and developing

culture, mainly that directed to peace, to a better relationship among nations and responsible use and preservation of natural resources, human beings will have a long future on Earth. These volumes, Tropical Biology and Natural Resources was divided in sessions to provide the reader the better comprehension possible of issue and also to enable future complementation and improvements in the encyclopedia. Like we work with life, we intended to transform this encyclopedia also in a “life” volume, in what new information could be added in any time. As president of the encyclopedia and main editor I opened the theme with an article titled: “Tropical Biology and Natural resources: Historical Pathways and Perspectives”, providing the reader an initial view of the origins of human knowledge about the tropical life, and what we hope to the future. In the sequence we have more than 100 chapters distributed in tem sessions: Tropical Ecology (TE); Tropical Botany (TB); Tropical Zoology (TZ); Savannah Ecosystems (SE); Desert Ecosystems (DE); Tropical Agriculture (TA); Natural History of Tropical Plants (NH); Human Impact on Tropical Ecosystems (HI); Tropical Phytopathology and Entomology (TPE); Case Studies (CS). This 11-volume set contains several chapters, each of size 5000-30000 words, with perspectives, applications and extensive illustrations. It is the only publication of its kind carrying state-of-the-art knowledge in the fields of Tropical Biology and Conservation Management and is aimed, by virtue of the several applications, 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.

Root Ecology Tropical Ecosystems and Ecological Concepts

Tropical ecosystems are different in important ways from those of temperate regions. They are a major reservoir of plant and animal biodiversity and play important roles in global climate regulation and biogeochemical cycling. They are also under great threat due to the conversion of tropical ecosystems to other uses. Thus, in the context of global change, it is crucial to understand how environmental factors, biogeographic patterns, and land use changes interact to influence the structure and function of microbial communities in these ecosystems. The contributions to this Research Topic showcase the current knowledge regarding microbial ecology in tropical ecosystems, identify many challenges and questions that remain to be addressed and open up new horizons in our understanding of the environmental and anthropological factors controlling microbial communities in these important ecosystems.

Properties and Management of Soils in the Tropics Academic Press

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.

Human Adaptability, Student Economy Edition Walch Publishing

Explores the geography, ecology, and antiquity of 'open ecosystems' which include grasslands, savannas, and shrublands.

Ecosystem Processes and Global Challenges Taylor & Francis

In 1977, the Volkswagen Foundation sponsored the first of a series of International Symposia on Fire Ecology at Freiburg University, Federal Republic of Germany. The scope of the congresses was to create a platform for researchers at a time when the science of fire ecology was not yet recognized and established outside of North America and Australia. Whereas comprehensive information on the fire ecology of the northern boreal, the temperate, and the mediter ranean biotas is meanwhile available, it was recognized that conside rable gaps in information exist on the role of fire in tropical und sub tropical ecosystems. Thus it seemed timely to meet the growing scientific interest and public demand for reliable and updated infor mation and to synthesize the available knowledge of tropical fire ecology and the impact of tropical biomass burning on global eco system processes. The Third Symposium on Fire Ecology, again sponsored by the Volkswagen Foundation and held at Freiburg University in May 1989, was convened to prepare this first pantropical and multidisci plinary monograph on fire ecology!. The book, in which 46 scientists cooperated, analyzes those fire-related ecosystem processes which have not yet been described in a synoptic way. Following the editor's concept, duplication at previous efforts in describing tropical vegeta tion patterns and dynamics was avoided. Extensive bibliographical sources are given in the reference lists of the chapters.

Phosphorus Biogeochemistry of Sub-Tropical Ecosystems Cambridge University Press

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

Telling Nature's Time Springer Nature

Advances in Ecological Research, Volume 62, the latest release in this ongoing series, covers a long list of topics, including Monitoring tropical insects in the 21st Century, The distribution and structure of long-term and large-scale fire manipulation experiments, The Agua Salud Project: Basic and applied research informing management of tropical landscapes for the 21st century, Conservation strategies and principles for tropical forests, Assessing forest quality using satellite remote sensing data: A test case using the Sabah Biodiversity Experiment, eDNA approaches to understand the current state and future of biodiversity of the Amazonian biome: pitfalls, improvements and challenges, and much 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

An Integrative Overview of Species Interactions from Some of the Most Species-Rich Habitats on Earth SAGE

This full-color illustrated textbook offers the first comprehensive introduction to all major aspects of tropical ecology. It explains why the world's tropical rain forests are so universally rich in species, what factors may contribute to high species richness, how nutrient cycles affect rain forest ecology, and how ecologists investigate the complex interrelationships among flora and fauna. It covers tropical montane ecology, riverine ecosystems, savanna, dry forest--and more. Tropical Ecology begins with a historical overview followed by a sweeping discussion of biogeography and evolution, and then introduces students to the unique and complex structure of tropical rain forests. Other topics include the processes that influence everything from species richness to rates of photosynthesis: how global climate change may affect rain forest characteristics and function; how fragmentation of ecosystems affects species richness and ecological processes; human ecology in the tropics; biodiversity; and conservation of tropical ecosystems and species. Drawing on real-world examples taken from actual research, Tropical Ecology is the best textbook on the subject for advanced undergraduates and graduate students. Offers the first comprehensive introduction to tropical ecology Describes all the major kinds of tropical terrestrial ecosystems Explains species diversity, evolutionary processes, and coevolutionary interactions Features numerous color illustrations and examples from actual research Covers global warming, deforestation, reforestation, fragmentation, and conservation The essential textbook for advanced undergraduates and graduate students Suitable for courses with a field component Leading universities that have adopted this book include: Biola University Bucknell University California State University, Fullerton Colorado State University - Fort Collins Francis Marion University Michigan State University Middlebury College Northern Kentucky University Ohio Wesleyan University St. Mary's College of Maryland Syracuse University Tulane University University of California, Santa Cruz University of Central Florida University of Cincinnati University of Florida University of Missouri University of New Mexico University of North Carolina at Chapel Hill University of the West Indies

Sites, Journeys, Mappings Springer Science & Business Media

The book brings together research topics having a broad focus on human and climate change impacts on the terrestrial ecosystems in the tropics in general and more specifically from the most significant and vulnerable Himalayan ecosystem. A total of 16 contributions included in the book cover a diverse range of global change themes such as the impacts of changing temperature and precipitation on soil ecosystems, forest degradation, extent and impacts of invasive species, plant responses to pollution, climate change impacts on biodiversity and tree phenology, environmental changes associated with land use, importance of traditional knowledge in climate change adaptation, timberline ecosystems, and role of integrated landscape modeling for sustainable management of natural resources. The book is a collective endeavour of an international multidisciplinary group of scientists focused on improving our understanding of the impacts of global change on the structure and functioning of tropical ecosystems and addressing the challenges of their future sustainable management. We hope that the book will help researchers working in the areas of ecology and environmental science to update their knowledge. We also expect that natural resource managers and policy planners will find explanations for some of their observations and hypotheses on multiple global change factors impacting tropical ecosystems and especially Himalayan ecosystems.

Concepts and Applications Springer Science & Business Media

Designed to help students understand the multiple levels at which human populations respond to their surroundings, this essential text offers the most complete discussion of environmental, physiological, behavioral, and cultural adaptive strategies available. Among the unique features that make Human Adaptability outstanding as both a textbook for students and a reference book for professionals are a complete discussion of the development of ecological anthropology and relevant research methods; the use of an ecosystem approach with emphasis on arctic, high altitude, arid land, grassland, tropical rain forest, and urban environments; an extensive and updated bibliography on ecological anthropology; and a comprehensive glossary of technical terms. Entirely new to the third edition are chapters on urban sustainability and methods of spatial analysis, with enhanced emphasis throughout on the role of gender in human-adaptability research and on global environmental change as it affects particular ecosystems. In addition, new sections in each chapter guide students to websites that provide access to relevant material, complement the text's coverage of biomes, and suggest ways to become active in environmental issues.

Tropical Ecological Systems Springer Science & Business Media

The tropics are home to most of the world’s biodiversity and are currently the frontier for human settlement. Tropical ecosystems are being converted to agricultural and other land uses at unprecedented rates. Land conversion and maintenance almost always rely on fire and, because of this, fire is now more prevalent in the tropics than anywhere else on Earth. Despite pervasive fire, human settlement and threatened biodiversity, there is little comprehensive information available on fire and its effects in tropical ecosystems. Tropical deforestation, especially in rainforests, has been widely documented for many years. Forests are cut down and allowed to dry before being burned to remove biomass and release nutrients to grow crops. However, fires do not always stop at the borders of cleared forests. Tremendously damaging fires are increasingly spreading into forests that were never evolutionarily prepared for wild fires. The largest fires on the planet in recent decades have occurred in tropical forests and burned millions of hectares in several countries. The numerous ecosystems of the tropics have differing levels of fire resistance, resilience or dependence. At present, there is little appreciation of the seriousness of the wild fire situation in tropical rainforests but there is even less understanding of the role that fire plays in the ecology of many fire adapted tropical ecosystems, such as savannas, grasslands and other forest types.

Tropical Conservation Biology Columbia University Press

Forests, Water and People in the Humid Tropics is the most comprehensive review available of the hydrological and physiological functioning of tropical rain forests, the environmental impacts of their disturbance and conversion to other land uses, and optimum strategies for managing them. The book brings together leading specialists in such diverse fields as tropical anthropology and human geography, environmental economics, climatology and meteorology, hydrology, geomorphology, plant and aquatic ecology, forestry and conservation agronomy. The editors have supplemented the individual contributions with invaluable overviews of the main sections and provide key pointers for future research. Specialists will find authenticated detail in chapters written by experts on a whole range of people-water-land use issues, managers and practitioners will learn more about the implications of ongoing and planned forest conversion, while scientists and students will appreciate a unique review of the literature.

Ecological Connectivity among Tropical Coastal Ecosystems Routledge

This book critically reviews advances in our understanding of the biology of vascular epiphytes since Andreas Schimper’s 1888 seminal work. It addresses all aspects of their biology, from anatomy and physiology to ecology and evolution, in the context of general biological principles. By comparing epiphytes with non-epiphytes throughout, it offers a valuable resource for researchers in plant sciences and related disciplines. A particular strength is the identification of research areas that have not received the attention they deserve, with conservation being a case in point. Scientists have tended to study pristine systems, but global developments call for information on epiphytes in human-disturbed systems and the response of epiphytes to global

climate change.

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