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Under threat from natural and human disturbance, tropical dry forests are the most endangered ecosystem in the tropics, yet they rarely receive the scientific or conservation attention they deserve. In a comprehensive overview, *Tropical Dry Forests in the Americas: Ecology, Conservation, and Management* examines new approaches for data sampling and analysis using remote sensing technology, discusses new ecological and econometric methods, and critically evaluates the socio-economic pressures that these forest are facing at the continental and national levels. The book includes studies from Mexico, Costa Rica, Colombia, Venezuela, and Brazil that provide in-depth knowledge about the function, status, and conservation efforts of these endangered forests. It presents key elements of synthesis from standardized work conducted across all sites. This unique contribution provides new light in terms of these forests compared to each other not only from an ecological perspective but also in terms of the pressures that they are facing, and their respective responses. Written by experts from a diversity of fields, this reference brings together the many facets of function, use, heritage, and future potential of these forests. It presents an important

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and exciting synthesis of many years of work across countries, disciplines, and cultures. By standardizing approaches for data sampling and analysis, the book gives readers comparison information that cannot be found anywhere else given the high level of disparity that exists in the current literature.

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

The massive grasslands of Brazil -- known as the cerrados -- which cover roughly a quarter of its land surface and are among the most threatened regions in South America, have received little media attention. This book brings together leading

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researchers on the area to produce the first detailed account in English of the natural history and ecology of the cerrado/savanna ecosystem. Given their extent and threatened status, the richness of their flora and fauna, and the lack of familiarity with their unique ecology at the international level, the cerrados are badly in need of this important and timely work.

This book is number two in a series for Primates in Fragments. In this volume, ten years after the first <http://www.springer.com/social+sciences/anthropology+%26+archaeology/book/978-0-306-47696-9>, we continue to address issues regarding primates within a fractured landscape. There are seven sections based on specific categories of primates in fragments. In the Introductory section, authors discuss the issues surrounding primates in remnant habitats as well as encourage discussion about what we mean by fragmentation on a landscape scale. In the Long-Term and Regional Studies section, authors present information on changes that have occurred during longer studies as well as changes that have occurred over regions. In the Landscape, Metapopulations and the Matrix section, authors cover topics from dry to moist forests, and from metapopulations to single species use of multiple fragments locations. In Feeding and Behavioral Ecology, authors take a closer look at the flexibility and responsiveness of primates in fragments in terms of their food choices, resource use, and behavioral changes. In Endemic, Endangered, and Nocturnal Primates authors uncover details involving critical primates living in major city centers to the heights of

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the Himalayas. In Genetics, Disease and Parasites authors cover topics including population viability, disease and parasite transmission between primates in fragments and humans. Finally, in the Conservation and Ecology: Threats and Management section, we synthesize information in this volume and make recommendations for the future of work in this field and the survivability of primates in fragments.

In this volume we aimed to assess progress in determining the processes by which current patterns of tropical biodiversity were established and are maintained. Tropical regions are highly species-rich and we present studies that have improved our understanding of the generation of that diversity at local, regional and global scales. We demonstrate how diverse fields from molecular phylogenetics, phylogeography, palaeontology and palaeoecology continue to improve our understanding of the natural history of the tropics.

The book focuses on geological history as the critical factor in determining the present biodiversity and landscapes of Amazonia. The different driving mechanisms for landscape evolution are explored by reviewing the history of the Amazonian Craton, the associated sedimentary basins, and the role of mountain uplift and climate change. This book provides an insight into the Meso- and Cenozoic record of Amazonia that was characterized by fluvial and long-lived lake systems and a highly diverse flora and fauna. This fauna includes giants such as the ca. 12 m long caiman *Purussaurus*, but also a varied fish fauna and fragile molluscs, whilst fossil pollen and spores form relics

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of ancestral swamps and rainforests. Finally, a review the molecular datasets of the modern Amazonian rainforest and aquatic ecosystem, discussing the possible relations between the origin of Amazonian species diversity and the palaeogeographic, palaeoclimatic and palaeoenvironmental evolution of northern South America. The multidisciplinary approach in evaluating the history of Amazonia has resulted in a comprehensive volume that provides novel insights into the evolution of this region. Accessibly written by a team of international authors, the Encyclopedia of Environmental Change provides a gateway to the complex facts, concepts, techniques, methodology and philosophy of environmental change. This three-volume set illustrates and examines topics within this dynamic and rapidly changing interdisciplinary field. The encyclopedia includes all of the following aspects of environmental change: Diverse evidence of environmental change, including climate change and changes on land and in the oceans Underlying natural and anthropogenic causes and mechanisms Wide-ranging local, regional and global impacts from the polar regions to the tropics Responses of geo-ecosystems and human-environmental systems in the face of past, present and future environmental change Approaches, methodologies and techniques used for reconstructing, dating, monitoring, modelling, projecting and predicting change Social, economic and political dimensions of environmental issues, environmental conservation and management and environmental policy Over 4,000 entries explore the following key themes and more: Conservation Demographic change Environmental

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management Environmental policy Environmental security Food security Glaciation Green Revolution Human impact on environment Industrialization Landuse change Military impacts on environment Mining and mining impacts Nuclear energy Pollution Renewable resources Solar energy Sustainability Tourism Trade Water resources Water security Wildlife conservation The comprehensive coverage of terminology includes layers of entries ranging from one-line definitions to short essays, making this an invaluable companion for any student of physical geography, environmental geography or environmental sciences.

Forests hold a significant proportion of global biodiversity and terrestrial carbon stocks and are at the forefront of human-induced global change. The dynamics and distribution of forest vegetation determines the habitat for other organisms, and regulates the delivery of ecosystem services, including carbon storage. Presenting recent research across temperate and tropical ecosystems, this volume synthesises the numerous ways that forests are responding to global change and includes perspectives on: the role of forests in the global carbon and energy budgets; historical patterns of forest change and diversification; contemporary mechanisms of community assembly and implications of underlying drivers of global change; and the ways in which forests supply ecosystem services that support human lives. The chapters represent case studies drawn from the authors' expertise, highlighting exciting new research and providing information that will be valuable to academics, students, researchers and practitioners with an interest in

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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. Long-awaited second edition of classic textbook, brought completely up to date, for courses on tropical soils, and reference for scientists and professionals.

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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. Faced with the growing problems of climate change, ecosystem degradation, declining agricultural productivity, and uncertain food security, modern agricultural scientists look for potential relief in an ancient practice. Agroforestry, if properly designed, can mitigate greenhouse effects, maintain ecosystem health and biodiversity, provide food security, and reduce poverty. Poorly implemented agroforestry, however, can not only exacerbate existing problems, but also contribute in its own right to the overall negative effects of our depleted and failing ecosystems. With a diminishing margin for error, a thorough understanding of the ecological processes that govern these complex systems is, therefore, crucial. Drawing on the collective expertise of world authorities, *Ecological Basis of Agroforestry* employs extensive

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use of tables and figures to demonstrate how ecologically sustainable agroecosystems can meet the challenges of enhancing crop productivity, soil fertility, and environmental sustainability. Divided into four sections, this comprehensive volume begins with a study of tree-crop interaction in tropical and temperate climates. Contributions cover above and below ground interactions, alley cropping, tri-trophic interactions, ecologically based pest management, and the chemistry and practical potential of chemically mediated plant interactions. The second section investigates root-mediated below ground interactions and their role in enhancing productivity, soil fertility, and sustainability. It includes an extensive study on litter dynamics and factors affecting nutrient release. Applying ecological modeling of complex agroforestry systems, section three demonstrates the use of computer-based designs to ensure profitability. The final section addresses the socio-economic aspects of agroforestry, supplying in-depth knowledge of various farming systems and discussing the technological tools that benefit society in different eco-regions around the world.

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

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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 ten sessions: Tropical Ecology (TE); Tropical Botany (TB); Tropical Zoology (TZ); Savannah Ecosystems (SE); Desert Ecosystems (DE); Tropical

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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.

This book integrates the latest global developments in forestry science and practice and their relevance for the sustainable management of tropical forests. The influence of social dimensions on the development of silvicultural concepts is another spotlight. Ecology and silvicultural options form all tropical continents, and forest formations from dry to moist forests and from lowland to mountain forests are covered. Review chapters which guide readers through this complex subject integrate numerous illustrative and quantitative case studies by experts from all over the world. On the basis of a cross-sectional evaluation of the case studies presented, the authors put forward possible silvicultural contributions towards sustainability in a changing world. The book is addressed to a broad readership from forestry and environmental disciplines.

A Natural History of the New World traces the evolution of plant ecosystems, beginning in the Late Cretaceous period and ending in the present, charting their responses to changes in geology and climate.

Advances in Ecological Research, Volume 62, the latest release in this ongoing series, covers

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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 Provides an overview of the animals, plants, and climate of the tropical forest biomes.

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

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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.

The Amazon rain forest covers more than five million square kilometers, amid the territories of nine different nations. It represents over half of the planet's remaining rain forest. Is it truly in peril? What steps are necessary to save it? To understand the future of Amazonia, one must know how its history was forged: in the eras of large pre-Columbian populations, in the gold rush of conquistadors, in centuries of slavery, in the schemes of Brazil's military dictators in the 1960s and 1970s, and in new globalized economies where Brazilian soy and beef now dominate, while the market in carbon credits raises the value of standing forest. Susanna Hecht and Alexander Cockburn show in compelling detail the panorama of destruction as it unfolded, and also reveal the extraordinary turnaround that is now taking place, thanks to both the social movements, and the emergence of new environmental markets. Exploring the role of human hands in destroying—and saving—this vast forested region, *The Fate of the Forest* pivots on

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the murder of Chico Mendes, the legendary labor and environmental organizer assassinated after successful confrontations with big ranchers. A multifaceted portrait of Eden under siege, complete with a new preface and afterword by the authors, this book demonstrates that those who would hold a mirror up to nature must first learn the lessons offered by some of their own people.

This volume in the Greenwood Guides to Biomes of the World covers grasslands, those biomes that cover vast areas of the landmass of earth. It covers the two major types of grassland biomes: the temperate grasslands (such as the North American prairie), and the tropical grassland (e.g. the African savanna), examining all aspects that define these biomes: Vegetation, Geographical Distribution, Soil, Challenges posed by the environment, Adaptation of the plants and animals to the environment, Conservation efforts Maps, photos, diagrams, drawings, and tables accompany the text, as do sidebars that highlight habitats, species, and ecological relationships.

As the worldwide human population explodes and trade becomes increasingly globalized, the transboundary movement of plant species from their place of origin to foreign regions is escalating and expected to experience continued growth in the coming decades. *Invasive Plants and Forest Ecosystems* takes an informed and integrated approach to the current onslaught of invasive species,

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spotlighting the tremendous challenges they pose for natural resource managers charged with the maintenance of biological diversity and the sustainable production of forest wealth. It addresses the havoc these alien invaders are wrecking on native forest ecosystems and the staggering \$300 billion annually in damage and control costs they incur. An Up-to-Date Synthesis of Invasive Plants, Their Impact, and Control Strategies Examining invasion ecology through both synthesis and original research chapters, this compilation gives a bird's eye view of the ecological impact alien invaders have both in temperate and tropical climates. With internationally recognized contributors, this text explores the socioeconomic and policy aspects of adaptive collaborative management strategies that are crucial to controlling alien invasive plants. This book successfully captures the current state of knowledge surrounding this fast-growing ecological issue, making it an indispensable resource for those committed to the protection of global forestry and natural resources.

This comprehensive collection of up-to-the-minute research in the field of poisonous plants investigates the effects of toxins on animals and humans. It covers the effects of poisonous plants on the liver, the reproductive system, and the nervous system, as well as exploring the field of herbal medicine. In a specialized section devoted to control measures, the book highlights techniques

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such as vaccination and taste aversion, providing the reader with important information on safeguarding against disaster. This volume is an essential reference for veterinarians, researchers, toxicologists and.

This book provides in-depth information on Caatinga's geographical boundaries and ecological systems, including plants, insects, fishes, amphibians, reptiles, birds, and mammals. It also discusses the major threats to the region's socio-ecological systems and includes chapters on climate change and fast and large-scale land-use changes, as well as slow and small-scale changes, also known as chronic human disturbances. Subsequent chapters address sustainable agriculture, conservation systems, and sustainable development. Lastly, the book proposes 10 major actions that could enable the transformation of Caatinga into a place where people and nature can thrive together. "I consider this book an excellent example of how scientists worldwide can mobilize their efforts to propose sound solutions for one of the biggest challenges of modern times, i.e., how to protect the world's natural ecosystems while improving human well-being. I am sure this book will inspire more research and conservation action in the region and perhaps encourage other groups of scientists to produce similar syntheses about their regions." Russell Mittermeier, Ph.D. Executive Vice-Chair, Conservation International

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More often than not, when people think of a neotropical forest, what comes to mind is a rain forest, rather than a dry forest. Just as typically, when they imagine a savanna, they visualize the African plains, rather than those dry woodlands and grasslands found in the Neotropics. These same preconceptions can be found among scientists, as these ne

This important book provides a comprehensive review of our current knowledge of the world's leguminous plants and their symbiotic bacteria. Written by Professor Janet Sprent, a world authority in the area, Legume Nodulation contains comprehensive details of the following: An up to date review of legume taxonomy and a full list of the world's genera Details of how legumes are distributed throughout the world A review of the evolution of legume nodulation Comprehensive details of all microorganisms known to be symbiotic with legumes Ecological and environmental aspects of legume-bacteria symbiosis Legume Nodulation is an essential purchase for plant scientists, agronomists, ecologists and microbiologists. Libraries in all universities and research establishments where biological and agricultural sciences are studied and taught should have copies of this landmark publication.

Alluvium and Empire uncovers the stories of Indigenous people who were subject to one of the largest waves of forced resettlement in human history, the Reducción General. In 1569, Spanish administrators attempted to move at least 1.4 million Indigenous people into a series of planned towns called reducciones, with the goal of reshaping their households, communities, and religious practices. However, in northern Peru's Zaña Valley, this process failed to go as the Spanish had planned. In Alluvium and Empire, Parker VanValkenburgh

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explores both the short-term processes and long-term legacies of Indigenous resettlement in this region, drawing particular attention to the formation of complex relationships between Indigenous communities, imperial institutions, and the dynamic environments of Peru's north coast. The volume draws on nearly ten years of field and archival research to craft a nuanced account of the Reducción General and its aftermath. Written at the intersections of history and archaeology, *Alluvium and Empire* at once bears witness to the violence of Spanish colonization and highlights Indigenous resilience in the aftermath of resettlement. In the process, Van Valkenburgh critiques previous approaches to the study of empire and models a genealogical approach that attends to the open-ended—and often unpredictable—ways in which empires take shape.

Savannas are the most widespread ecosystem in the tropics and as such are subjected to great human pressure that may result in massive soil degradation. The book addresses the role of species in the function of savanna ecosystems. It is shown that savannas are enormously diverse and that four factors determine the function of savanna ecosystems: Plant Available Moisture; Plant Available Nutrients; Fire; Herbivores.

Though seasonally dry tropical forests are equally as important to global biodiversity as tropical rainforests, and are one of the most representative and highly endangered ecosystems in Latin America, knowledge about them remains limited because of the relative paucity of attention paid to them by scientists and researchers and a lack of published information on the subject. *Seasonally Dry Tropical Forests* seeks to address this shortcoming by bringing together a range of experts in diverse fields including biology, ecology, biogeography, and biogeochemistry, to review, synthesize, and explain the current state of our collective

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knowledge on the ecology and conservation of seasonally dry tropical forests. The book offers a synthetic and cross-disciplinary review of recent work with an expansive scope, including sections on distribution, diversity, ecosystem function, and human impacts. Throughout, contributors emphasize conservation issues, particularly emerging threats and promising solutions, with key chapters on climate change, fragmentation, restoration, ecosystem services, and sustainable use. Seasonally dry tropical forests are extremely rich in biodiversity, and are seriously threatened. They represent scientific terrain that is poorly explored, and there is an urgent need for increased understanding of the system's basic ecology. Seasonally Dry Tropical Forests represents an important step in bringing together the most current scientific information about this vital ecosystem and disseminating it to the scientific and conservation communities.

The astounding richness and biodiversity of tropical forests is rapidly dwindling. This has severely altered the vital biogeochemical cycles of carbon, phosphorus, nitrogen etc. and has led to the change in global climate and pristine natural ecosystems. In this elegant book, we have defined "Tropical Forests" broadly, into five different themes: (1) tropical forest structure, synergy, synthesis, (2) tropical forest fragmentation, (3) impact of anthropogenic pressure, (4) Geographic Information System and remote sensing, and (5) tropical forest protection and process. The cutting-edge synthesis, detailed current reviews, several original data-rich case studies, recent experiments/experiences from leading scientists across the world are presented as unique chapters. Though, the chapters differ noticeably in the geographic focus, diverse ecosystems, time and approach, they share these five important themes and help in understanding, educating, and creating awareness on the role of "Tropical Forests" for the very

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survival of mankind, climate change, and the diversity of biota across the globe. This book will be of great use to the students, scientists, ecologists, population and conservation biologists, and forest managers across the globe. The publication of this book was supported by the Secretariat of the Convention on Biological Diversity, United Nations

The book brings to light the most recent findings on the biogeography, biodiversity, host plant induction and natural history of gall inducing insects in the Neotropical region. We attempt to summarize the work done so far in the region, promote several syntheses on many aspects such as host induction, host specialization, distribution among the several vegetation types and zones, the origin of super hosts and the mechanisms leading to geographical patterns in their distribution. Furthermore, the book constructs new perspectives for deeper understanding of galling insect evolutionary ecology and biogeography in the region.

Insights on current research and recent developments in understanding global savanna systems increasingly recognized as synonymous with tropical grassy biomes, savannas are found in tropical and sub-tropical climates as well as warm, temperate regions of North America. *Savanna Woody Plants and Large Herbivores* examines the interactions between woody plants and browsing mammals in global savannas—focusing primarily on the C4 grassy ecosystems with woody components that constitute the majority of global savannas—and discusses contemporary savanna management models and applications. This much-needed addition to current research examines topics including the varying behavior of browsing mammals, the response to browsing by woody species, and the factors that inhibit forage intake. Contributions from an international team of active researchers and experts compare and contrast different savanna ecosystems, offering a global perspective on savanna

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functioning, the roles of soil and climate in resource availability and organism interaction, and the possible impacts of climate change across global savannas. Fills a gap in literature on savanna management issues, including biodiversity conservation and animal production Applies concepts developed in other biomes to future savanna research Complements contemporary books on savanna or large herbivore ecology Focuses on the woody component of savanna ecosystems and large herbivore interactions in savannas Compares tree-mammal systems of savannas and other eco-systems of temperate and boreal regions Provides numerous case studies of plant-mammal interactions from various savanna ecosystems Savanna Woody Plants and Large Herbivores is a valuable addition to those in fields such as ecology, wildlife and conservation biology, natural resource management, and environmental science.

3D image reconstruction is used in many fields, such as medicine, entertainment, and computer science. This highly demanded process comes with many challenges, such as images becoming blurry by atmospheric turbulence, getting snowed with noise, or becoming damaged within foreign regions. It is imperative to remain well-informed with the latest research in this field. Recent Advances in 3D Imaging, Modeling, and Reconstruction is a collection of innovative research on the methods and common techniques of image reconstruction as well as the accuracy of these methods. Featuring coverage on a wide range of topics such as ray casting, holographic techniques, and machine learning, this publication is ideally designed for graphic designers, computer engineers, medical professionals, robotics engineers, city planners, game developers, researchers, academicians, and students.

The term biodiversity has become a mainstream concept that can be found in any

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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.

Review of tropical dry forest biogeography, palaeontology, ecology and ecosystem functions.

Sustainable management of soils is an important global issue of the 21st century. Feeding roughly 8 billion people with an environmentally sustainable production system is a major challenge, especially considering the fact that 10% of the world's population at risk of hunger and 25% at risk of malnutrition. Accordingly, the 68th United Nations (UN) general assembly declared 2016 the "International Year of Pulses" to raise awareness and to celebrate the role of pulses in human nutrition and welfare. Likewise, the assembly declared the year 2015 as the "International Year of Soils" to promote

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awareness of the role of “healthy soils for a healthy life” and the International Union of Soil Science (IUSS) has declared 2015-2024 as the International Decade of Soils. Including legumes in cropping systems is an important toward advancing soil sustainability, food and nutritional security without compromising soil quality or its production potential. Several textbooks and edited volumes are currently available on general soil fertility or on legumes but, to date, none have been dedicated to the study of “Legumes for Soil Health and Sustainable Management”. This is important aspect, as the soil, the epidermis of the Earth (geoderma), is the major component of the terrestrial biosphere. This book explores the impacts of legumes on soil health and sustainability, structure and functioning of agro-ecosystems, agronomic productivity and food security, BNF, microbial transformation of soil N and P, plant-growth-promoting rhizobacteria, biofertilizers, etc. With the advent of fertilizers, legumes have been sidelined since World War II, which has produced serious consequences for soils and the environment alike. Therefore, legume-based rational cropping/soil management practices must support environmentally and economically sustainable agroecosystems based on (sequential) rotation and intercropping considerations to restore soil health and sustainability. All chapters are amply illustrated with appropriately placed data, tables, figures, and photographs, and supported with extensive and cutting-edge references. The editors have provided a roadmap for the sustainable development of legumes for food and nutritional security and soil sustainability in agricultural systems,

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offering a unique resource for teachers, researchers, and policymakers, as well as undergraduate and graduate students of soil science, agronomy, ecology, and the environmental sciences.

Tropical dry forests are the most exploited and endangered ecosystems in the world. A combination of climatic and human factors often reduce these forests to patches of dry scrubs or savannas. Because these ecosystems experience a more arduous and less anticipated environment, they are more prone to environmental stress as plant communities are developed. Therefore, urgent research is necessary to understand both the detrimental issues and problem-solving approaches to conserving these important forests. The Handbook of Research on the Conservation and Restoration of Tropical Dry Forests is a pivotal reference source that combines theory and practice on the current trends and issues in this important ecological subject and discusses future challenges towards conservation strategies of these tropical dry forests. While highlighting topics such as forest management, natural regeneration, and silviculture, this publication examines the anthropogenic impacts on tropical dry forests and the necessity to rebuild their ecosystems. This book is ideally designed for state forest agency professionals, resource managers, non-governmental organization agents, ecologists, botanists, environmentalists, students, and researchers seeking current research on the threats to these forests.

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