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Counting Species - Rafi Youatt 2015-02-14

Three decades of biodiversity governance has largely failed to stop the ongoing environmental crisis of global species loss. Yet that governance has resulted in undeniably important political outcomes. In *Counting Species*, Rafi Youatt argues that the understanding of global biodiversity has produced a distinct vision and politics of nature, one that is bound up with ideas about species, norms of efficiency, and apolitical forms of technical management. Since its inception in the 1980s, biodiversity's political power has also hinged on its affiliation with a series of political concepts. Biodiversity was initially articulated as a moral crime against the intrinsic value of all species. In the 1990s and early 2000s, biodiversity shifted toward an association with service provision in a globalizing world economy before attaching itself more recently to the discourses of security and resilience. Even as species extinctions continue, biodiversity's role in environmental governance has become increasingly abstract. Yet the power of global biodiversity is eventually always localized and material when it encounters nonhuman life. In these encounters, Youatt finds reasons for optimism, tracing some of the ways that nonhuman life has escaped human social means. *Counting Species* compellingly offers both a political account of global biodiversity and a unique approach to political agency across the human-nonhuman divide.

The Endangered Species Act at Thirty - Dale D. Goble 2006-06-21

The Endangered Species Act at Thirty is a comprehensive, multidisciplinary review of issues surrounding the Endangered Species Act, with a specific focus on the act's actual implementation record over the past thirty years. The result of a unique, multi-year collaboration among stakeholder groups from across the political spectrum, the two volumes offer a dispassionate consideration of a highly polarized topic. *Renewing the Conservation Promise, Volume 1*, puts the reader in a better position to make informed decisions about future directions in biodiversity conservation by elevating the policy debate from its current state of divisive polemics to a more-constructive analysis. It helps the reader understand how the Endangered Species Act has been implemented, the consequences of that implementation, and how the act could be changed to better serve the needs of both the species it is designed to protect and the people who must live within its mandates. *Volume 2* examines philosophical, biological, and economic dimensions of the act in greater detail.

Wildlife Biodiversity Conservation - Susan C. Underkoffler 2021-06-26

This book addresses the multidisciplinary challenges in biodiversity conservation with a focus on wildlife crime and how forensic tools can be applied to protect species and preserve ecosystems. Illustrated by numerous case studies covering different geographical regions and species the book introduces to the fundamentals of biodiversity conflicts, outlines the unique challenges of wildlife crime scenes and reviews latest techniques in environmental forensics, such as DNA metagenomics. In addition, the volume explores the socio-economic perspective of biodiversity protection and provides an overview of national and international conservation laws. The field of conservation medicine stresses the importance of recognizing that human health, animal health, and ecosystem health are inextricably interdependent and the book serves as important contribution towards achieving the UN Sustainable Developmental Goals, in particular SDG 15, Life on Land. The book addresses graduate students, scientists and veterinary professionals working in wildlife research and conservation biology.

Balkan Biodiversity - Huw I. Griffiths 2013-03-19

This is the first attempt to synthesize current understanding of biodiversity in the great European hot spot. A diverse group of international researchers offers perspective on biodiversity at the level of the gene, species and ecosystem, including contributions on temporal change. Biological groups include plants, mammals, spiders and humans, cave-dwelling organisms, fish, aquatic invertebrates and algae.

Biodiversity - National Academy of Sciences/Smithsonian Institution 1988-01-01

This important book for scientists and nonscientists alike calls attention to a most urgent global problem: the rapidly accelerating loss of plant and animal species to increasing human population pressure and the demands of economic development. Based on a major conference sponsored by the National Academy of Sciences and the Smithsonian Institution, *Biodiversity* creates a systematic framework for analyzing the problem and searching for possible solutions.

BIODIVERSITY - PRABODH K. MAITI 2011-06-21

Biodiversity is the variety of life in a given range. The world today is under tremendous threat of unprecedented loss of biodiversity. Issues like global warming, environmental pollution, recurrent natural calamities, etc. are of major concern for scientists all over the world. This comprehensive text provides a complete coverage of the subject. Beginning with a detailed introduction of biodiversity, its meaning, history and importance, the text discusses the topics such as species diversity, systematics, determination of the status of bioresources, pattern of distribution of global species, genetic biodiversity and ecosystem biodiversity. Proceeding further, the book gives an elaborate account on various drivers that lead to biodiversity loss and the impact of this loss on the global climate. This book also covers the topics of biopiracy and various laws and policies associated with it. Finally, the text describes the importance of indigenous knowledge of several communities that provide clues for biodiversity conservation. The use of biotechnology based methods and various measures to preserve natural resources and conserve biodiversity is the highlight of the text. This book is primarily designed for the undergraduate and postgraduate students of Environmental Science, Zoology and Botany. Besides, it will also be useful to the students pursuing P.G. Diploma or other professional and technical courses in Environmental Science. The text is of immense use to academicians, researchers and for all those who have concern for the environmental issues including its conservation. **KEY FEATURES** : Illustrated profusely with numerous photographs, flow charts and diagrams. Incorporates a number of tables to acquaint the readers with a quick view of data related to biodiversity. Provides review questions at the end of every chapter to help students check their understanding of the subject. Explains the contemporary topics like green accounting, sustainable management of natural resources, etc. in an easy to understand manner. Gives an elaborate glossary of technical terms to acquaint the students with the terminologies associated with the subject. The State of the World's Biodiversity for Food and Agriculture - Food and Agriculture Organization of the United Nations 2019-03-12

The State of the World's Biodiversity for Food and Agriculture presents the first global assessment of biodiversity for food and agriculture worldwide. Biodiversity for food and agriculture is the diversity of plants, animals and micro-organisms at genetic, species and ecosystem levels, present in and around crop, livestock, forest and aquatic production systems. It is essential to the structure, functions and processes of these systems, to livelihoods and food security, and to the supply of a wide range of ecosystem services. It has been managed or influenced by farmers, livestock keepers, forest dwellers, fish farmers and fisherfolk

for hundreds of generations. Prepared through a participatory, country-driven process, the report draws on information from 91 country reports to provide a description of the roles and importance of biodiversity for food and agriculture, the drivers of change affecting it and its current status and trends. It describes the state of efforts to promote the sustainable use and conservation of biodiversity for food and agriculture, including through the development of supporting policies, legal frameworks, institutions and capacities. It concludes with a discussion of needs and challenges in the future management of biodiversity for food and agriculture. The report complements other global assessments prepared under the auspices of the Commission on Genetic Resources for Food and Agriculture, which have focused on the state of genetic resources within particular sectors of food and agriculture.

A Comprehensive Handbook on Biodiversity - Asish Kumar Ghosh 2008-01-01

'Biodiversity' is becoming the keyword for sustaining human society and the ecosystem. The impacts of development on biological diversity, over exploitation of resources of commercial value, changes in land use and land cover, and fragmentation of habitats have led to fastest rate of decline in biodiversity in the 20th Century. This publication provides an insight into the concept of biodiversity, its value and uses, aspects of conservation of material and traditional knowledge, the linkage between ethnic communities and biodiversity, and several other topics of interest in a lucid and user-friendly manner.

What Species Mean - Julia D. Sigwart 2018-10-29

Everyone uses species. All human cultures, whether using science or not, name species. Species are the basic units for science, from ecosystems to model organisms. Yet, there are communication gaps between the scientists who name species, called taxonomists or systematists, and those who use species names—everyone else. This book opens the "black box" of species names, to explain the tricks of the name-makers to the name-users. Species are real, and have macroevolutionary meaning, and it follows that systematists use a broadly macroevolution-oriented approach in describing diversity. But scientific names are used by all areas of science, including many fields such as ecology that focus on timescales more dominated by microevolutionary processes. This book explores why different groups of scientists understand and use the names given to species in very different ways, and the consequences for measuring and understanding biodiversity.

Vertebrate Conservation and Biodiversity - David L. Hawksworth 2007-09-09

This book draws together a wide range of papers from researchers around the world that address the conservation and biodiversity of vertebrates, particularly those in terrestrial habitats. Collectively, the papers provide a snap-shot of the types of studies and actions being taken in vertebrate conservation and provide topical examples that will make the volume especially valuable for use in conservation biology courses.

Perspectives on Biodiversity - National Research Council 1999-10-01

Resource-management decisions, especially in the area of protecting and maintaining biodiversity, are usually incremental, limited in time by the ability to forecast conditions and human needs, and the result of tradeoffs between conservation and other management goals. The individual decisions may not have a major effect but can have a cumulative major effect. Perspectives on Biodiversity reviews current understanding of the value of biodiversity and the methods that are useful in assessing that value in particular circumstances. It recommends and details a list of components-including diversity of species, genetic variability within and among species, distribution of species across the ecosystem, the aesthetic satisfaction derived from diversity, and the duty to preserve and protect biodiversity. The book also recommends that more information about the role of biodiversity in sustaining natural resources be gathered and summarized in ways useful to managers. Acknowledging that decisions about biodiversity are necessarily qualitative and change over time because of the nonmarket nature of so many of the values, the committee recommends periodic reviews of management decisions.

Research to Protect, Restore, and Manage the Environment - National Research Council 1993-02-01

This book assesses the strengths and weaknesses of current environmental research programs, describes the desirable characteristics of an effective program, and recommends cultural and organizational changes to improve the performance of environmental research. Research areas in need of greater emphasis are identified, and overall directions for environmental research are recommended. The book also comments on

the proposal to establish a National Institute for the Environment and on the elevation of the Environmental Protection Agency to cabinet status.

Half-Earth: Our Planet's Fight for Life - Edward O. Wilson 2016-03-07

"An audacious and concrete proposal...Half-Earth completes the 86-year-old Wilson's valedictory trilogy on the human animal and our place on the planet." —Jedediah Purdy, New Republic In his most urgent book to date, Pulitzer Prize-winning author and world-renowned biologist Edward O. Wilson states that in order to stave off the mass extinction of species, including our own, we must move swiftly to preserve the biodiversity of our planet. In this "visionary blueprint for saving the planet" (Stephen Greenblatt), Half-Earth argues that the situation facing us is too large to be solved piecemeal and proposes a solution commensurate with the magnitude of the problem: dedicate fully half the surface of the Earth to nature. Identifying actual regions of the planet that can still be reclaimed—such as the California redwood forest, the Amazon River basin, and grasslands of the Serengeti, among others—Wilson puts aside the prevailing pessimism of our times and "speaks with a humane eloquence which calls to us all" (Oliver Sacks).

Beloved Beasts: Fighting for Life in an Age of Extinction - Michelle Nijhuis 2021-03-09

Winner of the Sierra Club's 2021 Rachel Carson Award One of Chicago Tribune's Ten Best Books of 2021 Named a Top Ten Best Science Book of 2021 by Booklist and Smithsonian Magazine "At once thoughtful and thought-provoking," Beloved Beasts tells the story of the modern conservation movement through the lives and ideas of the people who built it, making "a crucial addition to the literature of our troubled time" (Elizabeth Kolbert, author of *The Sixth Extinction*). In the late nineteenth century, humans came at long last to a devastating realization: their rapidly industrializing and globalizing societies were driving scores of animal species to extinction. In *Beloved Beasts*, acclaimed science journalist Michelle Nijhuis traces the history of the movement to protect and conserve other forms of life. From early battles to save charismatic species such as the American bison and bald eagle to today's global effort to defend life on a larger scale, Nijhuis's "spirited and engaging" account documents "the changes of heart that changed history" (Dan Cryer, *Boston Globe*). With "urgency, passion, and wit" (Michael Berry, *Christian Science Monitor*), she describes the vital role of scientists and activists such as Aldo Leopold and Rachel Carson, reveals the origins of vital organizations like the Audubon Society and the World Wildlife Fund, explores current efforts to protect species such as the whooping crane and the black rhinoceros, and confronts the darker side of modern conservation, long shadowed by racism and colonialism. As the destruction of other species continues and the effects of climate change wreak havoc on our world, *Beloved Beasts* charts the ways conservation is becoming a movement for the protection of all species including our own.

Linking Changes in Biodiversity and Ecosystem Services Across Space and Time - Erin Crockett 2021

"With many governments and conservation organizations around the world aiming to sustain biodiversity and maintain ecosystem services, managers must be attuned to the trade-offs and synergies that arise from strategies that focus on biodiversity, ecosystem services, or both, and to the relationships between biodiversity and services that might help navigate those trade-offs and synergies. Considerable theoretical, experimental, and observational research indicates positive relationships between biodiversity and ecosystem functions, which play a key role in the delivery of ecosystem services. Yet scientists debate the relevance of biodiversity-ecosystem functioning research for real-world conservation and management. In this thesis, I explore three key research gaps about the real-world relevance of biodiversity-ecosystem functioning research using the temperate and boreal forests of Quebec as study system to examine relationships between tree diversity and carbon storage, an important ecosystem service that helps regulate climate change. First, I examined whether the influence of biodiversity on ecosystem functioning is of comparable magnitude to other drivers (e.g. climate and management actions). Using a 'bright spots' approach, I modelled carbon storage using a suite of environmental and ecological predictor variables and then conducted surveys with forest owners to assess the explanatory ability of social and management variables. I found that stand age, species richness, and functional diversity are the most influential drivers of carbon storage, suggesting that substantial changes to biodiversity could have considerable influence on carbon storage. Second, I evaluated how much biodiversity change has occurred over the past 35 years, using historical forest measurements to assess tree biodiversity change across different dimensions

(taxonomic, functional, and phylogenetic) and levels (alpha, turnover, and beta) of diversity and spatial scales of analyses. My results showed that despite subtle shifts in composition (turnover) and wide distributions of diversity change values (i.e. individual sites often showed positive or negative diversity change), the net biodiversity change for all indicators always showed no-net change or positive change. These results highlight a need to shift from blanket descriptions of 'biodiversity loss' to more nuanced discussions about 'biodiversity change' that clearly articulate the spatial and temporal scales and the indicator(s) of diversity being discussed. Third, I assessed how the shape and the strength of diversity-functioning relationships change across spatial scales. By aggregating forest plots into larger areas, I found that the slope of the biodiversity-ecosystem functioning relationship became flatter at larger spatial scales, and that ecosystem functioning was more strongly linked to local (alpha) diversity than landscape (gamma) diversity. These results suggest that the effects of species interactions through complementarity are more influential than the effects of species sorting and selection effects across the landscape. Collectively, this research highlights the value of information about biodiversity change at fine spatial and temporal resolutions since changes in local diversity (whether positive or negative) are much more pertinent for carbon storage than changes in diversity within broad landscapes. In circumstances where landscape managers may plant species (e.g. restoration efforts) generating high diversity-and especially diversity at very local scales-should increase carbon storage. Overall, the positive relationships between biodiversity and carbon storage in real-world ecosystems demonstrate the potential for win-win management strategies that sustain biodiversity and maintain ecosystem services"--

Remote Sensing of Plant Biodiversity - Jeannine Cavender-Bares 2020-01-01

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.

Biodiversity and Ecosystem Functioning - Michel Loreau 2002

"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.

Biodiversity, Ecosystem Functioning, and Human Wellbeing - Shahid Naeem 2009-07-30

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.

Biodiversity - Kevin J. Gaston 2004-02-13

CLICK HERE TO DOWNLOAD ARTWORK This concise introductory text provides a complete overview of biodiversity - what it is, how it arose, its distribution, why it is important, human impact upon it, and what should be done to maintain it. Timely overview of the serious attempts made to quantify and describe biodiversity in a scientific way Acts as an easy entry point into the primary literature Provides real-world examples of key issues, including illustrations of major temporal and spatial patterns in biodiversity

Designed primarily with undergraduate students and course lecturers in mind, it will also be of interest to anyone who requires an overview of, and entry to, the vast literature on these topics. All the figures included in the book are downloadable from the Blackwell Publishing website

Southern Wonder - R. Scot Duncan 2013-11-19

"Published in cooperation with The Nature Conservancy."

Concepts and Values in Biodiversity - Dirk Lanzerath 2014-01-23

Biodiversity may refer to the diversity of genes, species or ecosystems in general. These varying concepts of biodiversity occasionally lead to conflicts among researchers and policy makers, as each of them require a customized type of protection strategy. This book addresses the questions surrounding the merits of conserving an existing situation, evolutionary development or the intentional substitution of one genome, species or ecosystem for another. Any practical steps towards the protection of biodiversity demand a definition of that which is to be protected and, in turn, the motivations for protecting biodiversity. Is biodiversity a necessary model which is also useful, or does it carry intrinsic value? Debates like this are particularly complex when interested parties address it from different conceptual and moral perspectives. Comprised of three parts, each complemented by a short introductory paragraph, this collection presents a variety of approaches to this challenge. The chapters cover the perspectives of environmental scientists with expertise in evolutionary, environmental biology, systematic zoology and botany, as well as those of researchers with expertise in philosophy, ethics, politics, law and economics. This combination facilitates a truly interdisciplinary debate by highlighting hitherto unacknowledged implications that inform current academic and political debates on biodiversity and its protection. The book should be of interest to students and researchers of environment studies, biodiversity, environmental philosophy, ethics and management.

Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity - Timothy G. O'Higgins 2020

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.

Forest Diversity and Management - David L. Hawksworth 2007-04-06

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

Conservation Biology for All - Navjot S. Sodhi 2010-01-08

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 conservation 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.

Concepts of Biology - Samantha Fowler 2018-01-07

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand. We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

The Routledge Handbook of Philosophy of Biodiversity - Justin Garson 2016-10-04

Biological diversity - or 'biodiversity' - is the degree of variation of life within an ecosystem. It is a relatively new topic of study but has grown enormously in recent years. Because of its interdisciplinary nature the very concept of biodiversity is the subject of debate amongst philosophers, biologists, geographers and environmentalists. The Routledge Handbook of Philosophy of Biodiversity is an outstanding reference source to the key topics and debates in this exciting subject. Comprising twenty-three chapters by a team of international contributors the Handbook is divided into six parts: Historical and sociological contexts, focusing on the emergence of the term and early attempts to measure biodiversity What is biodiversity? How should biodiversity be defined? How can biodiversity include entities at the edge of its boundaries, including microbial diversity and genetically engineered organisms? Why protect biodiversity? What can traditional environmental ethics contribute to biodiversity? Topics covered include anthropocentrism, intrinsic value, and ethical controversies surrounding the economics of biodiversity Measurement and methodology: including decision-theory and conservation, the use of indicators for biodiversity, and the changing use of genetics in biodiversity conservation Social contexts and global justice: including conservation and community conflicts and biodiversity and cultural values Biodiversity and other environmental values: How does biodiversity relate to other values like ecological restoration or ecological sustainability? Essential reading for students and researchers in philosophy, environmental science and environmental studies, and conservation management, it will also be extremely useful to those studying biodiversity in subjects such as biology and geography.

Biodiversity in Drylands - Moshe Shachak 2005

Biodiversity in Drylands, the first internationally based synthesis volume in the Long-Term Ecological Research (LTER) Network Series, unifies the concepts of species and landscape diversity with respect to deserts. Within this framework, the book treats several emerging themes, among them: how animal biodiversity can be supported in deserts how diversity's relation to habitat structure, environmental variability, and species interactions the relation between spatial scale and diversity how to use a landscape simulation model to understand diversity microbial contributions to biodiversity in deserts species diversity and ecosystem processes resource partitioning and biodiversity in fractal environments effects of grazing on biodiversity reconciliation ecology and the future of conservation management In the face of global change, integration is crucial for dealing with the problem of sustaining biodiversity. This book promises to be a vital resource for students, researchers, and managers interested in integrative species, resource, and landscape diversities.

Research in Biodiversity - Igor Pavlinov 2011-10-12

The book covers several topics of biodiversity researches and uses, containing 17 chapters grouped into 5 sections. It begins with an interesting chapter considering the ways in which the very biodiversity could be thought about. Noteworthy is the chapter expounding pretty original "creativity theory of ecosystem". There are several chapters concerning models describing relation between ecological niches and diversity maintenance, the factors underlying avian species imperilment, and diversity turnover rate of a local beetle group. Of special importance is the chapter outlining a theoretical model for morphological disparity in its most widened treatment. Several chapters consider regional aspects of biodiversity in Europe, Asia, Central and South America, among them an approach for monitoring conservation of the regional tropical phytodiversity in India is of special importance. Of interest is also a chapter considering the history of the very idea of biodiversity emergence in ecological researches.

A Theory of Global Biodiversity (MPB-60) - Boris Worm 2018-06-12

The number of species found at a given point on the planet varies by orders of magnitude, yet large-scale gradients in biodiversity appear to follow some very general patterns. Little mechanistic theory has been formulated to explain the emergence of observed gradients of biodiversity both on land and in the oceans. Based on a comprehensive empirical synthesis of global patterns of species diversity and their drivers, A Theory of Global Biodiversity develops and applies a new theory that can predict such patterns from few underlying processes. The authors show that global patterns of biodiversity fall into four consistent categories, according to where species live: on land or in coastal, pelagic, and deep ocean habitats. The fact that most species groups, from bacteria to whales, appear to follow similar biogeographic patterns of richness within these habitats points toward some underlying structuring principles. Based on empirical analyses of environmental correlates across these habitats, the authors combine aspects of neutral, metabolic, and niche theory into one unifying framework. Applying it to model terrestrial and marine realms, the authors demonstrate that a relatively simple theory that incorporates temperature and community size as driving variables is able to explain divergent patterns of species richness at a global scale. Integrating ecological and evolutionary perspectives, A Theory of Global Biodiversity yields surprising insights into the fundamental mechanisms that shape the distribution of life on our planet.

IUCN Red List Categories and Criteria - International Union for Conservation of Nature and Natural Resources 2001

The threatened species categories used in Red Data Books and Red Lists have been in place for almost 30 years. The IUCN Red List Categories and Criteria provide an easily and widely understood system for classifying species at high risk of global extinction, so as to focus attention on conservation measures designed to protect them. This latest version of the classification system was adopted by the IUCN Council in February 2001 and reflects comments from the IUCN and SSC memberships and the final meeting of the Criteria Review Working Group.

Conservation Biogeography - Richard Ladle 2011-06-09

The Earth's ecosystems are in the midst of an unprecedented period of change as a result of human action. Many habitats have been completely destroyed or divided into tiny fragments, others have been transformed through the introduction of new species, or the extinction of native plants and animals, while anthropogenic climate change now threatens to completely redraw the geographic map of life on this planet. The urgent need to understand and prescribe solutions to this complicated and interlinked set of pressing conservation issues has led to the transformation of the venerable academic discipline of biogeography - the study of the geographic distribution of animals and plants. The newly emerged sub-discipline of conservation biogeography uses the conceptual tools and methods of biogeography to address real world conservation problems and to provide predictions about the fate of key species and ecosystems over the next century. This book provides the first comprehensive review of the field in a series of closely interlinked chapters addressing the central issues within this exciting and important subject. View <http://www.wiley.com/go/ladle/biogeography> www.wiley.com/go/ladle/biogeography/a to access the figures from the book.

In the Light of Evolution - National Academy of Sciences 2017-01-01

Biodiversity-the genetic variety of life-is an exuberant product of the evolutionary past, a vast human-

supportive resource (aesthetic, intellectual, and material) of the present, and a rich legacy to cherish and preserve for the future. Two urgent challenges, and opportunities, for 21st-century science are to gain deeper insights into the evolutionary processes that foster biotic diversity, and to translate that understanding into workable solutions for the regional and global crises that biodiversity currently faces. A grasp of evolutionary principles and processes is important in other societal arenas as well, such as education, medicine, sociology, and other applied fields including agriculture, pharmacology, and biotechnology. The ramifications of evolutionary thought also extend into learned realms traditionally reserved for philosophy and religion. The central goal of the In the Light of Evolution (ILE) series is to promote the evolutionary sciences through state-of-the-art colloquia-in the series of Arthur M. Sackler colloquia sponsored by the National Academy of Sciences-and their published proceedings. Each installment explores evolutionary perspectives on a particular biological topic that is scientifically intriguing but also has special relevance to contemporary societal issues or challenges. This tenth and final edition of the In the Light of Evolution series focuses on recent developments in phylogeographic research and their relevance to past accomplishments and future research directions.

Biodiversity and Conservation in Europe - David L. Hawksworth 2010-11-25

This book brings together a selection of original studies that address biodiversity and conservation in Europe. The contributions are drawn from a wide range of countries and discuss diverse organism and habitat types. They collectively provide a snap-shot of the sorts of studies and actions being taken in Europe to address issues in biodiversity and conservation - topical examples that make the volume especially valuable for use in conservation biology courses.

Soil Biodiversity in Amazonian and Other Brazilian Ecosystems - F. M. S. Moreira 2006

The loss of biological diversity has become an increased concern over recent years and is now enshrined in international conventions. Most biodiversity in fact occurs in the soil. Soil organisms (especially bacteria, fungi and soil invertebrates) play a major role in the formation of soil structure and are primary agents of decomposition and are drivers of nutrient cycling, and hence agricultural production. This book reviews soil biodiversity in one of the key biodiversity hotspots of the world, i.e. the Amazon and nearby regions of Brazil. It covers both the tropical savannah and rain forests. The work reported is based on a project "Conservation and Sustainable Management of Below-Ground Biodiversity", executed by TSBF-CIAT with co-financing from the Global Environment Facility (GEF) and implementation support from the United Nations Environment Programme (UNEP). The book represents a major contribution to the literature and will interest those in biodiversity conservation, soil science and ecology and biodiversity conservation.

Precious Heritage - Bruce A. Stein 2000-03-16

From the lush forests of Appalachia to the frozen tundra of Alaska, and from the tallgrass prairies of the Midwest to the subtropical rainforests of Hawaii, the United States harbors a remarkable array of ecosystems. These ecosystems in turn sustain an exceptional variety of plant and animal life. For species such as salamanders and freshwater turtles, the United States ranks as the global center of diversity. Among the nation's other unique biological features are California's coast redwoods, the world's tallest trees, and Nevada's Devils Hole pupfish, which survives in a single ten-by-seventy-foot desert pool, the smallest range of any vertebrate animal. Precious Heritage draws together for the first time a quarter century of information on U.S. biodiversity developed by natural heritage programs from across the country. This richly illustrated volume not only documents those aspects of U.S. biodiversity that are particularly noteworthy, but also considers how our species and ecosystems are faring, what is threatening them, and what is needed to protect the nation's remaining natural inheritance. Above all, Precious Heritage is a celebration of the extraordinary biological diversity of the United States.

The Economic Value of Species Information and Its Role in Biodiversity Conservation - 1993

Biodiversity and Ecosystem Function - Ernst-Detlef Schulze 2012-12-06

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 successional 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 consequences 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 of a 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 question. It will be followed by other volumes in this series examining in depth the functional role of biodiversity in various ecosystems of the world.

Biodiversity in Dead Wood - Jogeir N. Stokland 2012-04-26

A comprehensive overview of wood-inhabiting fungi, insects and vertebrates, discussing habitat requirements along with strategies for maintaining biodiversity.

Conserving Biodiversity - National Research Council 1992-02-01

The loss of the earth's biological diversity is widely recognized as a critical environmental problem. That loss is most severe in developing countries, where the conditions of human existence are most difficult. Conserving Biodiversity presents an agenda for research that can provide information to formulate policy and design conservation programs in the Third World. The book includes discussions of research needs in the biological sciences as well as economics and anthropology, areas of critical importance to conservation and sustainable development. Although specifically directed toward development agencies, non-governmental organizations, and decisionmakers in developing nations, this volume should be of interest to all who are involved in the conservation of biological diversity.

Conservation Biology in Sub-Saharan Africa - Richard Primack 2019-09-10

Conservation Biology in Sub-Saharan Africa comprehensively explores the challenges and potential solutions to key conservation issues in Sub-Saharan Africa. Easy to read, this lucid and accessible textbook includes fifteen chapters that cover a full range of conservation topics, including threats to biodiversity, environmental laws, and protected areas management, as well as related topics such as sustainability, poverty, and human-wildlife conflict. This rich resource also includes a background discussion of what conservation biology is, a wide range of theoretical approaches to the subject, and concrete examples of conservation practice in specific African contexts. Strategies are outlined to protect biodiversity whilst promoting economic development in the region. Boxes covering specific themes written by scientists who live and work throughout the region are included in each chapter, together with recommended readings and suggested discussion topics. Each chapter also includes an extensive bibliography. Conservation Biology in Sub-Saharan Africa provides the most up-to-date study in the field. It is an essential resource, available on-line without charge, for undergraduate and graduate students, as well as a handy guide for professionals working to stop the rapid loss of biodiversity in Sub-Saharan Africa and elsewhere.