New Models For Ecosystem Dynamics And Restoration The Science And Practice Of Ecological Restoration Series

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The Reindeer Chronicles - Judith D. Schwartz 2020-08-19
In a time of uncertainty about our environmental future—an eye-opening global tour of some of the most wounded places on earth, and stories of how a passionate group of eco-restorers is leading the way to their revitalization. Award-winning science journalist Judith D. Schwartz takes us first to China's Loess Plateau, where a landmark project has successfully restored a blighted region the size of Belgium, lifting millions of people out of poverty. She journeys on to Norway, where a young indigenous reindeer herder challenges the most powerful orthodoxies of conservation—and his own government. And in the Middle East, she follows the visionary work of an ambitious young American as he attempts to re-engineer the desert ecosystem, using plants as his most sophisticated technology. Schwartz explores regenerative solutions across a range of landscapes: deserts, grasslands, tropics, tundra, Mediterranean. She also highlights various human landscapes, the legacy of colonialism and industrial agriculture, and the endurance of indigenous knowledge. The Reindeer Chronicles demonstrates how solutions to seemingly intractable problems can come from the unlikeliest of places, and how the restoration of local water, carbon, nutrient, and energy cycles can play a dramatic role in stabilizing the global climate. Ultimately, it reveals how much is in our hands if we can find a way to work together and follow nature's lead.
Fiscal Year 1998 Budget Authorization Request - United States. Congress. House. Committee on Science. Subcommittee on Energy and Environment 1997

Ecosystem Collapse and Recovery - Adrian C. Newton 2021-04-22
Examines how ecosystems can collapse as a result of human activity, and the ecological processes underlying their subsequent recovery.
Ecological Restoration and Management of Longleaf Pine Forests - L. Katherine Kirkman 2017-09-27
Ecological Restoration and Management of Longleaf Pine Forests is a timely synthesis of the current understanding of the natural dynamics and processes in longleaf pine ecosystems. This book beautifully illustrates how incorporation of basic ecosystem knowledge and an understanding of socioeconomic realities shed new light on established

paradigms and their application for restoration and management. Unique for its holistic ecological focus, rather than a more traditional silvicultural approach, the book highlights the importance of multi-faceted actions that robustly integrate forest and wildlife conservation at landscape scales, and merge ecological with socioeconomic objectives for effective conservation of the longleaf pine ecosystem.

Restoring Wildlife - Michael L. Morrison 2009-05-20

Restoration plans must take into account the needs of current or desired wildlife species in project areas. Restoring Wildlife gives ecologists, restorationists, administrators, and other professionals involved with restoration projects the tools they need to understand essential ecological concepts, helping them to design restoration projects that can improve conditions for native species of wildlife. It also offers specific guidance and examples on how various projects have been designed and implemented. The book interweaves theoretical and practical aspects of wildlife biology that are directly applicable to the restoration and conservation of animals. It provides an understanding of the fundamentals of wildlife populations and wildlife-habitat relationships as it explores the concept of habitat, its historic development, components, spatialtemporal relationships, and role in land management. It applies these concepts in developing practical tools for professionals. Restoring Wildlife builds on the foundation of material presented in Wildlife Restoration, published by Island Press in 2002, offering the basic information from that book along with much updated material in a reorganized and expanded format. Restoring Wildlife is the only single source that deals with wildlife and restoration, and is an important resource for practicing restorationists and biologists as well as undergraduate and graduate students in wildlife management, ecological restoration, environmental science, and related fields.

Biodiversity : Structure and Function - Volume II - Wilhelm Barthlott 2009-08-19

Biodiversity: Structure and Function is a component of Encyclopedia of Environmental and Ecological Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Biodiversity: Structure and Function discusses matters of great relevance to our world such as: Characterization of Biodiversity; Biodiversity and Ecosystem Functioning; Spatial and Temporal Dimensions of Biodiversity Dynamics; Evolutionary and Genetic Aspects of Biodiversity; Biodiversity Monitoring, Assessment, Data Management, and Indicators; The Value of Biodiversity; Halting Biodiversity Loss: Fundamentals and Latest Trends of Conservation Science and Action; Application of Ecological Knowledge to Habitat Restoration. These two volumes are aimed 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.

Ecological Restoration - Andre F. Clewell 2012-07-26

The field of ecological restoration is a rapidly growing discipline that encompasses a wide range of activities and brings together practitioners and theoreticians from a variety of backgrounds and perspectives, ranging from volunteer backyard restorationists to highly trained academic scientists and professional consultants. Ecological Restoration offers for the first time a unified vision of ecological restoration as a field of study, one that clearly states the discipline’s precepts and emphasizes issues of importance to those involved at all levels. In a lively, personal fashion, the authors discuss scientific and practical aspects of the field as well as the human needs and values that motivate practitioners. The book: -identifies fundamental concepts upon which restoration is based -considers the principles of restoration practice -explores the diverse values that are fulfilled with the restoration of ecosystems -reviews the structure of restoration practice, including the various contexts for restoration work, the professional development of its practitioners, and the relationships of restoration with allied fields and activities A unique feature of the book is the inclusion of eight “virtual field trips,” short photo essays of project sites around the world that illustrate various points made in the book and are “led” by those who were intimately involved with the project described. Throughout, ecological restoration is

conceived as a holistic endeavor, one that addresses issues of ecological degradation, biodiversity loss, and sustainability science simultaneously, and draws upon cultural resources and local skills and knowledge in restoration work.

Beyond Naturalness - David N. Cole 2012-06-22

The central concept guiding the management of parks and wilderness over the past century has been “naturalness”—to a large extent the explicit purpose in establishing these special areas was to keep them in their “natural” state. But what does that mean, particularly as the effects of stressors such as habitat fragmentation, altered disturbance regimes, pollution, invasive species, and climate change become both more pronounced and more pervasive? Beyond Naturalness brings together leading scientists and policymakers to explore the concept of naturalness, its varied meanings, and the extent to which it provides adequate guidance regarding where, when, and how managers should intervene in ecosystem processes to protect park and wilderness values. The main conclusion is the idea that naturalness will continue to provide an important touchstone for protected area conservation, but that more specific goals and objectives are needed to guide stewardship. The issues considered in Beyond Naturalness are central not just to conservation of parks, but to many areas of ecological thinking—including the fields of conservation biology and ecological restoration—and represent the cutting edge of discussions of both values and practice in the twenty-first century. This bookoffers excellent writing and focus, along with remarkable clarity of thought on some of the difficult questions being raised in light of new and changing stressors such as global environmental climate change.

Landscape Logic - Ted Lefroy 2012

"Case studies examine the effectiveness of environmental programs to improve our waterways, soils and natural vegetation." - from publisher.

Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes - United States. Congress. Senate. Committee on Environment and Public Works 2008

Australia's Biodiversity and Climate Change - Will Steffen 2009

"Australia's unique biodiversity is under threat from a rapidly changing climate. The effects of climate change are already discernible at all levels of biodiversity - genes, species, communities and ecosystems. Many of Australia's most valued and iconic natural areas - the Great Barrier Reef, south-western Australia, the Kakadu wetlands and the Australian Alps - are among the most vulnerable. But much more is at stake than saving iconic species or ecosystems. Australia's biodiversity is fundamental to the country's national identity, economy and quality of life. In the face of uncertainty about specific climate scenarios, ecological and management principles provide a sound basis for maximising opportunities for species to adapt, communities to reorganise and ecosystems to transform while maintaining basic functions critical to human society. This innovative approach to biodiversity conservation under a changing climate leads to new challenges for management, policy development and institutional design. This book explores these challenges, building on a detailed analysis of the interactions between a changing climate and Australia's rich but threatened biodiversity. Australia's Biodiversity and Climate Change is an important reference for policy makers, researchers, educators, students, journalists, environmental and conservation NGOs, NRM managers, and private landholders with an interest in biodiversity conservation in a rapidly changing world."--Publisher.

Applying Ecosystem and Landscape Models in Natural Resource Management - Robert E. Keane 2019-08-15

Managing today’s lands is becoming an increasingly difficult task. Complex ecological interactions across multiple spatiotemporal scales create diverse landscape responses to management actions that are often novel, counter-intuitive and unexpected. To make matters worse, exotic invasions, human land use, and global climate change complicate this complexity and make past observational ecological studies limited in application to the future. Natural resource professionals can no longer rely on empirical data to analyze alternative actions in a world that is rapidly changing with few historical analogs. New tools are needed to synthesize the high complexity in ecosystem dynamics into useful

applications for land management. Some of the best new tools available for this task are ecological and landscape simulation models. However, many land management professionals and scientists have little expertise in simulation modeling, and the costs of training these people will probably be exorbitantly high because most ecosystem and landscape models are exceptionally complicated and difficult to understand and use for local applications. This book was written to provide natural resource professionals with the rudimentary knowledge needed to properly use ecological models and then to interpret their results. It is based on the lessons learned from a career spent modeling ecological systems. It is intended as a reference for novice modelers to learn how to correctly employ ecosystem landscape models in natural resource management applications and to understand subsequent modeling results.

Proceedings, Shrubland Ecosystem Dynamics in a Changing Environment - Jerry R. Barrow 1996

This proceedings contains 50 papers including an overview of shrubland ecosystem dynamics in a changing environment and several papers each on vegetation dynamics, management concerns and options, and plant ecophysiology as well as an account of a Jornada Basin field trip. Contributions emphasize the impact of changing environmental conditions on vegetative composition especially in the Jornada Basin and Chihuahuan Desert but also in other parts of western North America and the world.

Old Fields - Richard J. Hobbs 2012-06-22

Land abandonment is increasing as human influence on the globe intensifies and various ecological, social, and economic factors conspire to force the cessation of agriculture and other forms of land management. The “old fields” that result from abandonment have been the subject of much study, yet few attempts have been made to examine the larger questions raised by old field dynamics. Old Fields brings together leading experts from around the world to synthesize past and current work on old fields, providing an up-to-date perspective on the ecological dynamics of abandoned land. The book gives readers a broad understanding of why agricultural land is abandoned, the factors that determine the ecological recovery of old fields, and how this understanding contributes to theoretical and applied ecology. Twelve case studies from diverse geographical and climatic areas—including Australian rainforest, Brazilian Amazonia, New Jersey piedmont, and South African renosterveld—offer a global perspective on the causes and results of land abandonment. Concluding chapters consider the similarities and differences among the case studies, examine them in the context of ecological concepts, and discuss their relevance to the growing field of restoration ecology. Old Fields is the first book to draw together studies on old fields from both a theoretical and practical perspective. It represents an important contribution to the development of theory on old field dynamics and the practice of ecological restoration on abandoned farmland, and the broader implications of old field dynamics to ecology and restoration.

Seafloor Heterogeneity: Artificial Structures and Marine Ecosystem Dynamics - Toyonobu Fujii 2020-12-11

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

New Models for Ecosystem Dynamics and Restoration - Richard J. Hobbs 2013-03-19

As scientific understanding about ecological processes has grown, the idea that ecosystem dynamics are complex, nonlinear, and often unpredictable has gained prominence. Of particular importance is the idea that rather than following an inevitable progression toward an ultimate endpoint, some ecosystems may occur in a number of states depending on past and present ecological conditions. The emerging idea of “restoration thresholds” also enables scientists to recognize when

ecological systems are likely to recover on their own and when active restoration efforts are needed. Conceptual models based on alternative stable states and restoration thresholds can help inform restoration efforts. New Models for Ecosystem Dynamics and Restoration brings together leading experts from around the world to explore how conceptual models of ecosystem dynamics can be applied to the recovery of degraded systems and how recent advances in our understanding of ecosystem and landscape dynamics can be translated into conceptual and practical frameworks for restoration. In the first part of the book, background chapters present and discuss the basic concepts and models and explore the implications of new scientific research on restoration practice. The second part considers the dynamics and restoration of different ecosystems, ranging from arid lands to grasslands, woodlands, and savannahs, to forests and wetlands, to production landscapes. A summary chapter by the editors discusses the implications of theory and practice of the ideas described in preceding chapters. New Models for Ecosystem Dynamics and Restoration aims to widen the scope and increase the application of threshold models by critiquing their application in a wide range of ecosystem types. It will also help scientists and restorationists correctly diagnose ecosystem damage, identify restoration thresholds, and develop corrective methodologies that can overcome such thresholds.

New Models for Ecosystem Dynamics and Restoration - Richard J. Hobbs 2009-01-07

"Conceptual models based on alternative stable states and restoration thresholds can help inform restoration efforts. This title explores how conceptual models of ecosystem dynamics can be applied to the recovery of degraded systems. It discusses the basic concepts and models and explores implications of scientific research on restoration practice." -- BOOK PUBLISHER WEBSITE.

An Integrated Approach to Environmental Management - Dibyendu Sarkar 2015-09-30

Covers the most recent topics in the field of environmental management and provides a broad focus on the theoretical and methodological underpinnings of environmental management Provides an up-to-date survey of the field from the perspective of different disciplines Covers the topic of environmental management from multiple perspectives, namely, natural sciences, engineering, business, social sciences, and methods and tools perspectives Combines both academic rigor and practical approach through literature reviews and theories and examples and case studies from diverse geographic areas and policy domains Explores local and global issues of environmental management and analyzes the role of various contributors in the environmental management process Chapter contents are appropriately demonstrated with numerous pictures, charts, graphs, and tables, and accompanied by a detailed reference list for further readings

Novel Ecosystems - Richard J. Hobbs 2013-01-07

Land conversion, climate change and species invasions arecontributing to the widespread emergence of novel ecosystems, whichdemand a shift in how we think about traditional approaches toconservation, restoration and environmental management. They arenovel because they exist without historical precedents and areself-sustaining. Traditional approaches emphasizing native speciesand historical continuity are challenged by novel ecosystems thatdeliver critical ecosystems services or are simply immune topractical restorative efforts. Some fear that, by raising the issueof novel ecosystems, we are simply paving the way for a morelaissez-faire attitude to conservation and restoration.Regardless of the range of views and perceptions about novelecosystems, their existence is becoming ever more obvious andprevalent in today’s rapidly changing world. In this firstcomprehensive volume to look at the ecological, social, cultural,ethical and policy dimensions of novel ecosystems, the authorsargue these altered systems are overdue for careful analysis andthat we need to figure out how to intervene in them responsibly.This book brings together researchers from a range of disciplinestogether with practitioners and policy makers to explore thequestions surrounding novel ecosystems. It includes chapters on keyconcepts and methodologies for deciding when and how to intervenein systems, as well as a rich collection of case studies

andperspective pieces. It will be a valuable resource for researchers,managers and policy makers interested in the question of howhumanity manages and restores ecosystems in a rapidly changingworld. A companion website with additional resources is available at ahref="http://www.wiley.com/go/hobbs/ecosystems"www.wiley.com/go/hobbs/ecosystems/a

Restoration Priorities and Strategies - Dagmar Hagen 2016

Hybrid Solutions for the Modelling of Complex Environmental Systems - Christian E. Vincenot 2017-01-11

Systems studied in environmental science, due to their structure and the heterogeneity of the entities composing them, often exhibit complex dynamics that can only be captured by hybrid modeling approaches. While several concurrent definitions of “hybrid modeling” can be found in the literature, it is defined here broadly as the approach consisting in coupling existing modelling paradigms to achieve a more accurate or efficient representation of systems. The need for hybrid models generally arises from the necessity to overcome the limitation of a single modeling technique in terms of structural flexibility, capabilities, or computational efficiency. This book brings together experts in the field of hybrid modelling to demonstrate how this approach can address the challenge of representing the complexity of natural systems. Chapters cover applied examples as well as modeling methodology.

Restoration Ecology - Jelte van Andel 2012-05-21

Enlarged, enhanced and internationalized edition of the first restoration ecology textbook to be published, with foreword by Dr. Steven Whisnant of Texas A&M University and Chair of the Society of Ecological Restoration. Since 2006, when the first edition of this book appeared, major advances have taken place in restoration science and in the practice of ecological restoration. Both are now accepted as key components of the increasingly urgent search for sustainability at global, national, and community levels – hence the phrase 'New Frontier' in the title. While the first edition focused on ecosystems and landscapes in Europe, this new edition covers biomes and contexts all over the world. Several new chapters deal with broad issues such as biological invasions, climate change, and agricultural land abandonment as they relate to restoration science and ecological restoration. Case studies are included from Australia, North America, and the tropics. This is an accessible textbook for senior undergraduate and graduate level students, and early career scientists. The book also provides a solid scientific background for managers, volunteers, and mid-career professionals involved in the practice of ecological restoration. Review of the first edition: "I suspect that this volume will find its way onto the shelves of many restoration researchers and practitioners and will be used as a key text in graduate courses, where it will help fill a large void. My own copy is already heavily bookmarked, and will be a constant source of research ideas and lecture material." (Environmental Conservation) Companion Website: A companion website with downloadable figures is available at www.wiley.com/go/vanandel/restorationecology

Temperate Woodland Conservation and Management - David Lindenmayer 2010

This book summarizes the main discoveries, management insights and policy initiatives in the science, management and policy arenas associated with temperate woodlands in Australia. More than 60 of Australia's leading researchers, policy makers and natural resource managers have contributed to the volume. It features new perspectives on the integration of woodland management and agricultural production, including the latest thinking about whole of paddock restoration and carbon farming, as well as financial and social incentive schemes to promote woodland conservation and management. Temperate Woodland Conservation and Management will be a key supporting aid for farmers, natural resource managers, policy makers, and people involved in NGO landscape restoration and management. KEY FEATURES * High quality chapters from the nation's leading researchers, managers and policy makers in temperate woodlands * New perspectives on the integration of woodland management and agricultural production * Easy to follow format that distills key new insights and lessons for future conservation

and management initiatives

Restoring Layered Landscapes - Marion Hourdequin 2016

'Restoring Layered Landscapes' explores ecological restoration in complex landscapes, where ecosystems intertwine with important sociopolitical meanings.

Wildlife-Habitat Relationships - Michael L. Morrison 2012-09-26

Wildlife-Habitat Relationships goes beyond introductory wildlife biology texts to provide wildlife professionals and students with an understanding of the importance of habitat relationships in studying and managing wildlife. The book offers a unique synthesis and critical evaluation of data, methods, and studies, along with specific guidance on how to conduct rigorous studies. Now in its third edition, Wildlife-Habitat Relationships combines basic field zoology and natural history, evolutionary biology, ecological theory, and quantitative tools in explaining ecological processes and their influence on wildlife and habitats. Also included is a glossary of terms that every wildlife professional should know. Michael L. Morrison is professor and Caesar Kleberg Chair in Wildlife Ecology and Conservation in the Department of Wildlife and Fisheries Sciences at Texas A&M University in College Station. Bruce G. Marcot is wildlife ecologist with the USDA Forest Service in Portland, Oregon. R. William Mannan is professor of wildlife ecology at the University of Arizona in Tucson.

Restoring Ecological Health to Your Land - Steven I. Apfelbaum 2012-02-13

Restoring Ecological Health to Your Land is the first practical guidebook to give restorationists and would-be restorationists with little or no scientific training or background the “how to” information and knowledge they need to plan and implement ecological restoration activities. The book sets forth a step-by-step process for developing, implementing, monitoring, and refining on-the-ground restoration projects that is applicable to a wide range of landscapes and ecosystems. The first part of the book introduces the process of ecological restoration in simple, easily understood language through specific examples drawn from the authors’ experience restoring their own lands in southern and central Wisconsin. It offers systematic, step-by-step strategies along with inspiration and benchmark experiences. The book’s second half shows how that same “thinking” and “doing” can be applied to North America’s major ecosystems and landscapes in any condition or scale. No other ecological restoration book leads by example and first-hand experience likethis one. The authors encourage readers to champion restoration of ecosystems close to where they live . . . at home, on farms and ranches, in parks and preserves. It provides an essential bridge for people from all walks of life and all levels of experience—from land trust member property stewards to agency personnel responsible for restoring lands in their care—and represents a unique and important contribution to the literature on restoration.

Ecosystems of California - Harold Mooney 2016-01-19

This long-anticipated reference and sourcebook for California’s remarkable ecological abundance provides an integrated assessment of each major ecosystem type—its distribution, structure, function, and management. A comprehensive synthesis of our knowledge about this biologically diverse state, Ecosystems of California covers the state from oceans to mountaintops using multiple lenses: past and present, flora and fauna, aquatic and terrestrial, natural and managed. Each chapter evaluates natural processes for a specific ecosystem, describes drivers of change, and discusses how that ecosystem may be altered in the future. This book also explores the drivers of California’s ecological patterns and the history of the state’s various ecosystems, outlining how the challenges of climate change and invasive species and opportunities for regulation and stewardship could potentially affect the state’s ecosystems. The text explicitly incorporates both human impacts and conservation and restoration efforts and shows how ecosystems support human well-being. Edited by two esteemed ecosystem ecologists and with overviews by leading experts on each ecosystem, this definitive work will be indispensable for natural resource management and conservation professionals as well as for undergraduate or graduate students of California’s environment and curious naturalists.

Savanna Woody Plants and Large Herbivores - Peter Frank Scogings

2019-07-25
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 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.

Proceedings of the Workshop on Aquatic Ecosystem Modeling and Assessment Techniques for Application Within the U.S. Army Corps of Engineers - 1998

Interior, Environment, and Related Agencies Appropriations for 2007 - United States. Congress. House. Committee on Appropriations. Subcommittee on Interior, Environment, and Related Agencies 2006

Making Nature Whole - William R. Jordan 2011-07-26
Making Nature Whole is a seminal volume that presents an in-depth history of the field of ecological restoration as it has developed in the United States over the last three decades. The authors draw from both published and unpublished sources, including archival materials and oral histories from early practitioners, to explore the development of the field and its importance to environmental management as well as to the larger environmental movement and our understanding of the world. Considering antecedents as varied as monastic gardens, the Scientific Revolution, and the emerging nature-awareness of nineteenth-century Romantics and Transcendentalists, Jordan and Lubick offer unique insight into the field's philosophical and theoretical underpinnings. They examine specifically the more recent history, including the story of those who first attempted to recreate natural ecosystems early in the 20th century, as well as those who over the past few decades have realized the value of this approach not only as a critical element in conservation but also as a context for negotiating the ever-changing relationship between humans and the natural environment. Making Nature Whole is a landmark contribution, providing context and history regarding a distinctive form of land management and giving readers a fascinating overview of the development of the field. It is essential reading for anyone interested in understanding where ecological restoration came from or where it might be going.

Cork Oak Woodlands on the Edge - James Aronson 2009-04-22
In addition, Cork Oak Woodlands on the Edge offers ten site profiles written by local experts that present an in-depth vision of cork oak woodlands across a range of biophysical, historical, and cultural contexts, with 16 pages of full-color photos that illustrate the tree, agro-silvopastoral systems, products, resident biodiversity, and more."--Pub. desc.

Linking Australia's Landscapes - Ian Pulsford 2013-06-05

Networks of land managed for conservation across different tenures have rapidly increased in number (and popularity) in Australia over the past two decades. These include iconic large-scale initiatives such as Gondwana Link, the Great Eastern Ranges Initiative, Habitat 141°, and the South Australian NatureLinks, as well as other, landscape-scale approaches such as Biosphere Reserves and Conservation Management Networks. Their aims have been multiple: to protect the integrity and resilience of many Australian ecosystems by maintaining and restoring large-scale natural landscapes and ecosystem processes; to lessen the impacts of fragmentation; to increase the connectivity of habitats to provide for species movement and adaptation as climate changes; and to build community support and involvement in conservation. This book draws out lessons from a variety of established and new connectivity conservation initiatives from around Australia, and is complemented by international examples. Chapters are written by leaders in the field of establishing and operating connectivity networks, as well as key ecological and social scientists and experts in governance. Linking Australia's Landscapes will be an important reference for policy makers, natural resource managers, scientists, and academics and tertiary students dealing with issues in landscape-scale conservation, ecology, conservation biology, environmental policy, planning and management, social sciences, regional development, governance and ecosystem services.

Foundations of Restoration Ecology - Society for Ecological Restoration International 2016-11

"Society for Ecological Restoration"--Cover.

Assembly Rules and Restoration Ecology - Vicky M. Temperton 2013-04-10

Understanding how ecosystems are assembled -- how the species that make up a particular biological community arrive in an area, survive, and interact with other species -- is key to successfully restoring degraded ecosystems. Yet little attention has been paid to the idea of assembly rules in ecological restoration, in both the scientific literature and in on-the-ground restoration efforts. Assembly Rules and Restoration Ecology, edited by Vicky M. Temperton, Richard J. Hobbs, Tim Nuttle, and Stefan Halle, addresses that shortcoming, offering an introduction, overview, and synthesis of the potential role of assembly rules theory in restoration ecology. It brings together information and ideas relating to ecosystem assembly in a restoration context, and includes material from a wide geographic range and a variety of perspectives. Assembly Rules and Restoration Ecology contributes new knowledge and ideas to the subjects of assembly rules and restoration ecology and represents an important summary of the current status of an emerging field. It combines theoretical and practical aspects of restoration, making it a vital compendium of information and ideas for restoration ecologists, professionals, and practitioners.

Landscape Simulation Modeling - Robert Costanza 2003-10-31

The world consists of many complex systems, ranging from our own bodies to ecosystems to economic systems. Despite their diversity, complex systems have many structural and functional features in common that can be effectively si- lated using powerful, user-friendly software. As a result, virtually anyone can - plore the nature of complex systems and their dynamical behavior under a range of assumptions and conditions. This ability to model dynamic systems is already having a powerful influence on teaching and studying complexity. The books in this series will promote this revolution in “systems thinking” by integrating computational skills of numeracy and techniques of dynamic mod- ing into a variety of disciplines. The unifying theme across the series will be the power and simplicity of the model-building process, and all books are designed to engage the reader in developing their own models for exploration of the dyn- ics of systems that are of interest to them. Modeling Dynamic Systems does not endorse any particular modeling paradigm or software. Rather, the volumes in the series will emphasize simplicity of lea- ing, expressive power, and the speed of execution as priorities that will facilitate deeper system understanding.

Ecological Modeling in Risk Assessment - Robert A. Pastorok 2016-04-19

Toxic chemicals can exert effects on all levels of the biological hierarchy,

from cells to organs to organisms to populations to entire ecosystems. However, most risk assessment models express their results in terms of effects on individual organisms, without corresponding information on how populations, groups of species, or whole ecosystems may respond to chemical stressors. Ecological Modeling in Risk Assessment: Chemical Effects on Populations, Ecosystems, and Landscapes takes a new approach by compiling and evaluating models that can be used in assessing risk at the population, ecosystem, and landscape levels. The authors give an overview of the current process of ecological risk assessment for toxic chemicals and of how modeling of populations, ecosystems, and landscapes could improve the status quo. They present a classification of ecological models and explain the differences between population, ecosystem, landscape, and toxicity-extrapolation models. The authors describe the model evaluation process and define evaluation criteria. Finally, the results of the model evaluations are presented in a concise format with recommendations on modeling approaches to use now and develop further. The authors present and evaluate various models on the basis of their realism and complexity, prediction of relevant assessment endpoints, treatment of uncertainty, regulatory acceptance, resource efficiency, and other criteria. They provide models that will improve the ecological relevance of risk assessments and make data collection more cost-effective. Ecological Modeling in Risk Assessment serves as a reference for selecting and applying the best models when performing a risk assessment.

Setting a New Course for U.S. Coastal Ocean Science - 1995

Cooperative Strategies for Forest Science Management and Leadership in an Increasingly Complex and Globalized World - 1999

Rio Grande Ecosystems - Deborah M. Finch 1999