

Ecology 2nd Edition

Ecology is capturing the popular imagination like never before, with issues such as climate change, species extinctions, and habitat destruction becoming ever more prominent. At the same time, the science of ecology has advanced dramatically, growing in mathematical and theoretical sophistication. Here, two leading experts present the fundamental quantitative principles of ecology in an accessible yet rigorous way, introducing students to the most basic of all ecological subjects, the structure and dynamics of populations. John Vandermeer and Deborah Goldberg show that populations are more than simply collections of individuals. Complex variables such as distribution and territory for expanding groups come into play when mathematical models are applied. Vandermeer and Goldberg build these models from the ground up, from first principles, using a broad range of empirical examples, from animals and viruses to plants and humans. They address a host of exciting topics along the way, including age-structured populations, spatially distributed populations, and metapopulations. This second edition of Population Ecology is fully updated and expanded, with additional exercises in virtually every chapter, making it the most up-to-date and comprehensive textbook of its kind.

Provides an accessible mathematical foundation for the latest advances in ecology Features numerous exercises and examples throughout Introduces students to the key literature in the field The essential textbook for advanced undergraduates and graduate students An online illustration package is available to professors Nearly one-third of the land area on our planet is classified as arid or desert. Therefore, an understanding of the dynamics of such arid ecosystems is essential to managing those systems in a way that sustains human populations. This second edition of Ecology of Desert Systems provides a clear, extensive guide to the complex interactions involved in these areas. This book details the relationships between abiotic and biotic environments of desert ecosystems, demonstrating to readers how these interactions drive ecological processes. These include plant growth and animal reproductive success, the spatial and temporal distribution of vegetation and animals, and the influence of invasive species and anthropogenic climate change specific to arid systems. Drawing on the extensive experience of its expert authors, Ecology of Desert Systems is an essential guide to arid ecosystems for students looking for an overview of the field, researchers keen to learn how their work fits in to the overall picture, and those involved with environmental management of desert areas. Highlights the complexity of global desert systems in a clear, concise way Reviews the most current issues facing researchers in the field, including the spread of invasive species due to globalized trade, the impact of industrial mining, and climate change Updated and extended to include information on invasive species management, industrial mining impacts, and the current and future role of climate change in desert systems

Additional resources for this book can be found at: <http://www.wiley.com/go/vandermaarefranklin/vegetationecology> www.wiley.com/go/vandermaarefranklin/vegetationecology/a. Vegetation Ecology, 2nd Edition is a comprehensive, integrated account of plant communities and their environments. Written by leading experts in their field from four continents, this second edition of this book: covers the composition, structure, ecology, dynamics, diversity, biotic interactions and distribution of plant communities, with an emphasis on functional adaptations; reviews modern developments in vegetation ecology in a historical perspective; presents a coherent view on vegetation ecology while integrating population ecology, dispersal biology, soil biology, ecosystem ecology and global change studies; tackles applied aspects of vegetation ecology, including management of communities and invasive species; includes new chapters addressing the classification and mapping of vegetation, and the significance of plant functional types Vegetation Ecology, 2nd Edition is aimed at advanced undergraduates, graduates and researchers and teachers in plant ecology, geography, forestry and nature conservation. Vegetation Ecology takes an integrated, multidisciplinary approach and will be welcomed as an essential reference for plant ecologists the world over.

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

Ecological Entomology

Estuarine Ecology

Stream Ecology

Invasion Ecology

Ecology of Aquatic Management

The Ecology of Sandy Shores

Featuring completely updated chapters, additional authors, and an increased emphasis on alternatives to traditional pesticides, the second edition of Ecological Entomology is the field's leading reference on the role of insects in ecosystems. The authors cover insect growth and development, what they eat, how they reproduce, and how they move in various environments. The book also examines how insects interact with the plant community and how to control insect populations naturally.

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.

Methods in Stream Ecology, Second Edition, provides a complete series of field and laboratory protocols in stream ecology that are ideal for teaching or conducting research. This updated edition reflects recent advances in the technology associated with ecological assessment of streams, including remote sensing. In addition, the relationship between stream flow and alluviation has been added, and a new chapter on riparian zones is also included. The book features exercises in each chapter; detailed instructions, illustrations, formulae, and data sheets for in-field research for students; and taxonomic keys to common stream invertebrates and algae. With a student-friendly price, this book is key for all students and researchers in stream and freshwater ecology, freshwater biology, marine ecology, and river ecology. This text is also supportive as a supplementary text for courses in watershed ecology/science, hydrology, fluvial geomorphology, and landscape ecology. Exercises in each chapter Detailed instructions, illustrations, formulae, and data sheets for in-field research for students Taxonomic keys to common stream invertebrates and algae Link from Chapter 22: FISH COMMUNITY COMPOSITION to an interactive program for assessing and modeling fish numbers

A follow-up to the highly successful first edition, this book reviews the manifold ways that scale influences the interpretation of ecological variation. As scale, magnitude, quantity, and measurement occupy an expanding role in ecology, this 2e will be an indispensable addition to individual and institutional libraries. In providing a context for resolution of ecological problems, ecologists will appreciate the significance of scale and magnitude addressed in this book. Written for advanced undergraduates, graduate students, and faculty researchers, this book synthesizes a burgeoning literature on the influences of scale. * Expanded by numerous explanatory figures and wide coverage of material * Topic is of crucial importance to ecologists * The most thorough, complete coverage available on quantitative ecology in the market

Restoration Ecology

A Systems Approach

A Concise Handbook - Second Edition

Evolution, Application, Integration

Plant Ecology

Fundamentals of Ecosystem Science

Since the publication of the highly-successful first edition of Earthworm Ecology, there were two international symposia and an increased number of publications on the subject, demanding a revision of the book that addresses the most rapidly developing areas of earthworm research. Earthworm Ecology, Second Edition updates the most comprehens

Vegetation Ecology John Wiley & Sons

This widely anticipated revision of the groundbreaking book, Ecological Understanding, updates this crucial sourcebook of contemporary philosophical insights for practicing ecologists and graduate students in ecology and environmental studies. The second edition contains new ecological examples, an expanded array of conceptual diagrams and illustrations, new text boxes summarizing important points or defining key terms, and new reference to philosophical issues and controversies. Although the first edition was recognized for its clarity, this revision takes the opportunity to make the exposition of complex topics still clearer to readers without a philosophical background. Readers will gain an understanding of the goals of science, the structure of theory, the kinds of theory relevant to ecology, the way that theory changes, what constitutes objectivity in contemporary science, and the role of paradigms and frameworks for synthesis within ecology and in integration with other disciplines. Finally, how theory can inform and anchor the public use of ecological knowledge in civic debates is laid out. This new edition refines the understanding of how the structure and change of theory can improve the growth and application of one of the 21st century 's key sciences. · Explains the philosophical basis of ecology in plain English · Contains chapter overviews and summaries · Text boxes highlight key points, examples, or controversies · Diagrams explain structure and development of theory, and integration · Evaluates and relates paradigms in ecology · Illustrates philosophical issues with classic and new ecological research

Community ecology has undergone a transformation in recent years, from a discipline largely focused on processes occurring within a local area to a discipline encompassing a much richer domain of study, including the linkages between communities separated in space (metacommunity dynamics), niche and neutral theory, the interplay between ecology and evolution (eco-evolutionary dynamics), and the influence of historical and regional processes in shaping patterns of biodiversity. To fully understand these new developments, however, students continue to need a strong foundation in the study of species interactions and how these interactions are assembled into food webs and other ecological networks. This new edition fulfills the book's original aims, both as a much-needed up-to-date and accessible introduction to modern community ecology, and in identifying the important questions that are yet to be answered. This research-driven textbook introduces state-of-the-art community ecology to a new generation of students, adopting reasoned and balanced perspectives on as-yet-unresolved issues. Community Ecology is suitable for advanced undergraduates, graduate students, and researchers seeking a broad, up-to-date coverage of ecological concepts at the community level.

Processes, Models, and Applications

Molecular Ecology

The New Frontier

Population Ecology

Numerical Ecology

A New Ecology

Estuaries are among the most biologically productive ecosystems on the planet--critical

to the life cycles of fish, other aquatic animals, and the creatures which feed on them. *Estuarine Ecology, Second Edition*, covers the physical and chemical aspects of estuaries, the biology and ecology of key organisms, the flow of organic matter through estuaries, and human interactions, such as the environmental impact of fisheries on estuaries and the effects of global climate change on these important ecosystems. Authored by a team of world experts from the estuarine science community, this long-awaited, full-color edition includes new chapters covering phytoplankton, seagrasses, coastal marshes, mangroves, benthic algae, Integrated Coastal Zone Management techniques, and the effects of global climate change. It also features an entirely new section on estuarine ecosystem processes, trophic webs, ecosystem metabolism, and the interactions between estuaries and other ecosystems such as wetlands and marshes

Freshwater Ecology, Second Edition, is a broad, up-to-date treatment of everything from the basic chemical and physical properties of water to advanced unifying concepts of the community ecology and ecosystem relationships as found in continental waters. With 40% new and expanded coverage, this text covers applied and basic aspects of limnology, now with more emphasis on wetlands and reservoirs than in the previous edition. It features 80 new and updated figures, including a section of color plates, and 500 new and updated references. The authors take a synthetic approach to ecological problems, teaching students how to handle the challenges faced by contemporary aquatic scientists. This text is designed for undergraduate students taking courses in *Freshwater Ecology and Limnology*; and introductory graduate students taking courses in *Freshwater Ecology and Limnology*. Expanded revision of Dodds' successful text. New boxed sections provide more advanced material within the introductory, modular format of the first edition. Basic scientific concepts and environmental applications featured throughout. Added coverage of climate change, ecosystem function, hypertrophic habitats and secondary production. Expanded coverage of physical limnology, groundwater and wetland habitats. Expanded coverage of the toxic effects of pharmaceuticals and endocrine disruptors as freshwater pollutants More on aquatic invertebrates, with more images and pictures of a broader range of organisms Expanded coverage of the functional roles of filterer feeding, scraping, and shredding organisms, and a new section on omnivores. Expanded appendix on standard statistical techniques. Supporting website with figures and tables - <http://www.elsevierdirect.com/companion.jsp?ISBN=9780123747242>

Ecology: Evolution, Application, Integration, Second Edition, takes a unique evolutionary approach to ecology, focusing on the concepts of the discipline and the human impact on ecosystems. Helping students develop their scientific reasoning skills, this text teaches them not only what we know about the field, but how we know it.

The book describes and discusses the numerical methods which are successfully being used for analysing ecological data, using a clear and comprehensive approach. These methods are derived from the fields of mathematical physics, parametric and nonparametric statistics, information theory, numerical taxonomy, archaeology, psychometry, sociometry, econometry and others. Compared to the first edition of *Numerical Ecology*, this second edition includes three new chapters, dealing with the analysis of semiquantitative data, canonical analysis and spatial analysis. New sections have been added to almost all other chapters. There are sections listing available computer programs and packages at the end of several chapters. As in the previous English and French editions, there are numerous examples from the ecological literature, and the choice of methods is facilitated by several synoptic tables.

Insect Ecology

Corridor Ecology, Second Edition

The Nature of Theory and the Theory of Nature

An Ecosystem Approach

Ecology

The Ecological Effects of Pollution, Disturbance, and Other Stresses

A New Ecology presents an ecosystem theory based on the following ecosystem properties: physical openness, ontic openness, directional connectivity, a complex dynamic for growth and development, and a complex dynamic response to disturbances. Each of these properties is shown in detail to show that these basic and characteristic properties can be applied to explain a wide spectrum of ecological observations and also shown that the properties have application for environmental management and for assessment of ecosystem health. * Demonstrates a theory that can be applied to explain ecological observations and rules * Presents an ecosystem theory based upon a systems approach to ecosystem theory that is based on a few basic properties that are characteristic for ecosystems

Plant ecology is the scientific study of the factors influencing the distribution and abundance of plants. This benchmark text, extremely popular in its first edition, shows how pattern and structure at different levels of plant organization--from ecophysiology through population dynamics to community structure and ecosystem function--are influenced by abiotic factors (eg, climate and soils) and by biotic factors (eg, competition and herbivory). Adopting a dynamic approach, this book combines descriptive text with theoretical models and experimental data. It will be interesting reading for both student and practising ecologist alike. In this second edition, the structure of the book has been completely revised, m

small scale to the large scale, in keeping with contemporary teaching methods. This fresh approach allows consideration of several new topics such as plant secondary chemistry, herbivory, sex, and breeding systems. Additional chapters address topical applied issues in plant ecology including global warming, pollution and biodiversity. The latest edition of a very widely adopted textbook Written by a team of leading experts and edited by an international authority in the field

Disturbance ecology continues to be an active area of research, having undergone advances in many areas in recent years. One emerging theme is the increased coupling of physical and ecological processes, in which disturbances are increasingly traced back to mechanisms that cause the disturbances themselves, such as earth surface processes, mesoscale, and larger meteorological processes, and the ecological effects of disturbances are increasingly physiological. Plant Disturbance Ecology, 2nd Edition encourages movement away from the informal, conceptual approach to disturbance ecology used in defining natural disturbances and clearly presents how scientists can use a multitude of approaches in plant disturbance ecology. This edition includes nine revised chapters from the first edition, as well new, more comprehensive chapters on fire disturbance and beaver disturbance. Written by leading experts in the field, Plant Disturbance Ecology, 2nd Edition is an essential resource for scientists interested in understanding plant disturbance and ecological processes. Advances understanding of natural disturbances by combining geophysical and ecological processes Provides a platform for collaboration between geophysical scientists and ecologists studying natural disturbances Includes fully updated research with 5 new chapters and revision of 11 chapters from the first edition

This text provides a synthesis of the existing field of wetland ecology using a few central themes, including key environmental factors, wetland community types and some unifying problems such as assembly rules, restoration and conservation.

Ecological Understanding

The Routledge Handbook of Urban Ecology

Introduction to Human Ecology

Freshwater Ecology

Methods in Stream Ecology

Ecology of Coastal Waters

This second edition covers recent developments around the world with contributors from 33 different countries. It widens the handbook's scope by including ecological design; consideration of cultural dimensions of the use and conservation of urban nature; the roles of government and civil society; and the continuing issues of equity and fairness in access to urban greenspaces. New features include an emphasis on the biophilic design of homes and workplaces, demonstrating the value of nature, in order to counter the still prevalent attitude among many developers that nature is a constraint rather than a value. The volume explores great practical achievements that have occurred since the first edition, with many governments increasingly recognising and legislating on urban nature and green infrastructure matters, since cities play a major role in adapting to change, particularly to climate crisis. New topics such as the ecological role of light at night and human microbiota in the urban ecosystem are introduced. Additional attention is given to food production in cities, particularly the multiple roles of urban agriculture and household gardens in different contexts from wealthy communities to the poorest informal settlements in deprived communities. The emphasis is on demonstrating what can be achieved, and what is already being done. The book will help scholars and graduate students by providing an invaluable and up-to-date guide to current urban ecological thinking across the range of disciplines, such as geography, ecology, environmental science/studies, planning, urban studies, that converge in the study of towns and cities and urban design and living. It will also assist practitioners and civil society members in discovering the ways different specialists and thinkers approach urban nature.

This book explores current exploitation practices, and the ecological basis and consequences of that exploitation.

Molecular Ecology provides a comprehensive introduction to the many diverse aspects of this subject. The book unites theory with examples from a wide range of taxa in a logical and progressive manner, and its accessible writing style makes subjects such as population genetics and phylogenetics highly comprehensible to its readers. The first part of the book introduces the essential underpinnings of molecular ecology, starting with a review of genetics and a discussion of the molecular markers that are most frequently used in ecological research. This leads into an overview of population genetics in ecology. The second half of the book then moves on to specific applications of molecular ecology, covering phylogeography, behavioural ecology and conservation genetics. The final chapter looks at molecular ecology in a wider context by using a number of case studies that are relevant to various economic and social concerns, including wildlife forensics, agriculture, and overfishing * comprehensive overview of the different aspects of molecular ecology * attention to both theoretical and applied concerns * accessible writing style and logical structure * numerous up-to-date examples and references This will be an invaluable reference for those studying molecular ecology, population genetics, evolutionary biology, conservation genetics and behavioural ecology, as well as researchers working in these fields.

From earlier ecological studies it has become apparent that simple univariate or bivariate statistics are often inappropriate, and that multivariate statistical analyses must be applied. Despite several difficulties arising from the application of multivariate methods, community ecology has acquired a mathematical framework, with three consequences: it can develop as an exact science; it can be applied operationally as a computer-assisted science to the solution of environmental problems; and it can exchange information with other disciplines using the language of mathematics. This book comprises the invited lectures, as well as working group reports, on the NATO workshop held in Roscoff (France) to improve the applicability of this new method numerical ecology to specific ecological problems.

Introduction to Population Ecology

Principles and Conservation

Principles of Terrestrial Ecosystem Ecology

First Principles - Second Edition

Structure and function of running waters

Plant Disturbance Ecology

Features review questions at the end of each chapter; Includes suggestions for recommended reading; Provides a glossary of ecological terms; Has a wide audience as a textbook for advanced undergraduate students, graduate students and as a reference for practicing scientists from a wide array of disciplines

Fundamentals of Ecosystem Science, Second Edition provides a comprehensive introduction to modern ecosystem science covering land, freshwater and marine ecosystems. Ecosystem science is now applied to address a wide range of environmental problems. Written by a group of experts, this updated edition covers major concepts of ecosystem science, biogeochemistry, and energetics. Case studies of important environmental problems offer personal insights into how adopting an ecosystem approach has helped solve important intellectual and practical problems. For those choosing to use the book in a classroom environment, or who want to enrich further their reading experience, teaching and learning assets are available at Elsevier.com. Covers both aquatic (freshwater and marine) and terrestrial ecosystems with updated information Includes a new chapter on microbial biogeochemistry Features vignettes throughout the book with real examples of how an ecosystem approach

has led to important change in policy, management, and ecological understanding Demonstrates the application of an ecosystem approach in synthesis chapters and case studies Contains new coverage of human-environment interactions

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

Thoroughly revised and significantly expanded, the Second Edition of *Environmental Ecology* provides new case studies and in-depth treatment of the effects of pollution and other disturbances on our oceans, lakes, forests, and air. New chapters on biological resources and ecological applications have been added, including material on environmental economics, impact assessments, ecological monitoring, and environmental ethics. Extensive indexes, a glossary, and a bibliography are included.

The Process and the Response

Ecological Restoration

Systems Perspective

Vegetation Ecology

Measurement, Models and Scaling

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

The Ecology of Sandy Shores provides the students and researchers with a one-volume resource for understanding the conservation and management of the sandy shore ecosystem. Covering all beach types, and addressing issues from the behavioral and physiological adaptations of the biota to exploring the effects of pollution and the impact of man's activities, this book should become the standard reference for those interested in Sandy Shore study, management and preservation. More than 25% expanded from the previous edition Three entirely new chapters: Energetics and Nutrient Cycling, Turtles and Terrestrial Vertebrates, and Benthic Macrofauna Populations New sections on the interstitial environment, seagrasses, human impacts and coastal zone management Examples drawn from virtually all parts of the world, considering all beach types from the most exposed to the most sheltered

This is an up-to-date study of patterns and processes involving two or more species. The book strikes a balance between plant and animal species and among studies of marine, freshwater and terrestrial communities.

As well as emphasising the links to evolution, 'Ecology' covers all the levels of the ecological hierarchy at which the subject is studied. It focuses on their integration to ensure that students are able to grasp how events in nature are interconnected.

Principles, Values, and Structure of an Emerging Profession

Earthworm Ecology

Ecology of Desert Systems

Quantitative Ecology

Environmental Ecology

How to Do Ecology

This new edition of Invasion Ecology provides a comprehensive and updated introduction to all aspects of biological invasion by non-native species. Highlighting important research findings associated with each stage of invasion, the book provides an overview of the invasion process from transportation patterns and causes of establishment success to ecological impacts, invader management, and post-invasion evolution. The authors have produced new chapters on predicting and preventing invasion, managing and eradicating invasive species, and invasion dynamics in a changing climate. Modern global trade and travel have led to unprecedented movement of non-native species by humans with unforeseen, interesting, and occasionally devastating consequences. Increasing recognition of the problems associated with invasion has led to a rapid growth in research into the dynamics of non-native species and their adverse effects on native biota and human economies. This book provides a synthesis of this fast growing field of research and is an essential text for undergraduate and graduate students in ecology and conservation management. Additional resources are available at www.wiley.com/go/invasioneecology

Introduction to Population Ecology, 2nd Edition is a comprehensive textbook covering all aspects of population ecology. It uses a wide variety of field and laboratory examples, botanical to zoological, from the tropics to the tundra, to illustrate the fundamental laws of population ecology. Controversies in population ecology are brought fully up to date in this edition, with many brand new and revised examples and data. Each chapter provides an overview of how population theory has developed, followed by descriptions of laboratory and field studies that have been inspired by the theory. Topics explored include single-species population growth and self-limitation, life histories, metapopulations and a wide range of interspecific interactions including competition, mutualism, parasite-host, predator-prey and

plant-herbivore. An additional final chapter, new for the second edition, considers multi-trophic and other complex interactions among species. Throughout the book, the mathematics involved is explained with a step-by-step approach, and graphs and other visual aids are used to present a clear illustration of how the models work. Such features make this an accessible introduction to population ecology; essential reading for undergraduate and graduate students taking courses in population ecology, applied ecology, conservation ecology, and conservation biology, including those with little mathematical experience.

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 <http://www.wiley.com/go/vanandel/restorationecology>

Wildlife species across the globe face a dire predicament as their traditional migratory routes are cut off by human encroachment and they are forced into smaller and smaller patches of habitat. As key species populations dwindle, ecosystems lose resilience and face collapse, and along with them, the ecosystem services we depend on. Healthy ecosystems need healthy wildlife populations. One possible answer? Wildlife corridors that connect fragmented landscapes. This second edition of *Corridor Ecology: Linking Landscapes for Biodiversity Conservation and Climate Adaptation* captures advances in the field over the past ten years. It features a new chapter on marine corridors and the effects of climate change on habitat, as well as a discussion of corridors in the air for migrating flying species. Practitioners, land managers, and scholars of ecology will find it an indispensable resource.

Concepts and Environmental Applications of Limnology

Developments in Numerical Ecology

Linking Landscapes for Biodiversity Conservation and Climate Adaptation

Wetland Ecology

Community Ecology

Fundamentals of Soil Ecology

Most books and courses in ecology cover facts and concepts but don't explain how to actually do ecological research. *How to Do Ecology* provides nuts-and-bolts advice on organizing and conducting a successful research program. This one-of-a-kind book explains how to choose a research question and answer it through manipulative experiments and systematic observations. Because science is a social endeavor, the book provides strategies for working with other people, including professors and collaborators. It suggests effective ways to communicate your findings in the form of journal articles, oral presentations, posters, and grant and research proposals. The book also includes ideas to help you identify your goals, organize a season of fieldwork, and deal with negative results. In short, it makes explicit many of the unspoken assumptions behind doing good research in ecology and provides an invaluable resource for meaningful conversations between ecologists. This second edition of *How to Do Ecology* features new sections on conducting and analyzing observational surveys, job hunting, and becoming a more creative researcher, as well as updated sections on statistical analyses.