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Soil Microbiology, Ecology and Biochemistry Oxford University Press
This second edition provides authoritative guidance on research methodology for plant population ecology. Practical advice is provided to assist senior undergraduates and post-graduate students, and all researchers, design their own field and greenhouse experiments and establish a research programme in plant population ecology.
The Population Ecology of Interest Representation Oswaal Books and Learning Private Limited
A solid introduction to stable isotopes that can also be used as an instructive review for more experienced researchers and professionals. The book approaches the use of isotopes from the perspective of ecological and biological research, but its concepts can be applied within other disciplines. A novel, step-by-step spreadsheet modeling approach is also presented for circulating tracers in any ecological system, including any favorite system an ecologist might dream up while sitting at a computer. The author ' s humorous and lighthearted style painlessly imparts the principles of isotope ecology. The online material contains color illustrations, spreadsheet models, technical appendices, and problems and answers.
Parasitic Diseases—Advances in Research and Treatment: 2013 Edition University Press of New England
This examination of lobbying communities explores how interest group populations are constructed and how they influence politics and public policy. By examining how populations of interest groups are comprised, this work fills an important gap between existing theories of the origins of individual interest groups and studies of interest group influence. The population ecology model of interest communities developed here builds on insights first developed in population biology and later employed by organizational ecologists. The model's central premise is that it is the environmental forces confronting interest organizations that most directly shape the contours of interest populations. After examining the demography of interest organizations in the fifty American states, the population ecology model is used to account for variations in the density and diversity of their interest communities, the nature of competition among similar interest organizations to establish viable niches, and the impact of alternative configurations of interest communities on the legislative process and the policies it produces. These empirical findings suggest that the environment of interest communities is highly constraining, limiting their size, composition, and potential impact on politics. Virginia Gray is Professor of Political Science, University of Minnesota. David Lowery is Burton Craige Professor of Political Science, University of North Carolina at Chapel Hill.
Ecology Sinauer Associates
Biology for AP ® courses covers the scope and sequence requirements of a typical two-semester Advanced Placement ® biology course. The text provides comprehensive coverage of foundational research and core biology concepts through an evolutionary lens. Biology for AP ® Courses was designed to meet and exceed the requirements of the College Board ' s AP ® Biology framework while allowing significant flexibility for instructors. Each section of the book includes an introduction based on the AP ® curriculum and includes rich features that engage students in scientific practice and AP ® test preparation; it also highlights careers and research opportunities in biological sciences.
8th Grade Science Multiple Choice Questions and Answers (MCQs) Lulu.com
"2 full-length online practice tests"--Cover.
Be a GK Champ 4 Hodder Wayland
Soil Microbiology, Ecology and BiochemistryAcademic Press
Stable Isotope Ecology Island Press
In this volume 19 leading experts offer a timely and coherent overview of the fundamental principles of ecosystem science. They examine the flux of energy and biologically essential elements and their associated food webs in major terrestrial and aquatic ecosystems, such as forests, grasslands, cultivated land, streams, coral reefs, and ocean basins. In each case, interactions between different eosystems, predictive models, and the application of ecosystem research to the management of natural resources are given special emphasis. A number of theoretical chapters provide a synthesis through critical discussion of current concepts of ecosystem energetics and dynamics.
Comparative Primate Socioecology Cambridge University Press
Offers a unifying framework for community ecology by addressing how communities are assembled from species pools.
Habitat Ecology and Analysis Simon and Schuster
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.
A Framework for Community Ecology ScholarlyEditions
The fourth edition of Soil Microbiology, Ecology and Biochemistry updates this widely used reference as the study and understanding of soil biota, their function, and the dynamics of soil organic matter has been revolutionized by molecular and instrumental techniques, and information technology. Knowledge of soil microbiology, ecology and biochemistry is central to our understanding of organisms and their processes and interactions with their environment. In a time of great global change and increased emphasis on biodiversity and food security, soil microbiology and ecology has become an increasingly important topic. Revised by a group of world-renowned authors in many institutions and disciplines, this work relates the breakthroughs in knowledge in this important field to its history as well as future applications. The new edition provides readable, practical, impactful information for its many applied and fundamental disciplines. Professionals turn to this text as a reference for fundamental knowledge in their field or to inform management practices. New section on "Methods in Studying Soil Organic Matter Formation and Nutrient Dynamics" to balance the two successful chapters on microbial and physiological methodology Includes expanded information on soil interactions with organisms involved in human and plant disease Improved readability and integration for an ever-widening audience in his field Integrated concepts related to soil biota, diversity, and function allow readers in multiple disciplines to understand the complex soil biota and their function
Interactive Lake Ecology Teacher ' s Reference University of Michigan Press
Modern computer-intensive statistical methods play a key role in solving many problems across a wide range of scientific disciplines. This new edition of the bestselling Randomization, Bootstrap and Monte Carlo Methods in Biology illustrates the value of a number of these methods with an emphasis on biological applications. This textbook focuses on three related areas in computational statistics: randomization, bootstrapping, and Monte Carlo methods of inference. The author emphasizes the sampling approach within randomization testing and confidence intervals. Similar to randomization, the book shows how bootstrapping, or resampling, can be used for confidence intervals and tests of significance. It also explores how to use Monte Carlo methods to test hypotheses and construct confidence intervals. New to the Third Edition Updated information on regression and time series analysis, multivariate methods, survival and growth data as well as software for computational statistics References that reflect recent developments in methodology and computing techniques Additional references on new applications of computer-intensive methods in biology Providing comprehensive coverage of computer-intensive applications while also offering data sets online, Randomization, Bootstrap and Monte Carlo Methods in Biology, Third Edition supplies a solid foundation for the ever-expanding field of statistics and quantitative analysis in biology.
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Although biologists recognize evolutionary ecology by name, many only have a limited understanding of its conceptual roots and historical development. Conceptual Breakthroughs in Evolutionary Ecology fills that knowledge gap in a thought-provoking and readable format. Written by a world-renowned evolutionary ecologist, this book embodies a unique blend of expertise in combining theory and experiment, population genetics and ecology. Following an easily-accessible structure, this book encapsulates and chronologizes the history behind evolutionary ecology. It also focuses on the integration of age-structure and density-dependent selection into an understanding of life-history evolution. Covers over 60 seminal breakthroughs and paradigm shifts in the field of evolutionary biology and ecology Modular format permits ready access to each described subject Historical overview of a field whose concepts are central to all of biology and relevant to a broad audience of biologists, science historians, and philosophers of science
IRM Handbook 7.8.2, Exempt Organizations Technical Guidelines Handbook, Chapter 3, Etc., February 23, 1999 John Wiley & Sons
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Principle of Inheritance Genes and the Environment Improving the Species Sex Chromosomes Sex-linked Characteristics Inheritance of Defects Modern Genetics How Living Things are Classified CHAPTER 4 - A SURVEY OF BACTERIA, PROTISTS, AND FUNGI Diversity and Characteristics of the Monera Kingdom Archaebacteria Eubacteria The Kingdom Protista The Kingdom Fungi CHAPTER 5 - A SURVEY OF PLANTS Diversity, Classification, and Phylogeny of the Plant Kingdom Adaptations to Land The Life Cycle (Life History): Alternation of Generations in Plants Anatomy, Morphology, and Physiology of Vascular Plants Transport of Food in Vascular Plants Plant Tissues Reproduction and Growth in Seed Plants Photosynthesis Plant Hormones: Types, Functions, Effects on Plant Growth Environmental Influences on Plants and Plant Responses to Stimuli CHAPTER 6 - ANIMAL TAXONOMY AND TISSUES Diversity, Classification, and Phylogeny Survey of Acoelomate, Pseudocoelomate, Protostome, and Deuterostome Phyla Structure and Function of Tissues, Organs, and Systems Animal Tissues Nerve Tissue Blood Epithelial Tissue Connective (Supporting) Tissue CHAPTER 7 - DIGESTION/NUTRITION The Human Digestive System Ingestion and Digestion Digestive System Disorders Human Nutrition Carbohydrates Fats Proteins Vitamins CHAPTER 8 - RESPIRATION AND CIRCULATION Respiration in Humans Breathing Lung Disorders Respiration in Other Organisms Circulation in Humans Blood Lymph Circulation of Blood Transport Mechanisms in Other Organisms CHAPTER 9 - THE ENDOCRINE SYSTEM The Human Endocrine System Thyroid Gland Parathyroid Gland Pituitary Gland Pancreas Adrenal Glands Pineal Gland Thymus Gland Sex Glands Hormones of the Alimentary Canal Disorders of the Endocrine System The Endocrine System in Other Organisms CHAPTER 10 - THE NERVOUS SYSTEM The Nervous System Neurons Nerve Impulse Synapse Reflex Arc The Human Nervous System The Central Nervous System The Peripheral Nervous System Some Problems of the Human Nervous System Relationship Between the Nervous System and the Endocrine System The Nervous Systems In Other Organisms CHAPTER 11 - SENSING THE ENVIRONMENT Components of Nervous Coordination Photoreceptors Vision Defects Chemoreceptors Mechanoreceptors Receptors in Other Organisms CHAPTER 12 - THE EXCRETORY SYSTEM Excretion in Humans Skin Lungs Liver Urinary System Excretory System Problems Excretion in Other Organisms CHAPTER 13 - THE SKELETAL SYSTEM The Skeletal System Functions Growth and Development Axial Skeleton Appendicular Skeleton Articulations (Joints) The Skeletal Muscles Functions Structure of a Skeletal Muscle Mechanism of a Muscle Contraction CHAPTER 14- HUMAN PATHOLOGY Diseases of Humans How Pathogens Cause Disease Host Defense Mechanisms Diseases Caused by Microbes Sexually Transmitted Diseases Diseases Caused by Worms Other Diseases CHAPTER 15 - REPRODUCTION AND DEVELOPMENT Reproduction Reproduction in Humans Development Stages of Embryonic Development Reproduction and Development in Other Organisms CHAPTER 16 - EVOLUTION The Origin of Life Evidence for Evolution Historical Development of the Theory of Evolution The Five Principles of Evolution Mechanisms of Evolution Mechanisms of Speciation Evolutionary Patterns How Living Things Have Changed The Record of Prehistoric Life Geological Eras Human Evolution CHAPTER 17 - BEHAVIOR Behavior of Animals Learned Behavior Innate Behavior Voluntary Behavior Plant Behavior Behavior of Protozoa Behavior of Other Organisms Drugs and Human Behavior CHAPTER 18 - PATTERNS OF ECOLOGY Ecology Populations Life History Characteristics Population Structure Population Dynamics Communities Components of Communities Interactions within Communities Consequences of Interactions Ecosystems Definitions Energy Flow Through Ecosystems Biogeochemical Cycles Hydrological Cycle Nitrogen Cycle Carbon Cycle Phosphorus Cycle Types of Ecosystems Human Influences on Ecosystems Use of Non-renewable Resources Use of Renewable Resources Use of Synthetic Chemicals Suggested Readings PRACTICE TESTS Biology-E Practice Tests SAT II: Biology E/M Practice Test 1 SAT II: Biology E/M Practice Test 2 SAT II: Biology E/M Practice Test 3 Biology-M Practice Tests SAT II: Biology E/M Practice Test 4 SAT II: Biology E/M Practice Test 5 SAT II: Biology E/M Practice Test 6 ANSWER SHEETS EXCERPT About Research & Education Association Research & Education Association (REA) is an organization of educators, scientists, and engineers specializing in various academic fields. Founded in 1959 with the purpose of disseminating the most recently developed scientific information to groups in industry, government, high schools, and universities, REA has since become a successful and highly respected publisher of study aids, test preps, handbooks, and reference works. REA''s Test Preparation series includes study guides for all academic levels in almost all disciplines. Research & Education Association publishes test preps for students who have not yet completed high school, as well as high school students preparing to enter college. Students from countries around the world seeking to attend college in the United States will find the assistance they need in REA''s publications. For college students seeking advanced degrees, REA publishes test preps for many major graduate school admission examinations in a wide variety of disciplines, including engineering, law, and medicine. 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Preparing for the Biology AP Exam Springer Science & Business Media

A grand challenge of the 21st century is to understand the response of ecosystems and populations of species to environmental variability and intensifying climate change. My dissertation focuses on the potential for changing environmental conditions to influence marine food webs, foraging ecology, and ultimately population success of consumers. I combined biogeochemical tools (stable isotope analyses) of zooplankton and endangered leatherback turtles with measures of oceanography and environmental conditions to evaluate changes in foraging ecology and food web dynamics over time. My research specifically focuses on long-term trends in the foraging ecology and habitat use of Atlantic and Pacific leatherback turtles and how environmental variability in the Pacific may alter food web dynamics in a critical foraging area for a declining leatherback population. My first two chapters were focused on leatherback turtles, a cosmopolitan species with populations inhabiting tropical and temperate regions throughout the global ocean. In Chapter 1, I examined the trophic ecology of North Atlantic leatherbacks over an eighteen-year period to test the hypothesis that shifts in foraging ecology or environmental conditions in the North Atlantic have contributed to leatherback population recovery. In Chapter 2, I focused on a subgroup of the critically endangered Western Pacific leatherback population that forages in the California Current. Here, I addressed questions about their diet, habitat use, and the trophic structure of leatherback prey in the California Current Large Marine Ecosystem (CCLME). These two chapters allowed me to better understand whether the continuing decline of Pacific leatherbacks was related to dietary differences potentially driven by variability in environmental conditions between ocean basins as the North Atlantic population of turtles are steadily increasing. In Chapter 3, I investigated ecosystem responses to a multi-year, warm water anomaly (a marine heatwave and strong El Ni ñ o event) in the CCLME, which is a productive upwelling system that supports the biomass of many commercially and ecologically important species, including the leatherback population that Chapter 2 focused on. My findings illustrate mechanisms through which the amount of energy transferred to higher trophic level consumers is altered by environmental variability in the CCLME. In my first three chapters, I used stable isotope analyses, which can be a valuable tool for reconstructing patterns of trophic or foraging ecology over time. However, archived tissues that are used for analyses are often stored in chemical preservatives, which may affect their potential for use in isotope ecology. In Chapter 4, I conducted laboratory experiments to test the effects of common chemical preservatives on stable isotope values to better understand how we can best use preserved and archived tissues in future studies. My research provides insight into the trophic ecology and habitat use of an endangered marine consumer. Although I found no differences in trophic position between leatherback conspecifics, environmental conditions in the North Atlantic may have contributed to the recent increases in this population. My research elucidates the effects of a strong environmental perturbation on the California Current food web, which is a productive upwelling region used by many commercially important and protected species. This work provides trophic position estimates for two leatherback populations, several gelatinous zooplankton species, and calanoid copepods in the California Current, which can be incorporated into future ecosystem or habitat models and used for ecosystem-based management of marine resources. Furthermore, my results contribute to our understanding of temporal trends in foraging ecology and food web responses to environmental variability and anomalous warming, which is useful for predicting ecosystem responses to future climate change scenarios.

Excel Science Study Guide, Years 7-8 John Wiley & Sons

Biology Quick Study Guide & Workbook: Trivia Questions Bank, Worksheets to Review Homeschool Notes with Answer Key PDF (Biology Self Teaching Guide about Self-Learning) includes revision notes for problem solving with 800 trivia questions. Biology quick study guide PDF book covers basic concepts and analytical assessment tests. Biology question bank PDF book helps to practice workbook questions from exam prep notes. Biology quick study guide with answers includes self-learning guide with 2000 verbal, quantitative, and analytical past papers quiz questions. 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Crab Wars Research & Education Assoc.

Avian Influenza provides the first comprehensive guide covering the full spectrum of this complex and increasingly high-profile disease, its history and its treatment and control. All aspects of avian influenza are dealt with in depth, systematically covering biology, virology, diagnostics, ecology, epidemiology, clinical medicine, and the control. The book fuses coverage of the latest discoveries in the basic sciences with a practical approach to dealing with the disease in a clinical setting, and providing instruction and guidance for veterinarians and government animal health officials encountering this disease in the field. Avian Influenza provides the reader with a global perspective, bringing together chapters written by leading animal health researchers and veterinarians with significant experience working with this disease. Providing a summary and synthesis of important data and research on this virus, its impact on both wild and domesticated birds, and approaches to controlling the spread of the disease, Avian Influenza will be an invaluable resource for all veterinarians, scientists, animal health professionals, and public health officials dealing with this virus. * Covers full range of topics within avian influenza in one comprehensive and authoritative text * Provides a summarization of peer-reviewed and empirical data on avian influenza viruses, the infection and diseases they cause * Discusses strategies used in control of the disease * Leading experts are drawn together to provide an international and multi-disciplinary perspective * Fuses latest developments in basic scientific research with practical guidance on management of the disease

Biology for AP ® Courses CRC Press

Chronicles the activist career of Barry Commoner, one of the most influential American environmental thinkers, and his role in recasting the environmental movement after World War II. For over half a century, the biologist Barry Commoner has been one of the most prominent and charismatic defenders of the American environment, appearing on the cover of Time magazine in 1970 as the standard-bearer of "the emerging science of survival." In Barry Commoner and the Science of Survival, Michael Egan examines Commoner's social and scientific activism and charts an important shift in American environmental values since World War II.Throughout his career, Commoner believed that scientists had a social responsibility, and that one of their most important obligations was to provide citizens with accessible scientific information so they could be included in public debates that concerned them. Egan shows how Commoner moved naturally from calling attention to the hazards of nuclear fallout to raising public awareness of the environmental dangers posed by the petrochemical industry. He argues that Commoner's belief in the importance of dissent, the dissemination of scientific information, and the need for citizen empowerment were critical planks in the remaking of American environmentalism. Commoner's activist career can be defined as an attempt to weave together a larger vision of social justice. Since the 1960s, he has called attention to parallels between the environmental, civil rights, labor, and peace movements, and

connected environmental decline with poverty, injustice, exploitation, and war, arguing that the root cause of environmental problems was the American economic system and its manifestations. He was instrumental in pointing out that there was a direct association between socioeconomic standing and exposure to environmental pollutants and that economics, not social responsibility, was guiding technological decision making. Egan argues that careful study of Commoner's career could help reinvigorate the contemporary environmental movement at a point when the environmental stakes have never been so high.

Zoology Multiple Choice Questions and Answers (MCQs) Oxford University Press

Why do we need mathematical modelling Ecological modelling yields more general understanding and theory and provides testable and robust predictions. In particular, it is currently reaching the "next level" towards predictive and re-usable theory that can support environmental decision-making (Evans et al. 2013b). Therefore, in this dissertation work, I applied mathematical modelling to bridge pure mathematic theory with real ecology problems into two sections: (1) testing and understanding the impact of dispersal on total population size in a heterogeneous environment; (2) understanding and simulating the impact of biological control on an invasive plant and the long term dynamic change of the ecosystem in southern Florida. Could we have larger total population than total carrying capacity in a heterogeneous environment? Carrying capacity is a fundamental concept in ecology. An assumption in most non-spatial population models is that there is an upper limit on the size of the population, its carrying capacity, which is governed by the limiting resource. For example, for a plant population, this is typically space, light, or a nutrient. When the concept of carrying capacity is extended to an environment of spatially heterogeneous resources, the usual approach is to assume that the summation over the local carrying capacities yields the total carrying capacity of the whole domain. However, when the population disperses randomly in this domain, mathematical models predict that the upper limit on population size is no longer the summation over local carrying capacities. In studying a population in a two-patch system with logistic growth on each patch, where the per capita growth rates when the population is close to zero, r, and carrying capacities, K, differ on the two patches. When the two patches are connected by rapid diffusion and there is a relationship r1/K1 > r2/K2 for K1 > K2 between K and r of the two patches, the total population can reach a higher total steady state, or equilibrium, size than the sum of the subpopulations on the two patches without any connection. A mathematical derivation of a similar result was made, that considered a population of consumers in a continuous environment described by a reaction-diffusion equation with spatially varying carrying capacity (identical to the maximum growth rate), and showed that the total steady state size of a dispersed population exceeded the summation over all local carrying capacities for all diffusion rates. Further studies extended these results for both continuous spatial and multi-patch systems for populations with logistic growth in which parameters governing growth rate and carrying capacity could vary independently spatially, showing that the results held for small diffusion rates when a positive relationship existed between r and K, and for all diffusion rates when r is an accelerating convex function of K. Still, rigorous empirical validation of this "paradox" is generally lacking, so it is not known whether these results apply to real populations. Testing these results in the field or experimentally is further complicated by the fact that real populations are usually limited by exploitable resources, whereas the resources in previous models are assumed non-exploitable and not influenced by feedback from the consumer. Thus, it is not known how this more complex situation would change the results and other mathematical models. What is the long-term impact of biological control on an invasive species and our natural ecosystem? Melaleuca quinquenervia (Cav.) Blake (common names: melaleuca, paper bark, punk tree; Family, Myrtaceae, referred to as melaleuca thereafter) is a large (25-30m tall) native Australian tree introduced into the Florida landscape during the late 19th century for pulp production and ornamental purposes. It has strong invasive attributes, such as ecological fire adaptation and high reproductive potential. A single 10-m tall open-grown tree can store over 20 million seeds in its capsules at any given time. By the end of the 1900s melaleuca had spread over 200,000 ha of ecologically sensitive freshwater ecosystems of southern Florida displacing native vegetation such as slash pine (Pinus elliottii Engelm.) and pond cypress (Taxodium ascendens Brong.), threatening native biodiversity. Melaleuca invasion has caused adverse economic and environmental impacts to southern Florida, with the loss valued, 16 years ago, at nearly $30 million per year. Predicting the effects of invading species such as melaleuca is of current general interest because of the ecological and environmental damage of many invading species. The difficulty of making predictions of the establishment and spread has been pointed out. Modelling has been applied to make predictions of future spread in many cases, including both niche modeling and mechanistic models. Various control methods have been applied in many cases, including the use of biocontrol agents that are natural enemies of the pest species. Because use of both biocontrol and other methods of control is costly, prediction of the efficacy of control is equally urgent. The long-term success of biocontrol is still uncertain, so modeling has been used in a number of cases of invasive species, including plant species. Research objectives: The main objective of my dissertation research is to contribute to addressing these two questions as follows: In Chapter 2, I first aimed to determine if the mathematical result and others has relevance to empirical systems. That is, will a diffusing population in an environment with spatially varying resources reach a higher total equilibrium biomass than the population in the same environment without diffusion? The second objective is to test the mathematical result that a hump-shaped pattern appears when the equilibrium biomass is plotted as a function of the rate of diffusion. In Chapter 3, I tested three hypotheses suggested by the earlier mathematical results. Hypothesis 1: when a consumer exists in a domain with a heterogeneously distributed input of exploitable limiting resource, the steady state population can reach a greater size when it disperses than when it does not. Hypothesis 2: the higher population in a heterogeneous environment with diffusion is concomitant with a positive relationship of growth rate and carrying capacity. Hypothesis 3: a consumer population diffusing randomly in a domain with a heterogeneously distributed input of exploitable limiting resource can reach a greater steady state size than a population diffusing (or not) in a domain with the same total input of resources spread homogeneously in the domain. We utilized a budding yeast population to test these hypotheses experimentally, and, thereafter, used mathematical analysis to extend previous mathematical models to this case of exploitable resources. In Chapter 4, the objective is to improve understanding of the possible effects of herbivory on the landscape dynamics of melaleuca in native southern Florida plant communities. To do that, I projected likely future changes in plant communities using the individual based modeling platform, JABOWA-II, by simulating successional processes occurring in two types of southern Florida habitat, cypress swamp and bay swamp, occupied by native species and melaleuca, with the impact of insect herbivores. In Chapter 5, my goal is to estimate the rate of defoliation needed to achieve a specified reduction in the growth rate under various conditions of nutrient availability to the tree and how it might change its allocations to foliage and roots in an optimal way.

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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.