M. W. Cadotte, **S. M. McMahon**, University of Tennessee, Knoxville, USA; **T. Fukami**, University of Hawaii at Manoa, Honolulu, USA (Eds.)

Conceptual Ecology and Invasions Biology: Reciprocal Approaches to Nature

The conservation threat represented by invasive species is well-known, but the scientific opportunities are underappreciated. Invasion studies have historically been largely directed at the important job of collecting case studies. Invasion biology has matured to the point of being able to incorporating itself into the heart of ecology, and should be viewed as extensions or critical experiments of ecological theory.
In this edited volume, global experts in ecology and evolutionary biology explore how theories in ecology elucidate the invasion processes while also examining how specific invasions informs ecological theory. This reciprocal benefit is highlighted in a number of scales of organization: population, community and biogeographic, while employing example invaders in all major groups of organisms and from a number of regions around the globe. The chapters in this volume utilize many of the cutting edge observational, experimental, analytical and computational methods used in modern ecology.

Features
► Highlights how theory can be used to understand species invasionsExamines invasions across many spatial and temporal scales ► Utilizes many of the most up-to-date experimental, analytical and computational methods

Field of interest
Ecology

Target groups
Scientists, researchers and graduate students working/studying ecology, evolutionary biology, conservation or invasion biology

Discount group
P

Due May 2006

2006. XIX, 505 p. (Invading Nature - Springer Series in Invasion Ecology, Volume 1)
Hardcover
ISBN 1-4020-4157-8 ► **$129.00**

Softcover
ISBN 1-4020-4158-6 ► **$49.00**

P. Déjardin, Université de Montpellier, France (Ed.)

Proteins at Solid-Liquid Interfaces

This book opens with a description of fundamental aspects of protein adsorption to surfaces, a phenomenon that plays a key role in biotechnological applications, especially at solid-liquid interfaces. Presented here are methods for studying adsorption kinetics and conformational changes such as optical waveguide lightmode spectroscopy (OWLS). Also described are sensitive bench techniques for measuring the orientation and structure of proteins at solid-liquid interfaces, including total internal reflection ellipsometry (TIRE), dual polarisation interferometry (DPI) and time of flight - secondary ion mass spectrometry (TOF–SIMS). A model study of fibronectin at polymer surfaces is included, as are studies using microporous membranes and textiles with immobilized enzymes for large-scale applications. Biocompatibility, anti-fouling properties and surface modification to modulate the adsorption and activity of biomolecules are among the other topics addressed in this invaluable book.

Field of interest
Biotechnology

Target groups
Scientists and graduate students in physical chemistry, biophysics, biochemistry and biotechnology; research engineers

Discount group
P

Due August 2006

2006. Approx. 300 p. (Principles and Practice) Hardcover
ISBN 3-540-32657-X ► **$199.00**

M. Dicke, **W. Takken**, Wageningen University, Wageningen, The Netherlands (Eds.)

Chemical Ecology

From Gene to Ecosystem

Chemical ecology is the ecology of body odour. Every organism uses chemical information in intra- and inter-specific interactions. Animals emit chemicals to attract a mate or to prevent a competitor from mating with the partner they just mated with. Plants emit chemicals to recruit other organisms to take care of their sex life or to attract bodyguards to defend them against their enemies. Chemical cues mediate a whole gamut of interactions in plant and animal communities. Chemical cues are used to communicate, but can also be exploited in espionage or eavesdropping. To understand the ecology of chemical signalling in communities one needs to carry out manipulative experiments. Such experiments have been done throughout the last century. However, in recent years the degree of precision with which such experiments can be done has grown tremendously as a result of rapidly increasing knowledge at the molecular-genetic level. This opens exciting new avenues to chemical ecologists.

From the contents
1. Chemical ecology: a multidisciplinary approach.- 2. Chemical communication: five major challenges in the postgenomic age.- 3. Plant-insect interactions in the era of consolidation in biological sciences: Nicotiana attenuata as an ecological expression system.- 4. The effect of host-root-derived chemical signals on the germination of parasitic plants.- 5. Chemical signalling between plants: mechanistic similarities between phytotoxic allelopathy and host recognition by parasitic plants.- 6. The chemosensory system of Caenorhabditis elegans and other nematodes.- 7. Variation in learning of herbivory-induced plant odours by parasitic wasps: from brain to behaviour.

Field of interest
Plant Sciences

Target groups
Scientists and students interested in ecology in general as well as those working in molecular, chemical, behavioural, population or community ecology

Discount group
P

Due May 2006

2006. Approx. 200 p. (Wageningen UR Frontis Series, Volume 16) Hardcover
ISBN 1-4020-4783-5 ► **$119.00**

N. A. Khan, Aligarh Muslim University, Aligarh, IN, USA (Ed.)

Ethylene Action in Plants

The plant hormone ethylene plays a prominent role among several intrinsic and extrinsic factors that control growth and physiology of plants. Its biological activity was discovered over a century ago. However, extensive studies on its mode of action came later.
To date, it is well documented that ethylene is a versatile signaling molecule that plays an important role in many physiological processes - like growth, senescence, fruit ripening, stress responses, symbioses, and photosynthesis. Molecular-genetic analyses have revealed mechanisms responsible for ethylene production, perception, and signal transduction. The present work brings into focus the recent developments on the biochemical, physiological, and molecular basis for ethylene action in plants.

Features
► Most up-to-date reference on ethylene action in plants

Contents
Interaction of Ethylene and Other Compounds with the Ethylene Receptor: Agonists and Antagonists.- Ethylene and Plant Growth.- Ethylene and Leaf Senescence.- Effect of Ethylene on Adventitious Root Formation.- Ethylene and Plant Responses to Abiotic Stress.- Ethylene in the Rhizobium-Legume Symbiosis.- The Role of Ethylene in the Regulation of Stem Gravitropic Curvature.- The Role of Ethylene in Fruit Ripening.- Ethylene Involvement in Photosynthesis and Growth.

Field of interest
Plant Physiology

Target groups
Scientists, researchers; libraries

Discount group
P

Due July 2006

2006. Approx. 250 p. 31 illus., 1 in color. Hardcover
ISBN 3-540-32716-9 ► **$159.00**

A. L. Koch, Indiana University, Bloomington, IN, USA

The Bacteria: Their Origin, Structure, Function and Antibiosis

The book's purpose is to explain from the development of life on earth to the evolution of diversity. It is this diversity that led, almost automatically to the development of pathogens and predators. The relationship of pathogens and host lead to the development of antibiotics and resistance mechanism. Man has extended this process and we now have a situation in which new antibiotics only are effective for a short time. If we are to create long term antibiotics we must design them with this history in mind.
Understanding antibiotic chemotherapy at the ecological level is necessary for more permanent advances in development and in the usage of antibiotic agents both old, new, and in the future.

Features
► Unique in its very broad perspective and its explanation of how medicine has arrived at its present position

From the contents
Preface. Legend to the Frontispiece. Part 1 Origin of Bacteria.- Part 2 Wall Structure.- Part 3 Bacterial Morphologies.- Part 4 Antibiosis.- References.

Field of interest
Microbiology

Target groups
Students, scientists, researchers

Discount group
P

Due May 2006

2006. Approx. 225 p. Hardcover
ISBN 1-4020-3205-6 ► **$119.00**

M. E. Lacey, **J. S. West**, Plant Pathogen Interactions, Harpenden, UK

The Air Spora

A manual for catching and identifying airborne biological particles

The Air Spora is an illustrated guide to trapping, identifying and quantifying airborne biological particles such as fungus and plant spores and pollen. This book will be of use to anyone interested in aerobiology or studying applied aspects such as dispersal and effect of allergens, or human, animal and plant pathogens. Including a comprehensive review of what is in the air and detailing the historical development of theories leading to modern aerobiology, the book explains the fundamental processes behind airborne dispersal and techniques used to sample, identify and quantify biological particles. Methods are explained in a step-by-step guide for the use of standard air sampling devices. Although formats applicable to modern molecular and immunological techniques are described, the emphasis of the book is on simple visual identification of particles in air samples using traditional microscopy.

Features
► Comprehensive review of the history, equipment and techniques used in aerobiology ► Over 340 colour paintings of airborne particles to unified scale for help in identification ► Illustrated laboratory guide for trapping and counting of airborne particles ► No other book of its type ► Accessible to and understandable by non-specialists ► Comprehensive guide to aerobiology

From the contents
1. Introduction to Aerobiology.- 2. The Aerobiology Pathway.- 3. Air Sampling Techniques.- 4. Using a Burkard Trap.- 5. Using a microscope.- 6. Pollen and spore counts.- 7. Identification.- Appendix.- Glossary.- References.

Field of interest
Plant Pathology

Target groups
University and institute research scientists, plant pathologists, those making the daily pollen count and working on airborne allergens and diseases; libraries

Discount group
P

Due May 2006

2006. Approx. 150 p.
ISBN 0-387-30252-2 ► **$119.00**

B. Laurent, Mount Sinai School of Medicine, New York, NY, USA (Ed.)

Chromatin Dynamics in Cellular Function

This volume includes timely reviews of several aspects of chromatin biology written by scientists at the forefront of this rapidly moving field. Topics covered include the structure and function of protein modules within chromatin-remodeling proteins, newly characterized histone modifications (methylation, ubiquitylation) and their functional consequences, transcription and histone dynamics, roles of chromatin remodeling factors in DNA replication and repair, and current models of nucleosome-remodeling mechanisms.

Features
► Latest developments in chromatin biology - tellingly summarized by experts from the forefront of the field

Contents
Structure and Function of Protein Modules in Chromatin Biology.- The Generation and Recognition of Histone Methylation.- Histone Ubiquitylation and the Regulation of Transcription.- Histone Dynamics During Transcription: Exchange of H2A/H2B Dimers and H3/H4 Tetramers During pol II Elongation.- The Roles of Chromatin Remodelling Factors in Replication.- Chromatin Modifications in DNA Repair.- Mechanisms for Nucleosome Movement by ATP-dependent Chromatin Remodeling Complexes.

Field of interest
Cell Biology

Target groups
Scientists and researchers

Discount group
P

Due June 2006

2006. Approx. 140 p. 12 illus., 5 in color. (Results and Problems in Cell Differentiation, Volume 41) Hardcover
ISBN 3-540-33685-0 ► **$89.95**

P. Narins, University of California, Los Angeles, CA, USA; **A. S. Feng**, University of Illinois, Urbana, IL, USA; **R. R. Fay**, Loyola University, Chicago, IL, USA; **A. N. Popper**, University of Maryland, College Park, MD, USA (Eds.)

Hearing and Sound Communication in Amphibians

As models for vertebrate auditory systems, amphibians have been the source of extensive, ground-breaking research on hearing, the nervous system and acoustic communication. This comprehensive review covers key issues in amphibian hearing and communication in depth. Topics are relevant to auditory research, neuroethology, herpetology, animal behavior and bioacoustics.

Contents
Hearing and sound communication in amphibians: Prologue and Prognostication.- An Integrated Phylogeny of Amphibia.- The Behavioral Ecology of Anuran Communication.- Call production and Neural Basis of Vocalization.- Recognition and Localization of Acoustic Signals.- Pathways for Sound Transmission to the Inner Ear in Amphibians.- Anatomy, Physiology and Function of Auditory End Organs in the Frog Inner Ear.- Central Auditory Pathways in Anuran Amphibians: The Anatomical Basis of Hearing and Sound Communication.- Function of the Amphibian Central Auditory System.- Plasticity in the Auditory System Across Metamorphosis.- Sound Processing in Real-World Environments.

Field of interest
Animal Physiology

Target groups
Senior undergraduates, physiologists, zoologists, evolutionary biologists and communication specialists

Discount group
P

Due July 2006

2006. Approx. 529 p. 91 illus. (Springer Handbook of Auditory Research, Volume 28) Hardcover
ISBN 0-387-32521-2 ► **$149.00**

Nucleic Acids and Molecular Biology

Volume 18

H. Bandelt, University of Hamburg, Germany; **M. Richards**, University of Leeds, UK; **V. Macaulay**, University of Glasgow, UK (Eds.)

Human Mitochondrial DNA and the Evolution of Homo sapiens

Mitochondrial DNA is one of the most explored genetic systems because of what it can tell us about the human past. This volume takes a unique perspective, presenting the disparate strands that must be tied together to exploit this system. From molecular biology to anthropology, statistics to ancient DNA, this first volume of three presents the global picture of human mitochondrial DNA variation. It takes a critical look at the field, flagging the problems, as well as the successes, and always placing the mitochondrial phylogeny centre stage.

Features
► Represents an unique analysis of the connection between variations in human mitochondrial DNA and the human past

Contents
Prerequisites and caveats. Mitochondrial DNA in Homo sapiens.The transmission and segregation of mitochondrial DNA in Homo sapiens. Numts revisited. Estimation of mutation rates and coalescence times: some caveats. Postmortem damage of mitochondrial DNA. Lab-specific mutation processes.- Evolution of human mtDNA. The world mtDNA phylogeny. The pioneer settlement of modern humans in Asia. Ancient DNA and the Neanderthals. A model for the dispersal of modern humans out of Africa.

Field of interest
Human Genetics

Target groups
Scientists and researchers

Discount group
MR

Due June 2006

2006. Approx. 250 p. 31 illus., 2 in color. Hardcover
ISBN 3-540-31788-0 ► **$139.00**

K. Omasa, University of Tokyo, Japan; **I. Nouchi**, National Institute for Agro-Environmental Sciences, Ibaraki, Japan; **L. J. De Kok**, University of Groningen, The Netherlands (Eds.)

Plant Responses to Air Pollution and Global Change

The main impetus for climate change is the elevated concentration of CO2 in the atmosphere. Carbon dioxide and air pollutants arise largely from the same industrial sources and are diffused throughout the world, so that air pollution is also part of global change. The impacts on plants have complex interrelationships and lead to changes in land cover and atmospheric and soil environments. Plant metabolism of CO2 and air pollutants and gas fluxes in plant ecosystems influence global gas cycles as well. This book includes current topics on plant metabolism of air pollutants and elevated CO2, responses of whole plants and plant ecosystems, genetics and molecular biology for functioning improvement, experimental ecosystems and climate change research, global carbon-cycle monitoring in plant ecosystems, and other important issues. The authors, conducting research in Europe, the United States, Australia, and East Asia, present a wealth of information on their work in the field.

Contents
Plant Responses to Air Pollution.- Plant Responses to Climate Change.- Plant Responses to Combination of Air Pollution and Climate Change.- Genetics and Molecular Biology for Functioning Improvement.- Experimental Ecosystem and Climate Change Research.- Global Carbon Cycles in Ecosystem and Assessment of Climate Change Impacts.- Air Pollution and Global Change in Asia.- Index.

Field of interest
Plant Sciences

Target groups
Scientists, researchers

Discount group
P

Due May 2006

2006. XVIII, 304 p. Hardcover
ISBN 4-431-31013-4 ► **$139.00**

C. J. Ondersteijn, **J. H. Wijnands**, **R. B. Huirne**, **O. van Kooten**, Wageningen University, The Netherlands (Eds.)

Quantifying the Agri-Food Supply Chain

Due to globalization and internationalization of agri-food production, the arena of competition and competitive advantage is moving from individual firms operating on spot markets towards supply chains and networks. Therefore, coordination between firms within the chain becomes more important. Topics like costs, efficiency, risk and investment analysis have received little empirical attention within chain and network research. Nonetheless, these performance measures are of vital importance for continuity of individual companies, chains and networks.
This book aims at offering a coherent view on this matter by discussing the possibilities and limitations of quantifying performance, risks and investments in the agri-food chain. A wide variety of approaches from different economic disciplines was used to analyse the complex systems of agri-food supply chains and develop appropriate models for management decision support. enhance progress in this field.

Features
► Coherent view on agri-food supply chain ► Management decision support for complex agri-food systems ► Approaches of quantifying performance, risks and investment in agri-food systems

From the contents
Preface.- Introduction.- Measuring performance in agri-food chains.- Sharing costs, benefits, and risk in agri-food chains.- Modelling agri-food chains.- The value of information in agri-food chains.- Supply chain organization and chain performance.- List of participants.

Field of interest
Life Sciences, general

Target groups
Management studies, agri-food supply chains, industrial organization, business economics

Discount group
P

Due May 2006

2006. Approx. 240 p. (Wageningen UR Frontis Series, Volume 15) Hardcover
ISBN 1-4020-4692-8 ► **$99.00**

K. Ozaki, Forestry and Forest Products Research Institute, Tsukaba, Japan; **J. Yukawa**, Kyushu University Museum, Fukuoka, Japan; **T. Ohgushi**, Kyoto University, Shiga, Japan; **P. W. Price**, Northern Arizona University, Flagstaff, AZ, USA (Eds.)

Galling Arthropods and Their Associates: Ecology and Evolution

This book addresses recent developments in the ecology, evolution, systematics, physiology, and biodiversity of gall-inducing arthropods, with individual contributions ranging in scope from detailed descriptions to profoundly synthetic studies. One underlying theme is the various impacts of gall induction that indirectly affect insect communities on the host plant. The other important contribution is the highly intricate and dynamic interactions between galling arthropods and their uniquely specialized host plants. Included also are chapters that discuss biodiversity and distribution patterns of gall-inducing arthropods, and biological control of invasive gall-inducing arthropods. This work represents an important contribution to the knowledge of galling arthropods and their associates and to the development of robust, general principles of their ecology and evolution. As such, it is an indispensable reference source for scientists and practitioners.

Contents
Preface.- Biodiversity and Community Structure.- Biological Control and Galling Arthropods.- Galling Arthropods - Plant Interactions.- Indirect Effects of Galling Arthropods.- Evolution and Taxonomy.- Index.

Field of interest
Biodiversity

Target groups
Scientists, researchers in libraries

Discount group
P

Due May 2006

2006. XIV, 304 p. Hardcover
ISBN 4-431-32184-5 ► **$159.00**

G. H. Pollack, University of Washington, Seattle, WA, USA; **I. L. Cameron**, UTHSCSA, San Antonio, TX, USA; **D. N. Wheatley**, BioMedES, Aberdeen, UK (Eds.)

Water and the Cell

This book deals with the role of water in cell function. Though long recognized to be central to cell function, water's role has not received the attention lately that it deserves. This book brings the role of water front and central. It presents the most recent work of the leading authorities on the subject, culminating in a series of sometimes astonishing observations.
Water is a subject of interest to virtually everyone. It is becoming increasingly important in health therapy, in the environment, in chemistry and physics, and certainly in cells. Thus, this groundbreaking volume will be of great interest to a broad audience, well beyond those in biology alone.
The reader will be richly awarded with insights difficult or impossible to obtain in current textbooks, which generally treat water merely as a background carrier with limited significance.

Features
► Unique book dealing with water
► Contributions by world experts

From the contents
A Convergence of Experimental and Theoretical Breakthroughs Affirms the PM theory of Dynamically Structures Cell Water on the Theory's 40th Birthday.- Molecular Basis of Articular Disk Biomechanics: Fluid Flow and Water Content in the Temporomandibular Disk as related to distribution of sulfur.- Coherent domains in the streaming of cytoplasm of a giant algal cell.- The glassy state of water: A "stop and go" device for biological processes.- Information exchange within intracellular water.- Biology's unique phase transition drives cell function.- The effects of static magnetic fields, low frequency electromagnetic field and mechanical vibration on some physicochemical properties of water.

Field of interest
Cell Biology

Target groups
Research workers in biology, biochemistry, chemistry, bioengineering, pathology, industries interested in water purification; alternative health industries; libraries

Discount group
P

Due August 2006

2006. Approx. 300 p. Hardcover
ISBN 1-4020-4926-9 ► **$59.95**

B. Schulz, Technische Universität Braunschweig, Germany; **C. J. Boyle**, Görlitz, Germany; **T. N. Sieber**, ETH Zurich, Switzerland (Eds.)

Microbial Root Endophytes

Plant roots may not only be colonized by mycorrhizal fungi, but also by a myriad of bacterial and fungal root endophytes that are usually not considered by the investigators of classic symbioses. This is the first book dedicated to the interactions of non-mycorrhizal microbial endophytes with plant roots.
The phenotypes of these interactions can be extremely plastic, depending on environmental factors, nutritional status, genetic disposition and developmental stages of the two partners. The book deals with diversity, life history strategies, interactions, applications in agriculture and forestry, methods for isolation, cultivation, and both conventional and molecular methods for identification and detection of these endophytes. The comprehensive reviews demonstrate the high diversity of interactions and will provoke further studies to better understand the mechanisms which determine whether a plant-microbial interaction remains asymptomatic, leads to disease or to a mutualistic interaction.

Features
► First comprehensive book covering all aspects of non-mycorrhizal microbial endophytic interactions ► With contributions by internationally recognized experts

Field of interest
Microbial Ecology

Target groups
Students and scientists in botany, ecology, agriculture, forestry, microbiology, and soil biology

Discount group
P

Due May 2006

2006. Approx. 300 p. (Soil Biology, Volume 9) Hardcover
ISBN 3-540-33525-0 ► **$199.00**

A. G. Volkov, Oakwood College, Huntsville, AL, USA (Ed.)

Plant Electrophysiology

Theory and Methods

As a pioneering work on plant electrophysiology, this exciting reference compiles new findings from the work of internationally renowned experts in the fields of electrophysiology, bio-electrochemistry, biophysics, signal transduction, phloem transport, tropisms, ion channels, plant electrochemistry, and membrane transport.
The book starts with a historical introduction to plant electrophysiology, followed by two distinct parts. The first one deals with methods in plant electrophysiology, including, amongst others, measuring membrane potentials and ion fluxes, path-clamp technique, and electrochemical sensors. The second part covers experimental results and their theoretical interpretation.

Features
► First book solely devoted to plant electrophysiology, a research field that becomes more and more important

From the contents
Methods of Plant Electrophysiology. Historical Introduction to Plant Electrophysiology. Electrochemical Methods and Measuring Transmembrane Ion. Non-Invasive Microelectrode Ion Flux Measurements In Plant Stress Physiology. Electrochemical Sensor Applications to the Study of Molecular Physiology and Analyte Flux in Plants. The Use of Non-invasive Ion-selective Microelectrode Techniques for the Study of Plant Development. The Use of Double Barrel Micropipettes to Voltage-Clamp Plant and Fungal Cells. New Solid State Microsensors in Plant Physiology. Electrophysiological Characterization of Plant Cation Channels. Magnetic Measurements in Plant Electrophysiology. Plant Electrophysiology. Electrogenic Pumps. Effects of Electrical and Electromagnetic Fields on Plants and Related Topics. Long-distance Electrical Signaling and Physiological Functions in Higher Plants. Potassium Homeostasis in Salinized Plant Tissues.

Field of interest
Plant Physiology

Target groups
Scientists, researchers; libraries

Discount group
P

Due August 2006

2006. Approx. 530 p. 140 illus., 27 in color. Hardcover
ISBN 3-540-32717-7 ► **$259.00**