Pollination Biology
Biodiversity Conservation and Agricultural Production

This book has a wider approach not strictly focused on crop production compared to other books that are strictly oriented towards bees, but has a generalist approach to pollination biology. It also highlights relationships between introduced and wild pollinators and consequences of such introductions on communities of wild pollinating insects. The chapters on biochemical basis of plant-pollination interaction, pollination energetics, climate change and pollinators and pollinators as bioindicators of ecosystem functioning provide a base for future insights into pollination biology. The role of honeybees and wild bees on crop pollination, value of bee pollination, planned honeybee pollination, non-bee pollinators, safety of pollinators, pollination in cages, pollination for hybrid seed production, the problem of diseases, genetically modified plants and bees, the role of bees in improving food security and livelihoods, capacity building and awareness for pollinators are also discussed.

Features
- Modern approaches in pollination such as energetics of pollination
- Biochemical basis of pollination
- Dangers resulting from pollination crisis

From the contents

Fields of interest
Entomology; Agriculture; Conservation Biology/ Ecology

Target groups
Research

Type of publication
Monograph

Due September 2011
2012. XX, 430 p. 16 illus., 6 in color. Hardcover
- approx. € 149,95 | £135.00
- approx. * £ (D) 160,45 | € (A) 164,94 | sFr 215,00

C. L. Argue, University of Minnesota, Saint Paul, MN, USA

The Pollination Biology of North American Orchids: Volume 1
North of Florida and Mexico

Recent studies have revealed remarkable complexity and diversity in orchid-pollinator relationships. These studies comprise a vast literature currently scattered in numerous, often obscure, journals and books. The Pollination Biology of North American Orchids brings together, for the first time, a comprehensive treatment of this information for all native and introduced North American orchids found north of Mexico and Florida. It provides detailed information on genetic compatibility, breeding systems, pollinators, pollination mechanisms, fruiting success, and limiting factors for each species. Distribution, habitat, and floral morphology are also summarized.

Features
- Comprehensive treatment of the reproductive biology of North American orchids
- Collects and reviews this information for all orchid species in North America north of Florida and Mexico
- Provides a long-term base of reference

Contents
Introduction.- Cypripedium L. (the lady’s-slipper).- Introduction.- Section Acaulia.- Section Obtusipetala.- Section Cypripedium.- Sections Arietinum and Enantiopetalum.- Sections Irapeana and Bibolia.- Platanthera L., Introduction.- Limnorchis Group.- Platanthera Group.- Lacera Group.- Blephariglottis Group.- Platantheras of unknown alignment.- Other Orchideae.- Glossary

Fields of interest
Plant Sciences; Plant Anatomy/Development; Plant Breeding/Biotechnology

Target groups
Graduate

Type of publication
Monograph

Due September 2011
2011. XX, 480 p. 199 illus., 90 in color. (Cellular Origin, Life in Extreme Habitats and Astrobiology; Volume 21) Hardcover
- € 149,95 | £135.00
- approx. * £ (D) 160,45 | € (A) 164,94 | sFr 215,00
ISBN 978-94-007-1304-1

A. V. Altenbach, Ludwig-Maximilians-University, Munich, Germany; J. M. Bernhard, Wood Hole Oceanographic Institution, MA, USA; J. Seckbach, The Hebrew University of Jerusalem, Israel (Eds.)

Anoxia
Evidence for Eukaryote Survival and Paleontological Strategies

ANOXIA defines the lack of free molecular oxygen in an environment. In the presence of organic matter, anaerobic prokaryotes produce compounds such as free radicals, hydrogen sulfide, or methane that are typically toxic to aerobes. The concomitance of suppressed respiration and presence of toxic substances suggests these habitats are inhospitable to Eukaryota. Ecologists sometimes term such environments ‘Death Zones’. This book presents, however, a collection of remarkable adaptations to anoxia, observed in Eukaryotes such as protists, animals, plants and fungi. Case studies provide evidence for controlled beneficial use of anoxia by, for example, modification of free radicals, use of alternative electron donors for anaerobic metabolic pathways, and employment of anaerobic symbionts. The complex, interwoven existence of oxic and anoxic conditions in space and time is also highlighted as is the idea that eukaryotic inhabitation of anoxic habitats was established early in Earth history.

Features
- Reveals eukaryotic strategies in anoxic environments
- Includes cutting-edge research, data and hypotheses never before published
- Offers also fundamental introductions, overviews and an exhaustive collection of literature for advanced studies

Fields of interest
Ecology; Eukaryotic Microbiology; Biogeosciences

Target groups
Upper undergraduate

Type of publication
Contributed volume

Due November 2011
2012. 249 p. 42 illus. Hardcover
- approx. € 139,95 | £126.50
- approx. * £ (D) 149,75 | € (A) 153,94 | sFr 201,00
ISBN 978-3-642-15039-7
The Pollination Biology of North American Orchids: Volume 2
North of Florida and Mexico

Recent studies have revealed remarkable complexity and diversity in orchid-pollinator relationships. These studies comprise a vast literature currently scattered in numerous, often obscure, journals and books. The Pollination Biology of North American Orchids brings together, for the first time, a comprehensive treatment of this information for all native and introduced North American orchids found north of Mexico and Florida. It provides detailed information on genetic compatibility, breeding systems, pollinators, pollination mechanisms, fruiting success, and limiting factors for each species. Distribution, habitat, and floral morphology are also summarized. In addition, detailed line drawings emphasize orchid reproductive organs and their adaptation to known pollinators.

Contents
Subtribes Goodyrinae and Cranichidinae
Goodyrinae.- Subtribe Spiranthinae.- Tribe Neotieae.- Tribe Triphoreae.- Tribe Calypsoeae.- Tribes Cymbidieae and Epidendreae.- Tribe Malaxideae.- Tribe Goodyerinae.- Subtribe Spiranthinae.- Tribe Neotieae.- Tribe Triphoreae.- Tribe Calypsoeae.- Tribes Cymbidieae and Epidendreae.- Tribe Malaxideae.- Tribe Goodyerinae.- Subtribe Cranichidinae; Epidendroideae subgroups, the Neotieae, Triphoreae, Malaxideae, Calypsoeae, Cymbidieae, Epidendreae, and Arethuseae.- And Vanillidinae tribe Pogonieae.

Features
- Volume 2 contains three parts, Orchidoideae subgroups, Spiranthinae, Goodyerinae, and Cranichidinae; Epidendroideae subgroups, the Neotieae, Triphoreae, Malaxideae, Calypsoeae, Cymbidieae, Epidendreae, and Arethuseae.- And Vanillidinae tribe Pogonieae.
- Each part includes both an introductory section for each of the larger genera and a review of individual species within each genus.
- The treatment of specific groups of closely related species has the same format and consists of five parts.

Fields of interest
Plant Anatomy/Development

Type of publication
Monograph

Due November 2011
2012. 461 p. 71 illus., 60 in color. (Plant Genetics and Genomics: Crops and Models, Volume 4) Hardcover
- approx. €154,95 | £139.50
- approx. *e (D) 165,50 | (A) 170,44 | sFr 222,00
ISBN 978-0-387-70868-4

Tissue Engineering in Regenerative Medicine

Over the past decade, significant advances in the fields of stem cell biology, bioengineering, and animal models have converged on the discipline of regenerative medicine. Significant progress has been made leading from pre-clinical studies through phase 3 clinical trials for some therapies. This volume provides a state-of-the-art report on tissue engineering toward the goals of tissue and organ restoration and regeneration. Examples from different organ systems illustrate progress with growth factors to assist in tissue remodeling; the capacity of stem cells for restoring damaged tissues; novel synthetic biomaterials to facilitate cell therapy; transplantable tissue patches that preserve three-dimensional structure; synthetic organs generated in culture; aspects of the immune response to transplanted cells and materials; and suitable animal models for non-human clinical trials. The chapters of this book are organized into six sections: Stem Cells, Biomaterials and the Extracellular Environment, Engineered Tissue, Synthetic Organs, Immune Response, and Animal Models. Each section is intended to build upon information presented in the previous chapters, and set the stage for subsequent sections.

Features
- Provides a state-of-the-art report on tissue engineering toward the goals of tissue and organ restoration and regeneration.
- High quality color illustrations.

Fields of interest
Stem Cells; Cell Biology; Biotechnology

Target groups
Professional/practitioner

Type of publication
Contributed volume

Due October 2011
2011. X, 353 p. 55 illus., 43 in color. (Stem Cell Biology and Regenerative Medicine) Hardcover
- approx. €154,95 | £139.50
- approx. *e (D) 165,50 | (A) 170,44 | sFr 222,00
ISBN 978-3-642-07332-9

H. W. Bass, Florida State University, Tallahassee, FL, USA; J. A. Birchler, University of Missouri, Columbia, MO, USA (Eds.)

H. S. Bernstein, University of California, San Francisco, CA, USA (Ed.)
**Aralkum – a Man-Made Desert**

The Desiccated Floor of the Aral Sea (Central Asia)

Having been the fourth largest lake on the globe roughly 50 years ago, today the Aral Sea no longer exists. Human activities caused its desiccation and the formation of a huge new desert, the Aralkum, which can be regarded as one of the greatest ecological catastrophes and - at the same time - the largest primary succession experiment of mankind. This volume brings together the results of international and interdisciplinary long-term studies on the new desert ecosystem and is divided into four main sections. The first section provides an overview of the physical characteristics of the area and covers geological, pedological, geomorphological and climatological aspects and their dynamics, especially dust-storm dynamics. The second section focuses on the biotic aspects and highlights the spatial and temporal patterns of the flora and fauna. In the third section studies and projects aiming to combat desertification by phytomelioration and to develop strategies for the conservation of biodiversity are presented. The book is rounded off with a section providing a synthesis and conclusions.

**Features**
- A comprehensive review
- Written by experts
- Richly illustrated

**Fields of interest**
Terrestrial Ecology; Ecosystems; Plant Ecology

**Type of publication**
Contributed volume

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**Molecular Chaperones**

Methods and Protocols

The proteome consists of a complex mixture of proteins each of which need to be folded correctly in order to function for the health of the organism, and many of these proteins require molecular chaperones to reach the correct conformation and, in some cases, to remain in a folded form. In Molecular Chaperones: Methods and Protocols, expert researchers address a wide variety of approaches to the study these mechanisms, featuring the workings of heat shock proteins and heat shock transcription factors, in vitro and in vivo. Written in the highly successful Methods in Molecular Biology™ series format, chapters features introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Molecular Chaperones: Methods and Protocols serves as an ideal guide for all scientists who wish to pursue this vital biological action and its impact on human health and disease.

**Features**
- Approaches the study of heat shock transcription factors both in vivo and in vitro
- Features step-by-step protocols which are tested and ready for the lab
- Includes expert tips and vital implementation advice to ensure successful results

**Fields of interest**
Biochemistry, general; Proteomics

**Target groups**
Professional/practitioner

**Type of publication**
Contributed volume

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**Principles of Terrestrial Ecosystem Ecology**

This is the second edition of the bestselling textbook Principles of Terrestrial Ecosystem Ecology. The authorship team for the second edition has evolved and will consist of F. Stuart Chapin, III, Pamela A. Matson, and Peter M. Vitousek (formerly, Chapin, Matson, and Mooney). This brings new expertise in many of the conceptual advances in ecosystem ecology, including the interactions among element cycles, the scaling of ecosystem processes in space and time, and effects of global human actions on the biosphere. Vitousek will initially focus on the biogeochemical chapters, Matson on landscape and management chapters, and Chapin on the other chapters. Chapin will do the final editing of all chapters to insure consistency of style, and all of us will review the final product. Some of the specific changes to be made are listed in Appendix 1. There will be new ideas, information, citations, and appropriate figures to accommodate advances that have occurred since the first edition. The format of the book will remain similar, but about 10% of the figures will be in color.

**Features**
- This is the second edition of the bestselling textbook Principles of Terrestrial Ecosystem Ecology
- Brings new expertise in many of the conceptual advances in ecosystem ecology, including the interactions among element cycles, the scaling of ecosystem processes in space and time, and effects of global human actions on the biosphere
- Highlights new ideas, information, citations, and appropriate figures to accommodate advances that have occurred since the first edition

**Fields of interest**
Ecology; Terrestrial Ecology; Biodiversity

**Target groups**
Graduate

**Type of publication**
Undergraduate textbook

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Myogenesis
Methods and Protocols

Our understanding of the molecular and cellular mechanisms that control skeletal muscle development, regeneration, and adaptive responses to activity has increased dramatically in recent years, fostered by innovative techniques and approaches that are either specifically designed or adapted for research in skeletal muscle biology. Myogenesis: Methods and Protocols presents detailed, step-by-step methods in the study of the molecular and cellular biology of skeletal muscle cells. Protocols from different model systems including mammalian, avian, zebrafish, and invertebrate skeletal muscle are included in this volume. Highlighted topics cover a wide range of interests and expertise including myogenic and stem cell isolation, investigation of models of exercise and disuse, viral vector delivery systems, calcium imaging, cell profiling, as well as protein-DNA and protein-protein interactions. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Features
► Presents model systems and state-of-the-art techniques developed and perfected by leading researchers in the field
► Includes step-by-step protocols that are ready for the lab
► Features expert tips and key implementation advice in order to ensure successful results

Field of interest
Cell Biology

Target groups
Professional/practitioner

Type of publication
Contributed volume

The Theory of Evolution and Its Impact

Year 2009 was the triumph of Darwin as a global superstar, spinning from the pop icon to the actual understanding to what make him a great innovator, able to give a turn to whole modern culture. Does all this activity mean evolution has lost its ability to excite fear and opposition? After such a deluge of books, conferences, reviews, gadgets, what is today our vision on theory of Evolution and Its Impact? These are the questions asked at an inter-academy conference held in Torino (May 27-29, 2010) among the Accademia delle Scienze di Torino, the Accademia Nazionale dei Lincei and the Berlin-Brandenburgische Akademie der Wissenschaften. The present book collects the contributions of the meeting, mixing styles, arguments, topics, history and philosophy of science, modern biology and epistemology. This kind of inter-disciplinary approach may appear erratic, but it conveys flashes of lights on the changing scene where the theory of evolution plays. This is in line with the idea to reopen the file of the Two Cultures, looking at shared problems, which are not yet really the Third Culture invoked by Charles Percy Snow half a century ago, but they can foster it, at least in such a pivotal domain as evolution. According to the philosopher Michael Ruse, the conclusion is “that in fifty years or a hundred years we will still have the theory of the Origin around. Great, precisely because it does not stand still, but remodels itself and grows and changes by virtue of the fact that it gives such a terrific foundation. Is Darwinism past its sell-by date? Not by a long chalk yet!”

Features
► Highly multidisciplinary
► Bridging biological sciences and humanities

Fields of interest
Evolutionary Biology; Philosophy of Biology; Anthropology

Target groups
Graduate

Type of publication
Contributed volume

Handbook of Marine Natural Products

Handbook of Marine Natural Products” takes a fresh approach to describing the major themes of research in this rapidly developing field. The book begins with a section that provides a taxonomic survey of the secondary metabolites of diverse marine life including microbes, algae, and invertebrates. This is followed by a demonstration of the techniques and strategies employed in modern structure elucidation of complex natural products. The natural roles of marine natural products are then explored in a series of focused chapters which include the topics of symbiosis, anti-predation and antifouling, chemical interactions, and defence against UV stress. Various routes which facilitate the understanding of marine natural product biosynthesis are subsequently explained and these are followed by an extensive set of chapters on the biomedical potential of marine natural products.

Fields of interest
Biochemistry, general; Organic Chemistry; Freshwater & Marine Ecology

Type of publication
Handbook

Due September 2011

Print
► approx. € 249,95 | £225.00

► approx. * € (D) 267,45 | € (A) 274,94 | sFr 358,50

► approx. + € (D) 363,81 | € (A) 371,20 | sFr 528,00

► approx. * € (D) 249,95 | € (A) 257,45 | sFr 339,00

eReference
2011.
► approx. € 499,00 | £449.50

► approx. * € (D) 593,81 | € (A) 598,80 | sFr 752,00

Print + eReference
► approx. € 624,00 | £562.00

► approx. * € (D) 667,68 | € (A) 684,40 | sFr 938,00
**Allostery**

Methods and Protocols

Despite considerable variability within the scientific community, allosteric regulation can best be defined functionally as how a macromolecule binds one ligand differently when a second ligand is or is not pre-bound to the macromolecule, which constitutes a vital aspect of protein structure/function. In Allostery: Methods and Protocols, expert researchers in the field provide key techniques to investigate this biological phenomenon. Focusing on heterotropic systems with some coverage of homotropic systems, this volume covers the monitoring of allosteric function, allosteric conformational changes, and allosteric changes in protein dynamics/sub-population distribution, as well as topics such as macromolecular and ligand engineering of allosteric functions and computational aids in the study of allostery. Written in the highly successful Methods in Molecular Biology™ series format, the chapters include the kind of detailed description and implementation advice that is crucial for getting optimal results in the laboratory. Thorough and intuitive, Allostery: Methods and Protocols aids scientists in continuing to study allosteric function, allosteric conformational changes, and computational aids in the study of allostery.

**Platelets and Megakaryocytes**

Volume 3, Additional Protocols and Perspectives

New techniques to study cell signaling and function can develop at a staggering pace; however, many approaches are as valid today as on the day they were established. Thus, the main aim of Platelets and Megakaryocytes: Volume 3, Additional Protocols and Perspectives is to complement the first two volumes published in 2004 by adding recently developed state of the art techniques. Conveniently divided into three sections, this detailed volume covers techniques to study platelet function, approaches to investigate megakaryocyte function, and perspectives on important overall concepts in the field of megakaryocyte and platelet biology. Written in the highly successful Methods in Molecular Biology™ series format, methods chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and vital tips on troubleshooting and avoiding known pitfalls. Authoritative and up-to-date, Platelets and Megakaryocytes: Volume 3, Additional Protocols and Perspectives adds a wealth of new expertise for the labs of scientists working in this key biological area of study.

**Technological Innovations in Major World Oil Crops, Volume 1**

Breeding

Major world oil crops and their products are among the most valuable commodity in today’s world trade. Over the past couple of decades, oilseed production has increased to become the most important world sources of vegetable oils, in response to the rising world population and living standard. Recent technological advances made in breeding major world oil crops have led to higher production and improved product quality. This comprehensive volume encompasses recent innovations and practice in the production and use of different oil crops, including Brassica, Sunflower, Safflower, Cottonseed, Castor, Olive, Coconut, Oilpalm, Sesame, Groundnut, and Soybean. The contributors are leading specialists from different countries of the world.

**Contents**


**Fields of interest**

Plant Breeding/Biotechnology; Plant Sciences; Plant Genetics & Genomics

**Target groups**

Researchers

**Type of publication**

Contributed volume
SpringerBriefs in Zoology present concise summaries of cutting-edge research and practical applications across a wide spectrum of zoological fields, with fast turnaround time to publication. Featuring compact volumes of 50 to 125 pages, the series covers a range of content from professional to academic. Monographs of new material are considered for the SpringerBriefs in Zoology series.

Typical topics might include:
- A timely report of state-of-the art analytical techniques
- A bridge between new research results, as published in journal articles, and a contextual literature review
- A snapshot of a hot or emerging topic
- An in-depth case study or technical example
- A presentation of core concepts that students must understand in order to make independent contributions
- Best practices or protocols to be followed
- A series of short case studies/debates highlighting a specific angle

SpringerBriefs in Zoology allow authors to present their ideas and readers to absorb them with minimal time investment. Both solicited and unsolicited manuscripts are considered for publication in this series.

V. Gouli, S. Gouli, University of Vermont, Burlington, VT, USA; J. Marcelino, University of the Azores, Ponta Delgada, Portugal

Common Infectious Diseases of Insects in Culture
Diagnostic and Prophylactic Methods

This handbook gives a comprehensive and copious illustrated description, with original art work, of the most common diseases in laboratory reared insect colonies, comprising Viruses (Baculoviridae, Reoviridae, Poxviridae, Iridoviridae); Bacteria (Bacillaceae, Pseudomonadaceae, Enterobacteriaceae); Rickettsia; Fungi and Microsporidia and Protozoa. Gregarine and Coccidian parasitoids are also depicted. Manuals for the diagnostic of insect diseases have been published in the 90’s, however, these were intended for professional insect pathologists or for proficient training in invertebrate pathology, hence requiring some scientific background in insect pathology. Currently, most guides are web based, not comprehensive and solely addressing the most common diseases in a particular insect, or group of insects, reared in laboratory facilities. A comprehensive and proficient practical handbook for students and technicians working with insect reared colonies is lacking in the current literature.

Features
- Comprehensive and profuse original quality illustrations of insect diseases (sign and symptoms)
- Simple prophylactic measures of easy access and/or manufacture, at very low cost Accessible language

Fields of interest
Entomology; Applied Microbiology

Target groups
Graduate

Type of publication
SpringerBriefs

Tropical and Sub-Tropical Reservoir Limnology in China
Theory and practice

Reservoirs are specific aquatic ecosystems and have complex behaviors of both natural lakes and rivers, regulated significantly by their functions such as flood controlling, hydropower generation, irrigation and fishery. This volume offers a general description of reservoir limnology in tropical and subtropical China. It functions as a window opening to all the aquatic scientists with a main focus on reservoirs in southern China and at the same time also covering several important, large reservoirs such as the Three Gorge Reservoir and Danjiangko Reservoir. Topics discussed are zooplankton, phytoplankton and zoobenthos communities, cyanobacteria, nutrient budget, sediments, biogeochemical cycling of mercury, fishery and eutrophication.

Features
- This volume offers a first description of reservoir limnology in tropical and subtropical China
- Provides a window on China to all scientists interested in limnology and freshwater ecology

Contents
Part I Biological Environment.- Part II Environment.- Part III Eutrophication

Fields of interest
Freshwater & Marine Ecology; Ecosystems; Environmental Management

Target groups
Research

Type of publication
Contributed volume
Mechanical Stretch and Cytokines

This book presents the latest findings in the field of investigation of molecular mechanisms of mechanical stretch and the role of cytokines in response of different tissues to it. On the one hand, this Volume demonstrates how mechanical stretch enhances cytokines production. It describes how cytokines influence tissues and cells on a background of a mechanical stretching. It provides a description of how cells in different tissues are activated by stretch and cytokines via various signaling pathways, and how they change their gene expression. The book is a unique collection of reviews outlining current knowledge and future developments in this rapidly growing field. Knowledge of biomechanics, and mechanisms which underlie it on molecular, cellular and tissue, is necessary for understanding of the normal functioning of living organisms and allows to predict changes, which arise due to alterations of their environment.

Features
- This Volume demonstrates how mechanical stretch enhances cytokines production in different cell types describes how cytokines influence tissues and cells on a background of a mechanical stretching.
- It provides a wide description of various signaling pathways, which employ cytokines and mechanotransduction.
- One book brings together a comprehensive outline of modern vision of the role of cytokines in mechanotransduction.

Fields of interest
- Cell Biology; Biomedicine general; Human Physiology

Target groups
- Research

Type of publication
- Contributed volume

Lake Biwa: Interactions between Nature and People

This book focuses on the long-term interactions between people and nature in and around Lake Biwa, one of the oldest lakes in the world. Accordingly, it not only covers the characteristics of the biota of this ancient lake, but also approaches it as a ‘cultural ancient lake.’ Furthermore, various problems affecting the lake, especially recent environmental changes that occurred before and after Japan’s rapid economic growth of the 1950s and 60s, are reviewed, including water pollution, lakeshore development and the reclamation of attached lakes, alien and invasive species, and problems related to the recent warming of the climate. Lastly, by analyzing data on these problems collected by the local government and residents of the lake basin, the book provides a comprehensive outlook on the future of Lake Biwa and people’s lifestyles.

Features
- First complete compilation of Lake Biwa’s changing environments and biota.
- Describes all current problems and their solutions associated with Lake Biwa.

From the contents
- Preface.
- Chapter 1: Geographical history and transition of the biota of Lake Biwa.
- Chapter 2: Biodiversity of Lake Biwa.
- Chapter 3: Ecological changes in Lake Biwa.
- Chapter 4: History of the relationship between people and Lake Biwa.
- Chapter 5: The use of Lake Biwa and people’s lifestyle.
- Chapter 6: Evolving history of Lake Biwa and the Yodo River Basin management.

Fields of interest
- Freshwater & Marine Ecology; Regional and Cultural Studies; Biodiversity

Target groups
- Research

Type of publication
- Contributed volume

Himalayan Biodiversity in the Changing World

This book presents some results on selected taxa in the Himalayan region (mainly Nepal), pinpoints the threats to their survival and suggests ways how to avoid their extinction. Most chapters are based on graduate research projects – relatively long-term field studies. The data presented here can be a good source of updated information on the subject and will prove to be a very useful reference in future studies of Himalayan biodiversity. They also tend to pinpoint the existing gaps in our knowledge of this region. All the chapters are based on recent trends of biodiversity and conservation vision, so the book can be a potential alternative to the existing relatively older books with outdated vision and information. Its main goal, however, is to disseminate the information about biodiversity conservation problems in the Himalayan region among the people in the developed world.

Features
- The only recent book on biodiversity in the Himalayas.
- Presents unique data on various animal and plant groups from the Himalayan region.
- Important for conservation of the Himalayan species.

Contents
- Preface.
- An overview of the biodiversity in Nepal.
- Conservation of biodiversity: an outline of the challenge.
- Orchid diversity in the Chitwan district.
- Distribution and diversity of diurnal bird raptors in the Shivapuri National Park and adjoining areas.
- Distribution and diversity of storks in the adjoining areas of Chitwan National Park, Nepal.
- Interactions between the Himalayan tahr, livestock and snow leopards in the Sagarmatha National Park.
- Numbers, distribution and facts limiting the abundance of tigers (Panthera tigris) in the Bardia National Park extension area.

Fields of interest
- Ecology; Conservation Biology/Ecology; Biodiversity

Target groups
- Graduate

Type of publication
- Contributed volume
**Protein Microarrays**

Methods and Protocols

Progress in functional proteomics has been limited for a long time, partially caused by limitations in assay sensitivity and sample capacity; however, protein microarrays have the ability to overcome these limitations so that a highly parallel analysis of hundreds of proteins in thousands of samples is attainable. In Protein Microarrays: Methods and Protocols, expert researchers in the field present an up-to-date collection of robust strategies in the field of protein microarrays and summarize recent advantages in the field of printing technologies, the development of suitable surface materials, as well as detection and quantification technologies. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and key notes on troubleshooting and avoiding known pitfalls. Comprehensive and cutting-edge, Protein Microarrays: Methods and Protocols aims to stimulate the application and further advancement of this powerful technology in labs worldwide.

**Features**
- Collects key protein microarray strategies and summarizes the most up-to-date advances
- Features step-by-step, lab-ready protocols including expert tips and vital implementation advice to assure successful results

**Fields of interest**
Protein Science; Microarrays

**Target groups**
Professional/practitioner

**Type of publication**
Contributed volume

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**Functional Coherence of Molecular Networks in Bioinformatics**

Molecular networks provide descriptions of the organization of various biological processes, including cellular signaling, metabolism, and genetic regulation. Knowledge on molecular networks is commonly used for systems level analysis of biological function; research and method development in this area has grown tremendously in the past few years. This book will provide a detailed review of existing knowledge on the functional characterization of biological networks. In 15 chapters authored by an international group of prolific systems biology and bioinformatics researchers, it will organize, conceptualize, and summarize the existing core of research results and computational methods on understanding biological function from a network perspective.

**Features**
- Intersects broad sub-disciplines within biology, statistics and computer sciences
- Motivates a number of open problems, which provide excellent avenues for continuing efforts in the area
- Focuses on the computational challenges associated with systems-level modeling of biological function

**Contents**
Introduction to Network Biology.
- Topological Characteristics of Molecular Networks.
- Functional Annotation in Gene Networks.
- Proteome Network Emulating Models.
- Biological Network Alignment.
- Pattern Mining across many Massive Biological Networks.
- Molecular Networks and Complex Diseases.
- Moving Towards Genome-Scale Kinetic Models.
- The Mass Action Stoichiometric Simulation Approach.
- Index.

**Fields of interest**
Systems Biology; Computational Biology/Bioinformatics; Computer Science, general

**Target groups**
Professional/practitioner

**Type of publication**
Contributed volume

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**Noise-Induced Hearing Loss**

**Scientific Advances**

Exposure to loud noise continues to be the largest cause of hearing loss in the adult population. The problem of NIHL impacts a number of disciplines. US standards for permissible noise exposure were originally published in 1968 and remain largely unchanged today. Indeed, permissible noise exposure for US personnel is significantly greater than that allowed in numerous other countries, including for example, Canada, China, Brazil, Mexico, and the European Union. However, there have been a number of discoveries and advances that have increased our understanding of the mechanisms of NIHL. These advances have the potential to impact how NIHL can be prevented and how our noise standards can be made more appropriate.

**Features**
- Constitutes an important contemporary reference work on noise-induced hearing loss
- Combines different methodological and experimental approaches
- Includes a diverse range of aspects of human auditory perception

**From the contents**
Noise-Induced Hearing Loss: Scope of the Problem: The Prevalence and Significance of Noise-Induced Hearing Loss.
- - Noise-Induced Hearing Loss and Tinnitus: Challenges for the Military.
- - Relation Between Noise Exposure and Hearing Loss and Tinnitus: Challenges for the Military.
- - Anatomical Consequences of Noise Insult.
- - Suprathreshold Changes in Hearing System Function.
- - Changes in VIII Nerve Coding with NIHL.
- - Auditory System Function after Noise Exposure.

**Fields of interest**
Neurobiology; Otorhinolaryngology; Neurosciences

**Target groups**
Research

**Type of publication**
Contributed volume
**Agroecology and Strategies for Climate Change**

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for our children. This discipline addresses current issues such as climate change, increasing food and fuel prices, starvation, obesity, water pollution, soil erosion, fertility loss, pest control and biodiversity depletion. Novel solutions are proposed based on integrated knowledge from agronomy, soil science, molecular biology, chemistry, toxicology, ecology, economy, philosophy and social sciences. As actual society issues are now intertwined, sustainable agriculture will bring solutions to build a safer world. This book series analyzes current agricultural issues and proposes alternative solutions, consequently helping all scientists, decision-makers, professors, farmers and politicians wishing to build safe agriculture, energy and food systems for future generations.

**Features**
- Starts by an official United Nation report showing that agroecology is the solution to actual worldwide food issues
- Reports many agricultural techniques to decrease greenhouse gas emissions
- Reports a list of transgenic plants against drought stress (Bhardway and Yadav: Genetic mechanisms)

**From the contents**
1. Agroecology, A Tool for the Realization of the Right to Food, Dr. Olivier de Schutter.
2. Agroecology and the food system, Dr. Alexander Wezel.
4. Emissions of ammonia, nitrous oxide and methane during the management of solid manures, Dr. Jim Webb.
5. Communication in the rhizosphere, a target for pest management, Dr. Juan Antonio López Ráez.
6. A novel land-energy use indicator for energy crops, Dr. Vito Sardo.

**Field of interest**
- Agriculture

**Target groups**
- Graduate

**Type of publication**
- Contributed volume

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**Edible Medicinal And Non-Medicinal Plants**

**Volume 2: Fruits**

This book continues as volume 2 of a multi-compendium on Edible Medicinal and Non-Medicinal Plants. It covers edible fruits/seeds used fresh or processed, as vegetables, spices, stimulants, pulses, edible oils and beverages. It encompasses species from the following families: Clusiaceae, Combretaceae, Cucurbitaceae, Dilleniaceae, Ebenaceae, Euphorbiaceae, Ericaceae and Fabaceae. This work will be of significant interest to scientists, researchers, medical practitioners, pharmacologists, ethnobotanists, horticulturists, food nutritionists, agriculturists, botanists, herbarologists, conservationists, teachers, lecturers, students and the general public. Topics covered include: taxonomy (botanical name and synonyms); common English and vernacular names; origin and distribution; agro-ecological requirements; edible plant part and uses; botany; nutritive and medicinal/pharmacological properties; medicinal uses and current research findings; non-edible uses; and selected/cited references.

**Features**
- More than 300 coloured illustrations per volume
- Referenced up-to-date information on nutritive and medicinal properties
- Common and vernacular names to help in plant identification

**Contents**
- Introduction.
- Clusiaceae.
- Combretaceae.
- Cucurbitaceae.
- Dilleniaceae.
- Ebenaceae.
- Ericaceae.
- Euphorbiaceae.
- Fabaceae.
- Medical Glossary.
- Scientific Glossary.
- Index.

**Fields of interest**
- Plant Sciences; Agriculture; Biomedicine general

**Target groups**
- Research

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**Microbial Stress Tolerance for Biofuels**

**Systems Biology**

The development of sustainable and renewable biofuels is attracting growing interest. It is vital to develop robust microbial strains for biocatalysts that are able to function under multiple stress conditions. This Microbiology Monograph provides an overview of methods for studying microbial stress tolerance for biofuels applications using a systems biology approach. Topics covered range from mechanisms to methodology for yeast and bacteria, including the genomics of yeast tolerance and detoxification; genetics and regulation of glycerol and trehalose metabolism; programmed cell death; high gravity fermentations; ethanol tolerance; improving biomass sugar utilization by engineered Saccharomyces; the genomics on tolerance of Zymomonas mobilis; microbial solvent tolerance; control of stress tolerance in bacterial host organisms; metabolomics for ethanologenic yeast; automated proteomics work cell systems for strain improvement; and unification of gene expression data for comparable analyses under stress conditions.

**Features**
- A valuable source of information for scientists in microbiology, biotechnology and renewable energy
- Covers the current knowledge in the field of fermentation-based bioprocesses to biofuel production
- Chapters are written by expert scientists

**From the contents**
- Genomics of yeast tolerance and in situ detoxification.
- Genetics and regulation of glycerol and trehalose metabolism in Saccharomyces cerevisiae.
- Molecular mechanisms of programmed cell death induced by acetic acid in Saccharomyces cerevisiae.
- Molecular mechanisms of ethanol tolerance in Saccharomyces cerevisiae.

**Fields of interest**
- Microbial Genetics and Genomics; Systems Biology; Cell Biology

**Target groups**
- Research

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**Due September 2011**

2011, XX, 480 p. 460 illus. in color. Hardcover
- € 149,95 | £135.00
- *approx.* € 126,00

**Due September 2011**

2011, XX, 460 p. Hardcover
- € 149,95 | £135.00
- *approx.* € 139,95 | £126.00

**Due September 2011**

2012, XX, 280 p. 39 illus., 24 in color. Hardcover
- € 149,75 | £135.00
- *approx.* € 153,94 | sFr 201,00
SpringerBriefs present concise summaries of cutting-edge research and practical applications across a wide spectrum of fields. Featuring compact volumes of 50 to 125 pages, the series covers a range of content from professional to academic.

Typical topics might include:
- A timely report of state-of-the art analytical techniques
- A bridge between new research results, as published in journal articles, and a contextual literature review
- A snapshot of a hot or emerging topic
- An in-depth case study or clinical example
- A presentation of core concepts that students must understand in order to make independent contributions

Old-Growth Urban Forests

Millions of urbanites never see primeval forests during their lives except for the old growth forests found in urban parks. Unfortunately, these forests are on the verge of disappearing because arboreal reproduction is lost to human trampling and park administrators and urban foresters do not maintain these “natural” forests. To aid urban foresters and park managers in meeting the challenges, research on old growth forests in urban parks is synthesized in terms of historical ecology to introduce the methods utilized to reveal long-term forest composition changes. The case study of three stands in Fairmount Park, Philadelphia, PA relates pre-chestnut blight tree species densities and post-chestnut blight arboreal changes to fire and visitor trampling. The information gained on how urban old growth forests have developed and changed is used to develop restoration ecology based frameworks to restore species composition and address challenges to forest survival including invasive species.

Features
- For park managers and urban foresters, recognition of particular stands as anthropogenic old growth forest is the initial and primary issue
- Anthropogenic old growth forests in urban parks represent an impending crisis for millions of urbanites
- Old growth forests, by definition, have existed for centuries (200 years) and are composed of native species

Contents
(1) An International Typology.- (2) Comparative Development Utilizing Historical Ecology Methods.- (3) Long Term Ecological Restoration

Fields of interest
Terrestrial Ecology; Urban Ecology; Forestry Management

Target groups
Graduate

Type of publication
SpringerBriefs

Bacteria in Agrobiology: Plant Nutrient Management

The future of agriculture strongly depends on our ability to enhance productivity without sacrificing long-term production potential. An ecologically and economically sustainable strategy is the application of microorganisms, such as the diverse bacterial species of plant growth promoting bacteria (PGPB). The use of these bio-resources for the enhancement of crop productivity is gaining worldwide importance. "Bacteria in Agrobiology: Plant Nutrient Management" focus on the management of plant nutrient to support plant growth and development. Treated are topics such as zinc and phosphate solubilizing microorganisms, sulfur oxidizing bacteria, denitrification, siderophores, phytohormones, quorum-sensing, biofilms, plant diseases, and plant pathogens.

Features
- Gives a modern approach to the various facets of plant growth promoting and associative bacteria
- A valuable source of information for scientists in agriculture, agronomy, microbiology, botany, environmental sciences and soil biology
- Written by renowned scientists

From the contents

Fields of interest
Bacteriology; Agriculture

Target groups
Research

Type of publication
Contributed volume
C. Martius, Inter-American Inst. for Global Change Research, São José dos Campos, Brazil; I. Rudenko, ZEF/UNESCO Khorezm Project, Khorezm, Uzbekistan; J. P. Lamers, ZEF/UNESCO Khorezm Project, Uzbekistan; P. Vlek, Center for Development Research (ZEF), Bonn, Germany (Eds.)

**Progress in Parasitology**

Parasites threaten the health of animals and humans alike. Especially in times of increasing globalization and global warming, parasites can enlarge their "kingdom" by spreading. At the same time many of the existing medical products have become ineffective. As these products have been used for many decades, parasites have developed resistances, so that they have progressed in their fight for survival. Therefore it is obvious that humans must develop new methods to face these dangers. Thus parasitological knowledge increases daily and must be formulated to be accessible for as many parasitologists (veterinarians, physicians, biologists) as possible. Therefore it is necessary that reviews reflecting the present status of the progress in many fields of research be published. Therefore this book, published on the occasion of the 50th anniversary of the German Society of Parasitology, compiles 18 reviews on recent "hot topics," including a new vaccine against malarial parasites; severe diseases with poor chances of treatment (cryptosporidiosis, coccidiosis, theileriosis); vectors (mosquitoes, ticks) and their transmission activities; and fish parasites, including molecular insights into the sex of parasites with a focus on their survival abilities that made them so dangerous. These chapters provide detailed information for researchers, as well as for teachers and students in parasitology.

**Features**
- Gives an insight into recent topics of parasitological research in times of emerging dangers due to parasites in times of globalization and global warming
- Is a basic for teaching of new facts
- Covers many aspects of parasitology and gives a lot of literature

**Fields of interest**
- Zoology; Parasitology; Eukaryotic Microbiology

**Target groups**
- Research

**Type of publication**
- Contributed volume

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**Cotton, Water, Salts and Soils**

**Economic and Ecological Restructuring in Khorezm, Uzbekistan**

This book summarizes a long-term research project addressing land and water use in the irrigated areas of the Aral Sea basin. In an interdisciplinary approach, natural and human sciences are combined to elucidate the challenges of economic transition that affect the use of land, water and biological resources, ecological sustainability, economic efficiency and the livelihoods of the local population. The research focuses on Khorezm, a region in Uzbekistan, located on the Amudarya river, in the heart of Central Asia. A series of chapters describes the biophysical environment and the aspects of society and institutions that shape land and water use. The book discusses options and tools to improve land and water management, and to reform the economic system management, based on agronomic, hydrological, economic and social studies and modeling. The insights are not only important for Uzbekistan, but for all countries in transitions and irrigated dryland areas elsewhere.

**Features**
- The book summarises results from an interdisciplinary research program that focuses on Khorezm, a rich and so far poorly researched region of Central Asia
- A ‘must-read’ for all those interested in Central Asia, natural resource management in transition countries and the management of irrigated drylands
- Authors analyze mitigation options for environmental degradation and discuss improved water and land management and economic transition strategies

**Fields of interest**
- Agriculture; Waste Water Technology; Water Pollution Control / Water Management / Aquatic Pollution; Forestry Management

**Target groups**
- Research

**Type of publication**
- Contributed volume

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**Due September 2011**

2011. 360 p. 50 illus. in color. Hardcover
- € 149,95 | £135.00
- *€ (D) 160,45 | € (A) 164,94 | sFr 215,00*  
  ISBN 978-94-007-1962-0

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**Due August 2011**

- € 149,95 | £135.00
- *€ (D) 160,45 | € (A) 164,94 | sFr 215,00*  
  ISBN 978-3-642-21395-3

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**Due September 2011**

2012. XX, 330 p. 70 illus., 60 in color. (Progress in Biological Control, Tentative volume 12) Hardcover
- approx. € 129,95 | £117.00
- *approx. € (D) 139,45 | € (A) 142,94 | sFr 186,50*  
  ISBN 978-3-642-21393-9
Biomechanics of the Gravid Human Uterus

The complexity of human uterine function and regulation is one of the great wonders of nature and represents a daunting challenge to unravel. This book is dedicated to the biomechanical modeling of the gravid human uterus and gives an example of the application of the mechanics of solids and the theory of soft shells to explore medical problems of labor and delivery. After a brief overview of the anatomy, physiology and biomechanics of the uterus, the authors focus mainly on electromechanical wave processes, their origin, dynamics, and neuroendocrine and pharmacological modulations. In the last chapter applications, pitfalls and problems related to modeling and computer simulations of the pregnant uterus and pelvic floor structures are discussed. A collection of exercises is added at the end of each chapter to help readers with self-evaluation. The book serves as an invaluable source of information for researchers, instructors and advanced undergraduate and graduate students interested in systems biology, applied mathematics and biomedical engineering.

Features
- Step-by-step introduction to the subject of applied mathematical modeling of the gravid uterus
- Introduction to the theory of soft thin biological shells and its application
- Computer simulation results providing insight into intricacies of complex physiological processes

From the contents

Fields of interest
Computer Appl. in Life Sciences; Human Physiology; Physiological, Cellular and Medical Topics

Target groups
Research

Type of publication
Monograph

Due August 2011

2011. 280 p. Hardcover
- €139.95 | £126.00
- € (D) 149,75 | € (A) 153,94 | sFr 201,00
ISBN 978-3-642-21472-1

Molecular Biomineralization

Aquatic Organisms Forming Extraordinary Materials

The concept of ‘biomineralization’ signifies mineralization processes that take place in close association with organic molecules or matrices. The awareness that mineral formation can be guided by organic molecules notably contributed to the understanding of the formation of the inorganic skeletons of living organisms. Modern electron microscopic and spectroscopic analyses have successfully demonstrated the participation of biological systems in several mineralization processes, and prominent examples include the formation of bio-silica in diatoms and sponges. This insight has already made the application of recombinant technology for the production of valuable inorganic polymers, such as bio-silica, possible. This polymer can be formed by silicatein under conditions that cannot be matched by chemical means. Similarly, the efforts described in this book have elucidated that certain organisms, bacteria in deep-sea polymetallic nodules and cocciliths in seaweed crusts, are involved in the deposition of marine minerals. Strategies have already been developed to utilize such microorganisms for the biosynthesis and bioleaching of marine deposits. Moreover, studies reveal that bio-polymers enhance the hydroxyapatite formation of bone-forming cells and alter the expression of important regulators of bone resorption, suggesting a potential for bone regeneration and treatment / prevention of osteoporosis.

Features
- Written by leading experts in the field
- State-of-the-art overview of all aspects of biomineralization
- Includes outlook on future applications

Fields of interest
Animal Biochemistry; Freshwater & Marine Ecology; Biomaterials

Target groups
Research

Type of publication
Contributed volume

Due September 2011

2011. 300 p. (Progress in Molecular and Subcellular Biology / Marine Molecular Biotechnology, Volume 52) Hardcover
- approx. €139.95 | £126.00
- * (D) 149,75 | € (A) 153,94 | sFr 201,00
ISBN 978-3-642-21779-4

Medaka

A Model for Organogenesis, Human Disease, and Evolution

Oryzias latipes, known as medaka, is a model organism from East Asia. Breeding of this small, egg-laying freshwater teleost fish has long been popular among hobbyists in Japan. Now, as biological science has entered the genome era, the medaka provides significant advantages that make it one of the most valuable vertebrate models: a large collection of spontaneous mutants collected over a century, the presence of highly polymorphic inbred lines established over decades, and a recently completed genome sequence. This book is the first comprehensive monograph to cover a variety of medaka research. It opens with a historical view of medaka, followed by a series of research topics in the four major areas where the medaka is increasingly important: genomics, genetics, and resources; organogenesis and disease models; germ cells, sex determination, and reproduction, and evolution. Readers will find state-of-the-art information on medaka genetics and genomics such as the first isolation of active transposons in vertebrates, the influence of chromatin structure on sequence variation, fine QTL analysis, and versatile mutants as human disease models.

Features
- The first book to cover the expanding research on medaka
- Describes recent progress in the field and provides a good introduction of this fish system along with information on the long history of medaka in Japanese culture and science
- Biological and genome resources are listed with accessible web sites, especially helpful for new researchers in the field

Fields of interest
Animal Models; Developmental Biology; Evolutionary Biology

Target groups
Research

Type of publication
Monograph

Available

2011. XVIII, 386 p. 65 illus. Hardcover
- €149.95 | £135.00
- * (D) 160,45 | € (A) 164,94 | sFr 215,00
ISBN 978-3-642-21760-7
'In Considerable Variety': Introducing the Diversity of Australia’s Insects

The book introduces basic entomology, emphasizing perspectives on insect diversity important in conservation assessment and setting priorities for management, as a foundation for managers and others without entomological training or background. It bridges the gap between photographic essays on insect identification and more technical texts, to illustrate and discuss many aspects of taxonomic, ecological and evolutionary diversity in the Australian insect fauna, and its impacts in human life, through outlines of many aspects of insect natural history.

Features
- Introduces foundation of insect evolution, biology and diversity to conservation managers lacking appreciation of these major components of biodiversity, and facilitates inclusion of insects in conservation considerations.
- Uses Australian examples to discuss taxonomic and ecological diversity.
- Simple, non-technical presentation, essays to discuss taxonomic and ecological diversity.

From the contents

Fields of interest
Entomology; Conservation Biology/Ecology; Invertebrates

Target groups
Professional/practitioner

Type of publication
Monograph

Due September 2011

2011. XX, 250 p. 50 illus., 40 in color. Hardcover
- € 139,95 | £126.00
- * (D) 149,75 | * (A) 153,94 | sFr 201,00
ISBN 978-94-007-1779-4

Ribonucleases

Ribonucleases are a ubiquitous and functionally diverse group of enzymes that have a common ability to cleave RNA. Either through scission of internal phosphodiester, or removal of nucleotides from RNA 5’ or 3’ ends, ribonucleases perform essential roles in gene expression and regulation, genome replication and maintenance, host defense, stress response, and viral strategies of infection. Ribonucleases have also served as highly informative models to understand virtually every aspect of biomolecular structure and function. The fifteen chapters in this volume are written by recognized researchers in the field, and provide in-depth analyses of the major ribonuclease families. Particular focus is given to the relation of ribonuclease structure and mechanism to biological function, as well as ribonuclease dysfunction in certain disease states. Other topics include the evolutionary genetics and functional diversification of ribonucleases, engineered ribonucleases as anti-cancer agents, the mechanisms of action of artificial ribonucleases, and ribonucleases as models to understand protein folding and stability. This volume should serve as an essential reference for a broad range of researchers and educators with interests in RNA metabolism, enzymology, and gene regulation.

Features
- Gives comprehensive, up-to-date overview on the major groups of ribonucleases
- Puts latest knowledge about ribonucleases into a wider context, such as medical applications
- Written by international experts

From the contents

Fields of interest
Enzymology; Nucleic Acid Chemistry; Cell Biology

Target groups
Research

Type of publication
Contributed volume

Due August 2011

2011. 466 p. Hardcover
- approx. € 149,95 | £135.00
- * (D) 160,45 | * (A) 164,94 | sFr 225,00
ISBN 978-3-642-21077-8

The Nucleolus

Within the past two decades, extraordinary new functions for the nucleolus have begun to appear, giving the field a new vitality and generating renewed excitement and interest. These new discoveries include both newly-discovered functions and aspects of its conventional role. The Nucleolus is divided into three parts: nucleolar structure and organization, the role of the nucleolus in ribosome biogenesis, and novel functions of the nucleolus.

Features
- Covers recent discoveries on novel functions of the nucleolus
- Emphasizes nucleolar proteins while also including the crucial importance of nucleic acids
- Includes chapters on nucleolar ultrastructure, the locations and dynamics of nucleolar components, and on regulatory systems

From the contents

Fields of interest
Cell Biology; Protein Science; Nucleic Acid Chemistry

Target groups
Research

Type of publication
Contributed volume

Due October 2011

2011. 466 p. 67 illus., 53 in color. (Protein Reviews, Volume 15) Hardcover
- approx. € 154,95 | £139.50
- * (D) 165,80 | * (A) 170,44 | sFr 222,00
Biofilms and Veterinary Medicine

Biofilms are implicated in many common medical problems including urinary tract infections, catheter infections, middle-ear infections, dental plaque, gingivitis, and some less common but more lethal processes such as endocarditis and infections in cystic fibrosis. However, the true importance of biofilms in the overall process of disease pathogenesis has only recently been recognized.

Bacterial biofilms are one of the fundamental reasons for incipient wound healing failure in that they may impair natural cutaneous wound healing and reduce topical antimicrobial efficiency in infected skin wounds. Their existence explains many of the enigmas of microbial infection and a better grasp of the process may well serve to establish a different approach to infection control and management. Biofilms and their associated complications have been found to be involved in up to 80% of all infections. A large number of studies targeted at the bacterial biofilms have been conducted, and many of them are referred to in this book, which is the first of its kind.

These clinical observations emphasize the importance of biofilm formation to both superficial and systemic infections, and the inability of current antimicrobial therapies to ‘cure’ the resulting diseases even when the in vitro tests suggest that they should be fully effective. In veterinary medicine the concept of biofilms and their role in the pathogenesis of disease has lagged seriously behind that in human medicine.

Features
- Focused on discussing the concerns of biofilms to health and disease in animals
- Relates the characteristics of biofilms to veterinary science in order to assess their relevance to a wide range of diseases and infections found in animals
- Emphasizes the importance of biofilm formation to both superficial and systemic infections

Fields of interest
Microbiology; Bacteriology; Veterinary Medicine

Target groups
Research

Type of publication
Contributed volume

Due August 2011


- € 139.95 | £126.00
- * (D) 149,75 | * (A) 153,94 | sFr 201,00
ISBN 978-3-642-17382-9

Single Molecule Analysis
Methods and Protocols

Life scientists believe that life is driven, directed, and shaped by biomolecules working on their own or in concert. It is only in the last few decades that technological breakthroughs in sensitive fluorescence microscopy and single-molecule manipulation techniques have made it possible to observe and manipulate single biomolecules and measure their individual properties. The methodologies presented in Single Molecule Techniques: Methods and Protocols are being applied more and more to the study of biologically relevant molecules, such as DNA, DNA-binding proteins, and motor proteins, and are becoming commonplace in molecular biophysics, biochemistry, and molecular and cell biology. The aim of Single Molecule Techniques: Methods and Protocols is to provide a broad overview of single-molecule approaches applied to biomolecules on the basis of clear and concise protocols, including a solid introduction to the most widely used single-molecule techniques, such as optical tweezers, single-molecule fluorescence tools, atomic force microscopy, magnetic tweezers, and tethered particle motion.

Features
- Includes cutting-edge methods and protocols
- Provides step-by-step detail essential for reproducible results
- Contains key notes and implementation advice from the experts

Field of interest
Biochemistry, general

Target groups
Professional/practitioner

Type of publication
Contributed volume

Intracellular Delivery
Fundamentals and Applications

This book features a special subsection of Nanomedicine, an application of nanotechnology to achieve breakthroughs in healthcare. It exploits the improved and often novel physical, chemical and biological properties of materials only existent at the nanometer scale. As a consequence of small scale, nanosystems in most cases are efficiently uptaken by cells and appear to act at the intracellular level. Nanotechnology has the potential to improve diagnosis, treatment and follow-up of diseases, and includes targeted drug delivery and regenerative medicine; it creates new tools and methods that impact significantly upon existing conservative practices. This volume is a collection of authoritative reviews. In the introductory section we define the field (intracellular delivery).

Then, the fundamental routes of nanodelivery devices, cellular uptake, types of delivery devices, particularly in terms of localized cellular delivery, both for small drug molecules, macromolecular drugs and genes; at the academic and applied levels, are covered. The following section is dedicated to enhancing delivery via special targeting motifs followed by the introduction of different types of intracellular nanodelivery devices (e.g. a brief description of their chemistry) and ways of producing these different devices. Finally, we put special emphasis on particular disease states and on other biomedical applications, whilst diagnostic and sensing issues are also included.

Features
- Comprehensive set of reviews dealing with mechanisms of uptake by cells and tissues
- Covering several key chemical areas of preparation of nanovehicles
- Delivers some important application areas in medicine Written by world experts in this field

Fields of interest
Cell Biology

Target groups
Research

Type of publication
Contributed volume

Available

2011. XIX, 867 p. 281 illus., 95 in color. (Fundamental Biomedical Technologies, Volume 5) Hardcover

- € 149,95 | £135.00
- * (D) 160,45 | * (A) 164,94 | sFr 215,00
ISBN 978-94-007-1347-1
Diplomacy, Funding and Animal Welfare

Diplomacy, Funding and Animal Welfare is a practical guide to the best diplomatic and negotiation practices needed to convince governments and international institutions to effectively protect animals, which also introduces new approaches to fundraising. Animal protection advocates are prepared for speaking to diplomats and government officials in any setting, and to combatants in war zones. The book mainly focuses on approaching local and national governments, the United Nations system, the international Red Cross movement and systems related to other international organizations that can help animals, often in surprising ways. The reader will learn the rules of ‘diplomatic protocol’, and much about the rules and procedures of major international bodies. To provide balance and real world relevance, the guide draws on a compilation of the author’s extensive activities across a range of development, animal welfare, emergency management and climate issues in government and in the NGO world, as well as interviews with scholars and officials from NGOs, diplomatic missions, the United Nations, the Red Cross, governments and corporations.

Features
► Read the contents, follow the advice and animals will benefit ► Recommended to all who wish to advance the cause of animal welfare whether it be for the compassionate reasons or for more pragmatic reasons ► Shows how to work and negotiate with international organizations and governments

Contents

Fields of interest
Fish & Wildlife Biology & Management; Animal Ecology; Nature Conservation

Type of publication
Professional/practitioner

Diplomacy, Funding and Animal Welfare

Y. A. Rovensky, Former Leading Researcher at Cancer Research Center of the Russian Academy of Medical Sciences, Moscow, Russia

Adhesive Interactions in Normal and Transformed Cells

Adhesive Interactions in Normal and Transformed Cells describes the basic mechanisms of the ability of tissue cells to attach to each other and to the extracellular matrix. These adhesive interactions are pivotal regulators of main cellular functions, such as proliferation, survival and migration. The adhesive interactions are involved in embryonic development, regeneration, and also in inflammation and degeneration processes, which are at the basis of many diseases. Serious alterations in cell adhesion caused by the oncogenic transformation play a key role in cancer invasion and metastasis.

This volume provides comprehensive information about structural, mechanic and signaling aspects of adhesive interactions in both normal and cancer cells in comparison. Integration of such aspects of the adhesive process as structure, relation to cell systems of receptors and cytoskeleton, function, signaling pathways, and the alterations in tumor cells constitutes the strongest point of this work.

The results of the long-time author’s research are included in the book.

Features
► Describes the basic mechanisms of the ability of tissue cells to attach to each other and to the extracellular matrix ► Provides comprehensive information about structural, mechanic and signaling aspects of adhesive interactions in both normal and cancer cells in comparison ► Presents both biological and medical aspects

Fields of interest
Life Sciences, general; Cancer Research; Cell Physiology

Target groups
Professional/practitioner

Diplomacy, Funding and Animal Welfare

D. Schiffer, University of Torino, Italy

Attraverso il microscopio

Neuroscienze e basi del ragionamento clinico

Il libro prende le mosse dai pensieri di un giovane che alla maturità liceale si trova affascinato dalla cultura dei classici greco-latini, dai rudimenti filosofici e dall’impatto con le scienze fisiche e naturali. Il latino e i suoi naturalisti hanno suscitato un fervore verso la Botanica Sistematica che lo riporta a Linneo e quindi alla conoscenza del mondo naturale, all’esperienza della denominazione dell’esistente come conoscenza e quindi agli universali di Guglielmo d’Occam. La scelta della facoltà di Medicina fungerà da mediazione fra la filosofia, vista come via alla verità, e la biologia con il grande mistero dell’uomo nella sua dualità di mente/corpo.

L’incontro con il microscopio aprirà la strada all’approfondimento della biologia, ma anche alla ricerca dei significati e delle interpretazioni del mondo. I meccanismi della percezione, visiva in particolare, nelle articolazioni della Gestalt-psicologia, e i suoi rapporti con il mondo interiore, sia quello della memoria esplicita che della memoria implicita, sono affrontati nell’esplorazione del mondo attraverso il microscopio e nella ricerca di una obiettività scientifica. Locke e Kant, Popper e Heidegger fanno da contraltare a Ramon y Cajal, Golgi, Kandel, Heisenberg, mentre la semiotica illumina e confonde sull’importanza del linguaggio per la conoscenza. Il segno e il suo riconoscimento si trasferiscono nella scienza attraverso l’intersoggettività e il linguaggio appare come l’unico modo di penetrare l’esistente.

Il libro si dilunga sull’origine di certe denominazioni in patologia tratte dalla vita quotidiana, sull’antropomorfismo spesso applicato agli oggetti del campo microscopico, sempre illustrati su base fenomenologica e psicologica.

Fields of interest
Psicologia, generale;

Target groups
Popular/general

Attraverso il microscopio

Disponibile

Prefazione di Giovanni Fava

Humana Press

Due August 2011

► € 139,95 | £126.00
► € 139,95 | £126.00
ISBN 978-3-642-21273-4

Attraverso il microscopio

Due October 2011

► € 23,99 | £19.99
► € 23,99 | £19.99
ISBN 978-3-642-21272-7

Disponibile
Detoxification of Heavy Metals

Heavy metals are severe environmental pollutants, and many of them are toxic even at very low concentrations. With industrial development, soil pollution with heavy metal elements have dramatically increased. The uptake of heavy metals via plants that are exposed to contaminated soils is a risk for human health and a major hazard for the ecosystem as a whole, including soil microorganisms. On the other hand, plants may be used in the decontamination of soils. The topics presented in this book include: sources of heavy metals contaminants in soils; plant species that can grow on contaminated soils; the phytoremediation of contaminated soils; tolerance, accumulation and detoxification mechanisms of zinc, copper, arsenic, cadmium and vanadium in plants; the critical role of sulfur metabolism in heavy metal tolerance; the role of aquatic macrophytes, plant growth-promoting bacteria, sugar crops and earthworms in detoxification; and heavy metal stabilization by promoting zeolite synthesis in soils.

Features
- Each chapter provides a general review on recent developments and priorities for future research and applications
- With contributions written by leading international authorities
- A valuable source of information for scientists in soil ecology, environmental sciences, plant physiology and metal biochemistry

Fields of interest
Plant Physiology; Plant Biochemistry; Soil Science & Conservation

Type of publication
Contributed volume

Nanoproteomics
Methods and Protocols

As two relatively new fields of study, proteomics and nanotechnology have developed in parallel with each other to allow an increased precision in the identification of post-translational protein modifications as well as to provide a more automated isolation and detection of rare proteins in both serum and tissues. The Nanoproteomics: Methods and Protocols volume organizes and collects technical advances from leaders in the field to make laboratory protocols more readily available and understandable to those who are attempting to incorporate nanotechnologic techniques into their proteomic research. Conveniently divided into five sections, this detailed volume covers preliminary sample preparation, nanoscale fluidic devices and methods, nanostructured surfaces and nanomaterials, and nanoproteomic techniques to detect and understand protein and proteomic alterations specific to human pathology.

Features
- Attempts to standardize and proliferate these key procedures in order to lead to wide scale adoption
- Contains easy-to-follow methods and protocols, ready for the lab
- Features expert tips and implementation advice to ensure successful results

Fields of interest
Protein Science; Proteomics

Type of publication
Contributed volume

Synaptic Mechanisms in the Auditory System

Synaptic Mechanisms in the Auditory System will provide a basic reference for students, clinicians, and researchers on how synapses in the auditory system function to encode acoustic signals. These mechanisms are the groundwork for all auditory processing, and understanding them requires knowledge of the microphysiology of synapses, cellular biophysics, receptor pharmacology, and an appreciation for what these synapses must do for a living, what unique jobs they carry out.

Features
- Provides a basic reference for students, clinicians, and researchers on how synapses in the auditory system function to encode acoustic signals
- Addresses how cells dynamically communicate at the microcircuit level
- Brings together classical cell physiology, modern tools for analysis, and the problems of auditory coding into a single contemporary resource

Contents
Introduction and overview.- Neuronal response properties and voltage-gated ion channels.- The hair cell synapse.- The endbulbs of Held.- The calyces of Held.- Synaptic coincidence detection.- Synaptic inhibition in the auditory system.- Modulatory mechanisms for controlling auditory processing.- Long-term plasticity in the auditory system.

Fields of interest
Neurobiology; Otorhinolaryngology; Neurosciences

Type of publication
Contributed volume
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Evolutionary Dynamics of Forests under Climate Change

Focusing on the example of the Lost Pines forest of Texas, this book contextualises the present-day conservation of the Lost Pines within its wealth of historical and geological records. This in turn presents a realistic example for examining evolutionary dynamics models and how they can guide management of temperate pine forests under the uncertainty of future climate change. Synthesising knowledge from many scholarly disciplines, and presenting the latest knowledge on how temperate forests respond to climate change, the book provides insight into how resource professionals actually solve complex multi-layered problems. A useful aid for forest management professionals and for advanced students and professionals in ecology, the book is a valuable resource for researchers and professionals, which can also be used as a classroom exercise for spatial imaging, testing virtual simulations and developing field-based research questions.

Features
▸ Complements regional climate change forecasts in the higher-risk part of United States
▸ Charts a course for the coming century - a timeless book for resource managers and foresters
▸ This forested narrative reads easily for resource managers in search of solutions and policy gaps
▸ Here is the missing curriculum for future resource managers coping with climate change

From the contents

Fields of interest
Forestry Management; Climate Change; Conservation Biology/Ecology

Target groups
Research

Type of publication
Monograph

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