

Molecular Entomology Hardback \$235.00

By Krishna Chaitanya Tirunagaru, Arshad Ali, Kennedy Ningthoujam, Anup Chandra, Mahesh Pathak, Rojeet Thangjam Copyright 2026 SBN 9781041247333

476 Pages Published March 5, 2026 by CRC Press

This book examines molecular biology applications in entomological research. The volume covers essential techniques for DNA and RNA analysis in insects, genetic improvement of natural enemies, and identification of genes relevant to entomology. Chapters address transgenic plant development for pest resistance, insect gene transformation methods, and DNA fingerprinting for taxonomic and phylogenetic studies and also includes:

- Comprehensive coverage of molecular biology techniques applied to entomological research
- Detailed analysis of DNA and RNA methodologies specific to insect studies
- Practical guidance on genetic improvement strategies for natural enemies
- Current approaches to transgenic plant development for pest resistance
- Advanced insect gene transformation protocols and applications

The book concludes with diagnostic techniques and transgenic technology applications. Suitable for researchers and graduate students, this resource provides practical methodologies and theoretical foundations for molecular approaches to insect biology and pest management. This title has been co-published with Elite Publishing House. T&F does not sell or distribute the print versions in India. Table of Contents Preface About the Authors

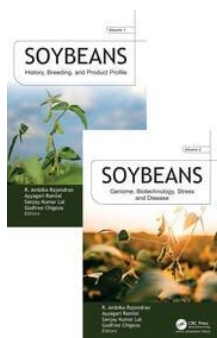
1. Molecular Biology Techniques
 2. Analysis of DNA and RNA in Insects
 3. Genetic Improvement of Natural Enemies
 4. Genes of Interest in Entomology
 5. Transgenic Plants for Pest Resistance
 6. Insect Gene Transformation
 7. DNA Fingerprinting for Taxonomy and Phylogeny
 8. DNA Diagnostics and Sf Transgenic Technology
- References



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----**INSTIT. BIOLOGIA**----



Soybean, 2-volume set Hardback \$480.00

Edited By R. Ambika Rajendran, Ayyagari Ramlal, Sanjay Kumar Lal, Chigeza Godfree

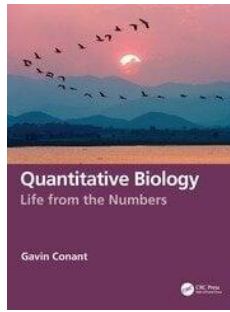
ISBN 9781998511747 699 Pages 13 Color & 14 B/W Illustrations Published February 25, 2026 by Apple Academic Press

Soybean is a protein-packed functional food used widely as both food and feed crops. Despite its many medicinal, culinary, as well as various agronomical complementary traits, it is vulnerable to various abiotic and biotic stresses. This new two-volume set **Soybean: History, Taxonomy, Genetics, Breeding, Diseases, and Biotechnology,** provides comprehensive coverage of many aspects of soybean, its utilities, vulnerabilities, and most recent discoveries.

The first volume emphasizes aspects of taxonomy, domestication of soybean, and its evolution. Comprised of four sections, it covers the history, taxonomy, distribution, and economic importance of soybeans. It also discusses soybean breeding, seed systems, product development as well as product profiles of soybean.

The second volume looks at the current trends, genomic information, conventional breeding techniques along with their challenges, and the need for modern methods in the cultivation of soybeans. This volume explores the genetics, genomics, and proteomics of soybeans, discussing advances and improvements in soybeans, soybean diseases, the use of soybeans in medicine, and other future uses of soybeans.

Together, this two-volume set provides a holistic approach and covers a wide range of areas of both research and interest for soybean crop improvement. The volumes will prove beneficial for agriculturalists, plant physiologists, biotechnologists, and particularly soybean breeders.



Quantitative BiologyLife from the Numbers

Paperback \$70.99 By Gavin Conant Copyright 2026 ISBN 9781041170150 306 Pages
153 Color Illustrations Published February 18, 2026 by CRC Press

- Biology at all scales has become a data-driven science, with large-scale datasets driving fields from population genomics to ecology. Practicing biologists have no choice but to use computational approaches, statistics, modeling, and other data science tools in their research. However, undergraduate biology education still primarily focuses on nonquantitative descriptions. This book provides students whose background is in biology with an introduction to modeling biological systems using mathematical, computational, and statistical tools. It is based on a series of hands-on analyses conducted with open-source tools that allow the students to discover for themselves emergent properties of biological systems that are not evident without using model-based approaches. The goal of this book is to provide a "turn-key" introductory quantitative biology course suitable for all biology students. The book provides the narrative for the analyses and discussions to be done in class, with support from the included website, slides, and test material. Table of Contents

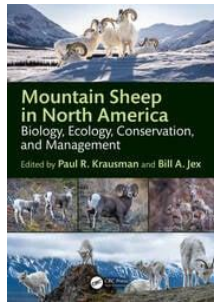
Preface. Acknowledgments. Chapter 1: On the Road: Dynamical Models of Infectious Diseases and Physical Systems. Chapter 2: Outbreaks: Modeling an Infectious Disease Outbreak with Differential Equations. Chapter 3: Building a Better Cat: Building a Predator–Prey Model and Chaos. Chapter 4: Survival of the Fastest: Modeling Competition between Species and between Cells. Chapter 5: Emergence: Genetic Dominance as an Emergent Property of Biochemical Models. Chapter 6: Growing Too Big: Full-Cell Metabolic Models. Chapter 7: Shrinking Too Small: Noise in Biochemical Systems. Chapter 8: Time and Chance: Probability and Random Variables. Chapter 9: Is It Normal?: Sampling, Statistics, and the Central Limit Theorem. Chapter 10: Lather, Rinse, Repeat: A Gentle Introduction to Computer Programming. Chapter 11: Agents of Change: Computational Models of Genetic Drift. Chapter 12: Ducks in a Row: Bioinformatics and Algorithmic Approaches to Biological Data. Chapter 13: Life on a Tree: Phylogenetics. Chapter 14: Life in a Net: Network Tools for Modeling Complex Systems from a Cell to an Ecosystem. Chapter 15: Scale: Metabolic Rate, Body Size,.



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Mountain Sheep in North America Biology, Ecology, Conservation, and Management

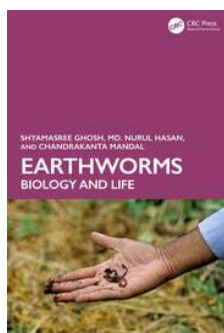
Edited By Paul R. Krausman, William Jex Copyright 2026 Paperback \$70.99 ISBN
9781032855585 497 Pages 121 Color & 30 B/W Illustrations Published February 5,
2026 by CRC Press

Mountain Sheep in North America: Biology, Ecology, Conservation, and

Management provides a detailed account of bighorn and thinhorn sheep across their geographic ranges from Alaska and Canada to Mexico. This book examines all aspects of the sheep life history including activity patterns; biology; conservation; diet; ecology; genetics; habitat requirements; health and disease; historical perspectives; management approaches; predation; competition with other species; natural history; social behavior; taxonomy; the changing role of agency, Indigenous, and conservation stakeholders; and the considerations for future management actions, opportunities, and conservation risks.

The book describes advancements in new technologies supported by current science, disproving some long-held assumptions about the species and their ecology, making it the most comprehensive source of information about mountain sheep in North America today. It offers the reader a better understanding of the management of mountain sheep, and the numerous challenges of a developing world including anthropogenic influences, altered habitats, species assemblages, and changing climates. Each chapter is written by internationally recognized experts and practicing mountain sheep managers from agencies and academia. New research is presented within broader shifts in conservation policy and funding, helping readers understand the practical implications of evolving science in real-world situations and offering wisdom that will help them create positive conservation outcomes for mountain sheep.

This is an essential text for students of wildlife, early-career and experienced biologists, managers, policy- and decision-makers, administrators, and anyone interested in mountain sheep in our world today, including those who are simply passionate about them. This book will provide even the most knowledgeable mountain sheep enthusiast with an improved understanding of this magnificent wildlife resource.



Earthworms Biology and Life By Shyamasree Ghosh, Md. Nurul

Hasan, Chandrakanta Mandal Copyright 2026 Hardback \$150.00 ISBN

9781041060772 230 Pages 25 Color & 10 B/W Illustrations Published February 4, 2026 by CRC Press

Earthworms: Biology and Life is a scientifically rich and comprehensive exploration of earthworm biology, diversity, and ecological significance, with a particular emphasis on the Indian subcontinent and its global context. The book begins with an overview of the global distribution and biogeography of Clitellata and Megadrili, then transitions into a detailed account of India's terrestrial and aquatic earthworm fauna. By blending regional richness with global insights, the book offers readers a nuanced understanding of species diversity, ecological roles, and habitat specialization across forest floors, agricultural lands, and freshwater ecosystems.

What sets this book apart is its integrated approach to the anatomy, physiology, and behavior of earthworms, combined with modern perspectives on their ecological importance, such as the role of gut microbiomes, vermicomposting technologies, and bioindicator functions. It synthesizes classical taxonomy with recent molecular studies, ensuring both foundational and contemporary scientific coverage. The inclusion of applied aspects like sustainable agriculture, waste management, and conservation underscores its relevance to both research and real-world applications.

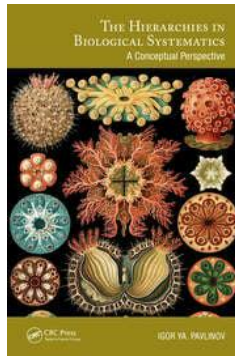
1. Global Distribution of Earthworm Species and Families: Geographical Range of Clitellata and Megadrili
2. Terrestrial Earthworms of India
3. Habitat and Ecology of Terrestrial Earthworms
4. Life Cycle of Earthworms
5. Aquatic Oligochaeta of India
6. Endemic Aquatic Oligochaeta of India
7. Exotic Earthworm Species in India
8. Semiaquatic Earthworm Fauna
9. Morphology and Anatomy, Behaviour
10. Feeding and Digestion of Earthworms
11. Studies on Earthworm Gut Microbiome
12. Economic Importance of Earthworms
13. Earthworms as Bioindicators
14. Vermicomposting: A Sustainable Approach to Waste and Soil Health
15. Earthworm Evolution and Diversity
16. Threats and Conservation of



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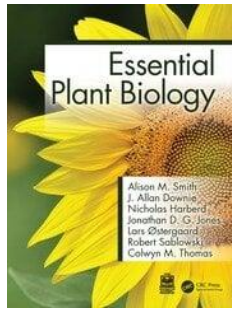
The Hierarchies in Biological SystematicsA Conceptual Perspective

By Igor Ya. Pavlinov Copyright 2026 Hardback \$240.00 ISBN 9781032982120 308 Pages
36 B/W Illustrations Published January 23, 2026 by CRC Press

The Hierarchies in Biological Systematics: A Conceptual Perspective examines the diverse hierarchies shaping the field of biology. From the overarching cognitive frameworks to the specific classifications that define biological taxonomy, this book is a comprehensive analysis of hierarchical structures and their inherent complexities.

Through a conceptual lens, the author explores the fundamental parameters of hierarchies, their fuzziness, and the principles guiding their substantiation, elaboration, and implementation. The book also delves into the ongoing debate between ranked and rankless taxonomic hierarchies, highlighting the author's view of the unique rationality of ranked systems while critically assessing their limitations.

Whether you are a researcher, student, or professional in biological systematics, this book offers valuable insights into the conceptual underpinnings of hierarchical classifications and their role in advancing scientific understanding.



Essential Plant Biology

- By Alison M. Smith, J. Allan Downie, Nicholas Harberd, Jonathan D. G. Jones, Lars Østergaard, Robert Sablowski, Colwyn M. Thomas Copyright 2026
Paperback \$84.99

PART I.

1. Origins.

PART II

2. Genomes. 3. Gene Regulation.

PART III

4. Photosynthesis.

5. Primary Carbon Metabolism.

6. Biosynthesis.

7. Water and Nutrients.

PART IV

8. Cellular Basis of Plant Growth.

9. Plant Hormones.

10. Vegetative Development.

11. Reproductive Growth.

PART V

12. Environmental Signals.

13. Extreme Environments.

14. How Pests and Pathogens Cause Plant Disease.

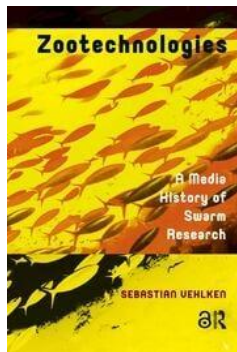
15. Plant Defenses.

16. Beneficial Interactions.

PART VI

17. The Domestication of Crop Plants.

18. Plant Breeding and Crop Improvement.

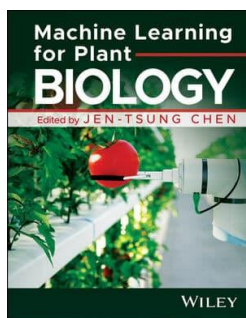


Zootechnologies A Media History of Swarm Research

By Sebastian Vehlken Paperback \$61.99 ISBN 9781041191001 400 Pages Published January 9, 2026 by Routledge

Swarming has become a fundamental cultural technique related to dynamic processes and an effective metaphor for the collaborative efforts of society. This book examines the media history of swarm research and its significance to current socio-technological processes. It shows that the hype about collective intelligence is based on a reciprocal computerization of biology and biologization of computer science: After decades of painstaking biological observations in the ocean, experiments in aquariums, and mathematical model-making, it was swarms-inspired computer simulation which provided biological researchers with enduring knowledge about animal collectives. At the same time, a turn to biological principles of self-organization made it possible to adapt to unclearly delineated sets of problems and clarify the operation of opaque systems - from logistics to architecture, or from crowd control to robot collectives. As zootechnologies, swarms offer performative, synthetic, and approximate solutions in cases where analytical approaches are doomed to fail.

Introduction, I. Deformations: A Media Theory of Swarming, II. Formations, III. Formats, IV. Formulas, V. Transformations, VI. Zootechnologies, Conclusion, Acknowledgements, Works Cited



Machine Learning for Plant Biology

Jen-Tsung Chen (Editor) ISBN: 978-1-394-32961-8 January 2026 368 pages **Print**
Starting at \$178.00

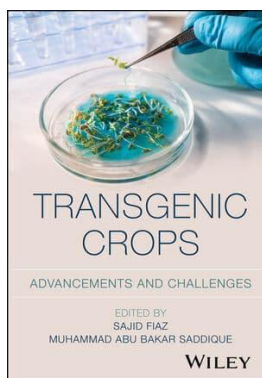
A comprehensive and current summary of machine learning-based strategies for constructing digital plant biology

Machine Learning for Plant Biology provides a comprehensive summary of the latest developments in machine learning (ML) technologies, emphasizing their role in analyzing complex biological networks of plants and in modeling the responses of major crops to biotic and abiotic stresses. The combinatorial strategies discussed in this book enable readers to further their understanding of plant biology, stress physiology, and protection.

Machine Learning for Plant Biology includes information on:

- Intelligent breeding for stress-resistant and high-yield crops, contributing to sustainable agriculture, the Sustainable Development Goals (SDGs), and the Paris Agreement
- Interactions between plants, pathogens, and environmental stresses through omics approaches, functional genomics, genome editing, and high-throughput technologies
- State-of-the-art AI tools, including machine and deep learning models, as well as generative AI
- Applications include species identification, systems biology, functional genomics, genomic selection, phenotyping, synthetic biology, spatial omics, plant disease diagnosis and protection, and plant secondary metabolism

Machine Learning for Plant Biology is an essential reference on the subject for scientists, plant biologists, crop breeders, and students interested in the development of sustainable agriculture in the face of a changing global climate.



Transgenic Crops: Advancements and Challenges

Sajid Fiaz (Editor), Muhammad Abu Bakar Saddique (Editor) ISBN: 978-1-394-37361-1

March 2026 576 pages Hardcover \$242.00

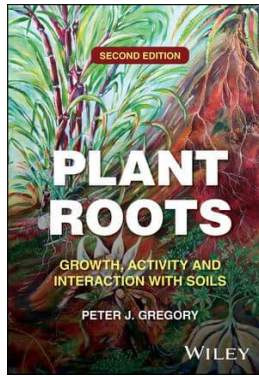
Comprehensive resource highlighting the potential for transgenic crops to improve global food security, reviewing risks, international regulations, and public perception

Transgenic Crops: Advancements and Challenges explores the ecological, economic, and societal implications of transgenic crops and delves into the science behind their genetic modifications. Key themes include recent advancements in transgenic crop development as well as challenges faced and strategies for mitigation. The book also highlights innovative methodologies and techniques, international laws and policies, and points of consideration related to biosafety and public perception. Emphasis is placed on the role of transgenic crops in ensuring food and nutritional security, particularly in the face of global challenges such as population growth and climate change.

Transgenic Crops includes information on:

- Advantages and disadvantages of plant cell cloning and the role of GMOs in achieving sustainable agricultural practices
- The power of transgenic approaches mitigating abiotic and biotic stress tolerance in plants
- Abiotic stress in plants and associated effects, responses, and adaptive mechanisms in transgenic approaches
- The role of transgenic plants in climate change mitigation and adaptation and the impact of climate change on plant pathogens, diseases, and food security
- Trends, innovations, and challenges driving the future of transgenic crops

Transgenic Crops: Advancements and Challenges is an essential up-to-date reference on the subject for researchers and scientists looking to apply techniques at field and laboratory level, policymakers and stakeholders working in biosecurity, bioethics, and related disciplines, and students in related programs of study.



Plant Roots: Growth, Activity and Interaction with Soils, 2nd Edition Peter J. Gregory ISBN: 978-1-118-94992-4 October 2025 464 pages Hardcover \$199.95

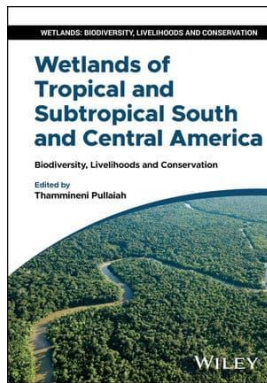
An updated overview of plant root systems, covering their development, growth, interactions with soil, breeding and management

Plant Roots draws together information from plant and soil literature to illustrate how roots interact with soil, both to modify it and to obtain from it the resources required for the whole plant to grow. Emphasis is placed on whole plants and root systems, with appropriate references to the growing body of literature on plant molecular and cellular levels.

This newly revised and updated Second Edition maintains its balance between introducing the founding ideas and science underlying the topic while covering the most recent updates underpinned by new scientific methods and understanding. The author reviews recent advances in genomics, phenomics, other -omics technologies, computer modelling, and the study of 'model plants' such as *Arabidopsis thaliana* and rice which have led to major advances in understanding how roots grow and function. New crop varieties contributing to increased crop production, especially in nutrient poor and/or water-limited soils, are described together with new ways of managing root systems to improve crop performance and efficiency of resource use.

Sample topics discussed in *Plant Roots* include:

- The anatomy and growth of primary roots
- The development and properties of the rhizosphere
- Heterogeneity of structure, nutrient availability, and microbial communities experienced in field soils
- Differences in anatomy and morphology between different types (classes) of root and their consequences for activity as absorbers of water and nutrients
- How crops, forests, natural plant communities and the resources supporting them might be managed more effectively



Wetlands of Tropical and Subtropical South and Central America:

Biodiversity, Livelihoods and Conservation Thammineni Pullaiah (Editor)

ISBN: 978-1-394-30713-5 February 2026 304 pages Hardcover \$205.00

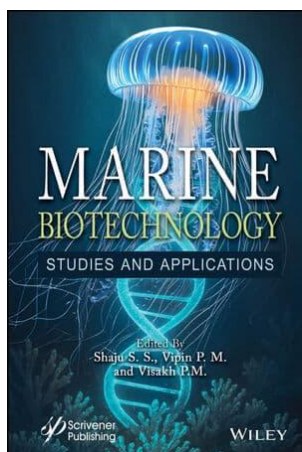
Comprehensive wetland analysis for conservationists, professionals, and researchers

Wetlands of Tropical and Subtropical South and Central America: Biodiversity, Livelihoods and Conservation explores the challenges confronted by those managing wetland ecosystems. It offers expert analyses of specific wetland environments across South and Central America, examining how these ecosystems can be protected while sustaining the livelihoods of communities that depend upon them.

This book takes a unique comparative approach by analysing similar wetlands from different regions and continents, allowing best practices in conservation and management to emerge that are globally relevant. Each chapter is authored by recognized regional experts and covers issues like biological resources, ecosystem services including carbon sequestration and water filtration, and implemented conservation measures. Aligned with UN sustainable development goals by considering both ecological and economic value, the collection also offers:

- Regional expert analysis of biodiversity hotspots across tropical and subtropical South and Central America, from Bolivian lowlands to the Pantanal
- Comprehensive examination of ecosystem services including carbon sequestration, water filtration, nutrient retention, and flood mitigation
- Conservation strategies and management practices applicable across global wetland systems
- Case studies spanning marine and coastal wetlands, Amazonian freshwater systems, and extra-Andean subtropical wetlands
- Discussions of threats to wetlands as well as in-depth comparisons of wetlands in different regions and continents

Wetlands of Tropical and Subtropical South and Central America is essential for ecologists, conservation scientists, hydrologists, and environmental and water resource managers seeking evidence-based approaches to wetland conservation.



Marine Biotechnology: Studies and Applications

Shaju S. S. (Editor), Vipin P. M. (Editor), Visakh P. M. (Editor) ISBN: 978-1-394-30129-4

November 2025 352 pages Hardcover **\$195.00**

Discover the cutting-edge field of marine biotechnology with this comprehensive guide, offering expert insights and real-world case studies demonstrating its wide range of applications.

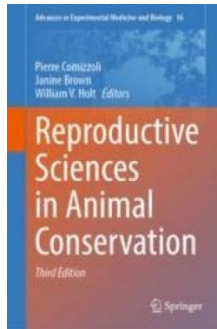
Marine biotechnology is a cutting-edge field leading to a more sustainable future through the extraction of biocompounds. This book introduces the fundamentals of marine biotechnology and its applications. Through expert insights and real-world case studies, the book serves as a comprehensive guide for a wide range of concepts, including the evolution of marine biotechnology and biodiscovery, bio-molecular components extracted from marine bioresources, and biotechnological advances to extend the use of marine bioresources for industrial and agricultural applications. This book is an essential resource for beginners and seasoned professionals looking towards the future of marine biotechnology.

Readers will find this volume:

- Presents real-world studies and applications to demonstrate the evolution of marine biotechnology and biodiversity;
- Provides in-depth explorations of niche concepts, such as bioprospecting of natural products from marine phytoplanktons, pharmaceutical and nutraceutical applications of marine micro-algae, and the application of marine gelatin and chitosan edible nanocomposite film for food coating and packaging;
- Explores methods to help researchers find solutions to both fundamental and applied problems in the area of marine biotechnology.

Audience

Marine scientists, aquaculture technologists, marine engineers, and academics interested in the cutting-edge applications of marine biotechnology.



Reproductive Sciences in Animal Conservation

© 2026

- Pierre Comizzoli Springer 978-3-031-87706-3 Published: 21 February 2026 Edition Number3 Number of PagesVIII, 659 Number of Illustrations16 b/w illustrations, 55 illustrations in colour

This third edition provides a fully updated and comprehensive examination of the critical role of reproductive biology in animal conservation. As with prior editions, this book is wide-ranging and relevant to anyone interested in species conservation, providing critical perspectives on the utility of current and emerging animal reproductive science and technology. Reproductive biology in the context of animal species conservation is much more than the development of techniques for helping with too little or too much breeding; technical developments must be preceded by an understanding of the biological basis behind breeding problems. With looming extinction concerns and unprecedented pressures on biodiversity, every effort must be made to ensure species reproduction in the wild, and to optimize breeding in populations in human care while providing the best welfare standards available.

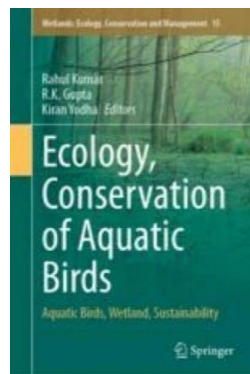
The new edition contains a selection of chapters on fast-evolving topics such as welfare, ethics, epigenetics, extra-cellular vesicles, stem cells, contraception, and threats posed by environmental changes. Other chapters include species-specific perspectives, including on bees and marine mammals.



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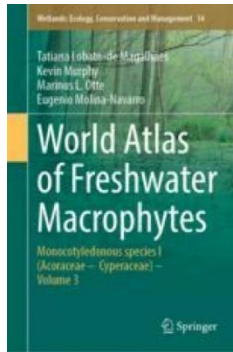
----**INSTIT. BIOLOGIA**----



Ecology, Conservation of Aquatic Birds Aquatic Birds, Wetland, Sustainability

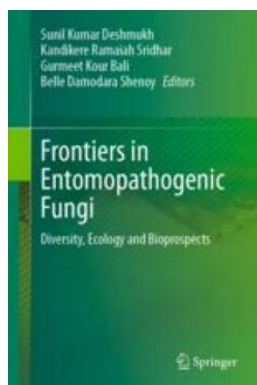
Springer Rahul Kumar **Hardcover ISBN**978-3-032-17124-5Published: 17 February 2026 **Number of Pages**IX, 626 **Number of Illustrations**12 b/w illustrations, 63 illustrations in colour \$277.99

The book offers an in-depth exploration of the intricate relationship between aquatic birds and marine ecosystems highlighting the pivotal role seabirds play in maintaining ecological stability and enriching biodiversity. This book outlines the ecological significance of seabirds and their role in maintaining marine ecosystem balance by regulating competition, influencing fish and invertebrate populations, cycling nutrients. It also underscores their role as sensitive environmental bioindicators, offering valuable insights into the impacts of pollution, climate change, and habitat degradation. This book stresses the importance of strong conservation efforts protecting habitats, reducing threats, and engaging stakeholders to secure the long-term survival of aquatic birds. Comprehending the ecological obligations and perils that avian fauna encounter, the book calls for coordinated and lasting measures to safeguard their well-being and persistence.



World Atlas of Freshwater Macrophytes

- Monocotyledonous species I (Acoraceae – Cyperaceae) – Volume 3 Tatiana Lobato Springer Hardcover ISBN978-3-032-09433-9 Published: 14 February 2026
Number of PagesXXXII, 965 Number of Illustrations6 b/w illustrations, 915 illustrations in colour
- This is the third of five volumes of a compendium of the global distribution of about 3571 aquatic macrophyte species occurring in inland freshwater and brackish waterbodies worldwide. In addition to descriptions and maps, the volumes together highlight aspects of their ecology such as endemism, world rarity, endangered status, ecozone/macroregional occurrence, ploidy state, species age, and uses. This book provides a novel resource on the distribution and ecology of macrophytes around the world.
- The Atlas fills a gap in scientific knowledge of the global ecology of an important group of aquatic plants. It highlights the expansion of invasive species and describes hotspots of endemism and rarity for freshwater macrophytes across the planet. The data included in this book range from karyology to biogeography, within a general theme of understanding the environmental factors that drive the biodiversity, ecology, landscape genetics, and conservation of aquatic plants in freshwater ecosystems. The third volume of the World Atlas of Freshwater Macrophytes: Monocotyledonous species I (Acoraceae – Cyperaceae) covers nine botanical families and 917 species of aquatic macrophytes.
- The authors, based in Mexico, Scotland, Spain, and the USA are members of an informal international research network, set up in 2017 by retired aquatic botanist Kevin Murphy, which is dedicated to advancing macroecological



Frontiers in Entomopathogenic Fungi Diversity, Ecology and Bioprospects

Sunil Kumar Deshmukh Springe Hardcover ISBN978-981-95-6528-3Published:
14 February 2026 Number of PagesXVII, 643 Number of Illustrations22 b/w
illustrations, 78 illustrations in colour \$219.99

This contributed volume provides an in-depth examination of entomopathogenic fungi, focusing on their diversity, ecological roles, and potential as biocontrol agents. It brings together contributions from leading scholars and practitioners to explore key research and applications in this dynamic field.

The chapters cover a wide range of topics, including classification and evolutionary dynamics of entomopathogenic fungi, their genomic and molecular determinants, and their interactions with insect hosts. The book also explores the role of secondary metabolites in fungal virulence, along with innovative applications in agriculture and pest management. Additionally, it addresses the challenges and opportunities in commercializing these fungi for sustainable agriculture, providing a comprehensive overview of their biocontrol potential. Further, it discusses the diverse applications of fungal secondary metabolites in the pharmaceutical industry and medicinal chemistry.

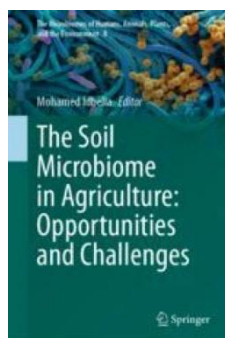
Blending theoretical perspectives with practical case studies, this volume serves as an invaluable resource for researchers, students, and professionals in mycology, entomology, and biotechnology. Readers will gain a deeper understanding of the ecological roles of entomopathogenic fungi and their transformative potential in pest management and sustainable agriculture.



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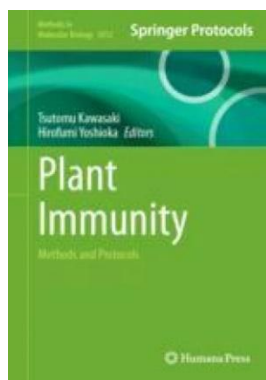
The Soil Microbiome in Agriculture: Opportunities and Challenges

Mohamed Idbella Springer Hardcover ISBN978-3-032-16044-7Published: 13
February 2026 Number of PagesV, 189 Number of Illustrations2 b/w
illustrations, 16 illustrations in colour

This book examines the crucial role of soil microbial communities in agroecosystems, highlighting their contributions to plant growth promotion, disease suppression, pathogen resistance, and soil remediation. Recent advances in sequencing technologies and bioinformatics have brought soil microbiome research to the forefront, emphasizing its significance for sustainable agriculture.

Combining theoretical insights with practical case studies, this volume introduces diverse soil- and plant-associated microbes—including bacteria, mycorrhizal fungi, yeasts, and polyextremophilic communities—and explores their specific functions and applications in addressing major challenges in eco-friendly crop management.

This book serves as an essential resource for researchers and scholars in microbiology, environmental sciences, and agriculture.



Plant Immunity Methods and Protocols

Tsutomu Kawasaki Humana Hardcover ISBN978-1-0716-5137-7Published: 06
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illustrations, 122 illustrations in colour

This volume explores plant immunity through protocols for recently established genetic and biochemical techniques to elucidate immune mechanisms mediated by pattern-recognition receptors (PRRs) and nucleotide-binding leucine-rich repeat receptors (NLRs). The book covers the identification of PRRs, their associated downstream immune regulators, PRR-ligand interaction-based immune responses, identification of NLR complex components, pan-NLRome analysis, resistosome assays, and cell death evaluation. Additionally, it presents protocols for co-transcriptome analysis of plant-pathogen interactions, single-nucleus multi-omics, metabolite imaging, and bioluminescence-based quantification of pathogen growth, as well as genome editing tools that contribute to the development of disease-resistant plants. Written for the highly successful *Methods in Molecular Biology* series, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step and readily reproducible laboratory protocols, and tips for troubleshooting and avoiding known pitfalls.

Authoritative and practical, *Plant Immunity: Methods and Protocols* serves as an ideal guide for researchers aiming to accelerate ongoing research and advances in the field of plant immunity.



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