

Biology And Ecology Of Wild Radish *Raphanus Raphanistrum*

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Oceanography and Marine Biology - R. N. Gibson 2008-06-05

Increasing interest in marine biology and its relevance to environmental issues creates a demand for authoritative reviews of recent research. *Oceanography and Marine Biology* has addressed this demand for nearly 40 years. This annual review considers basics of marine research, special topics, and emerging new areas. Regarding the marine sciences as a unified field, the text features contributors who are actively engaged in biological, chemical, geological, and physical aspects of marine science. This edition includes a full color insert and covers such topics as the ecological status of the Great Barrier Reef, the effects of coral bleaching on fisheries, and the biology of octopus larvae.

Plant Reproductive Ecology : Patterns and Strategies - Jon and Lesley Lovett-Doust Professor of Biology the University of Windsor 1988-07-07

This collection of reviews by leading investigators examines plant reproduction and sexuality within a framework of evolutionary ecology, providing an up-to-date account of the field. The contributors discuss conceptual issues, showing the importance of sex allocation, sexual selection and inclusive fitness, and the dimensions of paternity and maternity in plants. The evolution, maintenance, and loss of self-incompatibility in plants, the nature of 'sex choice' in plants, and sex dimorphism are all explored in detail. Specific forms of biotic interactions shaping the evolution of plant reproductive strategy are discussed, and a taxonomically based review of the reproductive ecology of non-angiosperm plant groups, such as bryophytes, ferns, and algae, is presented. Together these studies focus on the complexities of plant life cycles and the distinctive reproductive biologies of these organisms, while showing the similarities between nonflowering plants and the more thoroughly documented flowering species.

Generalization in Plant Pollination Systems and Its Effect on Floral Evolution Within and Among Populations of Wild Radish (*Raphanus Raphanistrum*) - Heather Farrah Sahli 2006

Ecology and Evolution of Flowers - Lawrence D. Harder 2006-11-30

Floral biology, floral function, sexual systems, diversification.

Nature's Palette - David Lee 2010-09-03

Though he didn't realize it at the time, David Lee began this book twenty-five years ago as he was hiking in the mountains outside Kuala Lumpur. Surrounded by the wonders of the jungle, Lee found his attention drawn to one plant in particular, a species of fern whose electric blue leaves shimmered amidst the surrounding green. The evolutionary wonder of the fern's extravagant beauty filled Lee with awe—and set him on a career-long journey to understand everything about plant colors. *Nature's Palette* is the fully ripened fruit of that journey—a highly illustrated, immensely entertaining exploration of the science of plant color. Beginning with potent reminders of how deeply interwoven plant colors are with human life and culture—from the shifting hues that told early humans when fruits and vegetables were edible to the indigo dyes that signified royalty for later generations—Lee moves easily through details of pigments, the evolution of color perception, the nature of light, and dozens of other topics. Through a narrative peppered with anecdotes of a life spent pursuing botanical knowledge around the world, he reveals the profound ways that efforts to understand and exploit plant color have influenced every sphere of human life, from organic chemistry to Renaissance painting to the highly lucrative

orchid trade. Lavishly illustrated and packed with remarkable details sure to delight gardeners and naturalists alike, *Nature's Palette* will enchant anyone who's ever wondered about red roses and blue violets—or green thumbs.

Biological Approaches and Evolutionary Trends in Plants - Shoichi Kawano 2012-12-02

Biological Approaches and Evolutionary Trends in Plants is a collection of papers presented at the Fourth International Symposium of Plant Biosystematics held on July 10-14, 1989 in Kyoto, Japan. Contributors, some are world's leading plant biologists, discuss the findings in evolutionary biology and issues in plant biosystematics in light of the evidence and ideas brought forward at various levels of biological organization, from molecule to cell, individual, population, species, and community levels. This volume is organized into four sections encompassing 22 chapters and begins with an overview of discoveries concerning parapatric differentiation of weed populations, including adaptive evolution in herbicide resistant biotypes and complex evolutionary patterns in weed-crop complexes of various groups. The next section explores molecular approaches in plant biosystematics, focusing on amino acid sequencing of proteins; restriction-site variations of cpDNA, mitDNA, rDNA, etc.; and chromosome-banding patterns revealed by differential staining. The discussion shifts to a wave of research in plant population biology and evolutionary ecology since the 1970s and its impact on biology and biosystematics. The book considers various aspects of reproductive biology and evolutionary changes in significant reproductive parameters and attempts to demographically quantify these parameters. The final chapter is devoted to the use of functional phylogenetic systematics for predictive ecology. This book will be of interest to plant biologists and scientists and researchers in fields such as biochemistry, botany, microbiology, ecology, and evolutionary biology.

Large-area Effects of GM-crop Cultivation - Broder Breckling 2010

This book presents the results of the GMLS II conference on «Implications of GM-Crop Cultivation at Large Spatial Scales», held in Bremen in March 2010. The meeting was a platform to discuss ecological, agricultural and economic implications of genetically modified organisms (GMO) and to present new developments in risk assessment and monitoring. Approaches in co-existence regulations and nature protection standards are presented as well as legal challenges and resolutions on national and on EU-level. The book collects 30 contributions written by specialists in science, administration and jurisprudence from Europe as well as Africa, Central America, and Russia.

Evolutionary Conservation Biology - Régis Ferrière 2004-06-10

As anthropogenic environmental changes spread and intensify across the planet, conservation biologists have to analyze dynamics at large spatial and temporal scales. Ecological and evolutionary processes are then closely intertwined. In particular, evolutionary responses to anthropogenic environmental change can be so fast and pronounced that conservation biology can no longer afford to ignore them. To tackle this challenge, areas of conservation biology that are disparate ought to be integrated into a unified framework. Bringing together conservation genetics, demography, and ecology, this book introduces evolutionary conservation biology as an integrative approach to managing species in conjunction with ecological interactions and evolutionary processes. Which characteristics of species and which features of environmental change foster or hinder evolutionary responses in ecological systems? How do such responses affect population

viability, community dynamics, and ecosystem functioning? Under which conditions will evolutionary responses ameliorate, rather than worsen, the impact of environmental change?

Bioenergy and Biological Invasions - Lauren D Quinn 2015-02-20

Despite major international investment in biofuels, the invasive risks associated with these crops are still unknown. A cohesive state-of-the-art review of the invasive potential of bioenergy crops, this book covers the identified risks of invasion, distributions of key crops and policy and management issues. Including a section on developing predictive models, this book also assesses the potential societal impact of bioenergy crops and how to mitigate invasive risks.

Gender and Sexual Dimorphism in Flowering Plants - Monica A. Geber 2012-12-06

Written by the leading experts in the field, this book examines the evolutionary advantages of gender dimorphism and sexual dimorphism in flowering plants. Divided into three sections: the first introduces readers to the tremendous variety of breeding systems and their evolution in plants and sets the stage for a consideration of the evolution of dimorphism in reproductive and non-reproductive characters. The second section deals with the evolution of secondary sexual characters, including the theory related to the evolution of sexual dimorphism and its empirical patterns, while the last section deals with the genetics of gender expression and of secondary sexual characters.

The Ecology of Adaptive Radiation - Dolph Schluter 2000-08-31

Adaptive radiation is the evolution of diversity within a rapidly multiplying lineage. It can cause a single ancestral species to differentiate into an impressively vast array of species inhabiting a variety of environments. Much of life's diversity has arisen during adaptive radiations. Some of the most famous recent examples include the East African cichlid fishes, the Hawaiian silverswords, and of course, Darwin's Galapagos finches. This book evaluates the causes of adaptive radiation. It focuses on the 'ecological' theory of adaptive radiation, a body of ideas that began with Darwin and was developed through the early part of the 20th Century. This theory proposes that phenotypic divergence and speciation in adaptive radiation are caused ultimately by divergent natural selection arising from differences in environment and competition between species. In *The Ecology of Adaptive Radiation* the author re-evaluates the ecological theory, along with its most significant extensions and challenges, in the light of all the recent evidence. This important book is the first full exploration of the causes of adaptive radiation to be published for decades, written by one of the world's best young evolutionary biologists.

Life History Evolution in Plants - Timo Olavi Vuorisalo 2001-11-30

"The lack of discussion of the life histories of modular organisms is the weakness of this book that I most regret. . . . Modular organisms are different." S. C. Stearns: *The Evolution of Life Histories* (1992) Life-history theory endeavours to increase our understanding of the processes whereby the broad features of the life cycles of organisms, such as the timing and magnitude of reproduction, have evolved. Although reproductive traits have dominated as study objects due to their immediate importance for evolutionary success, much work has also been conducted on patterns of development, growth and senescence, as well as on the shifts in resource allocation related to these processes. The basic axiom of life-history theory is that patterns of life histories, such as reproductive traits, are subject to evolutionary explanation. This idea can be traced back at least as far as Darwin's *Origin of Species* (1859). In his discussion of plant domestication, Darwin wrote: "I cannot doubt that the continued selection of slight variations, either in the leaves, the flowers, or the fruit, will produce races differing from each other chiefly in these characters". Darwin was impressed by the success of plant breeders in moulding the growth and reproductive parameters of cultivated plants, and believed that natural selection could have a similar impact in natural populations.

Weed Biology and Ecology in Agroecosystems - Karla Leigh Gage 2021-11-03

Insect Bioecology and Nutrition for Integrated Pest Management - Antônio

Ricardo Panizzi 2012-03-08

The field of insect nutritional ecology has been defined by how insects deal with nutritional and non-nutritional compounds, and how these compounds influence their biology in evolutionary time. In contrast, *Insect Bioecology and Nutrition for Integrated Pest Management* presents these entomological concepts within the framework of integrated pest management (IPM). It specifically addresses bioecology and insect nutrition in modern agriculture. Written for graduate students and professionals in entomology, this book covers neotropical information in three sections: General Aspects: Basic bioecology and insect nutrition; artificial diets; insect/plant interactions; insect symbionts; the interface of chemical ecology with the food; and insect cannibalism Specific Aspects: Specific feeding guilds of insects including ants, social bees, leaf chewers, seed suckers, seed chewers, root feeders, gall makers, detritivorous feeders, pests of storage grains, fruit flies, aphids, endo- and ectoparasitoids, predators, crisopids, and hematophagous insects Applied Aspects: Host plant resistance and the design of IPM programs in the context of insect bioecology and nutrition Much of the research on which these chapters were written was done in Brazil and based on its neotropical fauna. The complexity and diversity of the neotropics provides enough data that readers from all zoogeographical regions can readily translate the information in this book to their specific conditions. The book's value as an entry point for further research is enhanced by the inclusion of approximately 4,000 references.

Ecology Abstracts - 1999

Coverage: 1982- current; updated: monthly. This database covers current ecology research across a wide range of disciplines, reflecting recent advances in light of growing evidence regarding global environmental change and destruction. Major areas of subject coverage include: Algae/lichens, Animals, Annelids, Aquatic ecosystems, Arachnids, Arid zones, Birds, Brackish water, Bryophytes/pteridophytes, Coastal ecosystems, Conifers, Conservation, Control, Crustaceans, Ecosystem studies, Fungi, Grasses, Grasslands, High altitude environments, Human ecology, Insects, Legumes, Mammals, Management, Microorganisms, Molluscs, Nematodes, Paleo-ecology, Plants, Pollution studies, Reptiles, River basins, Soil, Tundra, Terrestrial ecosystems, Vertebrates, Wetlands, Woodlands.

Invasion Dynamics - Cang Hui 2017

"Humans have moved organisms around the world for centuries, but it is only relatively recently that invasion ecology has grown into a mainstream research field. This book examines both the spread and impact dynamics of invasive species, placing the science of invasion biology on a new, more rigorous, theoretical footing. Furthermore, it proposes a concept of adaptive networks as the foundation for future research. Biological invasions are considered not as simple actions of invaders and reactions of invaded ecosystems, but as co-evolving complex adaptive systems with emergent features of network complexity and invasibility. *Invasion Dynamics* focuses on the ecology of invasive species and their impacts in recipient social-ecological systems. It not only discusses key advances and challenges within the traditional domain of invasion ecology, but introduces approaches, concepts, and insights from many other disciplines such as complexity science, systems science, and ecology more broadly. It will be of great value to invasion biologists analysing spread and/or impact dynamics as well as other ecologists interested in spread processes or habitat management."

Approaches to Plant Evolutionary Ecology - G.P. Cheplick 2015-06-01

Plant evolutionary ecology is a rapidly growing discipline which emphasizes that populations adapt and evolve not in isolation, but in relation to other species and abiotic environmental features such as climate. Although it departs from traditional evolutionary and ecological fields of study, the field is connected to branches of ecology, genetics, botany, conservation, and to a number of other fields of applied science, primarily through shared concepts and techniques. However, most books regarding evolutionary ecology focus on animals, creating a substantial need for scholarly literature with an emphasis on plants. *Approaches to Plant Evolutionary Ecology* is the first book to specifically explore the evolutionary characteristics of plants, filling the aforementioned gap in the literature on evolutionary ecology. Renowned

plant ecologist Gregory P. Cheplick summarizes and synthesizes much of the primary literature regarding evolutionary ecology, providing a historical context for the study of plant populations from an evolutionary perspective. The book also provides summaries of both traditional (common gardens, reciprocal transplants) and modern (molecular genetic) approaches used to address questions about plant adaptation to a diverse group of abiotic and biotic factors. Cheplick provides a rigorously-written introduction to the rapidly growing field of plant evolutionary ecology that will appeal to undergraduate and graduate students with an interest in ecology and evolution, as well as educators who are teaching courses on related topics.

Pollen and Pollination - Amots Dafni 2012-12-06

Pollen studies make important contributions nature, into three main themes: pollen structure to our knowledge in many interdisciplinary fields and constituents, pollen evolutionary arenas. Pollen identification is widely used in ecology and the pollen-pollinator interface. reconstruction of, e.g., vegetation, the climate Several papers overlap somewhat or are of the past, and plant biodiversity. Studies perhaps even somewhat contradictory and concerning pollen structure, size and form are reflect the author's own ideas and experience. key issues in basic sciences, as, e.g., plant Some could be understood more deeply by taxonomy and evolution, but are also of consulting other closely related articles. The importance in applied fields as, e.g., plant reader is strongly referred to the respective breeding. In pollination studies pollen is literature list of each article. generally used specifically to identify food of anther ripening and pollen The last steps development (Pacini) and the mature pollen sources of visitors and to reconstruct their foraging routes. Fewer have been devoted to wall structure (Hesse) are key factors to pollen collection mechanisms and to the structure understand pollen dispersal mechanisms in structure and content of pollen in relation to its biotic pollination (Stroob) as well as abiotic pollination (Ackerman). Pollen size, shape, function.

Genes in the Environment - Rosie S. Hails 2001-08

Genes in the Environment presents the recent research in the exciting and rapidly developing field of molecular, genetic and modelling techniques. These techniques, central to ecology, provide valuable new tools for addressing complex ecological questions and considerable insights into our understanding of the dynamics of populations and communities. A diverse range of topics is covered, including community dynamics in soils and water, gene flow and spatial dynamics, and the evolution of the pathogenic and symbiotic relationships. Organisms studied range from bacteria, viruses and fungi to insects, plants and fish.

The Ecology of Seeds - Michael Fenner 2005-02-24

What determines the number and size of the seeds produced by a plant? How often should it reproduce them? How often should a plant produce them? Why and how are seeds dispersed, and what are the implications for the diversity and composition of vegetation? These are just some of the questions tackled in this wide-ranging review of the role of seeds in the ecology of plants. The authors bring together information on the ecological aspects of seed biology, starting with a consideration of reproductive strategies in seed plants and progressing through the life cycle, covering seed maturation, dispersal, storage in the soil, dormancy, germination, seedling establishment, and regeneration in the field. The text encompasses a wide range of concepts of general relevance to plant ecology, reflecting the central role that the study of seed ecology has played in elucidating many fundamental aspects of plant community function.

Adaptive Genetic Variation in the Wild - Timothy A. Mousseau 2000-01-13

Patterns of adaptation in the past and the genetic basis of traits likely to be under selection in the dynamically changing environment are also discussed in relation to these responses."

Crop Fertility and Volunteerism - Jonathan Gressel 2005-04-12

At a time when much of humanity is already but one failed harvest removed from starvation, we cannot afford to ignore any potential danger to food security, especially when that danger poses a threat to rice, the staff of life for so much of the world. *Crop Fertility and Volunteerism* brings together research pioneers from various disciplines including the crop, plant, and weed sciences to discuss crop fertility and volunteerism. The book provides

thorough coverage of crop and plant molecular biology and genetics as it pertains to fertility and weeds. In an exhaustive effort to provide complete and highly useful coverage of this impending crisis, the authors go beyond the science of the problem to discuss the potential economic and social impact of crop fertility, particularly in relationship to rice. Readers will discover a wealth of well-organized and well-written material about the overall biology and management of weeds and weedy crops. Many examples of fertility are considered, because, as the editor states, readers will discover that there is no unified theory of fertility. Thanks to the incredible diversity of the plant kingdom, "Surprises abound in every chapter."

Specialization, Speciation, and Radiation - Kelley Jean Tilmon 2008

"This volume captures the state-of-the-art in the study of insect-plant interactions, and marks the transformation of the field into evolutionary biology. The contributors present integrative reviews of uniformly high quality that will inform and inspire generations of academic and applied biologists. Their presentation together provides an invaluable synthesis of perspectives that is rare in any discipline."--Brian D. Farrell, Professor of Organismic and Evolutionary Biology, Harvard University "Tilmon has assembled a truly wonderful and rich volume, with contributions from the lion's share of fine minds in evolution and ecology of herbivorous insects. The topics comprise a fascinating and deep coverage of what has been discovered in the prolific recent decades of research with insects on plants. Fascinating chapters provide deep analyses of some of the most interesting research on these interactions. From insect plant chemistry, behavior, and host shifting to phylogenetics, co-evolution, life-history evolution, and invasive plant-insect interaction, one is hard pressed to name a substantial topic not included. This volume will launch a hundred graduate seminars and find itself on the shelf of everyone who is anyone working in this rich landscape of disciplines."--Donald R. Strong, Professor of Evolution and Ecology, University of California, Davis "Seldom have so many excellent authors been brought together to write so many good chapters on so many important topics in organismic evolutionary biology. Tom Wood, always unassuming and inspired by living nature, would have been amazed and pleased by this tribute."--Mary Jane West-Eberhard, Smithsonian Tropical Research Institute

Biological Control of Weeds in Australia - M. H. Julien 2012

Biological control of weeds has been practiced for over 100 years and Australia has been a leader in this weed management technique. The classical example of control of prickly pears in Australia by the cactus moth *Cactoblastis cactorum*, which was imported from the Americas, helped to set the future for biocontrol of weeds in many countries. Since then there have been many projects using Classical Biological Control to manage numerous weed species, many of which have been successful. Importantly, there have been no serious negative non-target impacts - the technique, when practiced as it is in Australia, is safe and environmentally friendly. Economic assessments have shown that biocontrol of weeds in Australia has provided exceedingly high benefit-to-cost ratios. This book reviews biological control of weeds in Australia to 2011, covering over 90 weed species and a multitude of biological control agents and potential agents. Each chapter has been written by practicing biological control of weeds researchers and provides details of the weed, the history of its biological control, exploration for agents, potential agents studied and agents released and the outcomes of those releases. Many weeds were successfully controlled, some were not, many projects are still underway, some have just begun, however all are reported in detail in this book. *Biological Control of Weeds in Australia* will provide invaluable information for biological control researchers in Australia and elsewhere. Agents used in Australia could be of immense value to other countries that suffer from the same weeds as Australia. The studies reported here provide direction to future research and provide examples and knowledge for researchers and students. **KEY FEATURES** * A unique collation of information for Australian weed research and management * Contains all the information about biological control of weeds in Australia in one book * Provides key references for further information * Will become a well cited publication

Evolutionary Ecology of Plant Reproductive Strategies - Tom de Jong

2005-10-13

This book places the wealth of data that have been collected on plants into the unifying framework of game theory.

White Rust of Crucifers: Biology, Ecology and Management - Govind Singh Saharan 2014-06-11

White rust caused by the fungus *Albugo* is the most devastating disease known to occur in more than 50 countries and infects about 400 plant species belonging to 31 families worldwide including important vegetable crucifers, oil yielding Brassicas, ornamental plants and numerous weeds. This book on "White Rust" deals with the aspects on "the disease" and "the pathogen" is vividly illustrated for stimulating, effective and easy reading and understanding. We are sure that this comprehensive treatise on "white rust" will be of immense use to the researchers, teachers, students and all others who are interested in the diagnosis and management of white rust diseases of crops worldwide.

Handbook of Seed Science and Technology - Amarjit Basra 2006-05-08

A reference text with the latest information and research for educators, students, and researchers! World hunger and malnutrition remain an alarming concern that spurs researchers to develop quality technology. The Handbook of Seed Science and Technology is an extensive reference text for educators, students, practitioners, and researchers that focuses on the underlying mechanisms of seed biology and the impact of powerful biotechnological approaches on world hunger, malnutrition, and consumer preferences. This comprehensive guide provides the latest available research from noted experts pointing out the likely directions of future developments as it presents a wealth of seed biology and technological information. Seed science is the all-important foundation of plant science study. The Handbook of Seed Science and Technology provides an integrative perspective that takes you through the fundamentals to the latest applications of seed science and technology. This resource provides a complete overview, divided into four sections: Seed Developmental Biology and Biotechnology; Seed Dormancy and Germination; Seed Ecology; and Seed Technology. The Handbook of Seed Science and Technology examines: the molecular control of ovule development female gametophyte development cytokinins and seed development grain number determination in major grain crops metabolic engineering of carbohydrate supply in plant reproductive development enhancing the nutritive value of seeds by genetic engineering the process of accumulation of seed proteins and using biotechnology to improve crops synthetic seeds dormancy and germination hormonal interactions during dormancy release and germination photoregulation of seed germination seed size seed predation natural defense mechanisms in seeds seed protease inhibitors soil seed banks the ecophysiological basis of weed seed longevity in the soil seed quality testing seed vigor and its assessment diagnosis of seed-borne pathogens seed quality in vegetable crops vegetable hybrid seed production practical hydration of seeds of tropical crops seed technology in plant germplasm The Handbook of Seed Science and Technology is extensively referenced and packed with tables and diagrams, and makes an essential source for students, educators, researchers, and practitioners in seed science and technology.

Feminism and Evolutionary Biology - Patricia Gowaty 2012-12-06

Standing at the intersection of evolutionary biology and feminist theory is a large audience interested in the questions one field raises for the other. Have evolutionary biologists worked largely or strictly within a masculine paradigm, seeing males as evolving and females as merely reacting passively or carried along with the tide? Would our view of nature 'red in tooth and claw' be different if women had played a larger role in the creation of evolutionary theory and through education in its transmission to younger generations? Is there any such thing as a feminist science or feminist methodology? For feminists, does any kind of biological determinism undermine their contention that gender roles purely constructed, not inherent in the human species? Does the study of animals have anything to say to those preoccupied with the evolution and behavior of humans? All these questions and many more are addressed by this book, whose contributing authors include leading scholars in both feminism and

evolutionary biology. Bound to be controversial, this book is addressed to evolutionary biologists and to feminists and to the large number of people interested in women's studies.

Plant Variation and Evolution - David Briggs 2016-06-30

We are in the midst of a biological revolution. Molecular tools are now providing new means of critically testing hypotheses and models of microevolution in populations of wild, cultivated, weedy and feral plants. They are also offering the opportunity for significant progress in the investigation of long-term evolution of flowering plants, as part of molecular phylogenetic studies of the Tree of Life. This long-awaited fourth edition, fully revised by David Briggs, reflects new insights provided by molecular investigations and advances in computer science. Briggs considers the implications of these for our understanding of the evolution of flowering plants, as well as the potential for future advances. Numerous new sections on important topics such as the evolutionary impact of human activities, taxonomic challenges, gene flow and distribution, hybridisation, speciation and extinction, conservation and the molecular genetic basis of breeding systems will ensure that this remains a classic text for both undergraduate and graduate students in the field.

Entomology Abstracts - 2000

Invasion Genetics - Spencer C. H. Barrett 2016-07-15

Invasion Genetics: the Baker & Stebbins legacy provides a state-of-the-art treatment of the evolutionary biology of invasive species, whilst also revisiting the historical legacy of one of the most important books in evolutionary biology: *The Genetics of Colonizing Species*, published in 1965 and edited by Herbert Baker and G. Ledyard Stebbins. This volume covers a range of topics concerned with the evolutionary biology of invasion including: phylogeography and the reconstruction of invasion history; demographic genetics; the role of stochastic forces in the invasion process; the contemporary evolution of local adaptation; the significance of epigenetics and transgenerational plasticity for invasive species; the genomic consequences of colonization; the search for invasion genes; and the comparative biology of invasive species. A wide diversity of invasive organisms are discussed including plants, animals, fungi and microbes.

Floral Biology - David G. Lloyd 2012-12-06

Studies in floral biology are largely concerned with how flowers function to promote pollination and mating. The role of pollination in governing mating patterns in plant populations inextricably links the evolution of pollination and mating systems. Despite the close functional link between pollination and mating, research conducted for most of this century on these two fundamental aspects of plant reproduction has taken quite separate courses. This has resulted in surprisingly little cross-fertilization between the fields of pollination biology on the one hand and plant mating-system studies on the other. The separation of the two areas has largely resulted from the different backgrounds and approaches adopted by workers in these fields. Most pollination studies have been ecological in nature with a strong emphasis on field research and until recently few workers considered how the mechanics of pollen dispersal might influence mating patterns and individual plant fitness. In contrast, work on plant mating patterns has often been conducted in an ecological vacuum largely devoid of information on the environmental and demographic context in which mating occurs. Mating-system research has been dominated by population genetic and theoretical perspectives with surprisingly little consideration given to the proximate ecological factors responsible for causing a particular pattern of mating to occur.

Selection - Graham Bell 2008-12-18

This book adopts an experimental approach to understanding the mechanisms of evolution and the nature of evolutionary processes, with examples drawn from microbial, plant and animal systems. It incorporates insights from remarkable recent advances in theoretical modelling, and the fields of molecular genetics and environmental genomics. Adaptation is caused by selection continually winnowing the genetic variation created by mutation. In the last decade, our knowledge of how selection operates on populations in the field and in the laboratory has increased enormously, and the principal

aim of this book is to provide an up-to-date account of selection as the principal agent of evolution. In the classical Fisherian model, weak selection acting on many genes of small effect over long periods of time is responsible for driving slow and gradual change. However, it is now clear that adaptation in laboratory populations often involves strong selection acting on a few genes of large effect, while in the wild selection is often strong and highly variable in space and time. Indeed these results are changing our perception of how evolutionary change takes place. This book summarizes our current understanding of the causes and consequences of selection, with an emphasis on quantitative and experimental studies. It includes the latest research into experimental evolution, natural selection in the wild, artificial selection, selfish genetic elements, selection in social contexts, sexual selection, and speciation.

Quantitative Genetics in the Wild - Anne Charmantier 2014

Across these fields, there is increasing appreciation of the need to quantify the genetic - rather than just the phenotypic - basis and diversity of key traits, the genetic basis of the associations between traits, and the interaction between these genetic effects and the environment. This research activity has been fuelled by methodological advances in both molecular genetics and statistics, as well as by exciting results emerging from laboratory studies of evolutionary quantitative genetics, and the increasing availability of suitable long-term datasets collected in natural populations, especially in animals. Quantitative Genetics in the Wild is the first book to synthesize the current level of knowledge in this exciting and rapidly-expanding area.

Biotechnological Approaches for Pest Management and Ecological Sustainability - Hari C Sharma 2008-12-17

Due to increasing problems occurring from massive applications of pesticides, such as insect resistance to pesticides, the use of biotechnological tools to minimize losses from insect pests has become inevitable. Presenting alternative strategies for alleviating biotic stresses, Biotechnological Approaches for Pest Management and Ecological Sustainability

Ecological Communities - Takayuki Ohgushi 2007-01-04

To gain a more complete understanding of plant-based ecological community structure requires knowledge of the integration of direct and indirect effects in plant herbivore systems. Trait modification of plants as a result of herbivory is very common and widespread in terrestrial plants, and this initiates indirect interactions between organisms that utilise the same host plant. This 2007 book argues that food webs by themselves are inadequate models for understanding ecological communities, because they ignore important indirect, nontrophic links. This subject is of great importance in understanding not only community organisation but also in identifying the underlying mechanisms of maintenance of biodiversity in nature. This book will be an invaluable resource for researchers and graduate students interested in community and population ecology, evolutionary biology, biodiversity, botany and entomology.

The Radish Genome - Takeshi Nishio 2017-10-04

This book summarizes the latest information and the status quo of radish genome studies to stimulate innovations and improvements in breeding

techniques and to promote further advances in the field. Radish (*Raphanus sativus*) is a member of the Brassicaceae family and is cultivated worldwide. Its varieties have been diversified in terms of size, shape, and the color of their roots and bio-components. Thanks to the development of high-throughput molecular techniques using next generation sequencers, complete genomes of cultivated and wild radish plants have been sequenced and published with annotations of predicted genes and single nucleotide polymorphism (SNP) information between radish cultivars and accessions. These, together with the construction of a high-density genetic map of radish and profiling of expression sequences in radish organs, have accelerated genetic studies, such as the identification of genes or loci associated with root development, pungent components, and plant disease resistance. Providing an overview of these advances, this book is a valuable resource for scientists involved in plant genetic research and crop breeding.

- Charles W. Fox 2001

This text unifies conceptual and empirical advances in evolutionary ecology, and the focus is on current concepts in evolutionary ecology and the empirical study of these concepts. The book is divided into five sections : an overview of the major topics in evolutionary biology for ecologists, sections on life histories, behavior, coevolution, and adaptation to anthropogenic change. (Midwest).

Ecological Genetics - Andrew Lowe 2009-04-01

Ecological Genetics addresses the fundamental problems of which of the many molecular markers should be used and how the resulting data should be analysed in clear, accessible language, suitable for upper-level undergraduates through to research-level professionals. A very accessible straightforward text to deal with this difficult topic - applying modern molecular techniques to ecological processes. Written by active researchers and teachers within the field. There will be an accompanying web site managed by the authors, comprising of worked examples, test data sets and hyperlinks to relevant web pages.

Issues in Life Sciences: Botany and Plant Biology Research: 2011 Edition - 2012-01-09

Issues in Life Sciences: Botany and Plant Biology Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Life Sciences—Botany and Plant Biology Research. The editors have built Issues in Life Sciences: Botany and Plant Biology Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Life Sciences—Botany and Plant Biology Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Life Sciences: Botany and Plant Biology Research: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.