Big Questions In Ecology And Evolution

Evolutionary Community Ecology develops a unified framework for understanding the structure of ecological communities and the dynamics of natural selection that shape the evolution of the species inhabiting them. All species engage in interactions with many other species, and these interactions regulate their abundance, define their trajectories of natural selection, and shape their movement decisions. Mark McPeek synthesizes the ecological and evolutionary dynamics generated by species interactions that structure local biological communities and regional metacommunities. McPeek explores the ecological performance characteristics needed for invasibility and coexistence of species in complex networks of species interactions. This species interaction framework is then extended to examine the ecological dynamics of natural selection that drive coevolution of interacting species in these complex interaction networks. The models of natural selection resulting from species interactions are used to evaluate the ecological conditions that foster diversification at multiple trophic levels. Analyses show that diversification depends on the ecological context in which species interactions occur and the types of traits that define the mechanisms of those species interactions. Lastly, looking at the mechanisms of speciation that affect species richness and diversity at various spatial scales and the consequences of past climate change over the Quaternary period, McPeek considers how metacommunity structure is shaped at regional and biogeographic scales. Integrating evolutionary theory into the study of community ecology, Evolutionary Community Ecology provides a new framework for predicting how communities are organized and how they may change over time.

This is a new edition of the classic examination of major philosophical, ethical, scientific and economic roots of environmental problems which examines the ways that radical ecologists can transform science and society in order to sustain life on this planet. It features a new Introduction from the author, a thorough updating of chapters, and two entirely new chapters on recent Global Movements and Globalization and the Environment.

A book that tries to answer all the big questions about life, death and the universe - a mixture of science and philosophy put in simple terms that 10- to 12-year-olds can understand.

Community ecology has undergone a transformation in recent years, from a discipline largely focused on processes occurring within a local area to a discipline encompassing a much richer domain of study, including the linkages between communities separated in space (metacommunity dynamics), niche and neutral theory, the interplay between ecology and evolution (eco-evolutionary dynamics), and the influence of historical and regional processes in shaping patterns of biodiversity. To fully understand these new developments, however, students continue to need a strong foundation in the study of species interactions and how these interactions are assembled into food webs and other ecological networks. This new edition fulfils the book's original aims, both as a much-needed up-to-date and accessible introduction to modern community ecology, and in identifying the important questions that are yet to be answered. This research-driven textbook introduces state-of-the-art community ecology to a new generation of students, adopting reasoned and balanced perspectives on as-yet-unresolved issues. Community Ecology is suitable for advanced undergraduates, graduate students, and researchers seeking a broad, up-to-date coverage of ecological concepts at the community level.

Explore ecology in this accessible introduction to how the natural world works and how we have started to understand the environment, ecosystems, and climate change. Using a bold, graphic-led approach, The Ecology Book explores and explains more than 85 of the key ideas, movements, and acts that have defined ecology and ecological thought. The book has a simple chronological structure, with early chapters ranging from the ideas of classical thinkers to attempts by Enlightenment thinkers to systematically order the natural world. Later chapters trace the evolution of modern thinking, from the ideas of Thomas Malthus, Henry Thoreau, and others, right up to the political and scientific developments of the modern era, including the birth of the environmental movement and the Paris Agreement. The ideal introduction to one of the most important subjects of our time.

Why do we age? Why cooperate? Why do so many species engage in sex? Why do the tropics have so many species? When did humans start to affect world climate? This book provides an introduction to a range of fundamental questions that have taxed evolutionary biologists and ecologists for decades. Some of the phenomena discussed are, on first reflection, simply puzzling to understand from an evolutionary perspective, whilst others have direct implications for the future of the planet. All of the questions posed have at least a partial solution, all have seen exciting breakthroughs in recent years, yet many of the explanations continue to be hotly debated. Big Questions in Ecology and Evolution is a curiosity-driven book, written in an accessible way so as to appeal to a broad audience. It is very deliberately not a formal text book, but something designed to transmit the excitement and breadth of the field by discussing a number of major questions in ecology and evolution and how they have been answered. This is a book aimed at informing and inspiring anybody with an interest in ecology and evolution. It reveals to the reader the immense scope of the field, its fundamental importance, and the exciting breakthroughs that have been made in recent years.

God is ready to give the wisdom and insight needed to navigate the questions that seem too big, such as: Will wars ever cease? Can the planet survive? Is God really out there? Does God hear prayers? Aren't all religions the same?

The Green Revolution has been heralded as a political and technological achievement -- unprecedented in human history. Yet in the decades that have followed it, this supposedly nonviolent revolution has left lands ravaged by violence and ecological scarcity. A dedicated empiricist, Vandana Shiva takes a magnifying glass to the effects of the Green Revolution in India, examining the devastating effects of monoculture and commercial agriculture and revealing the nuanced relationship between ecological destruction and poverty. In this classic work, the influential activist and scholar also looks to the future as she examines new developments in gene technology.

The Big Questions
The Ecology Book
Contemporary Climate Change Debates
Ecology and Natural History (Collins New Naturalist Library)
Environmental Ethics
Evolutionary Community Ecology
The Last Unknowns

This book provides a novel focus on adaptive explanations for cranial and postcranial features and functional complexes, socioecological systems, life history patterns, etc. in early primates. It further offers a detailed rendering of the phylogenetic affinities of such basal taxa to later primate clades as well as to other early/recent mammalian orders. In addition to the strictly paleontological or systemic questions regarding Primate Origins, the editors concentrate on the adaptive significance of primate characteristics. Thus, the book provides the broadest possible perspective on early primate phylogeny and the adaptive uniqueness of the Order Primates.

Easy, enlightening and mind-stretching, here are answers to the 20 biggest questions of religion and its attempts to give meaning to our world. The Big Questions series is designed to let renowned experts address the 20 most fundamental and frequently asked questions of a major branch of science or philosophy. Each 3000-word essay simply and concisely examines a question that has eternally perplexed enquiring minds, and provides answers based on the latest research. This ambitious project is a unique distillation of humanity's best ideas. In The Big Questions: God, Mark Vernon answers the 20 key questions:Can reason prove the existence of God? Will science bring the end of religion? Why do people still have religious beliefs? Is religion a mistake of evolution? Can drugs induce religious experiences? Can you be spiritual without being religious? Have you seen a miracle? What is the literal meaning of Scripture? If you're not religious, is nothing sacred? Can an agnostic pray? Is religion inherently violent? What is it like to be a fundamentalist? What is Buddhist enlightenment? Is Confucianism a religion? Is nature divine? Is there a perennial philosophy? Does human suffering rule out God? Can we be good without God? Are we living in the end times? Is there life after death?

Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, Teaching About Evolution and the Nature of Science provides a well-structured framework for understanding and teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. Teaching About Evolution and the Nature of Science builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards. Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community.

Once ice-bound, difficult to access, and largely ignored by the rest of the world, the Arctic is now front and center in the midst of many important questions facing the world today. Our daily weather, what we eat, and coastal flooding are all interconnected with the future of the Arctic. The year 2012 was an astounding year for Arctic change. The summer sea ice volume smashed previous records, losing approximately 75 percent of its value since 1980 and half of its areal coverage. Multiple records were also broken when 97 percent of Greenland's surface experienced melt conditions in 2012, the largest melt extent in the satellite era. Receding ice caps in Arctic Canada are now exposing land surfaces that have been continuously ice covered for more than 40,000 years. What happens in the Arctic has far-reaching implications around the world. Loss of snow and ice exacerbates climate change and is the largest contributor to expected global sea level rise during the next century. Ten percent of the world's fish catches comes from Arctic and sub-Arctic waters. The U.S. Geological Survey estimated that up to 13 percent of the world's remaining oil reserves are in the Arctic. The geologic history of the Arctic may hold vital clues about massive volcanic eruptions and the consequent release of massive amount of coal fly ash that is thought to have caused mass extinctions in the distant past. How will these changes affect the rest of Earth? What research should we invest in to best understand this previously hidden land, manage impacts of change on Arctic communities, and cooperate with researchers from other nations? The Arctic in the Anthropocene reviews research questions previously identified by Arctic researchers, and then highlights the new questions that have emerged in the wake of and expectation of further rapid Arctic change, as well as new capabilities to address them. This report is meant to guide future directions in U.S. Arctic research so that research is targeted on critical scientific and societal questions and conducted as effectively as possible. The Arctic in the Anthropocene identifies both a disciplinary and a cross-cutting research strategy for the next 10 to 20 years, and evaluates infrastructure needs and collaboration opportunities. The climate, biology, and society in the Arctic are changing in rapid, complex, and interactive ways. Understanding the Arctic system has never been more critical; thus, Arctic research has never been more important. This report will be a resource for institutions, funders, policy makers, and students. Written in an engaging style, The Arctic in the Anthropocene paints a picture of one of the last unknown places on this planet, and communicates the excitement and importance of the discoveries and challenges that lie ahead.

Through a series of multidisciplinary readings, Environmental Ethics: The Big Questions contextualizes environmental ethics within the history of Western intellectual tradition and traces the development of

theory since the 1970s. Includes an extended introduction that provides an historical and thematic introduction to the field of environmental ethics Features a selection of brief original essays on why to study environmental ethics by leaders in the field Contextualizes environmental ethics within the history of the Western intellectual tradition by exploring anthropocentric (human–centered) and nonanthropocentric precedents Offers an interdisciplinary approach to the field by featuring seminal work from eminent philosophers, biologists, ecologists, historians, economists, sociologists, anthropologists, nature writers, business writers, and others Designed to be used with a web–site which contains a continuously updated archive of case studies: http://environmentalethics.info/

An incisive study of the development of the biological sciences chronicles the origins, maturation, and modern views of the classification of life forms, the evolution of species, and the inheritance and variation of characteristics

"This volume provides a series of essays on open questions in ecology with the overarching goal being to outline to the most important, most interesting or most fundamental problems in ecology that need to be addressed. The contributions span ecological subfields, from behavioral ecology and population ecology to disease ecology and conservation and range in tone from the technical to more personal meditations on the state of the field. Many of the chapters start or end in moments of genuine curiosity, like one which takes up the question of why the world is green or another which asks what might come of a thought experiment in which we "turn-off" evolution entirely"--

Discover the universe's last unknowns—here are the unanswered questions that obsess "the world's finest minds" (The Guardian) Featuring a foreword by DANIEL KAHNEMAN, Nobel Prize-winning author of Thinking, Fast and Slow This is a little book of profound questions (only questions!)—unknowns that address the secrets of our world, our civilization, the meaning of life. Here are the deepest riddles that have fascinated, obsessed, and haunted the greatest thinkers of our time, including Nobel laureates, cosmologists, philosophers, economists, prize-winning novelists, religious scholars, and more than 250 leading scientists, artists, and theorists. In The Last Unknowns, John Brockman, publisher of Edge.org, asks "a mind-blowing gathering of innovative thinkers" (Booklist): "What is 'The Last Question,' your last question, the question for which you will be remembered?" Featuring the Pulitzer Prize–winning author of Guns, Germs, and Steel JARED DIAMOND • Nobel Prize-winning University of Chicago economist RICHARD THALER • Harvard psychologist STEVEN PINKER • religion scholar ELAINE PAGELS • author of Seven Brief Lessons on Physics CARLO ROVELLI • Booker Prize–winning novelist IAN McEWAN • neuroscientist SAM HARRIS • philosopher DANIEL C. DENNETT • MIT theorist SHERRY TURKLE • decoder of the human genome J. CRAIG VENTER • The Coddling of the American Mind author JONATHAN HAIDT • Nobel Prize-winning physicist FRANK WILCZEK • UC Berkeley psychologist ALISON GOPNICK • philosopher REBECCA NEWBERGER GOLDSTEIN • New York Times columnist CARL ZIMMER • MIT cosmologist MAX TEGMARK • Whole Earth founder STEWART BRAND • "Marginal Revolution" economist TYLER COWEN • Anatomy of Love author HELEN FISHER • Noble Prize-winning NASA physicist JOHN C. MATHER • psychologist JUDITH RICH HARRIS • Princeton physicist FREEMAN DYSON • musician BRIAN ENO • environmental scientist JENNIFER JACQUET • Duke economist DAN ARIELY • Oxford philosopher A. C. GRAYLING • Harvard cosmologist LISA RANDALL • anthropologist MARY CATHERINE BATESON • Emotional Intelligence author DANIEL GOLEMAN • Harvard genticist GEORGE CHURCH • Blueprint author NICHOLAS A. CHRISTAKIS • Stanford political scientist MARGARET LEVI • economist ALAN S. BLINDER • publisher TIM O'REILLY • theoretical cosmologist JANNA LEVIN • Serpentine Gallery owner HANS ULRICH OBRIST • Wired founding editor KEVIN KELLY • Cambridge astrophysicist MARTIN REES, and more than 200 others.

Sex, Race, Religion, and Other Matters
The Age of Questions
The Search for a Livable World
Environmental Biology
Ecology and Ecosystem Conservation
The Arctic in the Anthropocene
Primate Origins: Adaptations and Evolution
A Concise Handbook - Second Edition
An Earth Systems Approach
The Evolutionary Ecology of Crypsis, Warning Signals and Mimicry
Grand Challenges in Environmental Sciences
The Growth of Biological Thought

Climate change is occurring, is caused largely by human activities, and poses significant risks for--and in many cases is already affecting--a broad range of human and natural systems. The compelling case for these conclusions is provided in Advancing the Science of Climate Change, part of a congressionally requested suite of studies known as America's Climate Choices. While noting that there is always more to learn and that the scientific process is never closed, the book shows that hypotheses about climate change are supported by multiple lines of evidence and have stood firm in the face of serious debate and careful evaluation of alternative explanations. As decision makers respond to these risks, the nation's scientific enterprise can contribute through research that improves understanding of the causes and consequences of climate change and also is useful to decision makers at the local, regional, national, and international levels. The book identifies decisions being made in 12 sectors, ranging from agriculture to transportation, to identify decisions being made in response to climate change. Advancing the Science of Climate Change calls for a single federal entity or program to coordinate a national, multidisciplinary research effort aimed at improving both understanding and responses to climate change. Seven cross-cutting research themes are identified to support this scientific enterprise. In addition, leaders of federal climate research should redouble efforts to deploy a comprehensive climate observing system, improve climate models and other analytical tools, invest in human capital, and improve linkages between

research and decisions by forming partnerships with action-oriented programs.

What do educated urban people think about God, and why? What factors--logical, emotional, experiential, or intuitive--incline them towards belief or towards unbelief? How do they balance these factors? Why do many seem to be "swing voters," comfortable sitting on the fence, unmotivated to move far either way? What common ground do they share with Christianity? What are their objections to Christian belief and practice, and their misunderstandings? Why do many people describe intuitive and emotional attraction to believing in God, but resist it intellectually? What apologetic approaches would make most sense, specifically to educated urban Australians? What media products do they enjoy and trust? And how should these insights influence apologetics? Grenville Kent asks these questions in one Australian demographic to help target Big Questions, a documentary film series for Christian apologetics. Anyone interested in apologetics, evangelical media, and the application of marketing research to evangelism will be interested in this study.

The United States has jurisdiction over 3.4 million square miles of ocean in its exclusive economic zone, a size exceeding the combined land area of the 50 states. This expansive marine area represents a prime national domain for activities such as maritime transportation, national security, energy and mineral extraction, fisheries and aquaculture, and tourism and recreation. However, it also carries with it the threat of damaging and outbreaks of waterborne pathogens. The 2010 Gulf of Mexico Deepwater Horizon oil spill and the 2011 Japanese earthquake and tsunami are vivid reminders that ocean activities and processes have direct human implications both nationally and worldwide, understanding of the ocean system is still incomplete, and ocean research infrastructure is needed to support both fundamental research and societal priorities. Given current struggles to maintain, operate, and upgrade major infrastructure elements while maintaining a robust research portfolio, a strategic plan is needed for future investments to ensure that new facilities provide the greatest value, least redundancy, and highest efficiency in terms of operation and flexibility to incorporate new technological advances. Critical Infrastructure for Ocean Research and Societal Needs in 2030 identifies major research questions anticipated to be at the forefront of ocean science in 2030 based on national and international assessments, input from the worldwide scientific community, and ongoing research planning activities. This report defines categories of infrastructure that should be included in planning for the nation's ocean research infrastructure of 2030 and that will be required to answer the major research questions of the future. Critical Infrastructure for Ocean Research and Societal Needs in 2030 provides advice on the criteria and processes that could be used to set priorities for the development of new ocean infrastructure or replacement of existing facilities. In addition, this report recommends ways in which the federal agencies can maximize the value of investments in ocean infrastructure.

Present day neuroscience places the brain at the centre of study. But what if researchers viewed the brain not as the foundation of life, rather as a mediating organ? Ecology of the Brain addresses this very question. It considers the human body as a collective, a living being which uses the brain to mediate interactions. Those interactions may be both within the human body and between the human body and its environment. Within this framework, the mind is seen not as a product of the brain but as an activity of the living being; an activity which integrates the brain within the everyday functions of the human body. Going further, Fuchs reformulates the traditional mind-brain problem, presenting it as a dual aspect of the living being: the lived body and the subjective body - the living body and the objective body. The processes of living and experiencing life, Fuchs argues, are in fact inextricably linked; it is not the brain, but the human being who feels, thinks and acts. For students and academics, Ecology of the Brain will be of interest to those studying or researching theory of mind, social and cultural interaction, psychiatry, and psychotherapy.

A groundbreaking history of the Big Questions that dominated the nineteenth century In the early nineteenth century, a new age began: the age of questions. In the Eastern and Belgian questions, as much as in the slavery, worker, social, woman, and Jewish questions, contemporaries saw not interrogatives to be answered but problems to be solved. Alexis de Tocqueville, Victor Hugo, Karl Marx, Frederick Douglass, Fyodor Dostoevsky, Rosa Luxemburg, and Adolf Hitler were among the many who put their pens to the task. The Age of Questions asks how the question form arose, what trajectory it followed, and why it provoked such feverish excitement for over a century. Was there a family resemblance between questions? Have they disappeared, or are they on the rise again in our time? In this pioneering book, Holly Case undertakes a stunningly original analysis, presenting, chapter by chapter, seven distinct arguments and frameworks for understanding the age. She considers whether it was marked by a progressive quest for emancipation (of women, slaves, Jews, laborers, and others); a steady, inexorable march toward genocide and the "Final Solution"; or a movement toward federation and the dissolution of boundaries. Or was it simply a farce, a false frenzy dreamed up by publicists eager to sell subscriptions? As the arguments clash, patterns emerge and sharpen until the age reveals its full and peculiar nature. Turning convention on its head with meticulous and astonishingly broad scholarship, The Age of Questions illuminates how patterns of thinking move history.

This book discusses the evolution of the mechanisms by which prey avoid attack by their potential predators and questions how such defences are maintained through natural selection. Topics covered

include camouflage, warning signals and mimicry.
Environmental Biology offers a fresh approach to the topic in demonstrating how biological principles are applied to solve environmental problems.
Ecology is the science of ecosystems, of habitats, of our world and its future. In the latest New Naturalist, ecologist David M. Wilkinson explains key ideas of this crucial branch of science, using Britain's ecosystems to illustrate each point.

Environmental Ethics: An Anthology brings together both classic and cutting-edge essays which have formed contemporary environmental ethics, ranging from the welfare of animals versus ecosystems to theories of the intrinsic value of nature.
Praise for Big Questions,Worthy Dreams "The things at stake in this tenth anniversary edition are even more profound and urgent than they were the first time around. This is not a little story about young people. It is a big story about humanity and the persistent quest for meaning and purpose. . . . the key is mentorship, and the payoff should be big—for all of us." —RICHARD A. SETTERSTEN JR., coauthor, Not Quite Adults: Why 20-Somethings Are Choosing a Slower Path to Adulthood, and Why It's Good for Everyone "Scholarly, wise, elegant, and deeply insightful, this book is . . . for all who work with people in the awe and angst-filled years between 18 and 32. . . . Upcoming generations have fateful choices to make that we need them to take up faithfully and fully awake. Parks, a master teacher, lights the way—theirs and ours." —DIANA CHAPMAN WALSH, president emerita, Wellesley College; board chair, the Broad Institute of MIT and Harvard "No one who cares deeply about people in their twenties should be without this book. In Sharon Daloz Parks's lyrical company we learn so much more about their biggest possibilities—and our own." —ROBERT KEGAN, author, In Over Our Heads; professor, Harvard Graduate School of Education "Parks's clear voice ... is simultaneously that of a scholar, clinician, ethicist, and priest—that of a rare and capable generalist who can nurture both teachers and students ... [and] reveal the architecture of the process by which we merge the questions of ultimate reality with the immediate needs and duties of our generation." —JANET COOPER NELSON, chaplain of the university, Brown University " . . . [A] valuable resource for parents, professors, administrators, employers, and all others who care about emerging adults and want to see them thrive." —JEFFREY JENSEN ARNETT, Clark University; author, Emerging Adulthood: The Winding Road from the Late Teens Through the Twenties
Encyclopedia of Ecology, Second Edition continues the acclaimed work of the previous edition published in 2008. It covers all scales of biological organization, from organisms, to populations, to communities and ecosystems. Laboratory, field, simulation modelling, and theoretical approaches are presented to show how living systems sustain structure and function in space and time. New areas of focus include micro- and macro scales, molecular and genetic ecology, and global ecology (e.g., climate change, earth transformations, ecosystem services, and the food-water-energy nexus) are included. In addition, new, international experts in ecology contribute on a variety of topics. Offers the most broad-ranging and comprehensive resource available in the field of ecology Provides foundational content and suggests further reading Incorporates the expertise of over 500 outstanding investigators in the field of ecology, including top young scientists with both research and teaching experience Includes multimedia resources, such as an Interactive Map Viewer and links to a CSDMS (Community Surface Dynamics Modeling System), an open-source platform for modelers to share and link models dealing with earth system processes
Meeting today's environmental challenges requires a new way of thinking about the intricate dependencies between humans and nature. Ecology and Ecosystem Conservation provides students and other readers with a basic understanding of the fundamental principles of ecological science and their applications, offering an essential overview of the way ecology can be used to devise strategies to conserve the health and functioning of ecosystems. The book begins by exploring the need for ecological science in understanding current environmental issues and briefly discussing what ecology is and isn't. Subsequent chapters address critical issues in conservation and show how ecological science can be applied to them. The book explores questions such as: • What is the role of ecological science in decision making? • What factors govern the assembly of ecosystems and determine their response to various stressors? • How does Earth's climate system function and determine the distribution of life on Earth? • What factors control the size of populations? • How does fragmentation of the landscape affect the persistence of species on the landscape? • How does biological diversity influence ecosystem processes? The book closes with a final chapter that addresses the need not only to understand ecological science, but to put that science into an ecosystem conservation ethics perspective.
This provocative text considers whether evolutionary explanations can be used to clarify some of life's biggest questions. Examines topics of race, sex, gender, the nature of language, religion, ethics, knowledge, consciousness and ultimately, the meaning of life Each chapter presents a main topic, together with discussion of related ideas and arguments from various perspectives Addresses questions such as: Did evolution make men and women fundamentally different? Is the concept of race merely a social construction? Is morality, including universal human rights, a mass delusion? Can religion and evolution really be harmonized? Does evolution render life meaningless? Written in a clear and informative style, with helpful references for further reading and research

Contemporary Climate Change Debates is an innovative new textbook which tackles some of the difficult questions raised by climate change. For the complex policy challenges surrounding climate migration, adaptation and resilience, structured debates become effective learning devices for students. This book is organised around 15 important questions, and is split into four parts: What do we need to know? What should we do? On what grounds should we base our actions? Who should be the agents of change? Each debate is addressed by pairs of one or two leading or emerging academics who present opposing viewpoints. Through this format the book is designed to introduce students of climate change to different arguments prompted by these questions, and also provides a unique opportunity for them to engage in critical thinking and debate amongst themselves. Each chapter concludes with suggestions for further reading and with discussion questions for use in student classes. Drawing upon the sciences, social sciences and humanities to debate these ethical, cultural, legal, social, economic, technological and political roadblocks, Contemporary Debates on Climate Change is essential reading for all students of climate change, as well as those studying environmental policy and politics and sustainable development more broadly.

The book presents a way to study ecosystems that is not yet available in current textbooks but is resonant with current thinking in the emerging fields of geobiology and Earth System Science. It asks and endeavours to answer the question, "what are the really fundamental characteristics of living systems that might allow them to sustain life?" The author goes on to show how the idea of fundamental ecological processes can be developed at the systems level, specifically their involvement in control and feedback mechanisms. This is not a popular science book about Gaian theory, instead it is written as a text and is directed at a predominantly scientific audience.

A Fun Science Book for Naturally Curious Children Have you ever wondered where Earth's water came from? Or why the T-Rex had such tiny arms? Humans are all curious creatures, and kids are the most curious of all. In their debut illustrated science book, the team behind the popular YouTube channel MinuteEarth answers all of your child's wackiest questions alongside engaging images of the natural world. Amazing science, explained simply. With over 300 million views, MinuteEarth simplifies such serious subjects like geology, ecology, and biology for kids. Featuring their signature puns and fun illustrations, this first book in the MinuteEarth Explains series explores topics ranging from strange animal behavior to extreme weather, making science entertaining and unforgettable. Curious questions about our awesome planet. Whether your child is obsessed with the wonder of nature, can't learn enough about dinosaurs, or is fascinated by volcanoes, MinuteEarth Explains: How Did Whales Get So Big? will capture their imagination and foster their interest in animals, the earth, and ocean anatomy! By combining humor with rigorous research, this science questions book captivates readers with answers to: Why do some animals get gigantic? Why do rivers curve? Can plants talk? How much food is there on earth? And more! If you're looking for nature books for kids 8-10 or earth science books for kids--or if your child loved books such as The Big Book of Birds, Why?: 1,111 Answers to Everything, or The Wondrous Workings of Planet Earth--then you will love this debut book by MinuteEarth!

Here is one of the most provocative, wide-ranging, and delightful books ever written about our environment. Paul Colinvaux takes a penetrating look at the science of ecology, bringing to his subject both profound knowledge and an enthusiasm that will encourage a greater understanding of the environment and of the efforts of those who seek to preserve it.

Understanding how our living environment works is essentially a study of ecological systems. Ecology is the science of how organisms interact with each other and with their environment, and how such interactions create self-organising communities and ecosystems. This science touches us all. The food we eat, the water we drink, the natural resources we use, our physical and mental health, and much of our cultural heritage are to a large degree products of ecological interactions of organisms and their environment. This Very Short Introduction celebrates the centrality of ecology in our lives. Jaboury Ghazoul explores how ecology has evolved rapidly from natural history to become a predictive science that explains how the natural world works, and which guides environmental policy and management decisions. Drawing on a range of examples, he shows how ecological science can be applied to management and conservation, including the extent to which theory has shaped practice. Ecological science has also shaped social and cultural perspectives on the environment, a process that influences politics of the environment. Ghazoul concludes by considering the future of ecology, particularly in the light of current and future environmental challenges. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Most books and courses in ecology cover facts and concepts but don't explain how to actually do ecological research. How to Do Ecology provides nuts-and-bolts advice on organizing and conducting a successful research program. This one-of-a-kind book explains how to choose a research question and answer it through manipulative experiments and systematic observations. Because science is a social endeavor, the book provides strategies for working with other people, including professors and collaborators. It suggests effective ways to communicate your findings in the form of journal articles, oral presentations, posters, and grant and research proposals. The book also includes ideas to help you identify your goals, organize a season of fieldwork, and deal with negative results. In short, it makes explicit many of the unspoken assumptions behind doing good research in ecology and provides an invaluable resource for meaningful conversations between ecologists. This second edition of How to Do Ecology features new sections on conducting and analyzing

observational surveys, job hunting, and becoming a more creative researcher, as well as updated sections on statistical analyses.
A plethora of different theories, models, and concepts make up the field of community ecology. Amid this vast body of work, is it possible to build one general theory of ecological communities? What other scientific areas might serve as a guiding framework? As it turns out, the core focus of community ecology—understanding patterns of diversity and composition of biological variants across space and time—is shared by evolutionary biology and its very coherent conceptual framework, population genetics theory. The Theory of Ecological Communities takes this as a starting point to pull together community ecology's various perspectives into a more unified whole. Mark Vellend builds a theory of ecological communities based on four overarching processes: selection among species, drift, dispersal, and speciation. These are analogues of the four central processes in population genetics theory—selection within species, drift, gene flow, and mutation—and together they subsume almost all of the many dozens of more specific models built to describe the dynamics of communities of interacting species. The result is a theory that allows the effects of many low-level processes, such as competition, facilitation, predation, disturbance, stress, succession, colonization, and local extinction to be understood as the underpinnings of high-level processes with widely applicable consequences for ecological communities. Reframing the numerous existing ideas in community ecology, The Theory of Ecological Communities provides a new way for thinking about biological composition and diversity.
Scientists have long sought to unravel the fundamental mysteries of the land, life, water, and air that surround us. But as the consequences of humanityâ € ™s impact on the planet become increasingly evident, governments are realizing the critical importance of understanding these environmental systemsâ € "and investing billions of dollars in research to do so. To identify high-priority environmental science projects, Grand Challenges in Environmental Sciences explores the most important areas of research for the next generation. The bookâ € ™s goal is not to list the worldâ € ™s biggest environmental problems. Rather it is to determine areas of opportunity thatâ € "with a concerted investmentâ € "could yield significant new findings. Nominations for environmental scienceâ € ™s â € œgrandâ € challenges were solicited from thousands of scientists worldwide. Based on their responses, eight major areas of focus were identifiedâ € "areas that offer the potential for a major scientific breakthrough of practical importance to humankind, and that are feasible if given major new funding. The book further pinpoints four areas for immediate action and investment.

Clear Answers to Confusing Issues
Asking Big Questions
Unsolved Problems in Ecology
Critical Infrastructure for Ocean Research and Societal Needs in 2030
Ecological Research and Surveys
The Big Questions: God
Or, A First Attempt at an Aggregate History of the Eastern, Social, Woman, American, Jewish, Polish, Bullion, Tuberculosis, and Many Other Questions Over the Nineteenth Century, and Beyond
Fundamental Processes in Ecology
Advancing the Science of Climate Change
The Theory of Ecological Communities (MPB-57)
Ecology: a Very Short Introduction