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Development and Evolution Oct 07 2020 Development and Evolution surveys and illuminates the key themes of rapidly changing fields and areas of controversy that are redefining the theory and philosophy of biology. It continues Stanley Salthe's investigation of evolutionary theory, begun in his influential book Evolving Hierarchical Systems, while negating the implicit philosophical mechanisms of much of that work. Here Salthe attempts to reinitiate a theory of biology from the perspective of development rather than from that of evolution, recognizing the applicability of general systems thinking to biological and social phenomena and pointing toward a non-Darwinian and even a postmodern biology. Salthe's intent is nothing less than to provide, with this alternative paradigm, a position from which the deconstruction of the Bacononian/Cartesian/Newtonian/Darwinian/Comptian tradition becomes possible, while at the same time suggesting in its place an organic view predicated upon Aristotelian and Hegelian antecedents. In the face of complexity, we must alter our view of the universe as inherently ordered and predictable; order develops, but at great cost. Explorating of the nature of change in a complex world, Salthe brings together such

disparate areas as hierarchy theory, information theory, and semiotics in illuminating ways as he seeks a mode of answering questions as to the nature of complexity and as to how we might derive information from the interactions of the parts of a contextualized developing system. Stanley N. Salthe, Professor Emeritus in the Department of Biology at Brooklyn College of the City University of New York, is a Visiting Scientist in Biological Sciences at Binghamton University.

A Troublesome Inheritance May 14 2021 Drawing on startling new evidence from the mapping of the genome, an explosive new account of the genetic basis of race and its role in the human story Fewer ideas have been more toxic or harmful than the idea of the biological reality of race, and with it the idea that humans of different races are biologically different from one another. For this understandable reason, the idea has been banished from polite academic conversation. Arguing that race is more than just a social construct can get a scholar run out of town, or at least off campus, on a rail. Human evolution, the consensus view insists, ended in prehistory. Inconveniently, as Nicholas Wade argues in A Troublesome Inheritance, the consensus view cannot be right. And in fact, we know that populations have changed in the past few thousand years—to be lactose tolerant, for example, and to survive at high altitudes. Race is not a bright-line distinction; by definition it means that the

more human populations are kept apart, the more they evolve their own distinct traits under the selective pressure known as Darwinian evolution. For many thousands of years, most human populations stayed where they were and grew distinct, not just in outward appearance but in deeper senses as well. Wade, the longtime journalist covering genetic advances for The New York Times, draws widely on the work of scientists who have made crucial breakthroughs in establishing the reality of recent human evolution. The most provocative claims in this book involve the genetic basis of human social habits. What we might call middle-class social traits—thrift, docility, nonviolence—have been slowly but surely inculcated genetically within agrarian societies, Wade argues. These "values" obviously had a strong cultural component, but Wade points to evidence that agrarian societies evolved away from hunter-gatherer societies in some crucial respects. Also controversial are his findings regarding the genetic basis of traits we associate with intelligence, such as literacy and numeracy, in certain ethnic populations, including the Chinese and Ashkenazi Jews. Wade believes deeply in the fundamental equality of all human peoples. He also believes that science is best served by pursuing the truth without fear, and if his mission to arrive at a coherent summa of what the new genetic science does and does not tell us about race and human history leads straight into a minefield, then so be it.

This will not be the last word on the subject, but it will begin a powerful and overdue conversation.

The Evidence for Evolution Jul 16 2021 According to polling data, most Americans doubt that evolution is a real phenomenon. And it's no wonder that so many are skeptical: many of today's biology courses and textbooks dwell on the mechanisms of evolution—natural selection, genetic drift, and gene flow—but say little about the evidence that evolution happens at all. How do we know that species change? Has there really been enough time for evolution to operate? With The Evidence for Evolution, Alan R. Rogers provides an elegant, straightforward text that details the evidence for evolution. Rogers covers different levels of evolution, from within-species changes, which are much less challenging to see and believe, to much larger ones, say, from fish to amphibian, or from land mammal to whale. For each case, he supplies numerous lines of evidence to illustrate the changes, including fossils, DNA, and radioactive isotopes. His comprehensive treatment stresses recent advances in knowledge but also recounts the give and take between skeptical scientists who first asked "how can we be sure" and then marshaled scientific evidence to attain certainty. The Evidence for Evolution is a valuable addition to the literature on evolution and will be essential to introductory courses in the life sciences.

Plastid Genome Evolution Aug 24 2019 Plastid

Genome Evolution, Volume 85 provides a summary of recent research on plastid genome variation and evolution across photosynthetic organisms. It covers topics ranging from the causes and consequences of genomic changes, to the phylogenetic utility of plastomes for resolving relationships across the photosynthetic tree of life. This newly released volume presents thorough, up-to-date information on coevolution between the plastid and nuclear genomes, with chapters on plastid autonomy vs. nuclear control over plastid function, establishment and genetic integration of plastids, plastid genomes in alveolate protists, plastid genomes of glaucophytes, the evolution of the plastid genome in chlorophyte and streptophyte green algae, and more. Provides comprehensive coverage of plastid genome variation by leading researchers in the field Presents a broad range of taxonomic groups, ranging from single and multicellular algae, to the major clades of land plants Includes thorough, up-to-date information on coevolution between the plastid and nuclear genomes

Ecology and Evolution of Dung Beetles Oct 31 2022 This book describes the evolutionary and ecological consequences of reproductive competition for scarabaeine dung beetles. As well as giving us insight into the private lives of these fascinating creatures, this book shows how dung beetles can be used as model systems for improving our general understanding of broad evolutionary and ecological processes, and how

they generate biological diversity. Over the last few decades we have begun to see further than ever before, with our research efforts yielding new information at all levels of analysis, from whole organism biology to genomics. This book brings together leading researchers who contribute chapters that integrate our current knowledge of phylogenetics and evolution, developmental biology, comparative morphology, physiology, behaviour, and population and community ecology. Dung beetle research is shedding light on the ultimate question of how best to document and conserve the world's biodiversity. The book will be of interest to established researchers, university teachers, research students, conservation biologists, and those wanting to know more about the dung beetle taxon.

Genomic Control Process Feb 29 2020 Genomic Control Process explores the biological phenomena around genomic regulatory systems that control and shape animal development processes, and which determine the nature of evolutionary processes that affect body plan. Unifying and simplifying the descriptions of development and evolution by focusing on the causality in these processes, it provides a comprehensive method of considering genomic control across diverse biological processes. This book is essential for graduate researchers in genomics, systems biology and molecular biology seeking to understand deep biological processes which regulate the structure

of animals during development. Covers a vast area of current biological research to produce a genome oriented regulatory bioscience of animal life Places gene regulation, embryonic and postembryonic development, and evolution of the body plan in a unified conceptual framework Provides the conceptual keys to interpret a broad developmental and evolutionary landscape with precise experimental illustrations drawn from contemporary literature Includes a range of material, from developmental phenomenology to quantitative and logic models, from phylogenetics to the molecular biology of gene regulation, from animal models of all kinds to evidence of every relevant type Demonstrates the causal power of system-level understanding of genomic control process Conceptually organizes a constellation of complex and diverse biological phenomena Investigates fundamental developmental control system logic in diverse circumstances and expresses these in conceptual models Explores mechanistic evolutionary processes, illuminating the evolutionary consequences of developmental control systems as they are encoded in the genome

Chimpanzees and Human Evolution **Jun 14 2021 Knowledge of wild chimpanzees has expanded dramatically. This volume, edited by Martin Muller, Richard Wrangham, and David Pilbeam, brings together scientists who are leading a revolution to discover and explain human uniqueness, by studying our closest living relatives. Their conclusions may transform our**

understanding of human evolution.

An Editor's Guide to Writing and Publishing Science Oct 19 2021 This contemporary guide is packed full of expert tips and suggestions which will make the reader think in a fresh, creative, and novel way about writing and publishing science.

Tree Thinking Dec 01 2022 Baum and Smith, both professors evolutionary biology and researchers in the field of systematics, present this highly accessible introduction to phylogenetics and its importance in modern biology. Ever since Darwin, the evolutionary histories of organisms have been portrayed in the form of branching trees or "phylogenies." However, the broad significance of the phylogenetic trees has come to be appreciated only quite recently. Phylogenetics has myriad applications in biology, from discovering the features present in ancestral organisms, to finding the sources of invasive species and infectious diseases, to identifying our closest living (and extinct) hominid relatives. Taking a conceptual approach, Tree Thinking introduces readers to the interpretation of phylogenetic trees, how these trees can be reconstructed, and how they can be used to answer biological questions. Examples and vivid metaphors are incorporated throughout, and each chapter concludes with a set of problems, valuable for both students and teachers. Tree Thinking is must-have textbook for any student seeking a solid foundation in this fundamental area of

evolutionary biology.

Big Questions in Ecology and Evolution Oct 26 2019 This book provides an introduction to a range of fundamental questions that have taxed evolutionary biologists and ecologists for decades. All of the questions posed have at least a partial solution, all have seen exciting breakthroughs in recent years, yet many of the explanations have been hotly debated.

***Evolution* Jan 02 2023 This text is about the central role of evolution in shaping the nature and diversity of the living world. It describes the processes of natural selection, how adaptations arise, and how new species form, as well as summarizing the evidence for evolution**

Genes and Evolution Sep 29 2022 Genes and Evolution, the latest volume in the Current Topics in Developmental Biology series, covers genes and evolution, with contributions from an international board of authors. The chapters provide a comprehensive set of reviews covering such topics as genes and plant domestication, gene networks, phenotypic loss in vertebrates, reproducible evolutionary changes, and epithelial tissue. Covers the area of genes and evolution Contains invaluable contributions from an international board of authors Provides a comprehensive set of reviews covering such topics as genes and plant domestication, gene networks, phenotypic loss in vertebrates, reproducible evolutionary changes and epithelial tissue

Organisms, Agency, and Evolution May 26 2022

This book argues that evolution arises from the activities of organisms as agents, not from the replication of genes.

Evolution and Geological Significance of Larger Benthic Foraminifera, Second Edition Aug 05 2020 Evolution and Geological Significance of Larger Benthic Foraminifera is a unique, comprehensive reference work on the larger benthic foraminifera. This second edition is substantially revised, including extensive re-analysis of the most recent work on Cenozoic forms. It provides documentation of the biostratigraphic ranges and palaeoecological significance of the larger foraminifera, which is essential for understanding many major oil-bearing sedimentary basins. In addition, it offers a palaeogeographic interpretation of the shallow marine late Palaeozoic to Cenozoic world. Marcelle K. BouDagher-Fadel collects and significantly adds to the information already published on the larger benthic foraminifera. New research in the Far East, the Middle East, South Africa, Tibet and Americas has provided fresh insights into the evolution and palaeographic significance of these vital reef-forming forms. With the aid of new and precise biostratigraphic dating, she presents revised phylogenies and ranges of the larger foraminifera. The book is illustrated throughout, with examples of different families and groups at the generic levels. Key species are discussed and their biostratigraphic ranges are depicted in

comparative charts, which can be found at http://discovery.ucl.ac.uk/10047587/2/Charts.pdf. Evolution Driven by Organismal Behavior Aug 29 2022 This book proposes a new way to think about evolution. The author carefully brings together evidence from diverse fields of science. In the process, he bridges the gaps between many different--and usually seen as conflicting--ideas to present one integrative theory named ONCE, which stands for Organic Nonoptimal Constrained Evolution. The author argues that evolution is mainly driven by the behavioral choices and persistence of organisms themselves, in a process in which Darwinian natural selection is mainly a secondary--but still crucial--evolutionary player. Within ONCE, evolution is therefore generally made of mistakes and mismatches and trial-and-error situations, and is not a process where organisms engage in an incessant, suffocating struggle in which they can't thrive if they are not optimally adapted to their habitats and the external environment. Therefore, this unifying view incorporates a more comprehensive view of the diversity and complexity of life by stressing that organisms are not merely passive evolutionary players under the rule of external factors. This insightful and well-reasoned argument is based on numerous fascinating case studies from a wide range of organisms, including bacteria, plants, insects and diverse examples from the evolution of our own species. The book has an appeal to

researchers, students, teachers, and those with an interest in the history and philosophy of science, as well as to the broader public, as it brings life back into biology by emphasizing that organisms, including humans, are the key active players in evolution and thus in the future of life on this wonderful planet.

Gene Sharing and Evolution Feb 08 2021 In Gene Sharing and Evolution Piatigorsky explores the generality and implications of gene sharing throughout evolution and argues that most if not all proteins perform a variety of functions in the same and in different species, and that this is a fundamental necessity for evolution.

Why Only Us Jul 28 2022 Berwick and Chomsky draw on recent developments in linguistic theory to offer an evolutionary account of language and humans' remarkable, species-specific ability to acquire it. "A loosely connected collection of four essays that will fascinate anyone interested in the extraordinary phenomenon of language." —New York Review of Books We are born crying, but those cries signal the first stirring of language. Within a year or so, infants master the sound system of their language; a few years after that, they are engaging in conversations. This remarkable, species-specific ability to acquire any human language—"the language faculty"—raises important biological questions about language, including how it has evolved. This book by two distinguished scholars—a computer scientist and a linguist—addresses the enduring question of the

evolution of language. Robert Berwick and Noam Chomsky explain that until recently the evolutionary question could not be properly posed, because we did not have a clear idea of how to define "language" and therefore what it was that had evolved. But since the Minimalist Program, developed by Chomsky and others, we know the key ingredients of language and can put together an account of the evolution of human language and what distinguishes us from all other animals. Berwick and Chomsky discuss the biolinguistic perspective on language, which views language as a particular object of the biological world; the computational efficiency of language as a system of thought and understanding; the tension between Darwin's idea of gradual change and our contemporary understanding about evolutionary change and language; and evidence from nonhuman animals, in particular vocal learning in songbirds.

Animal Ecology Sep 25 2019 Charles Elton was one of the founders of ecology, and his Animal Ecology was one of the seminal works that defined the field. In this book Elton introduced and drew together many principles still central to ecology today, including succession, niche, food webs, and the links between communities and ecosystems, each of which he illustrated with well-chosen examples. Many of Elton's ideas have proven remarkably prescient—for instance, his emphasis on the role climatic changes play in population fluctuations anticipated recent research in this

area stimulated by concerns about global warming. For Chicago's reprint of this classic work, ecologists Mathew A. Leibold and J. Timothy Wootton have provided new introductions to each chapter, placing Elton's ideas in historical and scientific context. They trace modern developments in each of the key themes Elton introduced, and provide references to the most current literature. The result will be an important work for ecologists interested in the roots of their discipline, for educated readers looking for a good overview of the field, and for historians of science.

Genetics and Evolution of Infectious Diseases

Mar 12 2021 Genetics and Evolution of Infectious Diseases, Second Edition, discusses the constantly evolving field of infectious diseases and their continued impact on the health of populations, especially in resource-limited areas of the world. Students in public health, biomedical professionals, clinicians, public health practitioners, and decisions-makers will find valuable information in this book that is relevant to the control and prevention of neglected and emerging worldwide diseases that are a major cause of global morbidity, disability, and mortality. Although substantial gains have been made in public health interventions for the treatment, prevention, and control of infectious diseases during the last century, in recent decades the world has witnessed a worldwide human immunodeficiency

virus (HIV) pandemic, increasing antimicrobial resistance, and the emergence of many new bacterial, fungal, parasitic, and viral pathogens. The economic, social, and political burden of infectious diseases is most evident in developing countries which must confront the dual burden of death and disability due to infectious and chronic illnesses. Takes an integrated approach to infectious diseases Includes contributions from leading authorities Provides the latest developments in the field of infectious disease

The Ecology and Evolution of Heliconius Butterflies Jul 04 2020 The Heliconius butterflies are one of the classic systems in evolutionary biology and have contributed hugely to our understanding of evolution over the last 150 years. Their dramatic radiation and remarkable mimicry has fascinated biologists since the days of Bates, Wallace, and Darwin. The Ecology and Evolution of Heliconius Butterflies is the first thorough and accessible treatment of the ecology, genetics, and behaviour of these butterflies, exploring how they offer remarkable insights into tropical biodiversity. The book starts by outlining some of the evolutionary questions that Heliconius research has helped to address, then moves on to an overview of the butterflies themselves and their ecology and behaviour before focussing on wing pattern evolution, and finally, speciation. Richly illustrated with 32 colour plates, this book

makes the extensive scientific literature on Heliconius butterflies accessible to a wide audience of professional ecologists, evolutionary biologists, entomologists, and amateur collectors.

Understanding Evolution **Sep 17 2021 Bringing together conceptual obstacles and core concepts of evolutionary theory, this book presents evolution as straightforward and intuitive.**

How Men Age Nov 27 2019 A groundbreaking book that examines all aspects of male aging through an evolutionary lens While the health of aging men has been a focus of biomedical research for years, evolutionary biology has not been part of the conversation—until now. How Men Age is the first book to explore how natural selection has shaped male aging, how evolutionary theory can inform our understanding of male health and well-being, and how older men may have contributed to the evolution of some of the very traits that make us human. In this informative and entertaining book, renowned biological anthropologist Richard Bribiescas looks at all aspects of male aging through an evolutionary lens. He describes how the challenges males faced in their evolutionary past influenced how they age today, and shows how this unique evolutionary history helps explain common aspects of male aging such as prostate disease, loss of muscle mass, changes in testosterone levels, increases in fat, erectile dysfunction, baldness, and shorter life spans than women. Bribiescas reveals

how many of the physical and behavioral changes that we negatively associate with male aging may have actually facilitated the emergence of positive traits that have helped make humans so successful as a species, including parenting, long life spans, and high fertility. Popular science at its most compelling, How Men Age provides new perspectives on the aging process in men and how we became human, and also explores future challenges for human evolution—and the important role older men might play in them.

Ecology and Evolution of Communities Dec 09 2020 The evolution of species abundance and diversity; Competitive strategies of resource allocation; Community structure; Outlook.

Evolution Dec 21 2021

Encyclopedia of Evolutionary Biology Jan 28 2020 Encyclopedia of Evolutionary Biology is the definitive go-to reference in the field of evolutionary biology. It provides a fully comprehensive review of the field in an easy to search structure. Under the collective leadership of fifteen distinguished section editors, it is comprised of articles written by leading experts in the field, providing a full review of the current status of each topic. The articles are up-to-date and fully illustrated with in-text references that allow readers to easily access primary literature. While all entries are authoritative and valuable to those with advanced understanding of evolutionary biology, they are also intended to be accessible to both advanced

undergraduate and graduate students. Broad topics include the history of evolutionary biology, population genetics, quantitative genetics; speciation, life history evolution, evolution of sex and mating systems, evolutionary biogeography, evolutionary developmental biology, molecular and genome evolution, coevolution, phylogenetic methods, microbial evolution, diversification of plants and fungi, diversification of animals, and applied evolution. Presents fully comprehensive content, allowing easy access to fundamental information and links to primary research Contains concise articles by leading experts in the field that ensures current coverage of each topic Provides ancillary learning tools like tables, illustrations, and multimedia features to assist with the comprehension process

The Evolution of Senescence in the Tree of Life Mar 24 2022 Top researchers in the field introduce interdisciplinary perspectives on senescence, presenting new insights and cutting-edge research.

Why Evolution is True Dec 29 2019 For all the discussion in the media about creationism and 'Intelligent Design', virtually nothing has been said about the evidence in question – the evidence for evolution by natural selection. Yet, as this succinct and important book shows, that evidence is vast, varied, and magnificent, and drawn from many disparate fields of science. The very latest research is uncovering a stream of

evidence revealing evolution in action - from the actual observation of a species splitting into two, to new fossil discoveries, to the deciphering of the evidence stored in our genome. Why Evolution is True weaves together the many threads of modern work in genetics, palaeontology, geology, molecular biology, anatomy, and development to demonstrate the 'indelible stamp' of the processes first proposed by Darwin. It is a crisp, lucid, and accessible statement that will leave no one with an open mind in any doubt about the truth of evolution.

Environmental Epigenetics Feb 20 2022 This book examines the toxicological and health implications of environmental epigenetics and provides knowledge through an interdisciplinary approach. Included in this volume are chapters outlining various environmental risk factors such as phthalates and dietary components, life states such as pregnancy and ageing, hormonal and metabolic considerations and specific disease risks such as cancer cardiovascular diseases and other non-communicable diseases. Environmental Epigenetics imparts integrative knowledge of the science of epigenetics and the issues raised in environmental epidemiology. This book is intended to serve both as a reference compendium on environmental epigenetics for scientists in academia, industry and laboratories and as a textbook for graduate level environmental health courses. Environmental Epigenetics imparts integrative knowledge of the science of

epigenetics and the issues raised in environmental epidemiology. This book is intended to serve both as a reference compendium on environmental epigenetics for scientists in academia, industry and laboratories and as a textbook for graduate level environmental health courses.

Ecology and Evolution of Infectious Diseases **Jun 26 2022 In recent years, the ecology and evolution of infectious diseases has been studied extensively and new approaches to the study of host-pathogen interactions continue to emerge. At the same time, pathogen control in low-income countries has tended to remain largely informed by classical epidemiology, where the objective is to treat as many people as possible, despite recent research suggesting new opportunities for improved disease control in the context of limited economic resources. The need to integrate the scientific developments in the ecology and evolution of infectious diseases with public health strategy in low-income countries is now more important than ever. This novel text uniquely incorporates the latest research in ecology and evolutionary biology into the discussion of public health issues in low-income countries. It brings together an international team of experts from both universities and health NGOs to provide an up-to-date, authoritative, and challenging review of the ecology and evolution of infectious diseases, focusing on low-income countries for effective public health**

applications and outcomes. It discusses a range of public health threats including malaria, TB, HIV, measles, Ebola, tuberculosis, influenza and meningitis among others.

Ecology and Evolution of Flowers Nov 19 2021 Floral biology, floral function, sexual systems, diversification.

***Teaching About Evolution and the Nature of Science* Jun 02 2020 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 Councilâ€"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.

A Biologist's Guide to Mathematical Modeling in Ecology and Evolution Apr 24 2022 Thirty years ago, biologists could get by with a rudimentary grasp of mathematics and modeling. Not so today. In seeking to answer fundamental questions about how biological systems function and change over time, the modern biologist is as likely to rely on sophisticated mathematical and computer-based models as traditional fieldwork. In this book, Sarah Otto and Troy Day provide biology students with the tools necessary to both interpret models

and to build their own. The book starts at an elementary level of mathematical modeling, assuming that the reader has had high school mathematics and first-year calculus. Otto and Day then gradually build in depth and complexity, from classic models in ecology and evolution to more intricate class-structured and probabilistic models. The authors provide primers with instructive exercises to introduce readers to the more advanced subjects of linear algebra and probability theory. Through examples, they describe how models have been used to understand such topics as the spread of HIV, chaos, the age structure of a country, speciation, and extinction. Ecologists and evolutionary biologists today need enough mathematical training to be able to assess the power and limits of biological models and to develop theories and models themselves. This innovative book will be an indispensable guide to the world of mathematical models for the next generation of biologists. A how-to guide for developing new mathematical models in biology Provides step-by-step recipes for constructing and analyzing models Interesting biological applications Explores classical models in ecology and evolution Questions at the end of every chapter Primers cover important mathematical topics Exercises with answers Appendixes summarize useful rules Labs and advanced material available

The Role of Behavior in Evolution Aug 17 2021 These six original essays focus on a potentially

important aspect of evolutionary biology, the possible causal role of phenotypic behavior in evolution. Balancing theory with actual or potential empiricism, they provide the first full examination of this topic. Plotkin's opening chapter outlines the "conceptual minefields" that the contributors attempt to negotiate: What is an adequate theory of evolution? What is behavior and is it possible to maintain a distinction between behavior and other attributes of the phenotype? is all, or only a special subset, of behavior both a cause and a consequence of evolution? And what do the theoretical issues mean in empirical terms? He concludes that any attempt to understand the causal role of behavior in evolution requires a more complicated theoretical structure than that of orthodox neoDarwinism, a conceptualization of behavior as a distinctive set of phenotypic attributes, and the accumulation of more data. David L. Hull (Northwestern University) provides an alternative account of the evolutionary process by developing a hierarchy of replicators-interactors-lineages to replace the traditional one of genes-organisms-species. Robert N. Brandon (Duke University) also posits hierarchy as an appropriate architecture for the theoretical complexity needed to support an examination of the role of behavior in evolution. F. J. Odling-Smee (Brunei University) outlines a theoretical structure to encompass the behavior of phenotypes, concentrating on the unrestricted definition of behavior (everything

that an animal does). The remaining chapters are as much concerned with evidence as with theory. Plotkin concentrates on a restricted definition of behavior (behavior that is a product of choosing intelligence), reviewing our empirical knowledge of how learning might influence evolution. R.I.M. Dunbar (University College, London) uses empirical studies of vertebrate social behavior to deal with the question of how the social systems, especially of primates, might have a causal role in species evolution. Henry C. Plotkin is Lecturer at the University College, London. A Bradford Book.

Conservation Paleobiology Nov 07 2020 In conservation, perhaps no better example exists of the past informing the present than the return of the California condor to the Vermilion Cliffs of Arizona. Extinct in the region for nearly one hundred years, condors were successfully reintroduced starting in the 1990s in an effort informed by the fossil record—condor skeletal remains had been found in the area's late-Pleistocene cave deposits. The potential benefits of applying such data to conservation initiatives are unquestionably great, yet integrating the relevant disciplines has proven challenging. Conservation Paleobiology gathers a remarkable array of scientists—from Jeremy B. C. Jackson to Geerat J. Vermeij—to provide an authoritative overview of how paleobiology can inform both the management of threatened species and larger conservation decisions. Studying endangered

species is difficult. They are by definition rare, some exist only in captivity, and for those still in their native habitats any experimentation can potentially have a negative effect on survival. Moreover, a lack of long-term data makes it challenging to anticipate biotic responses to environmental conditions that are outside of our immediate experience. But in the fossil and prefossil records—from natural accumulations such as reefs, shell beds, and caves to human-made deposits like kitchen middens and archaeological sites—enlightening parallels to the Anthropocene can be found that might serve as a primer for present-day predicaments. Offering both deep-time and near-time perspectives and exploring a range of ecological and evolutionary dynamics and taxa from terrestrial as well as aquatic habitats, Conservation Paleobiology is a sterling demonstration of how the past can be used to manage for the future, giving new hope for the creation and implementation of successful conservation programs.

Molecular Evolution and Phylogenetics **Jan 22 2022 During the last ten years, remarkable progress has occurred in the study of molecular evolution. Among the most important factors that are responsible for this progress are the development of new statistical methods and advances in computational technology. In particular, phylogenetic analysis of DNA or protein sequences has become a powerful tool for**

studying molecular evolution. Along with this developing technology, the application of the new statistical and computational methods has become more complicated and there is no comprehensive volume that treats these methods in depth. Molecular Evolution and Phylogenetics fills this gap and present various statistical methods that are easily accessible to general biologists as well as biochemists, bioinformatists and graduate students. The text covers measurement of sequence divergence, construction of phylogenetic trees, statistical tests for detection of positive Darwinian selection, inference of ancestral amino acid sequences, construction of linearized trees, and analysis of allele frequency data. Emphasis is given to practical methods of data analysis, and methods can be learned by working through numerical examples using the computer program MEGA2 that is provided.

New Horizons in Evolution Apr 12 2021 New Horizons in Evolution is a compendium of the latest research, analyses, and theories of evolutionary biology. Chapters are collected from the international symposium held by the Board of Governors of the University of Haifa to honor Dr. Eviatar Nevo, founder and director of the Institute of Evolution. This book includes material written by top global scientists. Such detailed summaries and recent advances include topics like genomics, epigenetics, evolutionary theory, and the evolution of cancer. This book analyzes evolutionary biology of animals, such as

lizards and subterranean mammals. It also discusses agricultural evolution, specifically the vital wheat crop in various climates and locations. Each chapter contributes the most up-to-date knowledge of evolution's role in speciation, adaptation, and regulation. New Horizons in Evolution is a valuable resource for researchers involved in evolution, evolutionary biology, and evolutionary theory. Advanced undergraduate and graduate students in evolutionary biology courses will also find this useful due to the high expertise level and latest knowledge available through this resource. Examines the evolution of species in extreme conditions Discusses the role of evolution in medicine and cancer research Features the latest data and advances in evolution theory

The Oxford Handbook of Language Evolution **Jan 10 2021 Leading scholars present critical accounts of every aspect of the field, including work in animal behaviour; anatomy, genetics and neurology; the prehistory of language; the development of our uniquely linguistic species; and language creation, transmission, and change.**

Chance and Necessity Sep 05 2020 Change and necessity is a statement of Darwinian natural selection as a process driven by chance necessity, devoid of purpose or intent.

New World Monkeys May 02 2020 "This book is a broad synthesis of new world monkey evolution, integrating their unique evolutionary story into the bigger picture of primate evolution and

Amazon biodiversity. Capsule For more than 30 million years, New World monkeys have inhabited the forests of South and Central America. Whether these primates originally came from Africa by rafting across the Atlantic or crossing overland from North America, they soon flourished. This book tells the story of these New World monkeys. Integrating data from fossil and living animals, it explores the evolution of the three major New World monkey lineages as well as how they fit into the broader story of primate evolution and Amazon biodiversity. After providing readers with necessary background in primate taxonomy and systematics, Rosenberger shows that the notion of adaptive zones is central to our understanding of primate evolution. The idea of adaptive zones can explain how radiations evolve, morphological adaptations appear, and communities form. From here, Rosenberger synthesizes what is known about New World monkeys' unique ecological adaptations, including those involving feeding and locomotion, as well as their social behaviour. The book's concluding chapters explore theories of how primates first arrived in South America and what their future looks like given the threat of extinction. Biography Internal Use Only Alfred L. Rosenberger is Professor Emeritus of Biological Anthropology at Brooklyn College. An expert on the origin and evolution of New World Monkeys, Rosenberger has contributed numerous articles in edited volumes and his work is published in journals such as Nature, Journal of Human

Evolution and American Journal of Primatology . Audience The audience for this book is scholars and graduate students in biological/physical anthropolog and primatology, and to a lesser extent conservation biology, evolutionary biology, and behavioral ecology . Rationale - no copy text Other Relevant Info - no copy text"--
The Biology and Evolution of Lungfishes Mar 31 2020