

# Evolutionary Biology By Douglas J Futuyma

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**The Princeton Guide to Evolution** - David A. Baum  
2013-11-04

The Princeton Guide to Evolution is a comprehensive, concise, and authoritative reference to the major subjects and key concepts in evolutionary biology, from genes to mass extinctions. Edited by a distinguished team of

evolutionary biologists, with contributions from leading researchers, the guide contains some 100 clear, accurate, and up-to-date articles on the most important topics in seven major areas: phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and

phenotypes; speciation and macroevolution; evolution of behavior, society, and humans; and evolution and modern society. Complete with more than 100 illustrations (including eight pages in color), glossaries of key terms, suggestions for further reading on each topic, and an index, this is an essential volume for undergraduate and graduate students, scientists in related fields, and anyone else with a serious interest in evolution. Explains key topics in some 100 concise and authoritative articles written by a team of leading evolutionary biologists. Contains more than 100 illustrations, including eight pages in color. Each article includes an outline, glossary, bibliography, and cross-references. Covers phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and phenotypes; speciation and macroevolution;

evolution of behavior, society, and humans; and evolution and modern society

Evolution - Douglas J. Futuyma 2022-11

"Evolution 5e addresses major themes, including the history of evolution, evolutionary processes, adaptation, and evolution as an explanatory framework—at levels of biological organization ranging from genomes to ecological communities. Extensively revised for clarity and currency, this new edition of *Evolution* presents this field of evolution as a living, breathing science. Updated coverage in evolutionary genetics and genomics illustrates the rapidly moving science of evolution and emphasizes the interplay between theory and empirical tests of hypotheses, acquainting students with the process of science. Written for undergraduate students in Psychology and Biology, the text is available in a

dynamic and interactive Enhanced eBook that allows student to hone their problem solving and data analysis skills while seeing Evolution in the context of their life through video, animations and more"--

**Evolution** - Douglas Futuyma 2017-06-08

This new edition of Evolution features a new coauthor: Mark Kirkpatrick (The University of Texas at Austin) offers additional expertise in evolutionary genetics and genomics, the fastest-developing area of evolutionary biology. Directed toward an undergraduate audience, the text emphasizes the interplay between theory and empirical tests of hypotheses, thus acquainting students with the process of science.

**Human Evolutionary Biology** - Michael P. Muehlenbein 2010-07-29

Wide-ranging and inclusive, this text provides an invaluable review of an expansive selection of topics

in human evolution, variation and adaptability for professionals and students in biological anthropology, evolutionary biology, medical sciences and psychology. The chapters are organized around four broad themes, with sections devoted to phenotypic and genetic variation within and between human populations, reproductive physiology and behavior, growth and development, and human health from evolutionary and ecological perspectives. An introductory section provides readers with the historical, theoretical and methodological foundations needed to understand the more complex ideas presented later. Two hundred discussion questions provide starting points for class debate and assignments to test student understanding.

Science on Trial - Douglas J. Futuyma 1983

Evolutionary Biology -  
Douglas J. Futuyma 1986  
Covers the genetic, developmental, and ecological mechanisms of evolutionary change, the major features of evolutionary history as revealed by phylogenetic and paleontological studies, and material on adaptation, molecular evolution, co-evolution, and human evolution.

**The Fact of Evolution** -  
Cameron McPherson Smith 2011  
Presents an introduction to evolution, using examples from different species to show how replication, variation, and selection are the three factors needed for evolution, but emphasizing that the outcome of the process is not always predictable.

Ecological Speciation -  
Patrik Nosil 2012-03-15  
The origin of biological diversity, via the formation of new species, can be inextricably linked to adaptation to the ecological

environment. Specifically, ecological processes are central to the formation of new species when barriers to gene flow (reproductive isolation) evolve between populations as a result of ecologically-based divergent natural selection. This process of 'ecological speciation' has seen a large body of particularly focused research in the last 10-15 years, and a review and synthesis of the theoretical and empirical literature is now timely. The book begins by clarifying what ecological speciation is, its alternatives, and the predictions that can be used to test for it. It then reviews the three components of ecological speciation and discusses the geography and genomic basis of the process. A final chapter highlights future research directions, describing the approaches and experiments which might be used to conduct that future work. The ecological and genetic literature is

integrated throughout the text with the goal of shedding new insight into the speciation process, particularly when the empirical data is then further integrated with theory.

### **How Birds Evolve -**

Douglas J. Futuyma  
2021-10-19

"Why are male birds often so brightly colored? Why do some birds lay more eggs than others? Will bird species adapt to climate change? In *How Birds Evolve*, Douglas Futuyma invites readers into the amazing world of bird evolution to answer these and other questions.

Futuyma's goal in this book is not to offer a comprehensive evolutionary history of birds, but to explore how the processes of evolution produced the distinctive features and behaviors we observe in birds today as well as their impressive diversity. Using one or two birds per chapter as a lens into

broader questions, Futuyma explores how a bird's evolutionary history helps us understand the diversity of species and the bird tree of life and how natural selection explains most of the characteristics of birds from how populations adapt to sexual selection and birds' amazing social behavior. Futuyma concludes by discussing the future of birds, particularly patterns of extinction and whether they can adapt to a changing climate.

Ultimately, Futuyma wants readers to see that evolutionary biology helps us to better understand birds, and that the reverse is also true: studies of birds have informed almost every aspect of evolutionary biology, from Darwin to today"--

*Relentless Evolution* - John N. Thompson 2013-04-15

At a glance, most species seem adapted to the environment in which they live. Yet species relentlessly evolve, and populations

within species evolve in different ways. Evolution, as it turns out, is much more dynamic than biologists realized just a few decades ago. In *Relentless Evolution*, John N. Thompson explores why adaptive evolution never ceases and why natural selection acts on species in so many different ways. Thompson presents a view of life in which ongoing evolution is essential and inevitable. Each chapter focuses on one of the major problems in adaptive evolution: How fast is evolution? How strong is natural selection? How do species co-opt the genomes of other species as they adapt? Why does adaptive evolution sometimes lead to more, rather than less, genetic variation within populations? How does the process of adaptation drive the evolution of new species? How does coevolution among species continually reshape the web of life? And, more generally,

how are our views of adaptive evolution changing? *Relentless Evolution* draws on studies of all the major forms of life—from microbes that evolve in microcosms within a few weeks to plants and animals that sometimes evolve in detectable ways within a few decades. It shows evolution not as a slow and stately process, but rather as a continual and sometimes frenetic process that favors yet more evolutionary change.

**Macroevolution** -  
Emanuele Serrelli  
2015-02-13

This book is divided in two parts, the first of which shows how, beyond paleontology and systematics, macroevolutionary theories apply key insights from ecology and biogeography, developmental biology, biophysics, molecular phylogenetics and even the sociocultural sciences to explain evolution in deep time. In the second part, the

phenomenon of macroevolution is examined with the help of real life-history case studies on the evolution of eukaryotic sex, the formation of anatomical form and body-plans, extinction and speciation events of marine invertebrates, hominin evolution and species conservation ethics. The book brings together leading experts, who explain pivotal concepts such as Punctuated Equilibria, Stasis, Developmental Constraints, Adaptive Radiations, Habitat Tracking, Turnovers, (Mass) Extinctions, Species Sorting, Major Transitions, Trends and Hierarchies – key premises that allow macroevolutionary epistemic frameworks to transcend microevolutionary theories that focus on genetic variation, selection, migration and fitness. Along the way, the contributing authors review ongoing

debates and current scientific challenges; detail new and fascinating scientific tools and techniques that allow us to cross the classic borders between disciplines; demonstrate how their theories make it possible to extend the Modern Synthesis; present guidelines on how the macroevolutionary field could be further developed; and provide a rich view of just how it was that life evolved across time and space. In short, this book is a must-read for active scholars and because the technical aspects are fully explained, it is also accessible for non-specialists. Understanding evolution requires a solid grasp of above-population phenomena. Species are real biological individuals and abiotic factors impact the future course of evolution. Beyond observation, when the explanation of macroevolution is the goal,

we need both evidence and theory that enable us to explain and interpret how life evolves at the grand scale.

Evolutionary Biology - Douglas J. Futuyma 1998  
The third edition of this comprehensive book has increased its scope while emphasizing the intellectual order and molecular perspectives which have added to evolutionary studies in the 1990s.

**Oxford Surveys in Evolutionary Biology** - Douglas J. Futuyma 1992

The Evolution of Beauty - Richard O. Prum  
2018-04-03  
A major reimagining of how evolutionary forces work, revealing how mating preferences—what Darwin termed "the taste for the beautiful"—create the extraordinary range of ornament in the animal world. "A delicious read, both seductive and mutinous.... Minutely detailed, exquisitely

observant, deeply informed, and often tenderly sensual."—New York Times Book Review In the great halls of science, dogma holds that Darwin's theory of natural selection explains every branch on the tree of life: which species thrive, which wither away to extinction, and what features each evolves. But can adaptation by natural selection really account for everything we see in nature? Yale University ornithologist Richard Prum—reviving Darwin's own views—thinks not. Deep in tropical jungles around the world are birds with a dizzying array of appearances and mating displays: Club-winged Manakins who sing with their wings, Great Argus Pheasants who dazzle prospective mates with a four-foot-wide cone of feathers covered in golden 3D spheres, Red-capped Manakins who moonwalk. In thirty years of fieldwork, Prum has seen numerous



display traits that seem disconnected from, if not outright contrary to, selection for individual survival. To explain this, he dusts off Darwin's long-neglected theory of sexual selection in which the act of choosing a mate for purely aesthetic reasons—for the mere pleasure of it—is an independent engine of evolutionary change. Mate choice can drive ornamental traits from the constraints of adaptive evolution, allowing them to grow ever more elaborate. It also sets the stakes for sexual conflict, in which the sexual autonomy of the female evolves in response to male sexual control. Most crucially, this framework provides important insights into the evolution of human sexuality, particularly the ways in which female preferences have changed male bodies, and even maleness itself, through evolutionary time. *The Evolution of Beauty* presents a unique scientific

vision for how nature's splendor contributes to a more complete understanding of evolution and of ourselves.

*Eco-evolutionary Dynamics* - Andrew P. Hendry  
2020-06-09

In recent years, scientists have realized that evolution can occur on timescales much shorter than the 'long lapse of ages' emphasized by Darwin - in fact, evolutionary change is occurring all around us all the time. This work provides an authoritative and accessible introduction to eco-evolutionary dynamics, a cutting-edge new field that seeks to unify evolution and ecology into a common conceptual framework focusing on rapid and dynamic environmental and evolutionary change.

*Why Evolution is True* - Jerry A. Coyne 2010-01-14  
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.

Phenotypic Plasticity & Evolution - David W.

Pfennig 2021-05-31

Phenotypic plasticity - the ability of an individual organism to alter its features in direct response to a change in its environment - is ubiquitous. Understanding how and why this phenomenon exists is crucial because it unites all levels of biological inquiry. This book brings together researchers who approach plasticity from diverse perspectives to explore new ideas and recent findings about the causes and consequences of plasticity. Contributors also discuss such controversial topics as how plasticity shapes ecological and evolutionary processes; whether specific plastic responses can be passed to offspring; and whether plasticity has left an important imprint on the history of life. Importantly, each chapter highlights key questions for future research. Drawing on numerous studies of plasticity in natural

populations of plants and animals, this book aims to foster greater appreciation for this important, but frequently misunderstood phenomenon. Key Features Written in an accessible style with numerous illustrations, including many in color Reviews the history of the study of plasticity, including Darwin's views Most chapters conclude with recommendations for future research

### **Basics in Human**

**Evolution** - Michael P Muehlenbein 2015-07-24  
Basics in Human Evolution offers a broad view of evolutionary biology and medicine. The book is written for a non-expert audience, providing accessible and convenient content that will appeal to numerous readers across the interdisciplinary field. From evolutionary theory, to cultural evolution, this book fills gaps in the readers' knowledge from various backgrounds and introduces them to thought

leaders in human evolution research. Offers comprehensive coverage of the wide ranging field of human evolution Written for a non-expert audience, providing accessible and convenient content that will appeal to numerous readers across the interdisciplinary field Provides expertise from leading minds in the field Allows the reader the ability to gain exposure to various topics in one publication

*Science on Trial* - Douglas J. Futuyma 1995

Provides an explanation of evolutionary processes, a refutation of the claims of creationists, and insight into the nature of scientific inquiry

**The Princeton Guide to Evolution** - David A. Baum 2017-03-21

The essential one-volume reference to evolution The Princeton Guide to Evolution is a comprehensive, concise, and authoritative reference to the major subjects and

key concepts in evolutionary biology, from genes to mass extinctions. Edited by a distinguished team of evolutionary biologists, with contributions from leading researchers, the guide contains some 100 clear, accurate, and up-to-date articles on the most important topics in seven major areas: phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and phenotypes; speciation and macroevolution; evolution of behavior, society, and humans; and evolution and modern society. Complete with more than 100 illustrations (including eight pages in color), glossaries of key terms, suggestions for further reading on each topic, and an index, this is an essential volume for undergraduate and graduate students, scientists in related fields, and anyone else with a serious interest in evolution. Explains key topics in some

100 concise and authoritative articles written by a team of leading evolutionary biologists. Contains more than 100 illustrations, including eight pages in color. Each article includes an outline, glossary, bibliography, and cross-references. Covers phylogenetics and the history of life; selection and adaptation; evolutionary processes; genes, genomes, and phenotypes; speciation and macroevolution; evolution of behavior, society, and humans; and evolution and modern society.

**Evolutionary Biology** - Douglas J. Futuyma 1986  
Covers the genetic, developmental, and ecological mechanisms of evolutionary change, the major features of evolutionary history as revealed by phylogenetic and paleontological studies, and material on adaptation, molecular evolution, co-evolution, and human evolution.

Evolution - Douglas J. Futuyma 2017-10-15  
Published by Sinauer Associates, an imprint of Oxford University Press. Extensively rewritten and reorganized, this new edition of *Evolution*--featuring a new coauthor: Mark Kirkpatrick (The University of Texas at Austin)--offers additional expertise in evolutionary genetics and genomics, the fastest-developing area of evolutionary biology. Directed toward an undergraduate audience, the text emphasizes the interplay between theory and empirical tests of hypotheses, thus acquainting students with the process of science. It addresses major themes--including the history of evolution, evolutionary processes, adaptation, and evolution as an explanatory framework--at levels of biological organization ranging from genomes to ecological communities.  
*Oxford Surveys in*

*Evolutionary Biology* - Douglas Futuyma 1992-10-08  
Part of a continuing series on evolutionary biology, this volume contains essays on morphology, symbiosis, co-evolution among competitors and the implications of DNA variations on human evolution, among other topics.

*Quirks of Human Anatomy* - Lewis I. Held, Jr 2009-05-29  
With the emergence of the new field of evolutionary developmental biology we are witnessing a renaissance of Darwin's insights 150 years after his *On the Origin of Species*. Thus far, the exciting findings from 'evo-devo' have only been trickling into college courses and into the domain of non-specialists. With its focus on the human organism, *Quirks of Human Anatomy* opens the floodgates by stating the arguments of evo-devo in plain English, and by offering a cornucopia of

interesting case studies and examples. Its didactic value is enhanced by 24 schematic diagrams that integrate a host of disparate observations, by its Socratic question-and-answer format, and by its unprecedented compilation of the literature. By framing the 'hows' of development in terms of the 'whys' of evolution, it lets readers probe the deepest questions of biology. Readers will find the book educational and enjoyable, as it revels in the fun of scientific exploration.

**Genetics and the Origin of Species** - Theodosius

Dobzhansky 1982

*Improbable Destinies* -

Jonathan B. Losos

2017-08-08

A major new book overturning our assumptions about how evolution works Earth's natural history is full of fascinating instances of convergence: phenomena like eyes and wings and tree-climbing lizards that

have evolved independently, multiple times. But evolutionary biologists also point out many examples of contingency, cases where the tiniest change—a random mutation or an ancient butterfly sneeze—caused evolution to take a completely different course. What role does each force really play in the constantly changing natural world? Are the plants and animals that exist today, and we humans ourselves, inevitabilities or evolutionary flukes? And what does that say about life on other planets? Jonathan Losos reveals what the latest breakthroughs in evolutionary biology can tell us about one of the greatest ongoing debates in science. He takes us around the globe to meet the researchers who are solving the deepest mysteries of life on Earth through their work in experimental evolutionary science. Losos himself is one of the leaders in this exciting new field,

and he illustrates how experiments with guppies, fruit flies, bacteria, foxes, and field mice, along with his own work with anole lizards on Caribbean islands, are rewinding the tape of life to reveal just how rapid and predictable evolution can be.

Improbable Destinies will change the way we think and talk about evolution. Losos's insights into natural selection and evolutionary change have far-reaching applications for protecting ecosystems, securing our food supply, and fighting off harmful viruses and bacteria. This compelling narrative offers a new understanding of ourselves and our role in the natural world and the cosmos.

Evolution EBook - Douglas Futuyma 2013

*Evolution* - Douglas Futuyma 2013-07-15  
Thoroughly updated with new content, figures and citations, the third edition addresses major themes in

contemporary evolutionary biology - including the history of evolution, evolutionary processes, adaptation, and evolution as an explanatory framework - at levels of biological organization ranging from genomes to ecological communities.

*Evolution since Darwin* - Walter Eanes 2010-09-29  
Evolution since Darwin: The First 150 Years comprises 22 chapters and eight shorter commentaries that emerged from a symposium held in November 2009 at Stony Brook University, USA. Thirty-nine authors from 22 universities and two museums in five countries write on areas of evolutionary biology and related topics on which their research focuses. Their essays cover the history of evolutionary biology, populations, genes and genomes, evolution of form, adaptation and speciation, diversification and phylogeny, paleobiology, human

cultural and biological evolution, and applied evolution. The volume summarizes progress in major areas of research in evolutionary biology since Darwin, reviewing the current state of knowledge and active research in those areas, and looking toward the future of the broader field.

**Evolution** - Carl T. Bergstrom 2016-02-25  
Evolution presents foundational concepts through a contemporary framework of population genetics and phylogenetics that is enriched by current research and stunning art. In every chapter, new critical thinking questions and expanded end-of-chapter problems emphasizing data interpretation reinforce the Second Edition's focus on helping students think like evolutionary biologists.

**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  
Evolutionary Analysis -  
Scott Freeman 2004

*The uses of evolutionary biology* - Douglas J. Futuyma 1995

**How Birds Evolve** -  
Douglas J. Futuyma  
2021-10-19

A marvelous journey into the world of bird evolution How Birds Evolve explores how evolution has shaped the distinctive characteristics and behaviors we observe in birds today. Douglas Futuyma describes how evolutionary science illuminates the wonders of birds, ranging over topics such as the meaning and origin of species, the evolutionary history of bird diversity, and the evolution of avian reproductive behaviors, plumage ornaments, and social behaviors. In this multifaceted book, Futuyma examines how birds evolved from nonavian dinosaurs

and reveals what we can learn from the "family tree" of birds. He looks at the ways natural selection enables different forms of the same species to persist, and discusses how adaptation by natural selection accounts for the diverse life histories of birds and the rich variety of avian parenting styles, mating displays, and cooperative behaviors. He explains why some parts of the planet have so many more species than others, and asks what an evolutionary perspective brings to urgent questions about bird extinction and habitat destruction. Along the way, Futuyma provides an insider's perspective on how biologists practice evolutionary science, from studying the fossil record to comparing DNA sequences among and within species. A must-read for bird enthusiasts and curious naturalists, *How Birds Evolve* shows how evolutionary biology helps us better understand birds

and their natural history, and how the study of birds has informed all aspects of evolutionary science since the time of Darwin.

**Extended Heredity** -  
Russell Bonduriansky  
2020-04-14

Bonduriansky and Day challenge the premise that genes alone mediate the transmission of biological information across generations and provide the raw material for natural selection. They explore the latest research showing that what happens during our lifetimes—and even our parents' and grandparents' lifetimes—can influence the features of our descendants. Based on this evidence, Bonduriansky and Day develop an extended concept of heredity that updates ideas about how traits can and cannot be transmitted across generations, opening the door to a new understanding of inheritance, evolution, and even human health. --

Adapted from publisher description.

**Evolutionary Ecology** - Charles W. Fox 2001-10-19  
Evolutionary Ecology simultaneously unifies conceptual and empirical advances in evolutionary ecology and provides a volume that can be used as either a primary textbook or a supplemental reading in an advanced undergraduate or graduate course. The focus of the book is on current concepts in evolutionary ecology, and the empirical study of these concepts. The editors have assembled a group of prominent biologists who have made significant contributions to this field. They both synthesize the current state of knowledge and identify areas for future investigation. Evolutionary Ecology will be of general interest to researchers and students in both ecology and evolutionary biology. Researchers in evolutionary ecology that want an overview of the current

state of the field, and graduate students that want an introduction to the field, will find this book very valuable. This volume can also be used as a primary textbook or supplemental reading in both upper division and graduate courses/seminars in Evolutionary Ecology.

**Pragmatic Evolution** - Aldo Poiani 2011-11-10  
Of what use is evolutionary science to society? Can evolutionary thinking provide us with the tools to better understand and even make positive changes to the world? Addressing key questions about the development of evolutionary thinking, this book explores the interaction between evolutionary theory and its practical applications. Featuring contributions from leading specialists, Pragmatic Evolution highlights the diverse and interdisciplinary applications of evolutionary thinking: their potential and limitations. The fields

covered range from palaeontology, genetics, ecology, agriculture, fisheries, medicine, neurobiology, psychology and animal behaviour; to information technology, education, anthropology and philosophy. Detailed examples of useful and current evolutionary applications are provided throughout. An ideal source of information to promote a better understanding of contemporary evolutionary science and its applications, this book also encourages the continued development of new opportunities for constructive evolutionary applications across a range of fields.

Adaptation and Natural

Selection - George  
Christopher Williams  
2018-10-30

Biological evolution is a fact—but the many conflicting theories of evolution remain controversial even today. When *Adaptation and Natural Selection* was first

published in 1966, it struck a powerful blow against those who argued for the concept of group selection—the idea that evolution acts to select entire species rather than individuals. Williams’s famous work in favor of simple Darwinism over group selection has become a classic of science literature, valued for its thorough and convincing argument and its relevance to many fields outside of biology. Now with a new foreword by Richard Dawkins, *Adaptation and Natural Selection* is an essential text for understanding the nature of scientific debate.

**Observing Evolution** -

Bruce S. Grant 2021-08-10  
A firsthand account of how a modest moth demonstrated Darwin's theory of natural selection. The extraordinary tale of the humble peppered moth is at the very foundation of our acceptance of Darwinian evolution. When

scientists in the early twentieth century discovered that a British population of the small, speckled *Biston betularia* had become black over the course of mere decades in response to the Industrial Revolution's encroaching soot, the revelation cemented Darwin's theory of natural selection. This finding was the staple example of "evolution in action" until the turn of the millennium, when proponents of Creationism fomented doubts about the legitimacy of early experiments. In the midst of this upheaval, evolutionary biologist Bruce S. Grant and his contemporaries were determinedly building a dataset that would ultimately vindicate the theory of industrial melanism in the peppered moth and, by extension, the theory of natural selection itself. *Observing Evolution* tells the remarkable story of this work. Shining a light on the efforts of scientists who

tested Darwin's trailblazing theory, Grant chronicles the historical foundations of peppered moth research, then explains how he and his collaborators were able to push this famous study forward. He describes how his experiments were designed and conducted while painting a vivid picture of the personalities, events, and adventures around the world that shaped his successes—and struggles. His story culminates with his discovery of the mirrored "rise and fall" of melanism in peppered moth populations separated by the vastness of the Atlantic Ocean, which settled the intense controversy around evolution by documenting nature's recurring experiment. *Observing Evolution* is a crash course in natural selection and the history of evolutionary biology for anyone interested in Darwin's legacy. It's also a fascinating read for

lepidopterists and scientists about the bridge between classic experiments and today's sophisticated DNA sequencing, which reveals in ever greater detail how the lives of these tiny organisms have such enormous implications.

Assembling the Tree of Life

- Joel Cracraft 2004-07-22

This edited volume is provides an authoritative synthesis of knowledge about the history of life. All the major groups of organisms are treated, by the leading workers in their

fields. With sections on: The Importance of Knowing the Tree of Life; The Origin and Radiation of Life on Earth; The Relationships of Green Plants; The Relationships of Fungi; and The Relationships of Animals.

This book should prove indispensable for evolutionary biologists, taxonomists, ecologists interested in biodiversity, and as a baseline sourcebook for organismic biologists, botanists, and microbiologists. An essential reference in this fundamental area.