

Palaeobotany And Plant Evolution

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The Biology and Evolution of Fossil Plants - Thomas N. Taylor 1993

Brazilian Paleofloras - Roberto Iannuzzi 2020-05-27

This book will cover the entire evolutionary history that the terrestrial plants have recorded in Brazilian sedimentary rocks, ranging from the first vestiges of terrestrial environments colonization about 400 million years ago, until reaching the eve of the present time, when the current vegetation formations were organizing to reach their current distribution in modern biomes. At present Brazil is home to the world's greatest plant biodiversity and we aim to offer here an opportunity to appreciate how this floral biodiversity originated and developed in these lowlands of South America, through chapters elaborated by the best Brazilian and foreign experts who dedicate to elucidate the evolution of the ancient flora in this part of the planet.

Systematic and Taxonomic Approaches in Palaeobotany - Robert A. Spicer 1986

Plant fossils, which provide valuable data for many fields, are usually only poorly preserved and fragmentary remains of the original organism. Their identification is difficult, and their study bedevilled by problems of taxonomy and classification never encountered with living plants. This volume contains the papers presented at an international paleobotanical meeting designed to present a complete catalog and description of the varied techniques used in fossil identification and classification. The wide variety of approaches presented here will stimulate further research and provide the necessary information for the application of paleobotanical studies to the more general fields of botany and geology.

The Terrestrialization Process - Marco Vecoli 2010

The invasion of the land by plants (terrestrialization) was one of the most significant evolutionary events in the history of life on Earth, and correlates in time with periods of major palaeoenvironmental perturbations. The development of a vegetation cover on the previously barren land surfaces impacted on the global biogeochemical cycles and the geological processes of erosion and sediment transport. The terrestrialization of plants preceded the rise of major new groups of animals, such as insects and tetrapods, the latter numbering some 24 000 living species, including ourselves. Early land-plant evolution also correlates with the most spectacular decline of atmospheric CO₂ concentration of Phanerozoic times and with the onset of a protracted period of glacial conditions on Earth. This book includes a selection of papers covering different aspects of the terrestrialization, from palaeobotany to vertebrate palaeontology and geochemistry, promoting a multidisciplinary approach to the understanding of the co-evolution of life and its environments during Early to Mid-Palaeozoic times.

Fossil Plants - E. A. Newell Arber 1909

An Introduction to Plant Fossils - Christopher J. Cleal 2009-09-17

This book provides an excellent practical introduction to the study of plant fossils, and is written for those who have had little previous experience of this type of palaeontology. The text summarizes the groups of plants occurring as fossils and describes how best to investigate them. It explains modern research techniques that reveal details of anatomical and reproductive characteristics, and the features for identifying commonly found plant fossils. The approaches for interpreting these fossils are assessed, and the book highlights how such methods are employed by palaeobotanists to increase our knowledge of plant

evolution, palaeoecology, palaeogeography and stratigraphy. The book discusses how the science of palaeobotany has developed over the last 300 years, with examples and illustrations from a global range of plant groups. It is valuable for students on introductory or intermediate courses in palaeobotany, palaeontology and plant evolution, and for amateurs looking for help in studying plant fossils.

Nature through Time - Edoardo Martinetto 2021-08-11

This book simulates a historical walk through nature, teaching readers about the biodiversity on Earth in various eras with a focus on past terrestrial environments. Geared towards a student audience, using simple terms and avoiding long complex explanations, the book discusses the plants and animals that lived on land, the evolution of natural systems, and how these biological systems changed over time in geological and paleontological contexts. With easy-to-understand and scientifically accurate and up-to-date information, readers will be guided through major biological events from the Earth's past. The topics in the book represent a broad paleoenvironmental spectrum of interests and educational modules, allowing for virtual visits to rich geological times. Eras and events that are discussed include, but are not limited to, the much varied Quaternary environments, the evolution of plants and animals during the Cenozoic, the rise of angiosperms, vertebrate evolution and ecosystems in the Mesozoic, the Permian mass extinction, the late Paleozoic glaciation, and the origin of the first trees and land plants in the Devonian-Ordovician. With state-of-the-art expert scientific instruction on these topics and up-to-date and scientifically accurate illustrations, this book can serve as an international course for students, teachers, and other interested individuals.

Transformative Paleobotany - Michael Krings 2018-07-14

Transformative Paleobotany: Papers to Commemorate the Life and Legacy of Thomas N. Taylor features the broadest possible spectrum of topics analyzing the structure, function and evolution of fossil plants, microorganisms, and organismal interactions in fossil ecosystems (e.g., plant paleobiography, paleoecology, early evolution of land plants, fossil fungi and microbial interactions with plants, systematics and phylogeny of major plant and fungal lineages, biostratigraphy, evolution of organismal interactions, ultrastructure, Antarctic paleobotany). The book includes the latest research from top scientists who have made transformative contributions. Sections are richly illustrated, well conceived, and characterize and summarize the most up-to-date understanding of this respective and important field of study. Features electronic supplements, such as photographs, diagrams, tables, flowcharts and links to other websites Includes in-depth illustrations with diagrams, flowcharts and photographic plates (many in color for enhanced utility), tables and graphs

Vascular Plants and Paleobotany - Philip Stewart 2011-12-15

This title includes a number of Open Access chapters. This book provides an important collection of new research that sheds light on many aspects of the evolutionary patterns of gymnosperms, angiosperms, and pteridophytes. The book includes a complete chloroplast genome sequence study and describes a method that induces the systemic silencing of target genes in the *Ceratopteris* gametophyte. It presents a study of how herbicide treatments reduce fern densities and create the establishment of regeneration. It also analyzes an EST dataset from *G. biloba* that reveals genes potentially unique to gymnosperms and includes a study of episodic rate acceleration in the ancestral grasses.

Late Cainozoic Floras of Iceland - Thomas Denk 2011-03-28

Being the only place in the northern North Atlantic yielding late Cainozoic terrestrial sediments rich in plant fossils, Iceland provides a unique archive for vegetation and climate development in this region. This book includes the complete plant fossil record from Iceland spanning the past 15 million years. Eleven sedimentary rock formations containing over 320 plant taxa are described. For each flora, palaeoecology and floristic affinities within the Northern Hemisphere are established. The exceptional fossil record allows a deeper understanding of the role of the "North Atlantic Land Bridge" for intercontinental plant migration and of the Gulf Stream-North Atlantic Current system for regional climatic evolution. 'Iceland sits as a "fossil trap" on one of the most interesting biogeographic exchange routes on the planet - the North Atlantic. The fossil floras of Iceland document both local vegetational response to global climate change, and more importantly, help to document the nature of biotic migration across the North Atlantic in the last 15 million years. In this state-of-the-art volume, the authors place sequential floras in their paleogeographic, paleoclimatic and geologic context, and extract a detailed history of biotic response to the dynamics of physical change.' Bruce H. Tiffney, University of California, Santa Barbara 'This beautifully-illustrated monograph of the macro- and microfloras from the late Cenozoic of Iceland is a worthy successor to Oswald Heer's "Flora fossilis arctica". Its broad scope makes it a must for all scientists interested in climatic change and palaeobiogeography in the North Atlantic region. It will remain a classic for years to come.' David K. Ferguson, University of Vienna

History of the Australian Vegetation - Robert S. Hill 2017-03-01

The Australian vegetation is the end result of a remarkable history of climate change, latitudinal change, continental isolation, soil evolution, interaction with an evolving fauna, fire and most recently human impact. This book presents a detailed synopsis of the critical events that led to the evolution of the unique Australian flora and the wide variety of vegetational types contained within it. The first part of the book details the past continental relationships of Australia, its palaeoclimate, fauna and the evolution of its landforms since the rise to dominance of the angiosperms at the beginning of the Cretaceous period. A detailed summary of the palaeobotanical record is then presented. The palynological record gives an overview of the vegetation and the distribution of important taxa within it, while the complementary macrofossil record is used to trace the evolution of critical taxa. This book will interest graduate students and researchers interested in the evolution of the flora of this fascinating continent.

History of Palaeobotany - Athel J. Cornish Bowden 2005

Often regarded as the 'Cinderella' of palaeontological studies, palaeobotany has a history that contains some fascinating insights into scientific endeavour, especially by palaeontologists who were pursuing a personal interest rather than a career. The problems of maintaining research facilities in universities, especially in the modern era, are described and reveal a noticeable absence of a national UK strategy to preserve centres of excellence in an avowedly specialist area. Accounts of some of the pioneers demonstrate the importance of collaboration between taxonomists and illustrators. The importance of palaeobotany in the rise of geoconservation is outlined, as well as the significant and influential role of women in the discipline. Although this volume has a predominantly UK focus, two very interesting studies outline the history of palaeobotanical work in Argentina and China.

Ginkgo Biloba A Global Treasure - T. Hori 2012-12-06

Interest in this unique plant has grown dramatically over the last 10 years, and this book provides an overview and recent findings concerning cell biology, biochemistry, development, morphology, phylogeny, paleobotany, as well as possible applications in chemistry and medicine. It also covers environmental aspects and the relationship between *G. biloba* and humans. Thus it will be of wide interest to botanists, horticulturists and scientists working on this attractive and useful plant, and aims to both stimulate further study and contribute to the development of new fields in Ginkgo research.

Transformative Paleobotany - Michael Krings 2018-08-10

Transformative Paleobotany: Papers to Commemorate the Life and Legacy of Thomas N. Taylor features the broadest possible spectrum of topics analyzing the structure, function and evolution of fossil plants, microorganisms, and organismal interactions in fossil ecosystems (e.g., plant paleobiography, paleoecology, early evolution of land plants, fossil fungi and microbial interactions with plants, systematics and phylogeny of major plant and fungal lineages, biostratigraphy, evolution of organismal interactions, ultrastructure,

Antarctic paleobotany). The book includes the latest research from top scientists who have made transformative contributions. Sections are richly illustrated, well conceived, and characterize and summarize the most up-to-date understanding of this respective and important field of study. Features electronic supplements, such as photographs, diagrams, tables, flowcharts and links to other websites. Includes in-depth illustrations with diagrams, flowcharts and photographic plates (many in color for enhanced utility), tables and graphs

Fundamentals of Palaeobotany - Sergei Viktorovich Meien 1987-04-16

There have been at least ten English-language textbooks of palaeobotany since D. H. Scott published the first edition of *Studies in Fossil Botany* in 1900. Most have been written by scientists who were primarily botanists by training, and were aimed largely at a readership familiar with living plants. They tended to follow a general pattern of an introductory chapter on preservation of plants as fossils, followed by a systematic treatment, group by group. Only Seward in his *Plant Life Through the Ages* departed from this pattern in presenting a chronological sequence. In the present book, Meyen breaks with this tradition. Although having a basically biological approach, he reaches out into all aspects of the history of plant life and the wider implication of its study. Only half of the present work deals sequentially with fossil plant groups, treated systematically. The remainder then explores those topics which most other textbooks have incidentally?e generally either ignored or have only mentioned rather problems of naming and classifying fragmentary plant fossils, their ecology; biogeography and palaeoclimatic significance and the contribution that?ey have made to the understanding of living plant morphology, and of the process of evolution.

Paleobotany and the Evolution of Plants - Wilson N. Stewart 1993-02-26

This 1993 textbook describes and explains the origin and evolution of plants as revealed by the fossil record.

Common Fossil Plants of Western North America, Second Edition - William D. Tidwell 1998-03-17

Generic accounts include brief characterizations; one or more line drawings; lists of formations in which the fossil plant occurs; and, in some, discussions of the ecological conditions under which the plant may have grown. Half of the listings describe fossil woods. A table of more than one hundred localities from British Columbia to northern New Mexico and from California as far east as South Dakota lists the period and epoch in which each site's fossils probably originated.

Fossil Fungi - Thomas N Taylor 2014-08-14

Fungi are ubiquitous in the world and responsible for driving the evolution and governing the sustainability of ecosystems now and in the past. *Fossil Fungi* is the first encyclopedic book devoted exclusively to fossil fungi and their activities through geologic time. The book begins with the historical context of research on fossil fungi (paleomycology), followed by how fungi are formed and studied as fossils, and their age. The next six chapters focus on the major lineages of fungi, arranging them in phylogenetic order and placing the fossils within a systematic framework. For each fossil the age and provenance are provided. Each chapter provides a detailed introduction to the living members of the group and a discussion of the fossils that are believed to belong in this group. The extensive bibliography (~ 2700 entries) includes papers on both extant and fossil fungi. Additional chapters include lichens, fungal spores, and the interactions of fungi with plants, animals, and the geosphere. The final chapter includes a discussion of fossil bacteria and other organisms that are fungal-like in appearance, and known from the fossil record. The book includes more than 475 illustrations, almost all in color, of fossil fungi, line drawings, and portraits of people, as well as a glossary of more than 700 mycological and paleontological terms that will be useful to both biologists and geoscientists. First book devoted to the whole spectrum of the fossil record of fungi, ranging from Proterozoic fossils to the role of fungi in rock weathering Detailed discussion of how fossil fungi are preserved and studied Extensive bibliography with more than 2000 entries Where possible, fungal fossils are placed in a modern systematic context Each chapter within the systematic treatment of fungal lineages introduced with an easy-to-understand presentation of the main characters that define extant members Extensive glossary of more than 700 entries that define both biological, geological, and mycological terminology

Paleobotany and the Evolution of Plants - Wilson N. Stewart 2010-01-14

Originally published in 1993, this second edition of a successful textbook describes and explains in a

refreshingly clear way the origin and evolution of plants as revealed by the fossil record and summarises paleobotanical information relevant to our understanding of the relationships between the major plant groups, extant and extinct. As in the first edition, the text is profusely illustrated with line illustrations and half-tones. For those students with little knowledge of plant structure and morphology there is a brief resumé of those features of extant plants that will be needed to gain a better understanding of the fossil record. Summarising charts are also used to help students visualise the interpretative material.

Paleobotany - Edith L. Taylor 2009-01-21

This book provides up-to-date coverage of fossil plants from Precambrian life to flowering plants, including fungi and algae. It begins with a discussion of geologic time, how organisms are preserved in the rock record, and how organisms are studied and interpreted and takes the student through all the relevant uses and interpretations of fossil plants. With new chapters on additional flowering plant families, paleoecology and the structure of ancient plant communities, fossil plants as proxy records for paleoclimate, new methodologies used in phylogenetic reconstruction and the addition of new fossil plant discoveries since 1993, this book provides the most comprehensive account of the geologic history and evolution of microbes, algae, fungi, and plants through time. * Major revision of a 1993 classic reference * Lavishly illustrated with 1,800 images and user friendly for use by paleobotanists, biologists, geologists and other related scientists * Includes an expanded glossary with an extensive up-to-date bibliography and a comprehensive index * Provides extensive coverage of fungi and other microbes, and major groups of land plants both living and extinct

The Evolution of Plant Architecture - Marie Helena Kurmann 1999

The Evolution of Plant Architecture brings together contributions from specialists in many different fields, including ecology, palaeobotany, systematics and evolution.

Palaeozoic Palaeobotany of Great Britain - C.J. Cleal 1995

This volume of the GCR series, one of two dealing with palaeobotany, covers the first 200 million years of the history of land plant evolution, as represented by the palaeobotany GCR site network of Great Britain. It demonstrates how the main facets of land plant evolution can be demonstrated at sites in Britain, and how the fossil record can be of value as an evolutionary and environmental indicator of the geological past.

The Nature of Plant Communities - J. Bastow Wilson 2019-03-21

Provides a comprehensive review of the role of species interactions in the process of plant community assembly.

Paleobotany - Shripad N. Agashe 1997

Text book in paleobotany with special reference to India.

Advances in Botanical Research - 1990-08-22

This latest volume in the series focuses on evolution and palaeobotany, plant-microbe interactions, and biomechanics. Collinson reviews the Early Tertiary floras and presents new evidence on the evolution and diversification of land plants using computer analysis of plant assemblages and reconstructions of fossil plants and plant communities. Fries and Endress combine the skills of palaeobotanists and neobotanists to more closely examine the evolution and morphology of angiosperm flowers. Miller turns his attention to the bacteria symbiotic in the leaf nodules of plants. This most complex of relationships between bacteria and higher plants involves a close and lifelong interaction at the deepest cellular level and is a fascinating system only poorly understood as of yet. Vincent deals with the fracture properties of plants--an important subject both for the plant trying to survive in a hostile environment and for its implications for agriculture and the palatability of food.

Fossilization - Carole T. Gee 2021-03-30

McCoy, Martina Menneken, Jes Rust, P. Martin Sander, Frank Tomaschek, Torsten Wappler, Kayleigh Wiersma, Tzu-Ruei Yang

Plants in Mesozoic Time - Carole T. Gee 2010-07-16

Plants in Mesozoic Time showcases the latest research of broad botanical and paleontological interest from the world's experts on Mesozoic plant life. Each chapter covers a special aspect of a particular plant group - ranging from horsetails to ginkgophytes, from cycads to conifers -- and relates it to key innovations in structure, phylogenetic relationships, the Mesozoic flora, or to animals such as plant-eating dinosaurs. The

book's geographic scope ranges from Antarctica and Argentina to the western interior of North America, with studies on the reconstruction of the Late Jurassic vegetation of the Morrison Formation and on fossil angiosperm lianas from Late Cretaceous deposits in Utah and New Mexico. The volume also includes cutting-edge studies on the evolutionary developmental biology ("evo-devo") of Mesozoic forests, the phylogenetic analysis of the still enigmatic bennettitaleans, and the genetic developmental controls of the oldest flowers in the fossil record.

Fundamentals of Palaeobotany - Sergei Meyen 2012-12-06

There have been at least ten English-language textbooks of palaeobotany since D. H. Scott published the first edition of *Studies in Fossil Botany* in 1900. Most have been written by scientists who were primarily botanists by training, and were aimed largely at a readership familiar with living plants. They tended to follow a general pattern of an introductory chapter on preservation of plants as fossils, followed by a systematic treatment, group by group. Only Seward in his *Plant Life Through the Ages* departed from this pattern in presenting a chronological sequence. In the present book, Meyen breaks with this tradition. Although having a basically biological approach, he reaches out into all aspects of the history of plant life and the wider implication of its study. Only half of the present work deals sequentially with fossil plant groups, treated systematically. The remainder then explores those topics which most other textbooks have incidentally--e generally either ignored or have only mentioned rather problems of naming and classifying fragmentary plant fossils, their ecology; biogeography and palaeoclimatic significance and the contribution that they have made to the understanding of living plant morphology, and of the process of evolution.

Plant Evolution - Karl J. Niklas 2016-08-12

Although plants comprise more than 90% of all visible life, and land plants and algae collectively make up the most morphologically, physiologically, and ecologically diverse group of organisms on earth, books on evolution instead tend to focus on animals. This organismal bias has led to an incomplete and often erroneous understanding of evolutionary theory. Because plants grow and reproduce differently than animals, they have evolved differently, and generally accepted evolutionary views—as, for example, the standard models of speciation—often fail to hold when applied to them. Tapping such wide-ranging topics as genetics, gene regulatory networks, phenotype mapping, and multicellularity, as well as paleobotany, Karl J. Niklas's *Plant Evolution* offers fresh insight into these differences. Following up on his landmark book *The Evolutionary Biology of Plants*—in which he drew on cutting-edge computer simulations that used plants as models to illuminate key evolutionary theories—Niklas incorporates data from more than a decade of new research in the flourishing field of molecular biology, conveying not only why the study of evolution is so important, but also why the study of plants is essential to our understanding of evolutionary processes. Niklas shows us that investigating the intricacies of plant development, the diversification of early vascular land plants, and larger patterns in plant evolution is not just a botanical pursuit: it is vital to our comprehension of the history of all life on this green planet.

A History of Plants in Fifty Fossils - Paul Kenrick 2020-03-20

An illustrated history of plants presented through the stories of 50 key fossil discoveries This is the lively, fully illustrated story of plant life on Earth as revealed through some of the most significant fossil discoveries ever made. Beginning with the origins of plant life in the sea, where photosynthesis first evolved in bacteria, the book traces the evolution of land plants, ferns, conifers and their relatives, and flowering plants. Each fossil is depicted with stunning full-color photography alongside narrative from paleobotanist Paul Kenrick explaining its significance and revealing the story behind its discovery. Interspersed throughout the book are contextual "snapshots" of landscapes and environments at various periods of geological time, focusing on plants and plant-animal interactions. *A History of Plants in Fifty Fossils* is perfect for anyone interested in plants, fossils, and the stories they tell us about life on Earth.

Origin and Evolution of Gymnosperms - Charles B. Beck 1988-01

-- Botanical Journal of the Linnean Society

Origins and Evolution of Plants on the Earth and the Descendants of ANITA - Subir Ranjan Kundu

2018-09-13

Evolutionary biology may still be a complicated field of study for many, but in *Origin and Evolution of Plants on the Earth and the Descendants of ANITA* by Subir Ranjan Kundu the concept has been simplified with

regard to angiosperms. The book walks the readers through the pathway of a series of events resulting in the evolution in different branches of life on Earth over the last 4 billion years. The theory explains the green planet from the pre-existing "dark planet" to the "blue planet" while touching areas like spatiotemporal changes, aquatic life as well as organic and inorganic evolution. While the mystery of evolution has stirred all from the shape of a flower to sliding continents, the writer explains and elaborates on his standpoint with relevance. This non-fictional piece of work changes perspective on life and leaves the readers to ponder the source material long after they have finished reading.

Comparative and Evolutionary Genomics of Angiosperm Trees - Andrew Groover 2017-11-21

Marking the change in focus of tree genomics from single species to comparative approaches, this book covers biological, genomic, and evolutionary aspects of angiosperm trees that provide information and perspectives to support researchers broadening the focus of their research. The diversity of angiosperm trees in morphology, anatomy, physiology and biochemistry has been described and cataloged by various scientific disciplines, but the molecular, genetic, and evolutionary mechanisms underlying this diversity have only recently been explored. Excitingly, advances in genomic and sequencing technologies are ushering a new era of research broadly termed comparative genomics, which simultaneously exploits and describes the evolutionary origins and genetic regulation of traits of interest. Within tree genomics, this research is already underway, as the number of complete genome sequences available for angiosperm trees is increasing at an impressive pace and the number of species for which RNAseq data are available is rapidly expanding. Because they are extensively covered by other literature and are rapidly changing, technical and computational approaches—such as the latest sequencing technologies—are not a main focus of this book. Instead, this comprehensive volume provides a valuable, broader view of tree genomics whose relevance will outlive the particulars of current-day technical approaches. The first section of the book discusses background on the evolution and diversification of angiosperm trees, as well as offers description of the salient features and diversity of the unique physiology and wood anatomy of angiosperm trees. The second section explores the two most advanced model angiosperm tree species (poplars and eucalypts) as well as species that are soon to emerge as new models. The third section describes the structural features and evolutionary histories of angiosperm tree genomes, followed by a fourth section focusing on the genomics of traits of biological, ecological, and economic interest. In summary, this book is a timely and well-referenced foundational resource for the forest tree community looking to embrace comparative approaches for the study of angiosperm trees.

Wetlands Through Time - Stephen F. Greb 2006-01-01

Early Flowers and Angiosperm Evolution - Else Marie Friis 2011-08-18

The recent discovery of diverse fossil flowers and floral organs in Cretaceous strata has revealed astonishing details about the structural and systematic diversity of early angiosperms. Exploring the rich fossil record that has accumulated over the last three decades, this is a unique study of the evolutionary history of flowering plants from their earliest phases in obscurity to their dominance in modern vegetation. The discussion provides comprehensive biological and geological background information, before moving on to summarise the fossil record in detail. Including previously unpublished results based on research into

Early and Late Cretaceous fossil floras from Europe and North America, the authors draw on direct palaeontological evidence of the pattern of angiosperm evolution through time. Synthesising palaeobotanical data with information from living plants, this unique book explores the latest research in the field, highlighting connections with phylogenetic systematics, structure and the biology of extant angiosperms.

Anatomy of Flowering Plants - Paula J. Rudall 2007-03-15

In the 2007 third edition of her successful textbook, Paula Rudall provides a comprehensive yet succinct introduction to the anatomy of flowering plants. Thoroughly revised and updated throughout, the book covers all aspects of comparative plant structure and development, arranged in a series of chapters on the stem, root, leaf, flower, seed and fruit. Internal structures are described using magnification aids from the simple hand-lens to the electron microscope. Numerous references to recent topical literature are included, and new illustrations reflect a wide range of flowering plant species. The phylogenetic context of plant names has also been updated as a result of improved understanding of the relationships among flowering plants. This clearly written text is ideal for students studying a wide range of courses in botany and plant science, and is also an excellent resource for professional and amateur horticulturists.

Fossil Plants - Albert Charles Seward 1910

Introduction to Plant Fossils - Christopher J. Cleal 2019-06-27

Offers a practical guide for the non-specialist on studying and learning from plant fossils to understand the evolution of vegetation on Earth.

Textbook of Palaeobotany - S. R. Mishra 2010-04

Paleobotany is important in the reconstruction of ancient ecological systems and climate, known as paleoecology and paleoclimatology respectively; and is fundamental to the study of green plant development and evolution. Paleobotany has also become important to the field of archaeology, primarily for the use of phytoliths in relative dating and in paleoethnobotany.

Making Eden - David Beerling 2019-01-24

Over 7 billion people depend on plants for healthy, productive, secure lives, but few of us stop to consider the origin of the plant kingdom that turned the world green and made our lives possible. And as the human population continues to escalate, our survival depends on how we treat the plant kingdom and the soils that sustain it. Understanding the evolutionary history of our land floras, the story of how plant life emerged from water and conquered the continents to dominate the planet, is fundamental to our own existence. In *Making Eden* David Beerling reveals the hidden history of Earth's sun-shot greenery, and considers its future prospects as we farm the planet to feed the world. Describing the early plant pioneers and their close, symbiotic relationship with fungi, he examines the central role plants play in both ecosystems and the regulation of climate. As threats to plant biodiversity mount today, Beerling discusses the resultant implications for food security and climate change, and how these can be avoided. Drawing on the latest exciting scientific findings, including Beerling's own field work in the UK, North America, and New Zealand, and his experimental research programmes over the past decade, this is an exciting new take on how plants greened the continents.