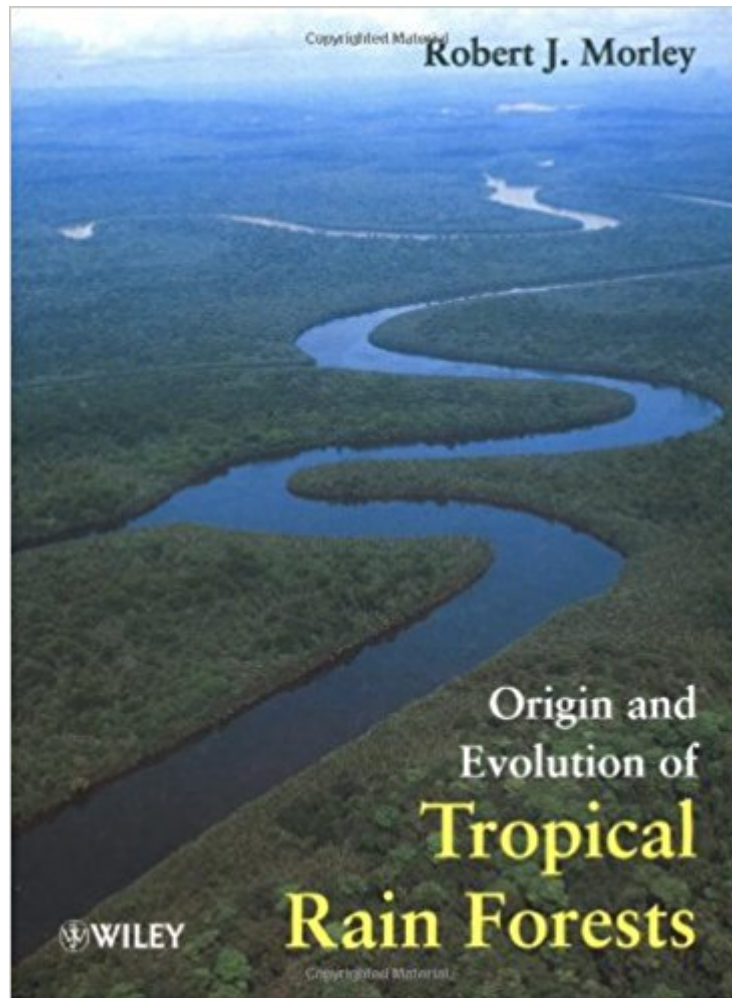


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# Origin And Evolution Of Tropical Rain Forests



## Synopsis

Provides the first comprehensive review of the evolution of tropical rain forests on a continent by continent basis, within an up-to-date tectonic, palaeogeographical and palaeoclimatic framework primarily by reference to the record of fossil pollens and spores. Although tropical rain forests form the world's most species-rich ecosystems, their origin and history remain unclear, except on the very short timescale of the last 40,000 years or so. This book looks at their history on a long term geological and global timescale, commencing with the origin of the angiosperms over 100 million years ago which today overwhelmingly dominate the forests. It also establishes the age of the great tropical rain forest blocks and identifies the world's oldest tropical rain forests. Finally, it compares 20th Century tropical rain forest destruction with prehistoric forest clearance in temperate regions, and looks for analogues of the present phase of destruction within the geological record before considering long term implications of total rain forest destruction. The book draws on previously unpublished palynological data generated for petroleum companies during the course of hydrocarbon exploration programmes. It will be of interest to all concerned with tropical rain forests, especially biologists, botanists, ecologists, and students of evolution. It will be invaluable for postgraduates, and advanced undergraduates, as well as stratigraphers, palaeobotanists, palynologists, and petroleum geologists.

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## Customer Reviews

"No other book contains such an in-depth study of the history and evolution of rain forests set in a

geological framework...this will stand as a definitive treatise on the subject." (Biologist, November 2000) "This book gives an unsurpassed state of the art account and should be used and read by all students of tropical rain forests, vegetation history and history of Angiosperms" (Blumea, Vol 44/2, 1999) "...will be of interest to all concerned with tropical rain forests." (Bois et Forest des Tropiques, Vol 265, 2000) "...The quality and the high number of illustrations ...as well as a well-selected, although not exhaustive, bibliography, makes this book enjoyable to read." (Journal of Quaternary Science, July 2003) Å Å

Although tropical rain forests form the world's most species-rich ecosystems, their origin and history remain unclear, except on the very short timescale of the last 40 000 years or so. This book provides the first comprehensive review of the history of tropical rain forests on a long term geological timescale, commencing with the origin of the angiosperms over 100 million years ago, which today overwhelmingly dominate these forests. Tropical rain forest evolution is discussed in a global context within an up to date plate tectonic, palaeogeographical and palaeoclimatic framework, primarily by reference to the record of fossil pollen and spores. A particularly important aspect of this book is that in addition to published literature, it relies heavily on unpublished palynological data generated for petroleum companies during the course of hydrocarbon exploration programmes. Without access to such data the book could not have been written. The main text of the book reviews the evolution of tropical rain forests on a continent by continent basis, culminating with a global synthesis of their history in relation to the changing positions of the world's tectonic plates and changing climates. This section also establishes the age of the great tropical rain forest blocks and identifies the world's oldest tropical rain forests. The final chapter compares 20th Century tropical rain forest destruction with prehistoric forest clearance in temperate regions, and looks for analogues of the present phase of destruction within the geological record before considering long term implications of total rain forest destruction. The book will be of interest to all concerned with tropical rain forests, especially biologists, botanists, ecologists, and students of evolution. It will be valuable for postgraduates and advanced undergraduates, as well as stratigraphers, palaeobotanists, palynologists, and petroleum geologists.

I love the one previous review--I wish my kids would review my books! But perhaps we need more detail here.... This is a truly superb integration of a mass of data, much of it unpublished palynological material from oil company files and other sources. On the basis of these data, Morley manages to overturn every standard cliché about rain forest history. The rainforests are not as old

as often claimed; they took final form in the early Tertiary, or at the oldest in the very late Cretaceous. The Southeast Asian/Malesian forest is not the origin point for rainforests or for angiosperms; its richness in ancient forms is due to its serving as refugium during many climatic and geotectonic vicissitudes. Plate tectonics is critical to understanding the history of the forests. (I recall how plant geographers, in my student days, tied themselves in knots trying to explain rain forest plant distributions without invoking the hated and feared theory of continental drift.) The whole story, as told by Morley, is amazingly gripping--a sort of mega-detective-story. If you are literate in tropical plant taxonomy, you will be on the edge of your chair, whether you are a botanist, a cultural ecologist (like me), or just a plant lover. Be warned, though--if you haven't been there (to at least a couple of tropical rain forest areas) and gotten to know the major families, this book will be hard going. The book closes with the inevitable and all too appropriate gloom. My grandchildren will probably never see a tropical rain forest. By the time they will be old enough to travel, there will be no tropical rain forests left, except perhaps in inaccessible reserves--unless we can turn around a process that seems out of control. Morley blames "short-term human greed" on his ultimate page (286), but the truth is more complex; see William Ascher's book, WHY GOVERNMENTS WASTE NATURAL RESOURCES, for the whole story. Anyway--this is one book that should be on the "must read" list of everyone interested in tropical forests or in paleobotany.

A truly triffic piece of academia, Dad!

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