

Ectomycorrhizal Symbioses in Tropical and Neotropical Forests



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Patrick Vollmar



Ectomycorrhizal Symbioses In Tropical And Neotropical Forests:

Ectomycorrhizal Symbioses in Tropical and Neotropical Forests Amadou M. Bâ, Krista L. McGuire, Abdala G. Diédhiou, 2014-02-20 Ectomycorrhizal symbiosis plays a major role in biodiversity and stability of ecosystems in tropical forests It is a research imperative in tropical and neotropical forest ecosystems because they contain ecologically and economically important tree species This book provides an overview of the knowledge of ECM symbioses in tropical and neotropical ecosystem forests The contents address diversity and function of ectomycorrhiza associated with forest plants impacts of ectomycorrhiza on plant diversity and composition regeneration and dynamics of ecosystems biomass production in forestry and adaptation of ectomycorrhiza

Biogeography of Mycorrhizal Symbiosis Leho Tedersoo, 2017-06-01 This book offers a timely overview and synthesis of biogeographic patterns of plants and fungi and their mycorrhizal associations across geographic scales Written by leading experts in the field it provides an updated definition of mycorrhizal types and establishes the best practices of modern biogeographic analyses Individual chapters address the basic processes and mechanisms driving community ecology population biology and dispersal in mycorrhizal fungi which differ greatly from these of prokaryotes plants and animals Other chapters review the state of the art knowledge about the distribution ecology and biogeography of all mycorrhizal types and the most important fungal groups involved in mycorrhizal symbiosis The book argues that molecular methods have revolutionized our understanding of the ecology and biogeography of mycorrhizal symbiosis and that rapidly evolving high throughput identification and genomics tools will provide unprecedented information about the structure and functioning of mycorrhizal symbiosis on a global scale This volume appeals to scientists in the fields of plant and fungal ecology and biogeography

Mycorrhizal Fungi in South America Mónica A. Lugo, Marcela C. Pagano, 2022-10-27 In order to feed the world global agriculture will have to double food production by 2050 As a result the use of soils with fertilizers and pesticides in agronomic ecosystems will increase taking into account the sustainability of these systems and also the provision of food security Thus soil ecosystems their health and their quality are directly involved in sustainable agronomical practices and it is important to recognize the important role of soil microbial communities such as mycorrhizal fungi their biodiversity interactions and functioning Soil ecosystems are under the threat of biodiversity loss due to an increase of cultivated areas and agronomic exploitation intensity Also changes in land use alter the structure and function of ecosystems where biodiversity is vital in the ecosystem Soils are a major aid in food production in all terrestrial ecosystems however this means they are also involved in gas emission and global warming Thus in agronomic ecosystems several mitigation practices have been proposed to promote the increase of carbon soil stock and the reduction of warming gas emission from soils In South America most of the rural population depends economically on agriculture and usually works in family units New organic safe and sustainable agro forestry practices must be applied to support local communities and countries to achieve hunger eradication rural poverty reduction and sustainable development This book

compiles new information for mycorrhizal occurrence in natural and anthropic environments in South America It includes new reports of mycorrhizal fungi diversity along different mycorrhizal types and their effect on plant communities plant invasions the use of mycorrhizal fungi for ecological and sustainable studies management programs of natural and agroecosystems and forestry and food secure production This book fills the gaps in biodiversity knowledge management and safe food production of mycorrhizas It should be a valuable help to researchers professors and students to aid in use of mycorrhizal fungi while also focusing on their biodiversity sustainable safe food production and conservation perspectives

Advances in the Evolutionary Ecology of Termites Alberto Arab, Solange Del Carmen Issa Ponce, Daniel

Aguilera-Olivares, 2023-08-16 Termites are eusocial insects that live in colonies composed of hundreds to millions of individuals Their colonies are mainly organized into reproductive and non reproductive castes which have specific tasks such as nest construction foraging reproduction brood care and colony defense The evolution of the symbiotic association between termites and microorganisms allows them to decompose ingested lignocellulose from plant substrates such as wood including herbivore dung and soil humus making them important insect decomposers that play a crucial role in ecosystem functioning by contributing to litter decomposition soil formation and nutrient cycling On the other hand termites have recently been classified as eusocial cockroaches which have gained increasing attention in evolutionary studies to understand the transition to eusociality from subsocial wood roaches This current growing interest in termite research calls for a collection dedicated to these fascinating insects

Plant Roots Amram Eshel, Tom Beeckman, 2013-04-17 The decade since the publication of the third edition of this volume has been an era of great progress in biology in general and the plant sciences in particular This is especially true with the advancements brought on by the sequencing of whole genomes of model organisms and the development of omics techniques This fourth edition of *Plant Roots The Hidden Half* reflects these developments that have transformed not only the field of biology but also the many facets of root science Highlights of this new edition include The basics of root research and their evolution and role in the global context of soil development and atmosphere composition New understandings about roots gained in the post genomic era for example how the development of roots became possible and the genetic basis required for this to occur The mechanisms that determine root structure with chapters on cellular patterning lateral root and vascular development the molecular basis of adventitious roots and other topics Plant hormone action and signaling pathways that control root development including new chapters on strigolactones and brassinosteroids Soil resource acquisition from agricultural and ecological perspectives Root response to stress with chapters that address the impact of the genomic revolution on this topic Root rhizosphere interactions from beneficial microorganisms to detrimental nematodes Modern research techniques for the field and the lab Each chapter not only presents a clear summation of the topic under discussion but also includes a vision of what is to be expected in the years to come The wide coverage of themes in this volume continues the tradition that makes this work recognized as a fundamental source of information for root

scientists at all levels **Ectomycorrhizal Associations Function to Maintain Tropical Monodominance** Krista L. McGuire, 2007 *Atmospheric Nitrogen Deposition to Global Forests* Enzai Du, Wim de Vries, 2023-10-22 Atmospheric Nitrogen Deposition in Global Forests Spatial Variation Impacts and Management Implications provides the most comprehensive knowledge on spatial variation and ecological impacts of reactive nitrogen deposition in global forests as well as forest management options to mitigate the negative impacts Written and edited by international experts in the field this book synthesizes recent research developments and insights in monitoring and modeling nitrogen deposition in global forests The book also assesses ecological impacts of enhanced nitrogen deposition on forest structure and function and responses of forest ecosystems to decreasing nitrogen deposition in regions such as the European Union and North America Finally the book reviews indicators and thresholds for nitrogen saturation in global forests and analyzes remediation options to reduce impacts of excess nitrogen deposition This is an important resource for researchers in forestry and biodiversity conservation as well as graduate students policymakers and others who want to understand environmental issues of reactive nitrogen deposition in global forests Offers a systematic view of the ecological impacts of enhanced nitrogen deposition Provides the most comprehensive knowledge on spatial variation and the ecological impacts of reactive nitrogen deposition in global forests Presents expert research and findings on forest management options to remediate negative impacts *Ecology and Management of a Neotropical Rainforest* Sylvie Gourlet-Fleury, Jean-Marc Guehl, Olivier Laroussinie, 2004 In 1982 the Sylvicultural research on the natural forest stands of French Guiana operation was initiated and since then the Paracou experimental site has been a favourite place for basic logical research concerning the structure dynamics diversity and functioning of the lowland rainforest of coastal French Guiana The site offers more than 100 hectares of plots where trees are fully mapped and an experimental design combining logging and thinning with undisturbed controls allowing assessment of the impact of well documented disturbances on the characteristics of various forest stands and tree populations In this book 40 authors summarize their experience and results at Paracou Topics include i forest structure and floristic composition ii ecosystem level carbon dynamics iii light requirements patterns of water use and root symbiotic status of the main species iv gene flow and genetic diversity v regeneration strategies growth behaviour and dynamics of stands before and after sylvicultural operations vi modelling forest dynamics A final chapter discusses the practical lessons for forest management that have resulted from research operations at Paracou This book is intended for advanced students and researchers in tropical forestry and ecology as well as forest managers and decision makers concerned by the potential impact of human actions on tropical forest ecosystems Ecology Abstracts , 1999 Coverage 1982 current updated monthly This database covers current ecology research across a wide range of disciplines reflecting recent advances in light of growing evidence regarding global environmental change and destruction Major areas of subject coverage include Algae lichens Animals Annelids Aquatic ecosystems Arachnids Arid zones Birds Brackish water Bryophytes pteridophytes Coastal ecosystems

Conifers Conservation Control Crustaceans Ecosystem studies Fungi Grasses Grasslands High altitude environments Human ecology Insects Legumes Mammals Management Microorganisms Molluscs Nematodes Paleo ecology Plants Pollution studies Reptiles River basins Soil TAiga tundra Terrestrial ecosystems Vertebrates Wetlands Woodlands The Tropical Mountain Forest Stephan Robbert Gradstein, 2008 Tropical mountain forests are very rich in species and are generally considered as hotspots of biodiversity They are also of great ecological importance as sources of water and other ecosystem services for millions of people living in the tropics However these valuable forest ecosystems are now increasingly being fragmented reduced and disturbed by human interventions This book originated from a lecture series on the tropical mountain forest organized by the Göttingen Centre of Biodiversity and Ecology and held at the University of Göttingen Germany during the summer term of 2007 The volume presents a synthesis of current ecological research in Germany on the tropical mountain forest from an interdisciplinary perspective **Current Advances in Ecological & Environmental Sciences** ,1995-07

Sustaining Biodiversity and Ecosystem Services in Soils and Sediments Diana H. Wall, 2004-11-19 Presents information integrating soil and sediment disciplines across terrestrial marine and freshwater ecosystems and offers a framework for consideration of biodiversity below surface linkages and how biota interact to provide the essential ecosystem services needed for sustainable soils and sediments **Agrindex** ,1994 Mycorrhiza in Tropical and Neotropical Ecosystems Mohamed Hijri, Amadou Bâ, 2018-10-19 Mycorrhizal symbiosis is a mutualistic association of plant roots and fungi that plays a major role in ecosystem function and diversification as well as its stability and productivity It also plays a key role in the biology and ecology of forest trees affecting growth water and nutrient absorption and protection against soil borne pathogens However the mycorrhizal research in tropical and neotropical ecosystems remains largely unexplored despite its importance in tropical and neotropical ecosystems These ecosystems represent more than 0.6% of the total land ecosystems and they have a crucial role in the Earth's biogeochemical cycling and climate Threats to tropical forest biodiversity should therefore encourage investigations and inventories of mycorrhizal diversity function and ecology in tropical latitudes because they concern ecologically and economically important plant species This Research Topic aims to provide an overview of the knowledge of mycorrhizal symbioses in tropical and neotropical ecosystems For this Research Topic we welcome articles that address the diversity ecology and function of mycorrhiza associated with plants the impacts of mycorrhiza on plant diversity and composition the regeneration and dynamics of ecosystems and biomass production in ecosystems *Bibliography of Agriculture* ,1999 *Encyclopedia of Environmental Biology: F-N* ,1995 **McIlvainea** ,1982 **Sydowia** ,2006

Gondwanan Heritage ,1996 A text based on papers given at a symposium in Perth discusses the plants fungi and animals of WA Examines their place in the environment their evolution their biology and their interaction as well as the fossil history of the flora and the evolution of genetic systems The introductory chapter provides an overview while subsequent chapters are grouped around themes Includes colour plates diagrams charts and an index **Ericoid Mycorrhizas in**

Organic Substrates Kai Coshow Rains, 2004

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