Restoring Degraded Landscapes In Latin America

#degraded landscapes restoration #latin america land recovery #ecosystem restoration latin america #sustainable land management #environmental restoration projects

Explore critical initiatives focused on restoring degraded landscapes across Latin America. Discover how these efforts are revitalizing ecosystems, enhancing biodiversity, and supporting sustainable development for local communities throughout the region.

Restoring Degraded Landscapes with Native Species in Latin America

Includes bibliographical references and index.

Restoring Degraded Landscapes with Native Species in Latin America

Today, reforestation in Latin America is more than planting trees in formerly forested landscapes. Rather, reforestation with native trees, in both mixed and pure plantations, can restore degraded pasturelands and can also foster regeneration under the plantations canopies. The planted trees can later be harvested, and the released understory can provide a regenerating forest to be managed for future economic profits, as well as biodiversity and other environmental services. Reforestation strategies can also include non-timber forest products with economic, medicinal, social and aesthetic values and services. This book discusses the economic and ecological benefits of forest restoration in Latin America.

Principles and practice of forest landscape restoration : case studies from the drylands of Latin America

This book invites us to reflect on the restoration of terrestrial ecosystems in the context of a region whose identity is still under construction, Latin America and the Caribbean, immersed in a social, economic, ecological and political crisis, whose roots originate historically and politically in colonialism and in the prevailing model of capital accumulation. For the first time, insights and practical experiences on restoration are gathered from most Latin-American and Caribbean countries. Furthermore, this book offers a social approach to restoration, which will likely become preponderant in this field and in this region. The authors claim that a Latin-American knowledge of restoration is under construction and that this discipline can be a significant tool to empower local populations, which might, in turn, lead to a collective action of change. Case studies from 11 countries of the region were compiled, involving

multiple voices that emerge beyond generalist principles and with a bottom-up approach. The main idea of the book is to open a debate about the identity of ecological and social restoration in this region. This book is targeted to restoration specialists, volunteers, environmental managers, researchers, politicians and NGOs working on the complexity of socioecological restoration in a region with unavoidable social problems. It is intended for people with similar concerns to those of the chapters' authors. This work tries to integrate a movement on the rise, almost silent, born with its own narratives of successes and failures that do not hinder its development. Finally, the determination and commitment of Latin-American and Caribbean social actors to restore not only natural values but also social, ethical and cultural ones is remarkable.

Beyond restoration ecology: social perspectives in Latin America and the Caribbean

Restoration ecology, as a scientific discipline, developed from practitioners' efforts to restore degraded land, with interest also coming from applied ecologists attracted by the potential for restoration projects to apply and/or test developing theories on ecosystem development. Since then, forest landscape restoration (FLR) has emerged as a practical approach to forest restoration particularly in developing countries, where an approach which is both large-scale and focuses on meeting human needs is required. Yet despite increased investigation into both the biological and social aspects of FLR, there has so far been little success in systematically integrating these two complementary strands. Bringing experts in landscape studies, natural resource management and forest restoration, together with those experienced in conflict management, environmental economics and urban studies, this book bridges that gap to define the nature and potential of FLR as a truly multidisciplinary approach to a global environmental problem. The book will provide a valuable reference to graduate students and researchers interested in ecological restoration, forest ecology and management, as well as to professionals in environmental restoration, natural resource management, conservation, and environmental policy.

Forest Landscape Restoration

This book presents various aspects of agroforestry research and development, as well as the latest trends in degraded landscape management. Over the last four decades, agroforestry research (particularly on degraded landscapes) has evolved into an essential problem-solving science, e.g. in terms of sustaining agricultural productivity, improving soil health and biodiversity, enhancing ecosystem services, supporting carbon sequestration and mitigating climate change. This book examines temperate and tropical agroforestry systems around the world, focusing on traditional and modern practices and technologies used to rehabilitate degraded lands. It covers the latest research advances, trends and challenges in the utilization and reclamation of degraded lands, e.g. urban and peri-urban agroforestry, reclamation of degraded landscapes, tree-based multi-enterprise agriculture, domestication of high-value halophytes, afforestation of coastal areas, preserving mangroves and much more. Given its scope, the book offers a valuable asset for a broad range of stakeholders including farmers, scientists, researchers, educators, students, development/extension agents, environmentalists, policy/decision makers, and government and non-government organizations.

Agroforestry for Degraded Landscapes

Despite the high level of political engagement and the wide range of organizations involved in restoration projects from local to global levels, beyond some success stories, restoration is not happening at scale. To address this issue, three CGIAR Research Programs (CRPs) – Forests, Trees and Agroforestry (FTA); Policies, Institutions and Markets (PIM) and Water, Land and Ecosystems (WLE) – decided to bring together their expertise in a joint stocktaking of CGIAR work on restoration. This publication illustrates with concrete examples the powerful contribution of forest and landscape restoration to the achievement of most, if not all the 17 sustainable development goals. It can be used to support the design of future restoration activities, programs and projects. We hope that this document will help upscale restoration efforts and deliver enhanced impact from our CGIAR research.

A joint stocktaking of CGIAR work on forest and landscape restoration

This book is intended to provide an overview for the identification and establishment of biodiversity islands. It presents examples and case studies where the biodiversity islands approach is being used in a variety of locations and contexts worldwide. It will contribute to design parameters on appropriate sizing and spatial distribution of biodiversity islands in order to be effective in conservation and regeneration across the landscape, using integrated landscape management approaches. This

book is essential given the current worldwide trend of habitat destruction and the need to preserve biodiversity and its values. The chapters are organized in five sections. The first section provides the introduction. Section 2,3 and 4 discuss the challenges and alternatives of establishment and management, case studies across the globe, safeguarding of the environmental, economic, and social benefits, and the final section offers a conclusion. The contributing authors present views from the academic, the practitioner and the policymaker perspectives, offering alternatives and suggestions for promoting strategies that support biodiversity conservation through intentionally designed frameworks for sustainable forest landscapes. Readers will discover suggestions and concrete examples that can be used by a variety of stakeholders in various settings throughout the world. This book is useful to researchers, farmers, foresters, landowners, land managers, city planners, and policy makers alike.

Biodiversity Islands: Strategies for Conservation in Human-Dominated Environments

Restoring Disturbed Landscapes is a hands-on guide for individuals and groups seeking to improve the functional capacity of landscapes. The book presents a five-step, adaptive procedure for restoring landscapes that is supported by proven principles and concepts of ecological science. Written by restoration experts with a wealth of experience teaching restoration principles and techniques to practitioners and would-be practitioners from a variety of backgrounds, the book offers: an outline of a science-based, ecologically sound approach to restoration discussion of the conceptual framework and rigorous principles that underlie the approach case studies of two types of restoration projects (restoring mined landscapes and restoring damaged rangelands) that illustrate how the approach, framework, and four key principles for restoring landscapes have been implemented a variety of scenarios that represent typical restoration problems and how those problems can be handled indicators for monitoring and how landscape function can be tracked and analyzed as part of a comprehensive monitoring program. Abundantly illustrated with photos and figures that clearly explain concepts outlined in the book, Restoring Disturbed Landscapes is an engaging and accessible work designed specifically for restoration practitioners with limited training or experience in the field. It tells restorationists where to start, what information they need to acquire, and how to apply this information to their specific situations.

Restoring Disturbed Landscapes

Constructive critique. This book provides a critical, evidence-based analysis of REDD+ implementation so far, without losing sight of the urgent need to reduce forest-based emissions to prevent catastrophic climate change. REDD+ as envisioned

Transforming REDD+

Forest landscape restoration (FLR) is a planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded landscapes. The aim of this book is to explore options to better integrate the diverse dimensions - spatial, disciplinary, sectoral, and scientific - of implementing FLR. It demonstrates the value of an integrated and interdisciplinary approach to help implement FLR focusing specifically on four issues: understanding the drivers of forest loss and degradation in the context of interdisciplinary responses for FLR; learning from related integrated approaches; governance issues related to FLR as an integrated process; and the management, creation and use of different sources of knowledge in FLR implementation. The emphasis is on recognising the need to take human and institutional factors into consideration, as well as the more obvious biophysical factors. A key aim is to advance and accelerate the practice of FLR, given its importance, particularly in a world facing increasing environmental challenges, notably from climate change. The first section of the book presents the issue from an analytical and problem-orientated viewpoint, while later sections focus on solutions. It will interest researchers and professionals in forestry, ecology, geography, environmental governance and landscape studies.

Bioenergy for landscape restoration and livelihoods: Re-creating energy-smart ecosystems on degraded landscapes

"Drylands cover nearly half of the earth's land surface and are home to one-third of the global population. They face extraordinary challenges, including those posed by desertification, biodiversity loss, poverty, food insecurity and climate change. Up to 20 percent of the world's drylands are degraded, and people living there are often locked into a vicious circle of poverty, unsustainable practices and environmental degradation. It is clear that serious efforts are needed to arrest dryland degradation and restore degraded lands, and the simple but urgent aim of these guidelines is to support such

efforts It is the first time that global guidelines on dryland restoration are made available. These guidelines target two main groups - policymakers and other decision-makers, and practitioners - because both have the power to bring about positive change. While they should be tailored to suit regional and local contexts, they present the essential components for the design, implementation and sustainability of restoration initiatives that can help build ecological and social resilience and generate benefits for local livelihoods. As illustrated by the rich case studies provided, the guidelines involve a vast range of actions, from on-the-ground activities such as habitat protection, assisted natural regeneration, sand-dune stabilization and planting, to policy improvements, provision of financial incentives, capacity development, and continuous monitoring and learning. Moreover, they show that restoration needs to be considered across the entire market value chain, from seed to end-product, as well as at the landscape level, including the mosaic of land uses, needs and expectations of interest groups."--Publisher's description.

Forest Landscape Restoration

Soils and Landscape Restoration provides a multidisciplinary synthesis on the sustainable management and restoration of soils in various landscapes. The book presents applicable knowledge of above- and below-ground interactions and biome specific realizations along with in-depth investigations of particular soil degradation pathways. It focuses on severely degraded soils (e.g., eroded, salinized, mined) as well as the restoration of wetlands, grasslands and forests. The book addresses the need to bring together current perspectives on land degradation and restoration in soil science and restoration ecology to better incorporate soil-based information when restoration plans are formulated. Incudes a chapter on climate change and novel ecosystems, thus collating the perspective of soil scientists and ecologists on this consequential and controversial topic Connects science to international policy and practice Includes summaries at the end of each chapter to elucidate principles and key points

Enhancing Natural Regeneration to Restore Landscapes

Agroforestry systems (AFS) are becoming increasingly relevant worldwide as society has come to recognize their multiple roles and services: biodiversity conservation, carbon sequestration, adaptation and mitigation of climate change, restoration of degraded ecosystems, and tools for rural development. This book summarizes advances in agroforestry research and practice and raises questions as to the effectiveness of AFS to solve the development and environmental challenges the world presents us today. Currently AFS are considered to be a land use that can achieve a compromise among productive and environmental functions. Apparently, AFS can play a significant role in rural development even in the most challenging socioeconomic and ecological conditions, but still there is a lot of work to do to reach these goals. Considerable funding is spent in projects directed to enhancing productivity and sustainability of smallholders forestry and agroforestry practices. These projects and programs face many questions and challenges related to the integration of traditional knowledge to promote the most suitable systems for each situation; access to markets for AFS products, and scaling up of successful AFS. These complex questions need innovative approaches from varying perspectives and knowledge bases. This book gathers fresh and novel contributions from a set of Yale University researchers and associates who intend to provide alternative and sometimes departing insights into these pressing questions. The book focuses on the functions that AFS can provide when well designed and implemented: their role in rural development as they can improve food security and sovereignty and contribute to provision of energy needs to the smallholders; and their environmental functions: contribution to biodiversity conservation, to increased connectivity of fragmented landscapes, and adaptation and mitigation of climate change. The chapters present conceptual aspects and case studies ranging from traditional to more modern approaches, from tropical as well as from temperate regions of the world, with examples of the AFS functions mentioned above.

Global Guidelines for the Restoration of Degraded Forests and Landscapes in Drylands

Sustainable Forest Management provides the necessary material to educate students about forestry and the contemporary role of forests in ecosystems and society. This comprehensive textbook on the concept and practice of sustainable forest management sets the standard for practice worldwide. Early chapters concentrate on conceptual aspects, relating sustainable forestry management to international policy. In particular, they consider the concept of criteria and indicators and how this has determined the practice of forest management, taken here to be the management of forested lands and of all ecosystems present on such lands. Later chapters are more practical in focus, concentrating on the

management of the many values associated with forests. Overall the book provides a major new synthesis which will serve as a textbook for undergraduates of forestry as well as those from related disciplines such as ecology or geography who are taking a course in forests or natural resource management.

Soils and Landscape Restoration

This Unasylva issue aims at showcasing forest and landscape restoration (FLR) opportunities and recent developments that have the power to upscale restoration, in order to achieving the Bonn Challenge pledge and other national and international commitments (Sustainable Development Goals (SDGs), the Convention for Biological Diversity (CBD) Post-2020 Agenda, the United Nations Convention to Combat Desertification (UNCCD) Land Degradation Neutrality, Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC)) and addressing the needs of the UN Decade 2021-2030 on Ecosystem Restoration. The content adresses thematics of relevance to various audiences: i) flagship restoration initiatives that differ from the so-called “business-as-usual” as they channel more funds, better empower local stakeholders and provide enhanced technical assistance through partners’ coalitions; ii) technical advances that can spread FLR and have a huge potential to be mainstreamed for different reasons (low cost, adaptability, relevance to many ecosystems and contexts, ease of implementation…); iii) the enabling factors for restoration, i.e. coordination, policy environment, resources, knowledge and capacities, as these are the enabling conditions for action to take place on the ground.

Integrating Landscapes: Agroforestry for Biodiversity Conservation and Food Sovereignty

This toolkit does not provide a step-by-step guide for accessing global climate change finance, because the situation is very different in each country and a universally applicable checklist of steps to take is not possible to provide. However, the toolkit does provide a set of steps for apex FFPOs to figure out what they need to do in their particular country to set themselves up to access climate finance. The toolkit also provides a brief overview of actual practices that forest and farm producers can pursue. This overview is intentionally brief, partly because the main focus of the toolkit is access to climate change finance, and partly because what set of practices is appropriate for a given producer varies with geographic and socioeconomic conditions.

Sustainable Forest Management

National forest inventories (NFIs) are one of the main sources of forest information. This book describes the importance and history of NFIs in Latin America and the Caribbean, a region that is particularly relevant due to the extension and biodiversity of its forests. Methodologies for data collection and measurement of the most relevant indicators in 21 countries are addressed. In addition, similarities and differences in IFN designs, challenges and opportunities, and prospects for the future are examined. This analysis demonstrates that the information generated by the countries is diverse and must be harmonized to meet the commitments and opportunities for sustainable forest management in the 21st century. This publication represents a milestone in the beginning of the harmonization process towards data transparency within the forestry sector in Latin America and the Caribbean and constitutes the first collaborative effort of a network of NFI experts and collaborators in the region.

Restoring the Earth - The next decade

In the last 25 years, almost 50 million hectares of primary forest have been lost due to deforestation. Numerous international initiatives such as the Bonn Challenge and the New York Declaration on Forests have set ambitious goals to restore degraded and deforested lands by 2030. Realizing global commitments on forest and landscape restoration (FLR) will require the establishment of billions of trees on millions of hectares of degraded land to address the triple crisis of biodiversity loss, climate change and failing food systems. A significant amount of FLR will require tree planting or increasing tree cover in production landscapes.

Connecting forest and farm producer organizations to climate change finance

This edited volume scrutinizes how pre-Columbian human societies have shaped and transformed lowland South America – contributing to biological and landscape diversity. This geographic area has supported human populations since at least the transition from the Pleistocene to Holocene, but the

nature and scale of these interactions are matters of debate and their legacy to modern lowland environments is not fully understood. This book brings together works from distinct disciplines, including theoretical and methodological approaches on single case studies or broad regional syntheses, with no chronological constraint. The editors aim to generate a novel contribution reporting the most recent and ground-breaking research on human interactions with past environments and resources in lowland South America, from pre-Columbian to Colonial times. The volume also discusses the legacy of these past interactions and their potential contribution to informing current conservation and development agendas, providing examples of how archaeology and paleoecology can fill gaps in conservation and developmental policy. This volume will be of interest to students, archaeologists, and readers of Latin American studies.

National Forest Inventories of Latin America and the Caribbean

Bamboo is one of the most sustainable materials in nature due to its fast growth, rapid regeneration, outstanding mechanical properties, and applications in numerous industries. Latest technological advances have been allowing the plant to be studied and applied to exciting new projects. Being bamboo an icon of sustainable development, this book approaches the latest developments in the study of the plant, either as a natural resource or as a source of inspiration for more efficient designs. With the global urging demand for more sustainable practices, innovations in bamboo science and technology are key to the development of environmentally sound solutions.

Delivering tree genetic resources in forest and landscape restoration

This open access book applies a social ecological systems (SES) lens to conservation-based development in Patagonia, bringing together authors with historical, contemporary, and future-oriented perspectives in order to increase understanding of the social and environmental implications of nature-based tourism and other forms of conservation-based territorial development. By focusing on Patagonia (as a region) and its various forms of conservation-based development, this book contributes one of the first collections of South American based lessons and will be valuable to researchers and practitioners, both locally and around the world, seeking to better understand complex interconnections between social and ecological environments, and pursue a similar path to resilience and sustainability.

Historical Ecology and Landscape Archaeology in Lowland South America

This study, focusing primarily on the period from the collapse of the Soviet Union until the present day, identifies the key drivers of forest degradation and the potential for forest landscape restoration in the Caucasus and Central Asia. The study was undertaken to support the preparation of restoration pledges in the eight countries of the Caucasus and Central Asia in the run up to the Ministerial Roundtable on Forest Landscape Restoration and the Bonn Challenge in the Caucasus and Central Asia that took place in June 2018 in Astana, Kazakhstan.

Bamboo Science and Technology

Nearly three years ago, world leaders agreed to the United Nations 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) – the central framework for guiding development policies throughout the world. This edition of The State of the World's Forests is aimed at enhancing our understanding of how forests and their sustainable management contribute to achieving several of the SDGs. Time is running out for the world's forests: we need to work across sectors, bring stakeholders together, and take urgent action. The State of the World's Forests 2018 identifies actions that can be taken to increase the contributions of forests and trees that are necessary to accelerate progress towards the SDGs. It is now critical that steps be taken to work more effectively with the private sector, and the informal forest sector must be transformed in order to bring broader economic, social and environmental benefits. Seventy years ago, when FAO completed its first assessment of the world's forest resources, the major concern was whether there would be enough timber to supply global demand; now we recognize the greater global relevance of our forests and trees. For the first time, The State of the World's Forests 2018 provides an assessment of the contribution of forests and trees to our landscapes and livelihoods. The purpose of this publication is to provide a much wider audience with an understanding of why forests and trees matter for people, the planet and posterity.

Tourism and Conservation-based Development in the Periphery

This book is a compilation of recent developments in land, ecosystem, and water management in the Brazilian state of Rio de Janeiro. The state is located in the biodiversity hotspot of the Atlantic Forest (Mata Atlântica), a biome characterized by high biological diversity and endemism. At the same time the state of Rio de Janeiro emerged to one of the economic hubs in Latin America. This development process has been accompanied by population growth, industrialization, urbanization, as well as consumption and degradation of land and water resources. In the past years many efforts have been made to stop or at least slow down these degradation processes and restore degraded environments with the overall goal to bring together sustainable management of natural resources, nature conservation, and economic development. An overview is provided of the different strategies and tools that have been developed in the fields of agriculture, ecosystem management and biodiversity, integrated water management, land restoration, disaster risk reduction and climate change adaptation, as well as environmental governance and economic instruments. This book covers a wide spectrum from applied research to science policy interfaces, planning concepts, and technical tools and has a model character for other rural areas in Latin America. Target groups are scientists, practitioners, policy makers and graduate students in the field of environmental management. The different chapters are written by researchers and practitioners of the German Brazilian project INTECRAL (Integrated Eco Technologies and Services for a Sustainable Rural Rio de Janeiro), the rural development program Rio Rural under the state secretary for agriculture and animal husbandry, as well as invited scientists from Brazilian universities and research institutes. It bridges existing gaps between science, policies, and practice in rural development.

A collection of tools for land restoration

An important and timely study of environmental degradation in Central and South America

A policy framework to facilitate integrated Forest Landscape Restoration (FLR) to enhance local livelihoods in Indonesia

Forest landscape restoration (FLR) requires a long-term commitment from a range of stakeholders to plan the restoration initiative collaboratively and see it through successfully. This is only possible when the people involved – whether they are landholde

Forest Landscape Restoration in the Caucasus and Central Asia

Water – drinkable, usable water – is likely to be one of the most limiting resources in the future, given the growing global population, the high water demand of most agricultural production systems, and the confounding effects of climate change. We need to manage water wisely – efficiently, cost-effectively and equitably – if we are to avoid the calamity of a lack of usable water supply. Forested watersheds provide an estimated 75 percent of the world’s accessible freshwater resources, on which more than half the Earth’s people depend for domestic, agricultural, industrial and environmental purposes. Forests therefore, are vital natural infrastructure, and their management can provide “nature-based solutions” for a range of water-related societal challenges. This edition of Unasylva explores that potential.

The State of the World’s Forests 2018

Large areas of the world’s forests have been lost or degraded and landscapes everywhere are being simplified by current land-use practices. In this publication, Lamb and Gilmour present approaches to restoring and rehabilitating the vast areas of degraded, fragmented and modified forests which cover much of the world. They argue that by applying best practice at the site level it is possible to enhance socio-economic and ecological gains at the landscape level. This book provides an important contribution towards the objectives of the Forest Landscape Restoration approach and is essential reading for practitioners and decision makers involved in forest restoration.

Strategies and Tools for a Sustainable Rural Rio de Janeiro

Over the past few decades, the frequency and severity of natural and human-induced disasters have increased across Asia. These disasters lead to substantial loss of life, livelihoods and community assets, which not only threatens the pace of socio-economic development, but also undo hard-earned gains. Extreme events and disasters such as floods, droughts, heat, fire, cyclones and tidal surges are known to be exacerbated by environmental changes including climate change, land-use changes

and natural resource degradation. Increasing climate variability and multi-dimensional vulnerabilities have severely affected the social, ecological and economic capacities of the people in the region who are, economically speaking, those with the least capacity to adapt. Climatic and other environmental hazards and anthropogenic risks, coupled with weak and wavering capacities, severely impact the ecosystems and Nature's Contributions to People (NCP) and, thereby, to human well-being. Long-term resilience building through disaster risk reduction and integrated adaptive climate planning, therefore, has become a key priority for scientists and policymakers alike. Nature-based Solutions (NbS) is a cost-effective approach that utilizes ecosystem and biodiversity services for disaster risk reduction and climate change adaptation, while also providing a range of co-benefits like sustainable livelihoods and food, water and energy security. This book discusses the concept of Nature-based Solutions (NbS) – both as a science and as art – and elaborates on how it can be applied to develop healthy and resilient ecosystems locally, nationally, regionally and globally. The book covers illustrative methods and tools adopted for applying NbS in different countries. The authors discuss NbS applications and challenges, research trends and future insights that have wider regional and global relevance. The aspects covered include: landscape restoration, ecosystem-based adaptation, ecosystem-based disaster risk reduction, ecological restoration, ecosystem-based protected areas management, green infrastructure development, nature-friendly infrastructure development in various ecosystem types, agro-climatic zones and watersheds. The book offers insights into understanding the sustainable development goals (SDGs) at the grass roots level and can help indigenous and local communities harness ecosystem services to help achieve them. It offers a unique, essential resource for researchers, students, corporations, administrators and policymakers working in the fields of the environment, geography, development, policy planning, the natural sciences, life sciences, agriculture, health, climate change and disaster studies.

The Social Causes of Environmental Destruction in Latin America

Landscapes are being degraded and simplified across the globe. This book explores how forest restoration might be carried out to increase landscape heterogeneity, improve ecological functioning and restore ecosystem services in such landscapes. It focuses on large, landscape-scale reforestation because that is the scale at which restoration is needed if many of the problems that have now developed are to be addressed. It also shows how large-scale forest restoration might improve human livelihoods as well as improve conservation outcomes. A number of governments have undertaken national reforestation programs in recent years; some have been more successful than others. The author reviews these to explore what type of reforestation should be used, where this should be carried out and how much should be done. For example, are the traditional industrial forms of reforestation necessarily the best to use in all situations? How can forest restoration be reconciled with the need for food security? And, are there spatial thresholds that must be exceeded to generate economic and environmental benefits? The book also examines the policy and institutional settings needed to encourage large-scale reforestation. This includes a discussion of the place for incentives to encourage landholders to undertake particular types of reforestation and to reforest particular locations. It also considers forms of governance that are likely to lead to an equitable sharing of the costs and benefits of forest restoration.

A diagnostic for collaborative monitoring in forest landscape restoration

Planetary Health is a solution oriented transdisciplinary field and a global movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth. A core insight of the field is that the current Earth crisis is so extensive that it is now driving a global humanitarian crisis (Planetary Health Alliance © 2022). The nature of our current problems, with global and local implications, requires that voices from all geographies, genders, and cultures be heard, and that those people be involved in the Planetary Health Alliance (PHA). With that in mind, the PHA proposed that the 4th Planetary Health Annual Meeting (PHAM2021) would be hosted for the first time in the Global South. After a selection process, the University of São Paulo (USP) was chosen to host the PHAM2021, in the city of São Paulo, Brazil. USP and PHA worked together to develop the program. The meeting motto reflects the overall concept: Planetary Health for all - bridging communities to achieve the Great Transition. Also on our minds was a sense of urgency to promote actions, as the Earth crisis continues to intensify all around the globe. Then came the COVID-19 outbreak to emphasize the importance of spreading the word about PH as a comprehensive framework to understand our current situation and to promote change. Intended to be held in-person at the USP main campus, we had to shift to a virtual meeting due to the pandemic. We took that as an

opportunity to expand the program across an entire week, to declare the last week of April Planetary Health Week, and call our event PH Meeting and Festival, including arts sessions in the program, as arts are an important way to connect people around PH. Our audience increased tremendously, while lowering our environmental footprint: we had more than 5,000 registrants from 130 countries. The narrative of the event was especially tailored to be aligned with the underlying event concept, bringing foundations of PH - values and knowledge, and PH in action in the private sector, government and civil society. Each of them was the main theme of a day that week. Finally, we felt it was time for the global PH community to issue a call-to-action for a deep change and urgent response: the São Paulo Declaration on Planetary Health was developed openly and collaboratively by the global community with assistance from the United Nations Development Program and was released after the event. At the end, and after all the hard work, we felt very satisfied with the results, the ample participation, and with an innovative event that will certainly inspire the next editions.

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Decision-making bodies at all scales face an urgent need to conserve remaining forests, and reestablish forest cover in deforested and degraded forest landscapes. The scale of the need, and the opportunity to make a difference, is enormous. Degradation is

Rehabilitation and Restoration of Degraded Forests

India’s forest area has come down below one fifth of total geographical area, due to indiscriminate alienation of forest land for non-forestry purposes and deforestation leading to rapid loss in biodiversity and forest natural resources. An outdated Indian Forest Act, 1927, the most important legal instrument for forest management and administration, with a colonial mindset, influenced by Locke and monetization of forest resources for financial profiteering by the British colonial administration, has been found to be inadequate for conservation of valuable forest environment and resources and alienated local stakeholders in natural resource management. Higher judiciary has started intervening by issuing several judgements and orders, keeping in tune recent developments in the field of international environment law, to save forest land and forest resources, in absence of a strong legal frame work. Global initiatives for conservation of natural resources and mitigation of damaging effects of Climate Change, Sustainable Development Goals etc. have catalysed swift action on part of the government and other stake holders towards achieving conservation goals. A paradigm shift in the system for forest conservation and management, supported by a new law, based on sound scientific forestry, such as landscape level management etc. is the need of the hour.

Nature-based Solutions for Resilient Ecosystems and Societies

This Research Topic is hosted in partnership with the "Grazing in Future Multi-Scapes" international workshop. The workshop will be held online, 30th May - 5th June 2021. Throughout different landscapes of the world, “grazing” herbivores fulfill essential roles in ecology, agriculture, economies and cultures including: families, farms, and communities. Not only do livestock provide food and wealth, they also deliver ecosystem services through the roles they play in environmental composition, structure and dynamics. Grazing, as a descriptive adjective, locates herbivores within a spatial and temporal pastoral context where they naturally graze or are grazed by farmers, ranchers, shepherds etc. In many cases, however, pastoralism with the single objective of maximizing animal production and/or profit has transformed landscapes, diminishing biodiversity, reducing water and air quality, accelerating loss of soil and plant biomass, and displacing indigenous animals and people. These degenerative landscape transformations have jeopardized present and future ecosystem and societal services, breaking the natural integration of land, water, air, health, society and culture. Land-users, policy makers and societies are calling for alternative approaches to pastoral systems; a call for diversified-adaptive and integrative agro-ecological and food-pastoral-systems designs that operate across multiple scales and ‘scapes’ (e.g. thought-, social-, land-, food-, health-, wild-scapes), simultaneously. There needs to be a paradigm shift in pastoral production systems and how grazing herbivores are managed –grazed- within them, derived initially from a change in perception of how they provide wealth. The thoughtscapes will include paradigm shifts where grazers move away from the actual archetype of pastoralism, future landscapes are re-imagined, and regenerative and sustainable management paradigms are put in place to achieve these visions. From this will come a change in collective thinking of how communities and cultures (socialscapes) perceive their relationships with pastoral lands. The landscapes are the biotic and abiotic four-dimensional domains or environments in need of nurture. Landscapes are

the tables where humans and herbivores gain their nourishment, i.e. foodscapes. Foodscapes and dietary perceptions, dictate actions and reactions that are changing as developed countries grapple with diseases related to obesity, and people starve in developing countries. Societies are demanding healthscapes and nutraceutical foodscapes, and paradoxically, some are moving away from animal products. While indigenous species of animals, including humans (wildscapes), have been displaced from many of their lands by monotonic pastoralism, multifunctional pastoral systems can be designed in view of dynamic multi-scapes of the future. The purpose of this Research Topic is to influence future mental and practical models of pastoralism in continually evolving multi-scapes. We seek a collection of papers that will cultivate such a shift in thinking towards future models of sustainable multipurpose pastoralism. The contributions will be synthesized to establish how multifunctional pastoral systems can be re-imagined and then designed in view of the integrative dynamics of sustainable future multi-scapes.

Large-scale Forest Restoration

This book aims to provide a comprehensive analysis on social, economic, and political issues to understand why forests in the Demacratic People's Repblican of Korean have been so severely deforested. Deforestation and forest degradation issues in the DPRK has been highlighted as an important international political issue, which has been intervening with food security issues and energy issues, and it's hard to discover the way out. The DPRK provides a unique case to international community that illustrate why the forests issue is so complex, illuminating the issues of declining forest coverage that beset developing nations around the world. This book will interest political scientists, conservation ecologists, and journalists.

2021 Planetary Health Annual Meeting and Festival Book of Abstracts

Decision support tools for forest landscape restoration