Coffee Agroecology A New Approach To Understanding Agricultural Biodiversity Ecosystem Services And Sustainable Development

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A Collaborative Project of the International Institute for Environment and

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The Craft and Science of Coffee
The Ecology of Agroecosystems

LOPEZ KINGSTON

Food Production and Nature Conservation Routledge
This handbook includes contributions from established and emerging scholars from around the world and draws on multiple approaches and subjects to explore the socio-economic, cultural, ecological, institutional, legal, and policy aspects of regenerative food practices. The future of food is uncertain. We are facing an overwhelming number of interconnected and complex challenges related to the ways we grow, distribute, access, eat, and dispose of food. Yet, there are stories of hope and opportunities for radical change towards food systems that enhance the ability of living things to co-evolve. Given this, activities and imaginaries looking to improve, rather than just sustain, communities and ecosystems are needed, as are fresh perspectives and new terminology. The Routledge Handbook of Sustainable and Regenerative Food Systems addresses this need. The chapters cover diverse practices, geographies, scales, and entry-points. They focus not only on the core requirements to deliver sustainable agriculture and food supply, but go beyond this to think about how these can also actively participate with social-ecological systems. The book is presented in an accessible way, with reflection questions meant to spark discussion and debate on how to transition to safe, just, and healthy food systems. Taken together, the chapters in this handbook highlight the consequences of current food practices and showcase the multiple ways that people are doing food differently. The Routledge Handbook of Sustainable and Regenerative Food Systems is essential reading for students and scholars interested in food systems, governance and practices, agroecology, rural sociology, and socio-environmental studies.
Dealing with the Coffee Crisis in Central America Mimesis
When first published in 2009, Nature’s Matrix set out a radical new approach to the conservation of biodiversity. This new edition pushes the frontier of the biodiversity/agriculture debate further, making an even stronger case for the need to transform agriculture and support

small- and medium-scale agroecology and food sovereignty. In the first edition, the authors set out a radical new approach to the conservation of biodiversity. This is based on the concept of a landscape as a matrix of diverse, small-scale agricultural ecosystems, providing opportunities to enhance conservation under the stewardship of local farmers. This contrasts with the alternative view of industrial-scale farms and large protected areas which exclude local people. However, since then the debate around conservation and agriculture has developed significantly and this is reflected in this updated second edition. The text is thoroughly revised, including: a reorganization of chapters with new and timely topics introduced, updates to the discussion of agroecology and food sovereignty, bringing it in line with the current debates, greater coverage of the role of agroecology, in particular agroforestry, as an important component of climate change adaptation and mitigation, highlighting recent studies on the role of intensive agriculture in climate change and loss of biodiversity, and more attention given to the discussion of land sparing versus land sharing. By integrating the ecological aspects of agriculture and conservation biology, with a political and social analysis as well as historical perspective, the book continues to set a progressive agenda and appeals to a wide range of students and professionals.

Coffee Agroecology Routledge

Energy in Agroecosystems: A Tool for Assessing Sustainability is the first book on energy analysis that is up-to-date and specifically dedicated to agriculture. It is written from an agroecological perspective and goes beyond the conventional analysis of the efficient use of energy. The book provide a methodological guide to assess energy efficiency and sustainability from an eco-energetic point of view. Case studies from both Europe and America, which are representative of today’s most used scales of analysis (crop, farm, local or national) and the different farm management practices (traditional, industrialized, and contemporary organic), apply this methodology This book will be of primary interest to researchers, practitioners, and students working in the areas of agroecology, sustainable agriculture, environmental science, energy analysis, natural resources management, rural development and international development.

Linking Agriculture, Conservation and Food Sovereignty CRC Press

Feeding the world's growing human population is increasingly challenging, especially as more people adopt a western diet and lifestyle. Doing so without causing damage to nature poses an even greater challenge. This book argues that in order to create a sustainable food supply whilst conserving nature, agriculture and nature must be reconnected and approached together. The authors demonstrate that while the links between nature and food production have, to some extent, already been recognized, until now the focus has been to protect one from the impacts of the other. Instead, it is argued that nature and agriculture can, and should, work together and

ultimately benefit from one another. Chapters describe efforts to protect nature through globally connected protected area systems and illustrate how farming methods are being shaped to protect nature within agricultural systems. The authors also point to many ways in which nature benefits agriculture through the ecosystem services it provides. Overall, the book shows that nature conservation and food production must be considered as equally important components of future solutions to meet the global demand for food in a manner that is sustainable for both the human population and the planet as a whole.

Agroecology, Livelihoods and Food Sovereignty Among Coffee Communities in Chiapas, Mexico IIED

We hear a lot about how agriculture affects climate change and other environmental issues, but we hear little about how these issues affect agriculture. When we look at both sides of the issues, we can develop better solutions for sustainable agriculture without adversely affecting the environment.

Agroecology, Ecosystems, and Sustainability explores a modern vision of ecology and agricultural systems, so that crop production can be sustainably developed without further environmental degradation. With contributions from experts from more than 20 countries, the book describes how to make the transition to modern agroecology to help the environment. It examines the global availability of natural resources and how agroecology could allow the world population to reach the goal of global sustainable ecological, agricultural, and food production systems. The book discusses important principles that regulate agroecological systems, including crop production, soil management, and environment preservation. Making the link between theory and practices, the book includes examples of agroecology such as an interdisciplinary framework for the management of integrated production and conservation landscapes and the use of mechanized rain-fed farming and its ecological impact on drylands. An examination of how ecology and agriculture can be allied to ensure food production and security without threatening our environment, the text shows you how natural resources can be used in a manner to create a "symbiosis" to preserve ecological systems and develop agriculture.

Agroecology Food First Books

Ecological intensification involves using natural resources such as land, water, soil nutrients, and other biotic and abiotic variables in a sustainable way to achieve high performance and efficiency in agricultural yield with minimal damage to the agroecosystems. With increasing food demand there is high pressure on agricultural systems. The concept of ecological intensification presents the mechanisms of ensuring high agricultural productivity by restoration the soil health and landscape ecosystem services. The approach involves the replacement of anthropogenic inputs with eco-friendly and sustainable alternates. Effective ecological intensification requires an understanding of ecosystems services, ecosystem's components, and flow of resources in the agroecosystems. Also,

awareness of land use patterns, socio-economic factors, and needs of the farmer community plays a crucial role. It is therefore essential to understand the interaction of ecosystem constituents within the extensive agricultural landscape. The editors critically examined the status of ecological stress in agroecosystems and address the issue of ecological intensification for natural resources management. Drawing upon research and examples from around the world, the book is offering an up-to-date account, and insight into the approaches that can be put in practice for poly-cropping systems and landscape-scale management to increase the stability of agricultural production systems to achieve 'Ecological resilience'. It further discusses the role of farmer communities and the importance of their awareness about the issues. This book will be of interest to teachers, researchers, climate change scientists, capacity builders, and policymakers. Also, the book serves as additional reading material for undergraduate and graduate students of agriculture, forestry, ecology, agronomy, soil science, and environmental sciences. National and international agricultural scientists, policymakers will also find this to be a useful read for green future.

From Producer to Consumer CRC Press

This book provides an overview of the intricacies of plant communication via volatile chemicals. Plants produce an extraordinarily vast array of chemicals, which provide community members with detailed information about the producer's identity, physiology and phenology. Volatile organic chemicals, either as individual compounds or complex chemical blends, are a communication medium operating between plants and any organism able to detect the compounds and respond. The ecological and evolutionary origins of particular interactions between plants and the greater community have been, and will continue to be, strenuously debated. However, it is clear that chemicals, and particularly volatile chemicals, constitute a medium akin to a linguistic tool. As well as possessing a rich chemical vocabulary, plants are known to detect and respond to chemical cues. These cues can originate from neighbouring plants, or other associated community members. This book begins with chapters on the complexity of chemical messages, provides a broad perspective on a range of ecological interactions mediated by volatile chemicals, and extends to cutting edge developments on the detection of chemicals by plants.

Brewing Sustainability in the Coffee and Tea Industries Routledge

Our morning cups of coffee connect us to a global industry and an export crisis in the tropics that is destroying livelihoods, undermining the cohesion of families and communities, and threatening ecosystems. Confronting the Coffee Crisis explores small-scale farming, the political economy of the global coffee industry, and initiatives that claim to promote more sustainable rural development in coffee-producing communities. Contributors review the historical, political, economic, and agroecological processes

within today's coffee industry and analyze the severely depressed export market that faces small-scale growers in Mexico and Central America. The book presents a series of interdisciplinary, empirically rich case studies showing how small-scale farmers manage ecosystems and organize collectively as they seek useful collaborations with international NGOs and coffee companies to create opportunities for themselves in the coffee market. The findings demonstrate the interconnections among farmer livelihoods, biodiversity, conservation, and changing coffee markets. Additional chapters examine alternative trade practices, certification, and eco-labeling, discussing the politics and market growth of organic, shade-grown, and Fair Trade coffees. Combining interdisciplinary research with case-study analysis at scales ranging from the local to the global, Confronting the Coffee Crisis reveals the promise and the perils of efforts to create a more sustainable coffee industry. Christopher M. Bacon is a researcher associated with the Environmental Studies and Sociology Departments at the University of California, Santa Cruz. V. Ernesto Méndez is Assistant Professor in the Environmental Program and Department of Plant and Soil Science at the University of Vermont. Stephen R. Gliessman is Alfred Heller Professor of Agroecology at the University of California, Santa Cruz, where David Goodman is Professor of Environmental Studies and Jonathan A. Fox is Professor in the Latin American and Latino Studies Department. ContributorsChristopher M. Bacon, David B. Bray, Sasha Courville, Jonathan A. Fox, Stephen R. Gliessman, David Goodman, Carlos Guadarrama-Zugasti, Shayna Harris, Roberta Jaffe, María Elena Martinez-Torres, V. Ernesto Méndez, Ellen Contreras Murphy, Tad Mutersbaugh, Seth Petchers, José Luis Plaza-Sanchez, Laura Trujillo, Silke Mason Westphal

Nature's Matrix Springer

Providing the theoretical and conceptual framework for this continually evolving field, Agroecology: The Ecology of Sustainable Food Systems, Second Edition explores environmental factors and complexities affecting agricultural crops and animals. Completely revised, updated, and reworked, the second edition contains new data, new readings, new issues and case studies, and new options. It includes two completely new chapters, one on the role of livestock animals in agroecosystems and one on the cultural and community aspects of sustainable food systems. The author clearly delineates the importance of using an ecosystem framework for determining if a particular agricultural practice, input, or management decision contributes or detracts from sustainability. He explains how the framework provides the ecological basis for the functioning of the chosen management strategy over the long-term. He also examines system level interactions, stressing the need for understanding the emergent qualities of populations, communities, and ecosystems and their roles in sustainable agriculture. Using examples of farming systems in a broad array of ecological conditions, the book demonstrates

how to use an ecosystem approach to design and manage agroecosystems for sustainability.

Advances of Spectrometric Techniques in Food Analysis and Food Authentication Implemented with Chemometrics Frontiers Media SA

Agroecology is the science of applying ecological concepts and principles to the design, development, and management of sustainable agricultural systems. The Ecology of Agroecosystems highlights a collection of alternative agricultural methodologies and philosophies and provides an interdisciplinary approach that bridges the sociopolitical and historical context of agriculture. It includes the technical issues in a serious and ecological fashion and captures the complex merging of ecology, agriculture, politics and economics in both a historical and contemporary context. Readers will learn not only about the ethical and moral elements related to producing food of questionable quality while possibly impairing the environment, but also about the soil chemistry involved.

Agroecología y Sistemas Complejos Jones & Bartlett Learning

One of the most pressing challenges facing the world today is how to sustainably feed a growing population while conserving the ecosystem services we depend on. Coffee landscapes are an important site for research on agrifood systems because they reflect global-scale dynamics surrounding conservation and livelihood development. Within them, we find both what is broken in our global agrifood system, as well as the grassroots struggles that strive to change the system by building socio-ecologically resilient, sustainable livelihoods. Research shows that smallholder shade coffee farmers steward high biodiversity and provide essential ecosystem services. At the same time, studies in the last decade demonstrate that many smallholder coffee farmers in Mesoamerica suffer annual periods of seasonal hunger, as well as pervasive poverty. This dissertation explores household livelihood strategies, with a particular emphasis on agroecology, and how they can contribute to build sustainable systems that secure food and maintain biodiversity in coffee communities of Chiapas, Mexico. Research was conducted using a mixed methods approach, which included the collection of quantitative and qualitative socio-ecological data through focus groups, surveys, semi-structured interviews, participant observation and plant inventories. Surveys were conducted with 79 households in 11 communities, all located within the buffer zone of a biosphere reserve. A stratified random sample of 31 households from these 79 were surveyed again to collect more in-depth data, including the collection of biophysical data in their subsistence and coffee land use systems. The following research questions were explored: 1) What are the major ecological, social, economic, and political drivers of seasonal hunger? 2) What is the relationship between agrobiodiversity (plant and livestock diversity) and food security (months of adequate household food provisioning and dietary diversity)? 3) What household livelihood assets and strategies

contribute to or limit food security and food sovereignty? Across the sample population, total agrobiodiversity and maize and bean production were strongly correlated with improved food security. Coffee income was not strongly correlated with improved food security, which suggests that income is used for priorities within the household other than food, despite seasonal food shortages. Results demonstrate the importance of balancing subsistence and commodity (i.e. coffee) production in these communities, where subsistence food serves as a risk management strategy to buffer against volatility in coffee prices, in addition to offsetting income that might be used for food towards non-food expenses. Subsistence production, which typically applies agroecological practices in this site, also holds important cultural and environmental value. The results of this research indicate that government policy and development practice should enable farmers to maintain the social, ecological and cultural processes that support the management of agrobiodiversity for subsistence and coffee.

Confronting the Coffee Crisis Routledge

Landscapes are frequently seen as fragments of natural habitat surrounded by a 'sea' of agriculture. But recent ecological theory shows that the nature of these fragments is not nearly as important for conservation as is the nature of the matrix of agriculture that surrounds them. Local extinctions from conservation fragments are inevitable and must be balanced by migrations if massive extinction is to be avoided. High migration rates only occur in what the authors refer to as 'high quality' matrices, which are created by alternative agroecological techniques, as opposed to the industrial monocultural model of agriculture. The authors argue that the only way to promote such high quality matrices is to work with rural social movements. Their ideas are at odds with the major trends of some of the large conservation organizations that emphasize targeted land purchases of protected areas. They argue that recent advances in ecological research make such a general approach anachronistic and call, rather, for solidarity with the small farmers around the world who are currently struggling to attain food sovereignty.Nature's Matrix proposes a radically new approach to the conservation of biodiversity based on recent advances in the science of ecology plus political realities, particularly in the world's tropical regions.

Food Sovereignty, Agroecology and Biocultural Diversity

Edward Elgar Publishing

This book focuses on the often intertwined industries of coffee and tea, using accounts of single producer communities to highlight the transformation from plantation-style colonial agriculture towards systems that now claim to produce social and environmental benefits from the farm to the cup. Focusing on the dynamics of farmers' experiences producing coffee and tea ethically and sustainably at origin, the book shows how these values are transmitted and reinforced throughout the value chain. Exploring tandem case studies of fair trade cooperatives in Guatemala and Sri Lanka, it provides an insight into

the creation of more sustainable value chains from producer to consumer in the global marketplace, incorporating the perspectives of coffee exporters, importers, roasters, and café owners. This book is focused on the prospects of the specialty movement in food as a catalyst for forging more authentic, just, and sustainable supply chains that consider both people and the environment. This book will be of great interest to students and scholars of food and agriculture, sustainable food systems and supply chains, the fair trade movement, sustainable development, and social entrepreneurship and social innovation.

Ecological Intensification of Natural Resources for Sustainable Agriculture Academic Press

Dr. Melissa Vogt considers the influence of Rainforest Alliance and Fairtrade in coffee farming communities of Costa Rica from 2009-2019. Sustainability certifications schemes are working amongst a range of sustainability efforts, unique by their intra market location. The intentions of each certification scheme must be clarified prior to evaluation and their influence considered amongst contextually specific historic and contemporary considerations, and alongside the range of sustainability efforts. The advantages and disadvantages, opportunities for improvement and how alternative mechanisms might improve upon or complement sustainability certification schemes are explained. An epilogue considers how prioritisation of coffee as a cash crop may align with sustainability. The influence on biodiversity, community health and income, and the possible implication of reduced coffee crop density for consumers, the market and farming landscapes is considered. How sustainability standards might better encourage more ambitious sustainability in farming landscapes is for future consideration.

Fair Trade, Sustainable Livelihoods and Ecosystems in Mexico and Central America Springer

Exploring the emerging and vibrant field of critical agrarian studies, this comprehensive Handbook offers interdisciplinary insights from both leading scholars and activists to understand agrarian life, livelihoods, formations and processes of change. It highlights the development of the field, which is characterized by theoretical and methodological pluralism and innovation.

A Transdisciplinary, Participatory and Action-oriented Approach Frontiers Media SA

Good agroecological practices are indispensable for the development of sustainable agriculture. In this book, principles, diversity and applications of agroecological practices for a range of systems are presented, transforming scientific research and participatory knowledge of production into practical application. It illustrates a broad range of research and teaching being used within the farming community to demonstrate best practice and current state-of-play within the field. Agroecological methods used in crop farming, grass-based livestock farming, fish production, and other complex farming systems are discussed. Conclusions are drawn from studies to provide an outlook on future trends of agroecological practices

and on policies supporting implementation. Due to emphasis on real-life application, it is relevant not only to students of the agricultural sciences and public policy, but also to researchers, stakeholders and policy makers involved in the development of sustainable agriculture.

Impacts and Strategies World Scientific

Fair trade is a fast-growing alternative market intended to bring better prices and greater social justice to small farmers around the world. But what does a fair-trade label signify? This vivid study of coffee farmers in Mexico offers the first thorough investigation of the social, economic, and environmental benefits of fair trade. Based on extensive research in Zapotec indigenous communities in Oaxaca, Brewing Justice follows the members of the cooperative Michiza, whose organic coffee is sold on the international fair-trade market, and compares them to conventional farming families in the same region. The book carries readers into the lives of coffee-producer households and communities, offering a nuanced analysis of fair trade's effects on everyday life and the limits of its impact. Brewing Justice paints a clear picture of the dynamics of the fair-trade market and its relationship to the global economy. Drawing on interviews with dozens of fair-trade leaders, the book also explores the movement's fraught politics, especially the challenges posed by rapid growth and the increased role of transnational corporations. It concludes with recommendations to strengthen and protect the integrity of fair trade. This updated edition includes a substantial new chapter that assesses recent developments in both coffee-growing communities and movement politics, offering a guide to navigating the shifting landscape of fair-trade consumption.

Nature's Contributions to People: On the Relation Between Valuations and Actions Food & Agriculture Org.

Debate about how best to ensure the preservation of agricultural biodiversity is caught in a counter-productive polemic between proponents and critics of market-based instruments and agricultural modernization. However, it is argued in this book that neither position does justice to the range of strategies that farmers use to manage agrobiodiversity and other livelihood assets as they adapt to changing social, economic, and environmental circumstances.

Confronting the Coffee Crisis Routledge

The world relies on very few crop and animal species for agriculture and to supply its food needs. In recent decades, there has been increased appreciation of the risk this implies for food security and quality, especially in times of environmental change. As a result, agricultural biodiversity has moved to the top of research and policy agendas. This Handbook presents a comprehensive overview of our current knowledge of agricultural biodiversity in a series of specially commissioned chapters. It draws on multiple disciplines including plant and animal genetics, ecology, crop and animal science, food studies and nutrition, as well as social science subjects which explore the socio-economic, cultural, institutional, legal and policy aspects of

agricultural biodiversity. It focuses not only on the core requirements to deliver a sustainable agriculture and food supply, but also highlights the additional ecosystem services provided by a diverse and resilient agricultural landscape and farming practices. The book provides an indispensable reference textbook for a wide range of courses in agriculture, ecology, biodiversity conservation and environmental studies. *Plantation Crops, Plunder and Power* Ubiquity Press Over the last five centuries, plantation crops have represented the best and worst of industrialized agriculture – "best" through their agronomic productivity and global commercial success, and "worst" as examples of exploitative colonialism, conflict and ill-treatment of workers. This book traces the social, political and evolutionary history of seven major plantation crops – sugarcane, banana, cotton, tea, tobacco, coffee and rubber. It describes how all of these were domesticated in antiquity and grown by small landowners for thousands of years before European traders and colonists sought to make a profit out of them. The author relates how their development and spread were closely associated with government expansionist policies. They stimulated the exploration of far off lands, were the focus of major conflicts and led to the enslavement of both native and displaced peoples. From the southern United States, Latin America and the Caribbean, to Asia and Africa, plantation crops turned social structures upside down leading to revolution and government change. The economies of whole countries became tied to the profits of these plantations, leading to internal power struggles to control the burgeoning wealth. Open warfare routinely broke out between the more powerful countries and factions for trade dominance. This book shows that from the early 1500s to today, at least one of the plantation crops was always at the center of world politics, and that this still continues today, for example with the development of oil palm plantations in Southeast Asia. Written in an accessible style, it is fascinating supplementary reading for students of agricultural, environmental and colonial history.

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