

Sustainable Forest Management in a Changing World

Managing Forest Ecosystems

VOLUME 19

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Aims & Scope:

Well-managed forests and woodlands are a renewable resource, producing essential raw material with minimum waste and energy use. Rich in habitat and species diversity, forests may contribute to increased ecosystem stability. They can absorb the effects of unwanted deposition and other disturbances and protect neighbouring ecosystems by maintaining stable nutrient and energy cycles and by preventing soil degradation and erosion. They provide much-needed recreation and their continued existence contributes to stabilizing rural communities.

Forests are managed for timber production and species, habitat and process conservation. A subtle shift from *multiple-use management to ecosystems management* is being observed and the new ecological perspective of *multi-functional forest management* is based on the principles of ecosystem diversity, stability and elasticity, and the dynamic equilibrium of primary and secondary production.

Making full use of new technology is one of the challenges facing forest management today. Resource information must be obtained with a limited budget. This requires better timing of resource assessment activities and improved use of multiple data sources. Sound ecosystems management, like any other management activity, relies on effective forecasting and operational control.

The aim of the book series *Managing Forest Ecosystems* is to present state-of-the-art research results relating to the practice of forest management. Contributions are solicited from prominent authors. Each reference book, monograph or proceedings volume will be focused to deal with a specific context. Typical issues of the series are: resource assessment techniques, evaluating sustainability for even-aged and uneven-aged forests, multi-objective management, predicting forest development, optimizing forest management, biodiversity management and monitoring, risk assessment and economic analysis.

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Editor

Sustainable Forest Management in a Changing World

A European Perspective



Springer

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Preface

Yet another book on the topic of ‘Sustainable Forest Management’ can only be justified by new information that is of direct relevance. The contents of this volume concentrate on the very latest factors and developments, thus, hopefully, contributing both to the book’s attractiveness and to closing gaps in the discipline’s database.

This book is written for researchers in the field of forest management, international forestry, and climate change-related issues, legal and policy advisors, as well as for managers of private companies who deal with SFM. The authors of the various sections are scientists in the field of forestry and other environmental sciences. They represent different institutions, mainly universities and research agencies in Germany, but also high-level international institutions in development co-operation, such as the World Bank, FAO, and IIASA.

The scope of the book is to refresh the meanings and perceptions of SFM against the background of the rapid changes in our natural and social environment. Climate change and the rapid increase of atmospheric CO₂ concentration is a global process with negative impacts of different kinds, among others on natural ecosystems such as forests. A crucial issue therefore is how forest management can contribute to forest conservation in light of changing climatic conditions. Moreover, policy changes such as the introduction of certification schemes and the new emphasis laid on Non-Wood Forest Products justify the re-evaluation of the role of SFM in delivering ecological goods and services from our forests. New technical approaches in forest management, like the application of ecologically sound harvesting techniques, are reviewed, as are genetic resources and their contribution to the adaptability of forests. Finally, the challenges of sustainability and global change are discussed as to whether they can be jointly tackled by the involved stakeholders.

The focus of the book reflects European priorities, i.e. the sustainable provision of goods and services in forests and an integrative land-use management as the core of the type of SFM to be adapted to upcoming requirements. Nevertheless, not only temperate forests but also tropical forests and their management are relevant issues in the realm of climate protection, biodiversity conservation, and the provision of multiple goods and services.

The book comprises 14 contributions covering the whole range of SFM as the core contributions of forests to sustainable development: The first contains an introduction with ethical considerations on sustainability, reflections on the

‘career’ of the concept, and some thoughts on Global Ethics of the Environment (Hartmut Ihne and Peter Spathelf).

In the second chapter Gerhard Dieterle, Chief Forest Advisor at the World Bank, Washington, DC (USA) outlines the institution’s strategy and operational guidelines for the promotion of SFM with key issues such as forest governance, cross-sectoral impacts, and forest-sector finance and their outcomes for poverty reduction and economic development.

The third chapter deals with the conservation of tropical forests and climate change mitigation. Its authors are Pierre Ibisch, University of Applied Sciences Eberswalde and Lars Schmidt of the German Institute for Development Co-operation. A special emphasis is laid on new strategies for tropical forest conservation in the face of the post-2012 climate regime, such as deforestation avoidance.

In the fourth chapter, the European pathway to SFM is drawn in view of special consideration of the process to establish and refine criteria and indicators for SFM in Central Europe. The authors are Michael Köhl, from the German Federal von Thünen Institute (Federal Research Institute for Rural Areas, Forestry, and Fisheries), Hamburg and Ewald Rametsteiner from University of Natural Resources and Applied Life Sciences in Vienna and the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria).

In a further chapter, Leif Nutto, Ulrich Schroeder (both from the University of Freiburg) and Peter Spathelf (University of Applied Sciences Eberswalde) describe obstacles to SFM and perspectives of SFM in tropical forests in South America. After reflection on deforestation and its main drivers, the prerequisites of SFM are discussed. A successful silvicultural system for SFM in the tropics is presented. The contribution closes with a comparative case study on RIL in the Western Amazon.

Wulf Killmann, Head of the Forest Products Division at the FAO (Italy) analyses the global patterns and trends in NWFP development and the role of NWFP to promote SFM (Chapter 6).

The maintenance of long-term adaptability of forests through the conservation of genetic diversity is emphasised by Ralf Kätzel from the Brandenburg Forest Research Station (LFE) at Eberswalde. In his contribution (Chapter 7), he stresses measures to protect the genetic sustainability of forest management, particularly with regard to climate change.

In Chapter 8, Andreas Bolte and his co-authors focus on the decisive role of silviculture in adapting forests to climate change. Different options are described, such as tree species selection, thinning, as well as regeneration and felling. Following a more active adaptation strategy, it is shown that the resilience of forests in central Europe can likely be increased in the face of global change.

In Chapter 9, Thomas Knoke from Munich Technical University reflects on silviculture’s low relevance in management and how to sharpen its profile, given the fact that silviculture integrates economic, ecological, and sustainability-assurance components.

Martin Welp, University of Applied Sciences Eberswalde, focuses on the role of science-based stakeholder dialogues in the framework of climate change and

possible pathways to sustainability (Chapter 10). Moreover, the current and potential shortcomings of stakeholder dialogues at the interface between climate policy and forest policy are discussed.

In Chapter 11, Monika Bertzky and Bastian Bomhard provide new insights into the complexity of the task of protected area management due to changes in conservation paradigms, the challenging nature of conservation targets, and climate changes.

In Chapter 12, Jürgen Pretzsch from the Dresden University of Technology gives a synthesis of different systems of tropical forest management. After a historical review on the institutional development and increasing diversification of forest organisations in the tropics, the strengths and weaknesses of the different systems are analysed economically and under the scope of to which degree they contribute to developing sustainable livelihoods and reducing poverty.

In Chapter 13, Ulrich Schraml and Roderich von Detten, after reflecting on the ambiguous meaning of sustainability and its relevance for forestry today, present the results of an empirical study with strategies on how forest enterprises and forest policy can deal with and prepare for future forest use.

In the final chapter, some conclusions on the perspective of SFM are drawn by Peter Spathelf.

Most of the contributors were invited speakers at a lecture series held at Eberswalde University of Applied Sciences in fall and winter 2007–2008.

Peter Spathelf

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Berlin, October 30, 2009

Peter Spathelf

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