Chapter 14
Sustainable Forest Management as a Model for Sustainable Development: Conclusions Toward a Concrete Vision

Peter Spathelf

Central European forestry has oriented itself toward sustainability for more than 200 years. Opinions regarding the principles involved, however, underwent significant changes during the nineteenth and twentieth centuries, and today there is no consensus as to what can be considered a "correct" standard of Sustainable Forest Management (SFM). Rather, SFM is seen to be the result of a social bargaining process, which – in turn – is strongly dependent on social and political circumstances.

Although forestry in Europe has proven its across-the-board skill and prudence in using its resource sustainably, a variety of conflicts persist in regard to goals. Forestry's increasingly changing context, combined with marked dynamism in market conditions and social demands, constitute new challenges for forestry and the wood sector on the whole.

On the one hand, the social functions of forests have to be maintained and biological diversity has to be guaranteed. Moreover, the markets have to be continuously supplied with wood and non-wood forest products. Concurrently, however, the increasing potentials for the production and use of raw material and the sequestration of carbon by wood and wood products have not yet been taken fully into account. In a study for EEA countries (member and associated countries of the European Environment Agency; EEA 2008), it was demonstrated that the average annual felling accounted for only around 59% of the net annual increment of the growing stock in 2005. Thus, standing volumes and – to a certain extent – late successional stages are increasing. Together with the increase in deadwood in European forests, this is a measure to enhance biodiversity and favour carbon sinks of living forests.

The contributions in the present volume have sought to provide an 'updated' understanding of forestry and SFM in Europe, but also a view of how professionally involved Europeans would like forest management to be seen and realised in other forest regions of the world, especially the tropics and subtropics.

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The present state and future role of forest use (wood and non-wood forest products) have been presented and discussed from the perspective of international governmental organisations.

Special consideration has been given to climate change and its potential impact on silviculture, to forest utilisation and stakeholder dialogues on forest-related issues, to new approaches in forest protected area management, and to the adaptive capacity of trees and forests.

Moreover, the long-lasting experience gleaned from forest management, as well as the influence of forest organisations on forest resource management in the past decades, have been debated and a new perception of silviculture discussed.

The current understanding of multiple-use forestry and sustainable management of forests in Europe was reflected in a resolution of the Ministerial Conference on the Protection of Forests in Europe (MCPFE) of Helsinki in 1993:

> 'Sustainable management means the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems'.

In recent years, MCPFE countries have increasingly integrated sustainable forest management into legislation by financially supporting measures like forest restoration and conversion that reinforce various aspects of sustainability and by improving communication of forest-relevant issues to the public.

The German Council on Sustainable Development (*Rat für Nachhaltige Entwicklung*) has established recommendations for the integration of SFM into a holistic strategy, emphasising the cross-linking of forestry with other policy areas such as energy, consumer protection, and climate protection (Rat für Nachhaltige Entwicklung 2004).

The core features set up a vision of a forest policy in the service of sustainable development that outlines the spectrum and the rationale of the present book:

More Responsibility for the Conservation of the Forests Worldwide

Efficient (forest) protected area management is still seen to be indispensable for in-situ conservation. As the lifelines of millions of species, they need to be mainstreamed into all aspects of our lives. Otherwise, biodiversity loss will continue or even accelerate; halting or even reducing it will no longer be an option.

Along with biodiversity conservation, the question of carbon-stock conservation in tropical and subtropical forests is of high importance to slow down climate change (Reducing Emissions from Deforestation and Forest Degradation, REDD). Halting or reducing deforestation and mainstreaming biodiversity conservation in productive landscapes is a challenge for forest-rich countries and the international community, addressing complex institutional, governance and land-tenure issues, including community ownership and the involvement of smallholders.

Environmentally Sound Management of Forests and No Timber Use from Exploitation and Disputable Sources

A big step forward in the direction of SFM, especially in tropical countries, was the process of establishing criteria and indicators (C & I) of sustainability in the numerous national stakeholder meetings. The debates on C & I showed that forest-management techniques have to be adapted to the local conditions, a process which helped to clarify the essential expectation of stakeholders towards their forests.

In addition, the scientific and technical knowledge base (e.g. species ecology, growth rates, harvest control, forest planning, and appropriate silvicultural operations) related to SFM in the tropics and subtropics has become more solid in the past few decades.

Nevertheless, obstacles still have to be overcome. Many of the natural forests are considered to be 'undermanaged' (Sayer et al. 1997). Furthermore, a permanent forest estate with stable and accepted forest organisations is necessary to achieve forest sustainability, as are the establishment of and regulation by state interventions, instead of self-compliance mechanisms.

Promotion of Close-to-Nature Forestry and Adaptive Management

Close-to-nature forestry and sustainable use of wood can be seen as a model for sustainable development. However, in light of the uncertainties concerning the intensity of local climate and site change, adaptive management is one of the most important challenges for forestry in the coming decades, especially in Europe.

Close-to-nature forestry with an emphasis on active adaptation will play an important role since it covers the perception of Central European forestry with its generally high level of management intensity effectively. That is, active adaptation comprises possible changes in the management system, including site preparation and alteration of the tending and felling systems. It also encompasses the introduction and admixture of well-tested 'new' species and non-autochthonous provenances of native species. This is compatible with the suggestion of a new, more management-oriented perspective for silviculture.

Finally, adaptive forest management has to ensure the long-term adaptability of tree species through the conservation of genetic diversity within and between individuals and populations.

Communication of Forest Use as a Model for Sustainable Use

Adaptive forest management is understood and implemented as an iterative process and therefore, consequently, sustainability should be understood as a boundary term whose purpose is to function as a 'negative reference concept' with various outcomes in terms of values and normative positions. If forests are managed as

'complex adaptive systems' (Puettmann et al. 2009), they will probably be able to adapt to a wide range of conditions and maintain their cultural role on the way to post-carbon societies.

The process of reflecting on what constitutes the essentials of SFM in given economic and societal circumstances and their communication is a permanent and long-term task. The diverse multi-stakeholder dialogues for governance and social learning play an increasingly important role both in promoting the establishment of a robust foundation for long-term climate mitigation and adaptation policies and in raising awareness of the facets of SFM and sustainability in a changing world.

The popularisation of generalized models is strongly dependent on the mass media. The media, however, often tend to dramatise a problem, meaning that they cannot be viewed as appropriate guides in complex discourses. Due to the generality of the concepts of sustainability and SFM and the often-lacking 'causal story' for concrete action, their appealing quality is reduced, and it becomes difficult to popularise them (Brand 2000). Central features of sustainability and SFM must therefore be transported by stories or by concrete conflict situations where real people are involved. Examples for this kind of popularisation are:

1. The 'Education for Sustainable Development' campaign, where local initiatives and innovative learning concepts in schools and universities are supported in order to achieve flexibility and develop equitable chances for development.
2. Media productions by very popular people like Al Gore with his film 'An Inconvenient Truth'.

Nevertheless, the discussion on sustainability and sustainable development integrates different professional groups and experts in a moralistically legitimated field of action and thus empowers various economic, environmental, and third-world groups to transform this generalized model into practice.

In particular, Europe – with its institutional and financial resources and its extended record of achievement in the sustainable management of forests – can and should assume a leadership role and assertively don the mantle of the 'sustainable lighthouse of the world' (Jeremy Rifkin).

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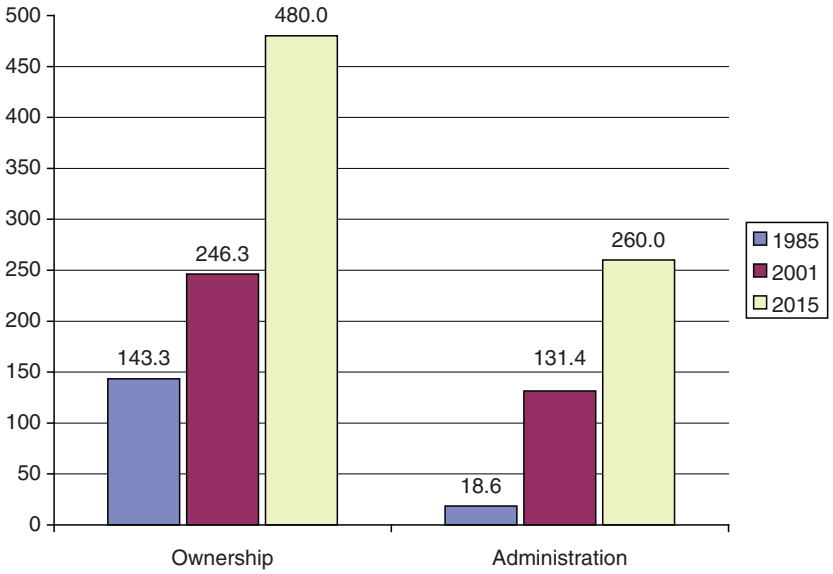
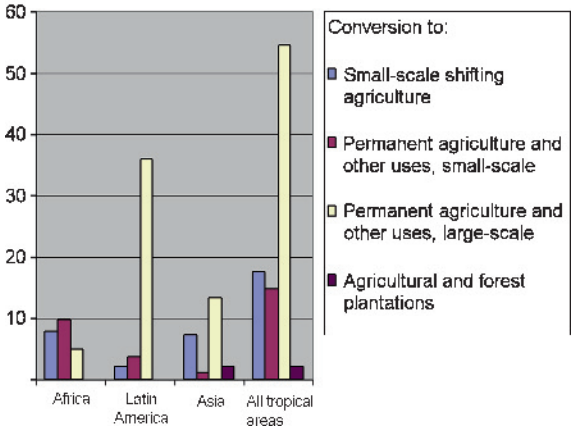
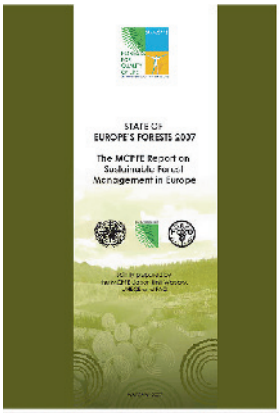
Color Plates



Chapter 2, Fig. 1 Forest area under community ownership or community administration worldwide, 1985–2015. Millions of hectares



Chapter 2, Fig. 2 Main causes of deforestation by world region, 1990–2000. Millions of hectares



The report "State of Europe's Forests 2007" is available as a pdf file in the Internet

(http://mcpfe.org/publications/pdf)

or can be obtained via the MCPFE Liaison Unit Warsaw

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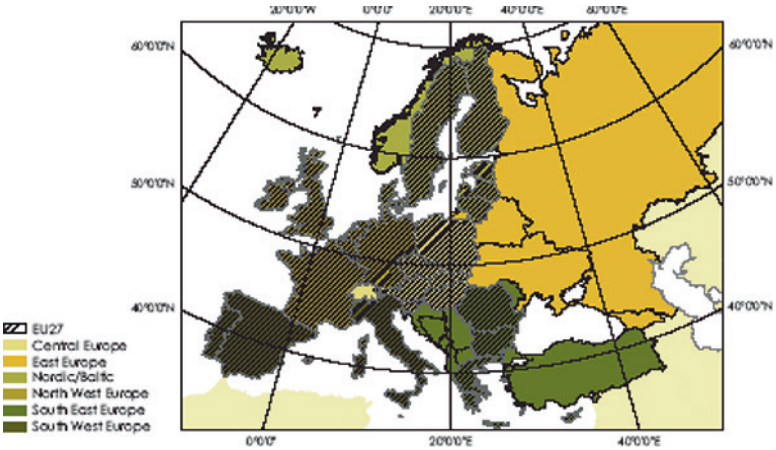
Chapter 4, Fig. 1 Forest distribution within the MCPFE member states



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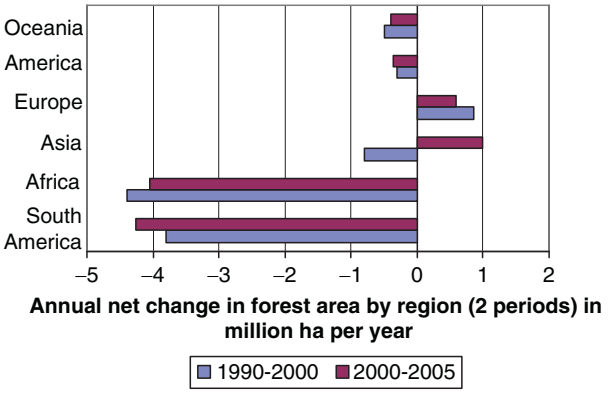
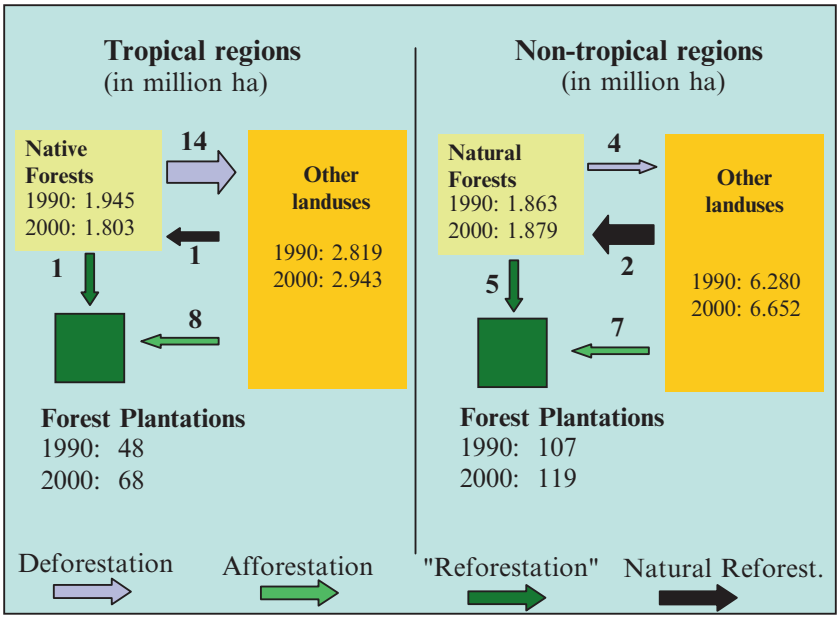
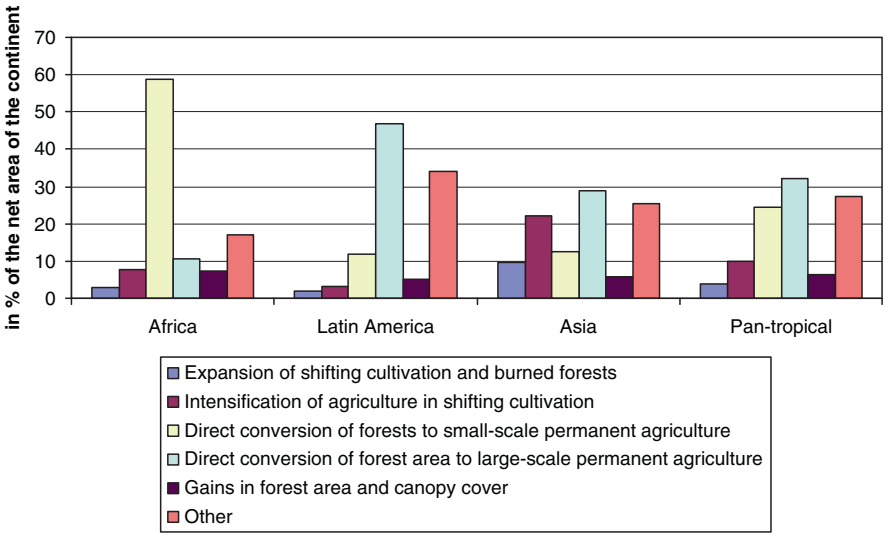


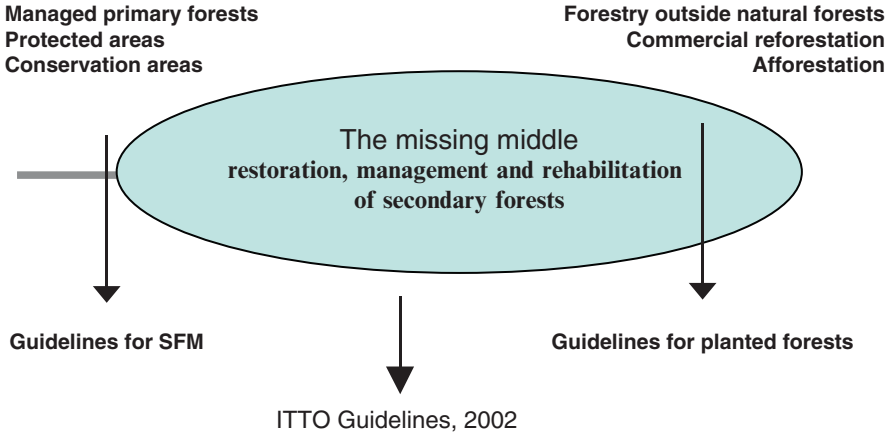
Chapter 5, Fig 1 Annual net change in forest area by region (2 periods:1990–2000 and 2000–2005). Source: FAO Forest Resource Assessment 2005



Chapter 5, Fig. 2 Balance between loss of native forests, forest plantations and other land-uses. Source: Global Forest Ressource Assessment 2000 (FAO)



Chapter 5, Fig. 3 Changes in forest area into other land-use forms by continent (FAO 2000)



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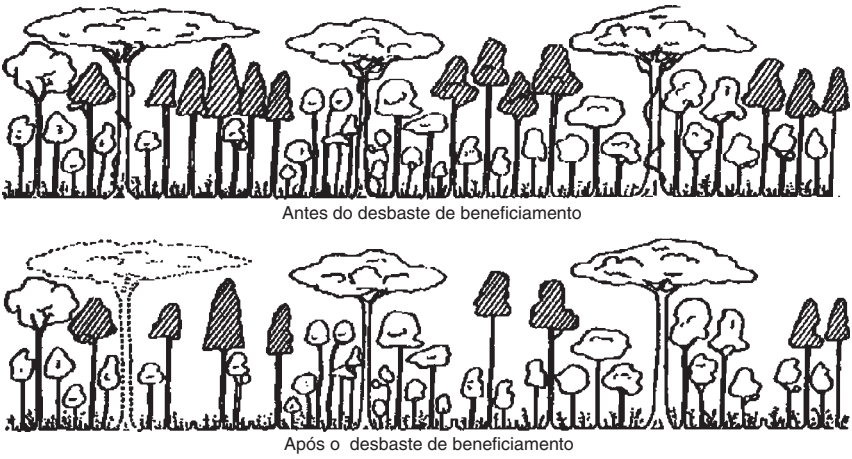

Quadro 26: Esquema dos desbastes de beneficiamento num florestamento secundário jovem com elevada porcentagem de Okoumé (DAT < 20 cm). Extraído de CATINOT (1965)

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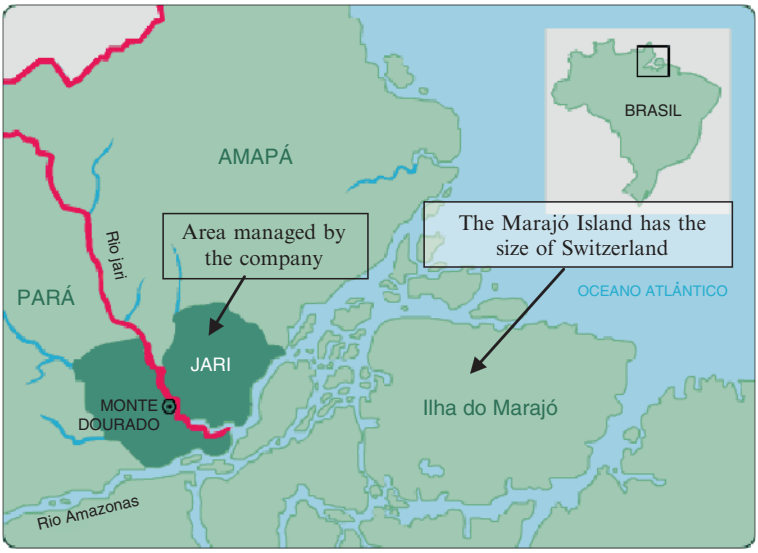

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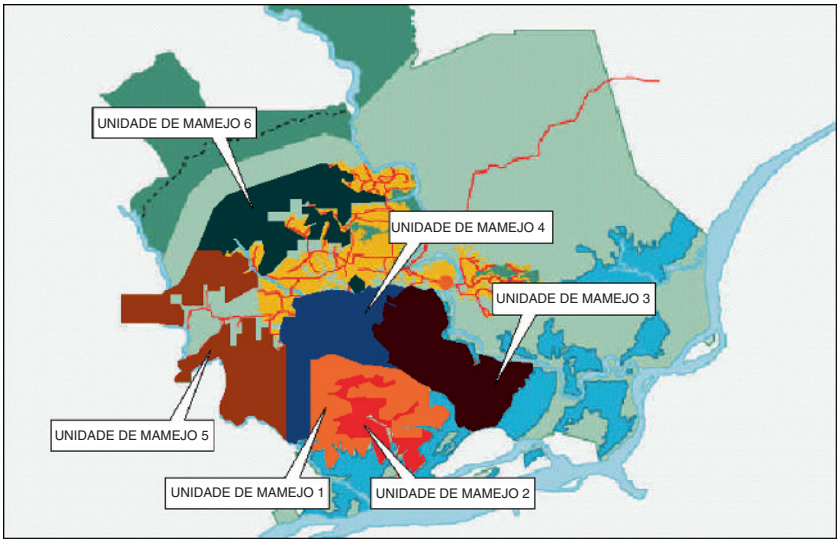
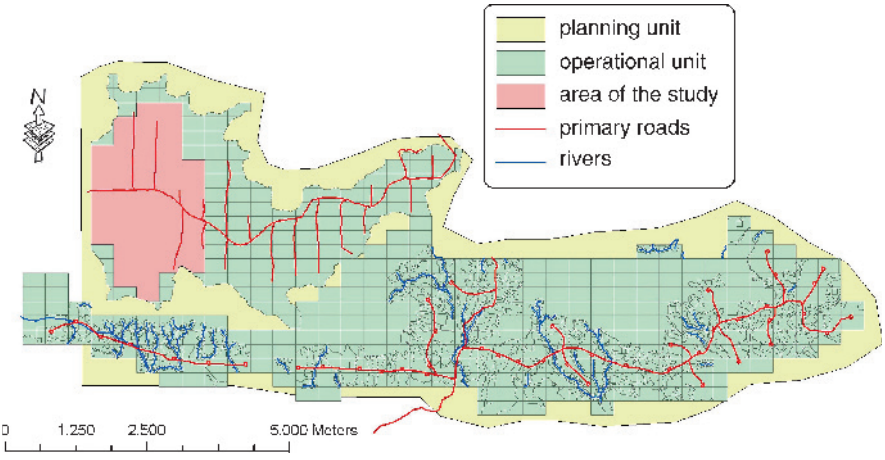


Chapter 5, Fig. 8 Management and harvesting units of ORSA Florestal



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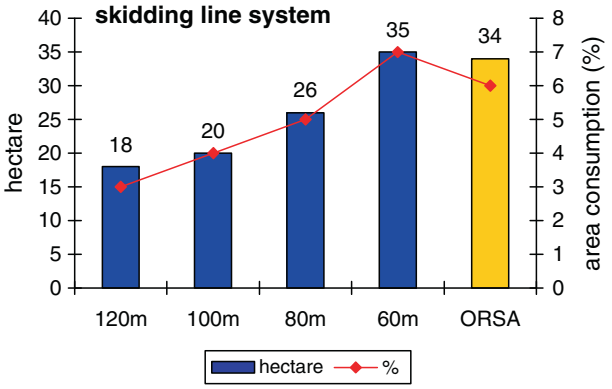
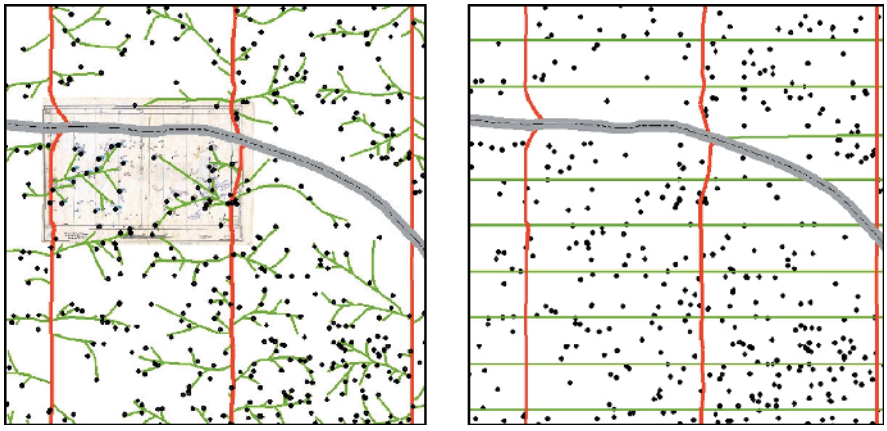
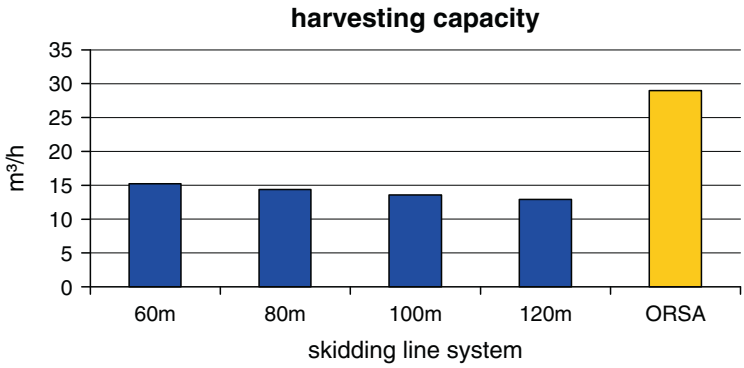


Chapter 5, Fig. 14 Area consumption (absolute and relative), depending on the skidding-line system (systematic or direct to the tree). The absolute values refer to the total study area of 530 ha



Chapter 5, Fig. 15 Illustration of the two different skidding line systems



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Chapter 8, Fig. 3 Windthrow-affected Norway spruce trees near kulla (southern Sweden) after the storm "Gudrun" in January 2005 (Photo: Magnus Löf)

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Chapter 8, Fig. 7 Western Red Cedar (*Thuja plicata*) on permanent observation plots in Brandenburg (Germany) (Photo: Peter Spathelf)