

**MUFOMA**



**MULTIFUNCTIONAL  
FOREST  
MANAGEMENT**

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# **New Paradigms in Management of Forests in Mountainous Regions**

# **Final Report**

to the Concerted Action “ Multifunctional Forest Management

- Evaluation of Policy and Silvicultural Means for Mountainous Regions”

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## 1 Introduction

The background to establishing the Concerted Action (CA) was the special situation of forestry in mountainous areas in Europe. Mountain forests are distinctive from forests in the lowlands with regard to their ecological and socio-economic implications (table 1). Mountainous forests differ specifically from forests at lower levels in site conditions, tree species composition, structures, and stand dynamics. They have a higher risk of damage by natural disturbances. Mountain forests are typically not only used for private goods like timber production but also serve for public purposes such as protection against natural hazards, biodiversity, carbon sequestration, recreation, etc. Furthermore, the improvement of their economic utilisation through higher mechanization is limited by steep slopes. Therefore, these forests require other management concepts than forests in lowlands.

Table 1: Differences between forestry in the mountains and the lowlands

Aspect	Mountain forests	Lowland forests
Slopes	Steep	None to moderate
Danger of - Erosion - Avalanches - Land slides	high high high	low no risk low
Importance for - Production - Protection - Tourism	moderate to low high high	high moderate low (in certain regions moderate)
Hemerobia	high	Moderate
Public interest for management	high	moderate to low
Opportunities for mechanisation	low	High

In addition, during the last decades mountain forestry has experienced a remarkable shift in the role forests are called to fulfil due to changing economic preconditions as well as societal demands:

- Changing preconditions: industrial development, lower profitability, climate-change, air pollution, browsing damage, technological progress, etc.
- Increasing demands: sustainability, protection, recreation, nature conservation, wilderness, active and passive climate-protection, protection against air pollution, water quality and supply, rural development, preservation of cultural landscape, biodiversity, CO<sub>2</sub>-sink
- Temporarily decreased demands: (relative to others): timber production

These changes are not only relevant at higher, e.g. European, national or regional level but also on stand level because they can directly influence management decisions in the stands. Thus the changes have an immediate effect on silvicultural measures and concepts.

One option to adapt to the above mentioned changes is seen in the orientation of management towards multiple uses. Consequently, existing silvicultural and policy concepts have to be reflected upon, considering these socio-economic changes, as well as the progress in technology and science. This reflection results in the call for a 'multifunctional forest management'.

Due to the slow natural processes and long production cycles in mountainous areas, the effects of silvicultural measures or political programmes can be recognized only after several years, sometimes decades. And they are very often modified by or adapted to local conditions. Therefore, the exchange of knowledge and experiences between different regions or countries is a valuable tool to save time in adapting existing concepts or development of new concepts as well as avoiding mistakes. The COST Action E3 „Forestry in the context of rural development“ based on a comprehensive assessment of goals, implementation, effects and outcomes of existing silvicultural and policy means, was an important step towards this objective (GLÜCK and WEBER 1998). However, the COST Action recognised a lack in knowledge, especially with regard to better tuning of silvicultural and policy means. To avoid distortions of competition at the markets all measures should be closely co-ordinated among the members of the European Union.

The present report provides an account of the results and issues raised within the Concerted Action 'MUFOMA'. For two years silvicultural and forest policy scientists from nine European countries with mountainous regions have been looking for links between silvicultural and forest policy aspects. Based on twelve concrete examples practiced in six different countries, their work draws attention to some of the central questions related to the efforts to improve multiple-use forestry in European mountainous areas. The examples visited were restricted to the Alpine region, though they may be quite equivalent to other mountain regions of Europe.

## 2 Objectives of the Concerted Action

The general aim of the Concerted Action was to provide an interdisciplinary expert assessment of mountain forest management at an European scale and to evaluate the policy and silvicultural approaches and experiences of different European countries.

More specifically, the objective was to improve the effectiveness and efficiency of silvicultural and forest policy means towards multifunctional forest management in mountainous areas by

- Exchanging knowledge and experiences
- Discussing the silvicultural techniques and policy means used in different countries
- Identifying and explaining the reasons for the success or failure of silvicultural or policy concepts
- Better linking silviculture and forest policy activities

## 3 Structure and method of the Concerted Action

### 3.1 Partners

The membership of the Concerted Action comprised of the complete Alpine region as well as other European countries with a significant share of mountainous forests. Austria, France, Germany, Italy, Slovenia, and Switzerland as host countries for the planned workshops with presentation of case studies were represented by the '*national teams*', comprising a silvicultural and a policy scientists each. Greece and Spain were represented by policy scientists and Norway by a silvicultural scientist. Due to the interdisciplinary character and the complexity of the topic the coordinator of the CA was scientifically supported by a 'responsible scientist' from each of the two disciplines. These three people acted as a 'steering committee' for the Action.

Because many problems of forestry in mountainous regions are caused by or linked with conflicting interests, the CA invited also *representatives of stakeholders* (private and communal forest owners, environmentalists, farmers, hunters, tourism industry, etc.) as well as the relevant *public authorities* (state forest service, state agricultural service, mayors). Therefore, the CA can claim a transdisciplinary character.