

Sustainable Forest Management in Germany: The Ecosystem Approach Reconsidered



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Introduction

Forest management in Germany

Almost one third of Germany is covered by forests. Although broadleaf trees would be a main feature of the natural vegetation, two thirds of the forested area are dominated by coniferous species due to management interventions.

An extensive system of legal provisions pertaining to the forest sector exists in Germany. All forest owners are under the obligation of "sustainable and proper management". Not only the economic utility of the forest, but also "the continuous functioning of the ecosystem" and conservational and recreational functions of the forests need to be taken into account.

The Ecosystem Approach

It has been increasingly recognized that biological diversity can be successfully conserved only if it is understood in the context of ecosystems, and if the multitude of its interactions with humans living in and subsisting on ecosystems is taken into account. Therefore, within the Convention on Biological Diversity (CBD), the ecosystem approach was adopted as the framework for delivering the objectives of the Convention in practice (UNEP/CBD/COP/5/23).

Conclusions

Is the current forest use in Germany compatible with the ecosystem approach?

- Our case study (Häusler & Scherer-Lorenzen, 2001) shows that, by and large, the principles of the ecosystem approach of the CBD are being taken into consideration in German forest management. However, there is certainly a need for further development in some fields.
- In this respect, the ecosystem approach in its current form may only serve as a superordinate framework for integrating the objectives of the Biodiversity Convention into forest management in Germany.
- Based on the concept of multifunctional forest use, the management systems in Germany need to take ecological and social criteria of sustainability more into account. This could be achieved through the introduction of certification measures or through further development of Forest Programmes on a national and federal state level.

Refining the ecosystem approach

- Our case study revealed that principles 5 and 6 are closely overlapping and thus could be combined into a single principle. The same applies to principles 7 and 8 as well as 11 and 12.
- The results suggest that wording of the ecosystem approach is not tangible enough for the promotion or assessment of specific activities to integrate biological diversity considerations into forestry. Therefore, we recommend that the ecosystem approach should be understood as a framework rather than a *modus operandi*. While it is certainly possible to successfully use the approach for integrating the objectives of the CBD into relevant policies, it may not be adequate as guidance for tangible projects due to its level of abstraction.
- Therefore, concrete guidelines, including, as appropriate, possible restrictions that are directed at specific ecosystems and forms of use should be elaborated and implemented.

Results of the case study

Principle 1: Societal choice of ecosystem management objectives	Principle 5: Conservation of ecosystem structure and functioning	Principle 9: Adaptive management to anticipate and cater for inevitable change
There are often rivaling interests and consequently conflicts over management objectives. The involvement of various stakeholders in the development of the National Forest Programme and certification activities may be feasible approaches to help solving such conflicts.	Germany's forest ecosystems are significantly altered by centuries-old human influence. Ecosystem structure is human induced e.g. through changes of species composition. Efforts are being taken to further convert coniferous monocultures into stands close to natural vegetation.	Forestry will have to deal intensively with adaptation to changing ecological conditions especially to man-made phenomena like climate change and atmospheric pollution that are largely beyond management at the local level. They need to be addressed at higher levels to arrive at strategies for their solution.
Principle 2: Decentralization of management to lowest appropriate level	Principle 6: Management within the limits of ecosystem functioning	Principle 10: Appropriate balance between conservation and use of biodiversity
Local forest authorities are in charge of all management activities. Depending on the management decisions to be taken (e.g. concerning national or international obligations) centralized and decentralized approaches should ideally coexist or be interlinked.	Four main concepts of sustainable forest management have been developed and partly implemented in Germany by different stakeholders. Although using different wording they actually imply a management within the limits of ecosystem functioning. Nevertheless, there is a need to further specify them.	The concept of multifunctional forest use, which gives equal importance to conservation and use, may be difficult to implement since 90 % of proceeds from forests come from timber sales. Therefore, a system of remuneration of ecological services, in particular in private forests, should be developed without delay.
Principle 3: Consideration of management effects on other ecosystems	Principle 7: Choice of appropriate spatial and temporal scales	Principle 11: Consideration of all forms of relevant information, knowledge, innovations and practices
Although functional interactions of ecosystems are comparatively well known in Central Europe, there is a need for further research. With the mapping of forest biotopes in Germany, a first step has been taken towards avoiding negative effects on special biotopes within forest stands.	Management at the appropriate spatial scale will be difficult to achieve because of an ownership structure of extremely diverse size. In Central European forests the plot size for management interventions would ideally be the size reflecting the natural mosaic of stages in vegetation successions.	Forest management in Germany is based on a long tradition of experience, traditional knowledge, and research. Nevertheless, communication as a part of know-how transfer need to be improved. More effort should be made to develop and promote intersectoral and multidisciplinary research projects.
Principle 4: Reduction of market distortions, alignment of incentives, internalisation of costs and benefits	Principle 8: Long term ecosystem management objectives	Principle 12: Involvement of all relevant sectors of society and scientific disciplines
Forest development programmes with an unfavourable impact on forest biodiversity have been revised. While there are promising efforts for the reduction of market distortions and the creation of positive incentives, there is still a need to better internalise costs and benefits in the given ecosystem.	Since the natural life cycle in forest ecosystems covers several centuries, forest owners are unable to earn profit in various developmental stages of the forest. As a consequence certain phases are deliberately shortened or eliminated. Legal obligations for rapid reforestation should be amended.	Stakeholder participation has been fairly successful on a national and federal level whereas on a local level it may be rated as rather poor due to the prevailing ownership structure. The development of certification schemes and the National Forest Programme successfully broadened the societal dialogue.

Acknowledgement

This study was supported by the German Federal Agency for Nature Conservation (BfN) with funds of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.



References

Häusler, A., and Scherer-Lorenzen, M. (2001). *Sustainable Forest Management in Germany: The Ecosystem Approach of the Biodiversity Convention Reconsidered*. BfN-Skripten, Bonn.