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(editors)**

# **The Question of Conversion of Coniferous Forests**

**Abstracts of the International Conference  
27 September – 02 October 2003  
Freiburg im Breisgau, Germany**

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## PREFACE

For centuries, forests worldwide were and still are affected by forest devastation and soil degradation. Applying great efforts to eliminate severe wood shortage and to provide other services expected from forests, countermeasures - such as regenerating and tending productive forests - were taken. These efforts favoured tree species that are both easy to regenerate and to manage and promised high volume growth. The area of these secondary - mostly coniferous - forests was expanded far beyond the limits of the potential natural range of the species. High growth rates and an increasing growing stock, as is observed in many European countries, indicate that at least some of the above goals have been achieved.

This development has often been accompanied by a shift towards tree species, which are not site-adapted and increase the risk related to storm, snow, ice, droughts, insects, fungi and fire. Some of these hazards are further intensified by the increasing tree age and - in some areas - by air pollution. With growing insight into sustainability, protective, environmental, social and cultural forest functions have gained importance while the focus on the commodity function of forests has decreased. Changing social demands require a widened scope of forest management. Societies of our current day and age wish to see sustainable forestry emphasizing biodiversity and close-to-nature forest management in order to reduce ecological risks.

This volume of the series „Freiburger Forstliche Forschung“ contains the abstracts of more than 40 contributions to the international conference entitled “The Question of Conversion of Coniferous Forests”, taking place in Freiburg (Germany) from 27 September to 02 October 2003. The conference has been organised by the Regional Project Centre “CONFOREST” constituted under the auspices of the European Forest Institute (EFI). The three IUFRO units “1.14.00 Unevenaged silviculture”, “1.17.02 Temperate and boreal forest restoration” and “4.04.09 Scenarios for transformation forest management” as well as EFI function as co-organizers of this event. The local hosts are the Institute for Forest Growth of Albert-Ludwigs-University Freiburg (IWW) and the Forest Research Institute of Baden-Württemberg (FVA).

The abstracts compiled in the present publication include keynote speeches, oral presentations and poster presentations. They represent a condensed overview of the topics covered by the conference. More detailed information regarding the results of the conference and the scientific activities conducted by RPC-CONFOREST will shortly be available in the book “Norway Spruce Conversion - Options and Consequences” published by Brill Academic Publishers (Leiden, Boston).

As the organisers of this event, we are pleased to welcome more than 70 participants at the conference, among them many renowned scientists representing numerous scientific disciplines. We think that the topic of the conference, one of the key issues of contemporary European forestry, has generated this high interest in the conference, which is equally a success of the idea of international cooperation stimulated by IUFRO. The conference also underlines that EFI's Regional Project Centres provide an excellent platform for international research by pooling expertise and research capacities from various disciplines as well as by involving stake holders, who are expected to benefit from the research results.

Freiburg, September 2003

Jörg Hansen  
Heinrich Spiecker  
Konstantin von Teuffel





## CONFERENCE ORGANISATION AND PROGRAMM

# International Conference The Question of CONversion of Coniferous FORESTS

## - CONFOREST -

**27 September – 02 October 2003  
Freiburg im Breisgau, Germany**

### **Organisers:**

RPC-CONFOREST - Regional Project Centre of the European Forest Institute  
“The question of conversion of pure secondary Norway spruce forests on sites naturally dominated by broadleaves for sustainable fulfilment of society’s needs”

### **Co-organized by:**

European Forest Institute, EFI Headquarters

### **IUFRO Units:**

1.14.00: Uneven aged silviculture  
1.17.02: Temperate and boreal forest restoration  
4.04.09: Scenarios for transformation forest management

### **Local organisers:**

Institute for Forest Growth (IWW), Faculty of Forest and Environmental Sciences  
Albert-Ludwigs-University Freiburg

Forest Research Institute of Baden-Württemberg (FVA)

### **BACKGROUND**

Until the end of the 19th century many European forests were characterised by devastation and soil deterioration which caused fears of timber shortage. In order to counteract shortage in supply, many forest areas were reforested with coniferous trees. Consequently, even-aged coniferous forests were established on many sites naturally dominated by broadleaves. As a result, damages caused by storm, snow, ice, drought, insects, fungi and possibly soil degradation seem to occur more frequently in these secondary coniferous forests than in forests composed by site adapted species. Conversion or restoration of coniferous stands may reduce these risks and upgrade biodiversity and the genetic potential of forests. As the future wood markets, economic results of forestry, and various other goods and services, which forest ecosystems provide to society, are affected by present and future decision making all aspects of conversion must be well understood.

**The AIMS of the conference were to**

- present the current results and generate an active discussion of the *status quo* and future
- explore links between researchers and disciplines in the field of conversion
- encourage dialogue and cooperation

**KEYNOTES**

Renowned forest researchers presented reviews of key research topics in the field of conversion of coniferous forests, regarding forest restoration as well as continuous cover forestry.

**SCIENTIFIC BOARD**

Jörg Hansen (Germany),  
Hubert Hasenauer (Austria),  
Elisabeth Johann (Austria),  
Emil Klimo (Czech Republic),  
Jiri Kulhavy (Czech Republic),  
Burghard von Lüpke (Germany),  
Bernhard Möhring (Germany),  
Tomas Nordfjell (Sweden),  
Arne Pommerening (United Kingdom),  
Jens Peter Skovsgaard (Denmark),  
John Stanturf (United States of America)  
Heinrich Spiecker (Germany),  
Hubert Sterba (Austria),  
Konstantin von Teuffel (Germany),  
Karl-Reinhard Volz (Germany)

**WHO SHOULD ATTEND**

- Scientists, forest researchers
- Forest managers
- Representatives of NGOs
- Forest policy advisors

**LANGUAGE OF THE EVENT**

The conference was held in English.

**PAPERS and POSTERS**

There was a possibility to give oral presentations or posters on on-going research and the results. Interested participants were asked to submit an abstract consisting of up to 500 words. The scientific board of the conference selected papers and posters based on the abstracts provided. The abstracts of the accepted papers and posters are published in the present issue of "Freiburger Forstliche Forschung: Berichte".

## CONFERENCE PROGRAMME

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### Saturday, 27 September 2003

**Venue:** “Gerichtslaube”, “Rathausplatz / Turmstrasse”

18:00 - 19:15 Registration  
 19:30 - Welcome by the city of Freiburg: city representative W. Krögner  
 Icebreaker

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### Sunday, 28 September 2003

#### Field trip to the State Forest District Todtmoos (Black Forest)

Meeting point for departure:

08:30 “Karlsplatz”

Envisaged return: approx. 18:00

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### Monday, 29 September 2003

**Venue:** Haus „Zur Lieben Hand”, „Löwenstrasse 16”

08:00 - 09:00 Registration continued

#### Introductory Session

09:00 - 09:30 Chairman of the RPC-CONFOREST: H. Spiecker

09:30 - 09:40 Dean of the Faculty of Forestry and Environmental Sciences: K.-R. Volz

09:40 - 09:50 Representative of the Ministry for Nutrition and Rural Affairs Baden-Württemberg,  
 Head of the Department “Silviculture and Forest Management Planning”:  
 Ministerialrat Freiherr H. von Gilsa

09:50 - 10:10 Representative of IUFRO, Coordinator of IUFRO group 1.17.02 - Temperate and  
 boreal forest restoration: J. Stanturf

10:10 - 10:30 Director of the European Forest Institute (EFI):  
 R. Päivinen: The concept of EFI Project Centres

10:30 - 11:00 Coffee break

#### Review and results by the specialised RPC-CONFOREST groups

**Moderator: Jens Peter Skovsgaard**

11:00 - 11:30 **H. Hasenauer, Vienna, Austria:** Terms and definitions relevant for conversion

11:30 - 12:00 **K. von Teuffel, Freiburg, Germany:** Present distribution of secondary Norway spruce  
 in Europe

12:00 - 13:30 Lunch

**Moderator: Emil Klimo**

- 13:30 - 14:00 **E. Johann, Vienna, Austria:** History of secondary spruce forests in Europe  
 14:00 - 14:30 **B. Möhring, Göttingen, Germany:** Economic evaluation of conversion projects  
 14:30 - 15:00 **U. Schraml, Freiburg, Germany:** Conversion of coniferous forests in a social perspective  
 15:00 - 15:30 **J. Kulhavy, Brno, Czech Republic:** Ecological consequences of conversion  
 15:30 - 16:00 Coffee break

**Moderator: Heinrich Spiecker**

- 16:00 - 16:30 **B. von Lüpke, Göttingen, Germany:** Silvicultural strategies for conversion  
 16:30 - 17:00 **T. Nordfjell, Hørsholm, Denmark & Umeå, Sweden:** Operational factors influencing the efficiency in conversion  
 17:00 - 17:30 **H. Sterba, Vienna, Austria:** Conclusions – Lessons learnt  
 19:30 Joint dinner at Forest Research Institute of Baden-Württemberg, “Wonnhaldestraße 4”

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## Tuesday, 30 September 2003

**Venue: “Herderbau”, “Tennenbacher Strasse 4”**

**Parallel Sessions:****Session A - Conversion strategies and impact**

Room code: ÜR 1 (first floor)

**Moderator: Jaroslav Jankovic**

- 08:30 - 09:00 **Key-note: W.L. Mason & J. W. Humphrey, Roslin, Scotland, UK:**  
 Silvicultural strategies for developing old growth structures in conifer plantations with particular reference to oceanic climates  
 09:00 - 09:30 **J. Stanturf & P. Madsen, Athens, GA, USA & Vejle, Denmark:** It's not just semantics: Why clear communication matters  
 09:30 - 10:00 **N. Nadezdina, J. Gasparek, V. Nadezhdin & J. Cermak, Brno, Czech Republic:**  
 Sap flow dynamics in terms of competition between overstorey spruce and understorey beech in southern Moravia  
 10:00 - 10:30 Coffee break  
 10:30 - 11:00 **T.W. Berger, Vienna, Austria:** Impact of species composition on forest soil properties and nutrient fluxes of secondary pure spruce and mixed spruce-beech stands  
 11:00 - 11:30 **W. Weis, Freising, Germany:** Impact of selective cutting and clear cutting on seepage water quality  
 11:30 - 12:00 **B.U. Schneider, O. Bens, B. Münzenberger, A. Rumpelt, R. Rumberger, & R.F. Hüttl, Cottbus & Müncheberg, Germany:** Root growth and mycorrhizal diversity in monocultural and mixed Scots pine and beech ecosystems of the German Northeastern Lowlands

**Session B - Conversion aspects: biodiversity, economics, politics**

Room code: ÜR 2 (first floor)

**Moderator: Arne Pommerening**

- 08:30 - 09:00 **Key-note: R.D. Nyland, Syracuse, NY, USA:** The serious task of conversion – changing conifer plantations to natural stands

- 09:00 - 09:30 **K. Engel & U. Ammer, Freising, Germany:** The development of arthropods during and after conversion of pure spruce stands into mixed forests
- 09:30 - 10:00 **S. Gärtner, Freiburg, Germany:** The effects of forest conversion on ground vegetation in the Southern Black Forest
- 10:00 - 10:30 Coffee break
- 10:30 - 11:00 **O. Fiskesjö, Ljungbyhed, Sweden:** Restoration of deciduous forest in Söderåsen National Park, Sweden, as a LIFE-Nature project
- 11:00 - 11:30 **M. Skorupski, Poznan, Poland:** Influence of conversion of pine forests on soil mites fauna (*Acari, Mesostigmata*)
- 11:30 - 12:00 **C. Fürst & H. Herling, Dresden & München, Germany:** Aspects of conversion out of the view of private forest enterprises – a modelling, economic and political approach
- 12:00 - 13:30 Lunch
- 13:30 - 14:30 Poster presentations
- 14:30 - 16:30 Poster exhibition continued and discussion corners at various locations in the “Herderbau”:
1. Environmental Services
  2. Silvicultural Strategies for Conversion
  3. Criteria and Priorities for Conversion
- 16:30 – 18:00 Guided Tour of Freiburg City
- Room code: ÜR 1 (first floor)
- 16:30 - 18:00 Side meeting of the RPC-CONFOREST: Future perspectives

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### Wednesday, 01 October 2003

**Venue: “Herderbau”, „Tennenbacher Strasse 4“,**

#### **Parallel Sessions:**

##### **Session C – Case studies**

Room code: ÜR 1 (first floor)

**Moderator: Bill Mason**

- 08:30 - 09:00 **Key-note: K.W. Outcalt, Athens, GA, USA:** Conversion of loblolly pine back to native longleaf in the southern USA
- 09:00 - 09:30 **J. Szwagrzyk, Krakow, Poland:** Dynamic tendencies of conifers and hardwoods in natural and managed forests of the East-Central Europe
- 09:30 - 10:00 **R. Mis & G. Raczka, Poznan & Brzeg, Poland:** Conversion of lowland forests in Poland
- 10:00 - 10:30 Coffee break
- 10:30 - 11:00 **C. Dai, Freiburg, Germany:** What will be the future of China’s forest plantations ?

- 11:00 - 11:30 **M. Krstic, V. Lavadinovic & V. Lazarev, Belgrade, Serbia - Montenegro:** Moesian beech (*Fagus moesiaca* Domin, Maly/Czeczott), a significant genetic resource for the conversion of coniferous forests in Serbia
- 11:30 - 12:00 **A. Brunner & J.P. Skovsgaard, Hørsholm, Denmark:** Conversion of pure, even-aged Norway spruce plantations to mixed forests on former Atlantic heathland in Denmark

#### Session D – Conversion tools and indicators

Room code: ÜR 2 (first floor)

**Moderator: Hubert Hasenauer**

- 08:30 - 09:00 **Key-note: S. Valkonen, Vantaa, Finland:** Successful conversion strategies in the boreal forests of Northern Europe: retention, admixtures, and overstories in young stands
- 09:00 - 09:30 **V. Kint, Ghent, Belgium:** Conversion of ageing Scots pine (*Pinus sylvestris* L.) forests in Western Europe based on natural vegetation dynamics
- 09:30 - 10:00 **S. Niemtur & J. Wawrzoniak, Krakow, Poland:** Age of spruce needles as an indicator of vitality in conversion of spruce stands in Poland
- 10:00 - 10:30 Coffee break
- 10:30 - 11:00 **H. Vacik, M.J. Lexer, D. Palmetzhofer & G. Oitzinger, Vienna, Austria:** DSD – a computer based decision support tool for the evaluation of silvicultural treatment alternatives for secondary Scots pine (*Pinus sylvestris*) forests
- 11:00 - 11:30 **P. Strzelinski, Poznan, Poland:** The methodical aspects of researching the model for managed forests
- 11:30 - 12:00 **O. Griess, Raaba, Austria:** The Sustainability Coefficient (SC) - a tool to control sustainability
- 12:00 - 13:30 Lunch

Room code: ÜR 1 (first floor)

- 13:30 – 15:00 **Plenary Session: Conclusions, Joint Conference Review - What lies ahead?**  
Results and conclusions compiled from the discussion corners  
Results of the side meeting of the RPC-CONFOREST, summary, outlook and closing of the conference by the Chairman of the RPC- CONFOREST (H. Spiecker)
- 19:30 Farewell party at the Institute for Forest Growth

#### Thursday, 02 October 2003

##### Field trip to the State Forest District Wolfach (Black Forest)

Meeting point for departure:

08:30 "Karlsplatz"

Envisaged return: approx. 18:00

