

Forest Management Network

Summary of the first meeting

Lambrecht (Pfalz), Germany, 3-5 November 2005



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Summary of the meeting

Opening of the meeting

S. de Vries opened the first meeting of the new EUFORGEN Forest Management Network as an invited chairperson for the first day. W. Maurer welcomed the participants from 22 countries to Lambrecht (Pfalz) on behalf of the Research Institute for Forest Ecology and Forestry of Rheinland-Palatinate. He also provided a short introduction to Rheinland-Palatinate and its forests.

S. de Vries introduced the agenda of the meeting which was then adopted. The meeting had two objectives; to discuss the conservation and use of forest genetic resources as part of forest management and biodiversity conservation, and to develop of a workplan for the new Network. It was noted that selection of Chair and Vice-Chair for this Network was postponed to the second day so that the participants would have more time to get to know each other. M.H. Almeida and R. Bruchánik were selected as rapporteurs for the first day and K. Cox and K. Celič for the second day. All participants introduced themselves and shortly informed others on their national responsibilities in the area of forest management and gene conservation.

Introduction to EUFORGEN Phase III (2005-2009)

J. Koskela welcomed the participants to the meeting on behalf of the EUFORGEN Secretariat. He then provided the participants with an overview to the history, background and outputs of EUFORGEN during Phase I (1995-1999) and Phase II (2000-2004). He continued by highlighting the objectives of Phase III and presented the new Network structure of the Programme.

So far, 24 countries have officially signed the agreement to join Phase III and in several other countries the official process is underway. New member countries include Georgia, Moldova and Romania. The membership discussions are also in an advanced stage with Greece and the Russian Federation.

EUFORGEN continues as an implementation mechanism for the relevant resolutions of the Ministerial Conference on the Protection of Forests in Europe (MCPFE). Its overall goal is to promote conservation and sustainable use of forest genetic resources in Europe. The objectives for Phase III are as follows: 1) promote practical implementation of gene conservation and appropriate use of genetic resources as an integral part of sustainable forest management, 2) facilitate further development of methods to conserve genetic diversity of European forests, and 3) collate and disseminate reliable information on forest genetic resources in Europe.

In addition to the new thematic Forest Management Network, EUFORGEN now has three species-oriented Networks, namely Conifers, Scattered

Broadleaves and Stand-forming Broadleaves. The major activity of the species-oriented Networks is development of so called 'common action plans'. These are essentially pan-European gene conservation strategies for selected tree species based on the dynamic gene conservation approach, i.e. maintaining genetic processes that shape gene pools and ensure continuous adaptation of tree populations to changing environmental conditions.

The Forest Management Network was established in Phase III to promote integration of gene conservation and sustainable forest management. Furthermore, there is an Information Working Group which will facilitate inter-Network collaboration through specific task forces on certain topics.

Plenary discussion on forest management and FGR conservation

The participants shared information on how genetic aspects are taken into account in forest management efforts at national level. The discussions focused on different conditions and constraints in linking forest management and gene conservation efforts. Several comments highlighted that the value of gene conservation and genetic diversity for European forestry and society should be better acknowledged.

The estimation of this value was recognized as a complex subject due to the different conditions and approaches to be considered (economic or environmental issues). The discussion also raised the question of how to reach forest managers or land-owners to increase their awareness about the influence of forest management on forest genetic diversity. It was also pointed out that regulations and legislation focus more on the trade of forest reproductive material while they pay less attention to the appropriate use of these materials in afforestation and reforestation. It was recognized that clear guidelines and tools (e.g. number of mother trees for seed collection and silvicultural methods for tending) are still needed for the management of forest genetic resources as part of sustainable forest management.

Updates on relevant meetings, projects and other initiatives

Development of a European Information System on Forest Genetic Resources (EUFGIS)

J. Koskela informed the meeting about the submission of the EUFGIS project proposal to the first call for proposals under the Council Regulation No 870/2004 on genetic resources in agriculture. The first call was closed on 30 September 2005 and the second one is likely to be opened in spring 2006.

The EUFORGEN Secretariat, following the request from the EUFORGEN Steering Committee, developed the project proposal in collaboration with partners in six countries (Austria, Denmark, France, Slovakia, Slovenia and the United Kingdom). The proposed project aims at developing minimum

requirements for dynamic gene conservation units of forest trees and common information standards at pan-European level, and creating a web-based, permanent information system on national inventories on forest genetic resources in Europe. The role of the EUFORGEN Networks is to provide technical backup and contribute to the harmonization of minimum requirements for gene conservation units of different trees species and development of information standards for these units. Once established, the proposed information system would benefit all Networks in their further efforts to develop the common action plans.

If the proposal is accepted, all EUFORGEN member countries will be invited to participate in the project. The EUFORGEN National Coordinators will be asked to nominate a focal point for the project and to compile national data for the information system. The focal points will receive training on FGR documentation and inventories as part of the project.

IPGRI-IUFRO workshop on forest genetic diversity and climate change

J. Koskela announced the IPGRI-IUFRO workshop on forest genetic diversity and climate change as one of the actions of the MCPFE Work Programme to implement Vienna Resolution 5 (Climate change and sustainable forest management in Europe). The purpose of the workshop is to analyse the role of forest genetic diversity in mitigating the effects of climate change and maintaining sustainable forestry in Europe. It will also aim at providing recommendations to the MCPFE process based on current scientific knowledge on this topic.

IPGRI and IUFRO are finalizing arrangements for the workshop which will be held in Paris, France, on 15-16 March 2006 in collaboration with the French Ministry of Agriculture and Fisheries. FAO, the European Forest Institute (EFI) and several other international organizations have also indicated their interest to participate in the workshop.

The EUFORGEN Networks will have an opportunity to participate in the workshop as well. EUFORGEN will support four representatives from each Network and it was discussed who should represent the Forest Management Network in the workshop. Several participants (A. Alexandrov, K. Celič, J. Frydl, J. Hubert and M. Moise) expressed their interest to represent the Network. It was agreed that the Secretariat will make the final selection of the Network representatives when all other EUFORGEN Networks have also identified their potential representatives. The selected representatives should cover the geographical distribution of the EUFORGEN member countries. Those countries which are not likely to have other resources to send their participants should be favoured in the selection.

EVOLTREE project

J. Koskela presented the current state of the EVOLTREE project (EVOLution of TREEs as drivers of terrestrial biodiversity) which was accepted by the European Commission under the 6th framework programme for research in spring 2005. EVOLTREE is a consortium of 25 partner institutes from 15 European countries and it is coordinated by A. Kremer (INRA, France).

The main aim of the project is to support integration of work on forest genomics in Europe by developing common infrastructures and exchanging human resources. The project also includes jointly executed research activities and dissemination of research results and other relevant information. The research activities will focus on selected target genera of broadleaves (*Acer, Alnus, Betula, Carpinus, Corylus, Crataegus, Fagus, Fraxinus, Prunus, Salix, Sorbus, Tilia, Ulmus*) and conifers (*Picea, Abies, Larix*). In addition to trees, the scope of the project includes other species associated with forest trees (defoliating insects and mycorrhiza).

IPGRI is an EVOLTREE partner and is leading a dissemination work package as one of the activities to spread excellence and disseminate the project outputs. EVOLTREE will establish a stakeholder group to facilitate dissemination to, and interaction with, various stakeholders. Other dissemination efforts include development of communications products for public awareness purposes and scientific conferences targeted specifically to the scientific community. The EUFORGEN Networks, and the Forest Management Network in particular, will have a special role in the dissemination of the project outputs as well as providing inputs for the development of project activities.

The final negotiations between the project coordinator and the European Commission are underway and it is expected that the project will start on 1 March 2006 for a period of five years.

Development of a new workplan

J. Koskela presented the objectives of Phase III with activities proposed by the EUFORGEN Steering Committee (see Annex I). He then provided a short summary of the discussions and the workplans of the three species-oriented Networks which held their meetings earlier in 2005.

The participants discussed relevant issues to be included in the workplan of the Forest Management Network. The plenary discussions started in the afternoon of the first meeting day and continued in the afternoon of the second day after the seminar presentations. The outputs of these discussion and the activities the participants agreed to carry out under each objective are listed below.

Objective 1 (Promote practical implementation of gene conservation and appropriate use of genetic resources as an integral part of sustainable forest management):

The participants decided to focus initially on the activities 1, 2 and 6. The other activities were considered to be of low priority or were left to the species-oriented Networks.

For activity 2, the target group was identified as policy makers in the forestry and environmental sectors. Several issues or ideas were suggested during the brainstorming discussions for further steps: risk management (long-term value), intrinsic values, economic values, national forest programmes and policies, tools and procedures like legislation, policy tools, control of forest reproductive material, information and economic tools, rarity, problems and solutions. However, it was agreed to focus on the activities mentioned below.

A task force was setup to develop a survey of relevant policies and practices (national forest programmes (NFPs) etc.) (**T. Eysteinsson**, M. Peltonen, N. Foley and M. Moise). The questions for the survey should be drafted **by 30 November 2005**. They will be then circulated for all participants for feedback and there will be time to provide comments **until 31 January 2006**. The Secretariat will assist the task force in carrying out the survey online which should be done **by 30 April 2006**. The task force will then analyse the results of the survey and provide a summary during the next meeting of the Network.

For activity 6, the target group was identified as forest managers. It was decided to collect information on 'worst practices' to assess whether systematic failures are taking place in forest management from the genetic point of view.

A task force will develop a list of relevant management/silvicultural practices including those which deal with forests under transformation (e.g. the shift from clear cuts to close-to-nature forestry) (**P. Elsasser**, B. Ditlevsen, R. Knol, V. Kundrotas and K. Celič) This effort will be also linked to the development of the survey questions (see above). The task force will then collect information on these management practices related problems as case studies and try to identify systematic failures. K. Celič will provide the list of the forest management practices **by 30 November 2005** to be included into the draft survey questions. All participants will have time to comment these **until 31 January 2006**. The task force will then compile a summary of the case studies before the next meeting.

In addition, it was decided to establish a discussion group to continue developing ideas on how to address the economic aspects of forest genetic resources as part of the Network activities (**B. Ditlevsen**, P. Elsasser and J. Hubert). This group will also present its outputs during the next meeting.

Objective 2 (Facilitate further development of methods to conserve genetic diversity of European forests):

The participants agreed that activities 4 and 6 are tasks for this new Network at this stage and that activity 6 could be considered at a later stage. The other activities can also be reconsidered then, if needed.

Activity 4 was considered to be all about raising awareness and giving advice. It was agreed that a task force will compile information on inappropriate use of forest reproductive material (**A. Valadon**, T. Eysteinsson, N. Foley, C. Jasser and M. H. Almeida). It was also suggested that photographs would be a useful tool to show negative consequences of using inappropriate forest reproductive material. The task force will outline the structure of the report **by 30 November 2005**. The participants should send relevant examples to A. Valadon **by 31 August 2006**. The task force will then make its outputs available before the next meeting.

Objective 3 (Collate and disseminate reliable information on forest genetic resources in Europe):

Only activities 1 and 3 were considered to be relevant for the Forest Management Network. It was agreed that the activities would be reviewed at future meetings.

It was decided to expand the existing survey on policy tools to promote the use of high quality forest reproductive material (reported by B. Ditlevsen during the seminar, see below) to all participating countries. Participants from the additional countries that did not contribute to the original survey should send the names and contact details of relevant persons in their countries to B. Ditlevsen **by 30 November 2005**. He will then circulate the same questionnaire to these additional countries and present the new results during the next meeting.

As an additional effort, it was recommended that all participants should provide relevant national news or updates (1-2 pages of text with a photograph), as needed, to the Secretariat to be published in the 'What's new' section of the EUFORGEN website. The Secretariat should remind the participants frequently and ask their inputs for this purpose.

The proposal of developing 'thematic guidelines' was also discussed and it was concluded that these could be developed at a later stage once the Forest Management Network has initiated its work and made more relevant information available. The Network also acknowledged the offer made by the species-oriented Networks to contribute to the development of these guidelines.

The development of EUFORGEN position papers was also discussed. It was agreed that such papers fit well into the scope of the Forest Management Network and that the Network could develop these in collaboration with the EUFORGEN Steering Committee, as needed.

Seminar on forest management and forest genetic resources

J. Hubert was invited to chair the second day which started with seminar presentations and then continued with the discussions on the workplan in the afternoon.

Genetic aspects in forest management with special focus on research activities in Germany (M. Konnert)

The presentation summarised the results of research on the genetic implications of various types of thinning and logging, natural and artificial regeneration, seed crop harvesting and seedling production in the nurseries. The results show that thinning of young stands causes only small changes in genetic diversity if the thinning intensity is low or moderate. However, the removal of inferior trees may have more profound genetic consequences if the inferior phenotype is based on a particular genotype. In older stands, the results are partially controversial but suggest that strong selective thinning, and target-diameter felling in particular, alter the genetic structure of a stand at several loci.

While comparing silver fir (*Abies alba*) forests managed according to unevenaged and even-aged systems, the results suggest that the uneven-aged system is advantageous to maintaining genetic diversity in small stands and/or with stands with a low density or proportion of silver fir. The even-aged system is a better option in larger stands, if the fir density proportion of fir is higher and if natural regeneration takes place in over time in small patches.

Comparison of genetic diversity between adult trees and naturally regenerated seedlings of silver fir, beech (*Fagus sylvatica*) and Douglas fir (*Pseudotsuga menziensii*) show little changes in genetic variation if only a few trees are removed at a time. When using artificial regeneration, seed harvest and the way it is carried out have a very significant impact on the genetic diversity of the seedling stock. Also grading of seedlings by height tends to narrow the genetic base of the planting stock. Seed treatments, seed stratification, growing conditions at a nursery and transplanting do not have considerable impact on the genetic diversity.

Genetic aspects in forest management – support from simulation models (B. Degen)

There are good reasons why simulation models are used in forest genetics; trees are slow growing and long living organisms. Thus simulation studies are useful to obtain short term results. For many questions experimental data are either missing or field and lab work alone cannot deal with the complexity

of forest ecosystems as simulation models can. Moreover, the work *"in silico"* does not modify the ecosystems and is less cost intensive.

Simulation studies done so far in forest genetics can be grouped into: (a) studies on the impact of post-glacial re-colonisation on genetic composition, (b) studies on adaptation of tree populations to climate conditions, (c) simulations on the interference of species diversity and genetic diversity within species, (d) simulations to optimise breeding strategies, (e) studies on small scale dynamics of single and combined processes, and (f) simulations on the impact of logging and forest fragmentation.

As an example, B. Degen presented results of a study done with the simulation model Eco-Gene to analyse the impact of seed harvesting on the genetic composition of the collected seeds. The study included sensitivity studies to estimate the relative importance of (a) the number of seed trees, (b) the flowering phenology, (c) the variation in fertilities, and (d) pollen dispersal.

This example demonstrated the potential of simulation studies to provide practical recommendations even for complex forest ecosystems. In the future close cooperation between field work (forest practice, demography, flowering phenology and fertilities), lab work (genotyping) and modelling is needed. B. Degen further suggested that more information is needed about natural variation in different processes such as pollen dispersal, seed dispersal and flowering. Most experimental and simulation studies are based on more or less neutral gene markers. Therefore, further research efforts need to include information on the dynamics of genes and alleles controlling adaptive and economically relevant traits.

Including conservation of forest genetic resources in forest management (A. Schneider)

A. Schneider provided an overview of how the conservation of forest genetic resources is incorporated into forest management in Germany. The forest management planning involves inventories, which are carried out once every 10 year, and subsequent stakeholder discussions on the different functions of forests. She emphasised that there are different phases in forest management planning (regeneration, stand tending and harvesting plans) during which genetic issues need be to taken into account. She concluded that the objectives of gene conservation should be included into the forest management strategies and that there are several possibilities to conserve forest genetic resources as part of forest management.

Need for action based on the concept of sustainable use of forest genetic resources $(W.D.\ Maurer)$

W.D. Maurer presented an overview to the forests of Rheinland-Palatinate and highlighted gene conservation efforts in the region. The Palatinate Forest is the largest continuous forest area in Germany (a total of 177,000 ha) with a mixed ownership structure (50% owned by communities, 26% by the state, 21% by private owners and 3% by the federal government). The forests are managed following the principles of close-to-nature silviculture and establishment of mixed stands is being promoted in mountainous areas in particular. Approved seed stands and seed orchards have also been established for many rare and endangered tree species. W.D. Maurer then provided information on how the *in situ* conservation stands of beech (*Fagus sylvatica*) and oaks (*Quercus robur* and *Q. petraea*) are managed and designated according to altitudinal gradient. He also stressed that indigenous woody scrub species should be considered as part of sustainable forest management and gene conservation efforts.

Promotion of high quality forest reproductive material (B. Ditlevsen)

B. Ditlevsen presented the background and some findings of a Nordic project which collected information on policy tools promoting the use of high quality forest reproductive material. He stressed that it is not always enough to make available high quality seeds and seedlings; it is also necessary to ensure that the tree planters are actually using the material. Furthermore, it is important to identify which factors influence the choice of seeds and planting material. Currently there is a common European market for forest reproductive material and differences in the prices of seeds and seedlings play a very important role in deciding what material will be used for establishing new forests. Unfortunately, there is close correlation between the price and genetic quality of forest reproductive material, i.e. cheap material is generally of inferior genetic quality.

Apart from identifying the main factors affecting the choice of planting material, the Nordic project also undertook a survey among 10 countries in northern Europe (Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, Norway, Sweden, UK) to identify which "tools" are being used to promote the use of high quality forest reproductive material. These tools included 1) state management, 2) support to research, tree improvement and seed orchards, 3) forest laws and decrees, 4) control of seed trade, 5) dissemination of information and 6) economic incentives (grants). Economic incentives in terms of grants are used in six countries while only three countries have included genetic requirements into their national forest laws. All 10 countries were disseminating information and supporting research and tree improvement activities but it can be questioned whether these kinds of 'tools' are strong enough to ensure that high quality material is actually being used.

Genetic aspects in the management of public forests in France (A. Valadon)

In France, there are 1.4 million ha of forest owned by the state and 2.2 million ha by the communes. Networks of *in situ* conservation units have mainly been established in the public forests and A. Valadon presented the current stage of these networks for several tree species. However, the gene conservation units represent only one part of the efforts to incorporate genetic aspects into forest management. Currently other activities are underway to evaluate genetic impacts of the existing silvicultural practices and to improve forest management techniques for better management of biodiversity, including genetic diversity. He then highlighted various efforts carried out in France to analyse the impact of artificial and natural regeneration on genetic diversity as part of the silvicultural cycle. He also mentioned that a critical analysis of various silvicultural methods is under preparation based on a literature review. The results will be used for revising various guidelines on the management of forest genetic resources in France.

Management of genetic resources in the state forests of the Slovak Republic (R. Bruchanik)

R. Bruchanik gave a presentation about gene conservation efforts in the Slovak Republic and how close-to-nature silviculture can support conservation of forest genetic diversity. There are 27,643 ha of approved seed stands, 151 ha of seed orchards and 21,900 ha of gene reserve forests in the country. Networks of gene reserves have been planned that should cover the whole area of the managed forests and all important forest tree species. The goal of the country is to manage 2,5 % of all forests as gene reserves. Currently there are 67 gene reserves ranging from 70 to 1 200 ha in size and another 13 gene reserves are being established with an additional area of 2 500 ha. The responsibility of reaching the goal has been given directly to foresters and between autumn 2005 and summer 2006, 80 foresters will receive specific training on the management of the gene reserves. From autumn 2006 onwards they should then start implementing new procedures and techniques as part of forest management.

Selection of Chair and Vice-Chair of the Network

The selection of Chair and Vice-Chair for the Forest Management Network was discussed. The meeting participants elected J. Hubert as Chair and B. Ditlevsen as Vice-Chair of the Network.

Any other business

P. Elsasser asked whether it would be possible to organise the next meeting of the Network during week days to avoid travelling during a weekend or at least so that the meeting would end on Saturday morning. The EUFORGEN meetings are usually organised from Thursday to Saturday evening with departures on Sunday morning to reduce the travelling costs. Many airlines provide a cheaper ticket if a travel includes Saturday night at a destination. J. Koskela informed the participants that the Secretariat will investigate the proposal made by P. Elsasser keeping in mind the meeting budget of Phase III.

Several participants pointed out that the presentations delivered during the meeting contain useful information. It was agreed that the Secretariat will prepare a CD-Rom including the presentations and mail a copy to each participants for their information.

Date and place of next meeting

The timing of the meetings of the Forest Management Network during Phase III was discussed. Considering the schedule of the activities included in the workplan, it was decided to organize the next meeting in November 2006.

M. Moise and V. Kundrotas tentatively offered to host the second meeting of the Network in Romania and Lithuania, respectively.

J. Hubert thanked M. Moise and V. Kundrotas for their offers on behalf of the Network. It was agreed that M. Moise and V. Kundrotas will inform the Secretariat one week after the meeting if their countries confirm the interest to host the next meeting. More detailed information on the meeting dates and the venue will be provided later.

Adoption of the meeting decisions

The meeting decisions were adopted and J. Hubert closed the meeting.

Annex I. EUFORGEN ob	jectives and Programme	activities during Phase III.

Objectives	Activities
Promote practical implementation of gene conservation and appropriate use of genetic resources as an integral part of sustainable forest management.	 Promote implementation of recommendations presented in the Technical Guidelines at national level, as needed or requested; Support integration of gene conservation and appropriate use of genetic resources into national forest programmes and policies; Collaborate with the MCPFE process and other relevant international, regional and national initiatives and processes; Provide advice to countries on issues related to forest genetic resources, if requested; Facilitate implementation of common action plans and use of best management practices; Develop protocols to evaluate genetic consequences of different management practices and identify genetically appropriate management practices in collaboration with forest managers and policy makers.
Facilitate further development of methods to conserve genetic diversity of European forests.	 Develop common action plans as part of pan-European gene conservation strategies; Develop common methods for genetic monitoring; Revise Technical Guidelines and develop new ones, as needed; Highlight negative consequences of the use of inappropriate forest reproductive material; Develop methods to promote genetically sustainable regeneration; Improve collaboration between nature conservation and gene conservation efforts in Europe; Facilitate the expansion of the Programme to recruit non- participating countries to cover the entire distribution ranges of European tree species.
Collate and disseminate reliable information on forest genetic resources in Europe.	 Increase awareness among policy makers, forestry professionals and the general public on the importance of forest genetic resources; Compile and make available geo-referenced data on gene conservation units in Europe; Develop EUFORGEN position papers (e.g. for the MCPFE process); Publish reports on the state of forest genetic resources in Europe and other relevant issues; Maintain the existing Web site and develop a new online information infrastructure, as needed; Facilitate exchange of information among countries.

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Annex I. EUFORGEN ob	jectives and Programme	activities during Phase III.

Objectives	Activities
Promote practical implementation of gene conservation and appropriate use of genetic resources as an integral part of sustainable forest management.	 Promote implementation of recommendations presented in the Technical Guidelines at national level, as needed or requested; Support integration of gene conservation and appropriate use of genetic resources into national forest programmes and policies; Collaborate with the MCPFE process and other relevant international, regional and national initiatives and processes; Provide advice to countries on issues related to forest genetic resources, if requested; Facilitate implementation of common action plans and use of best management practices; Develop protocols to evaluate genetic consequences of different management practices and identify genetically appropriate management practices in collaboration with forest managers and policy makers.
Facilitate further development of methods to conserve genetic diversity of European forests.	 Develop common action plans as part of pan-European gene conservation strategies; Develop common methods for genetic monitoring; Revise Technical Guidelines and develop new ones, as needed; Highlight negative consequences of the use of inappropriate forest reproductive material; Develop methods to promote genetically sustainable regeneration; Improve collaboration between nature conservation and gene conservation efforts in Europe; Facilitate the expansion of the Programme to recruit non- participating countries to cover the entire distribution ranges of European tree species.
Collate and disseminate reliable information on forest genetic resources in Europe.	 Increase awareness among policy makers, forestry professionals and the general public on the importance of forest genetic resources; Compile and make available geo-referenced data on gene conservation units in Europe; Develop EUFORGEN position papers (e.g. for the MCPFE process); Publish reports on the state of forest genetic resources in Europe and other relevant issues; Maintain the existing Web site and develop a new online information infrastructure, as needed; Facilitate exchange of information among countries.