Temperate Oaks and Beech Network

Summary of the fifth meeting

Zemplínska Šírava, Slovakia, 21-23 June 2003

European Forest Genetic Resources Programme (EUFORGEN)

EUFORGEN is
coordinated by
Bioversity International

5th EUFORGEN Temperate Oaks and Beech Network meeting, Zemplínska Šírava, Slovakia, 21-23 June 2003

Opening of the meeting

Network Chair and the local organiser, L. Paule opened the meeting and welcomed the participants to Zemplínska Šírava on behalf of the Forestry Faculty of the Technical University, Zvolen, Slovakia. He provided a short introduction to the history of the Faculty and the development of forestry education in Slovakia. The reason for organising the meeting in Zemplínska Šírava was that broadleaved species, especially oaks and beech, predominate in Eastern Slovakia. The climate in this area is influenced by the Great Hungarian Plain, which provides more favourable conditions for the growth of broadleaved species instead of conifers.

The tentative meeting agenda was adopted with minor changes. Vice-Chair of the Network, Ned Cundall was unable to participate at the meeting and S. de Vries was appointed as Vice-Chair for this meeting. The following persons were appointed as rapporteurs: G. von Wuehlisch, A. Ducousso and J. Fennessy.

EUFORGEN update

EUFORGEN Coordinator, J. Koskela provided an update to the recent developments of EUFORGEN. He also highlighted the outputs of the 4th Ministerial Conference on the Protection of Forests in Europe (MCPFE) held in Vienna, Austria at the end of April 2003. In its meeting in Sweden in 2002, the EUFORGEN Steering Committee created a Task Force to develop a strategy for the future work of EUFORGEN and this strategy was presented to the MCPFE process during the preparatory meetings. As a result, the Vienna Resolution V4 on Forest Biological Diversity now includes a reference to conservation of forest genetic resources as an integral part of sustainable forest management and continued pan-European collaboration in this area. The Network recommended that the EUFORGEN Secretariat develops closer collaboration with the MCPFE Liaison Unit to increase their awareness of the EUFORGEN achievements. The MCPFE Liaison Unit will move from Vienna to Warsaw by the end of 2003 as Poland takes the lead in the MCPFE process.

Country updates

Progress made in individual countries (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Hungary, Ireland, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland) was reported on by the representatives on their national programmes.

The country updates will be made available through the EUFORGEN web site and later included in the published meeting report. This report will include outputs of the 4th and 5th Temperate Oaks and Beech Network meetings. It was mentioned that the country updates presented in these two meetings could be merged into a single report covering a longer period of time. The participants agreed with this proposal. Network members were reminded to provide their merged country updates in electronic format to the Secretariat before **31 August 2003**.

Several common topics of interest were raised and discussed: (1) lack of detailed information on the movement and use of forest reproductive material, (2) the need to promote genetically sustainable forest management, (3) buffer zone management of *in situ* conservation stands and long-term monitoring of the genetic resources, (4) the need to provide practical training on genetic conservation for forest managers, (5) sub-regional gene conservation efforts, such as the Nordic Network for Forest Gene Conservation, to complement EUFORGEN, and (6) development of links to other forest initiatives (for example, continuous cover forestry promoted by Pro Silva).

Project updates

DYNABEECH

T. Geburek made a presentation on the DYNABEECH project which has an objective to assess the effects of forest management on the genetic diversity of beech. Five countries are involved in this project comprising three groups of collaborators - ecophysiologists, geneticists and modellers. The project has compared areas of virgin and managed forests in the participating countries to establish the management effects. Seventeen microsatellites have been developed in the framework of the project and some will be used for paternity analysis. The project will organise a conference in Vienna in 2004 to present the major results.

OAKFLOW

A. Ducousso reported on the progress of the EU-funded OAKFLOW (Intra & Interspecific Gene Flow in Oaks as Mechanisms Promoting Genetic Diversity and Adaptive Potential) project, which started in January 2000 and is of 48 months duration. The project coordinator is A. Kremer and the project comprises 14 partners and 10 sub-contractors from 10 countries.

The objectives are: (1) to trace and quantify gene flow and hybridisation in terms of distances and rates (workpackages 1 and 2), (2) to evaluate genetic and ecological consequences of gene flow and hybridisation on the adaptation of oak stands (workpackages 3 and 4), (3) to evaluate impacts of gene flow on management rules and silvicultural regimes applied in the management of oak stands (workpackage 5).

Long-distance gene flow in Q. robur *in Spain*

P. Goicoechea presented the results of a study on long distance gene flow in fragmented woodlands in Spain. The study focuses on pedunculate oak around Vitoria-Gasteiz area where agricultural clearing has significantly reduced the size of oak stands and increased fragmentation. The results indicate that pollen dispersal can extend 10-12 km in these open landscapes.

New proposals and opportunities

EVOLTREE

A. Ducousso introduced the EVOLTREE proposal (EVOLution and Management of Diversity in European Forest TREEs). This project proposal is to create a Network of

Excellence (NoE) in the 6th EC Framework Programme. This five-year project involves 14 countries, 32 partners, 37 laboratories and 204 researchers. The coordinator is A. Kremer at INRA, France. EVOLTREE aims to apply genomics to understand the past, present and future genetic diversity of forest trees. The objectives of EVOLTREE are:

1. "To integrate complementary disciplines in the field of forest genetics and genomics
2. To reduce the fragmentation of European research
3. To create a European platform in population genomics of forest trees
4. To spread a high-level excellence in forest biodiversity".

There are 14 work packages:

WP 1: creation of a virtual genomic laboratory
WP 2: integration of infrastructure
WP 3: integration of bioinformatic resources and tools
WP 4: consolidation of EVOLTREE organisation and knowledge
WP 5: functional and population genomics
WP 6: evolution of diversity
WP 7: genomic tools in forest management
WP 8: training and education activities
WP 9: dissemination of results
WP 10: technology transfer to industry
WP 11: international cooperation
WP 12: strategic management
WP 13: integrative management
WP 14: activity management

The final response to the EVOLTREE proposal is expected from the EC by 10th July 2003. IPGRI is involved as a partner in Work Packages 9 and 11 responsible for dissemination of results through the EUFORGEN Networks.

A. Ducousso also highlighted the forthcoming joint meeting of IUFRO Working Groups on Genetics of *Quercus* and Improvement and Silviculture of Oaks – "OAK 2003 Japan", to be held between 29 September–3 October 2003 (www.ffpri.affrc.go.jp/symposium/oak2003j/).

Planned proposal for EU-funded COST Action

G. von Wuehlisch provided information on a proposal he submitted under the COST Programme on international beech (*Fagus sylvatica*) provenance trials, established in 1995 and 1998, which are to be evaluated jointly for the first time. The provenance trials include a collection of more than 200 provenances covering the species natural distribution range. Field trials are located in 21 countries.

The COST evaluators considered the proposal to be worth funding after some revision. The criticism of the proposal was mainly related to the nature of the provenance trials and lacking of innovativeness. To be successful, the proposal needs to incorporate additional scientific areas, such as the effects of climate

change. The participants suggested development of a database for modellers who analyse effects of climate change. The participants were invited to provide additional ideas for further improvement of the proposal by the **end of July 2003**.

New EC Regulations on Genetic Resources in Agriculture

J. Koskela and L. Ackzell reported on the development of new EC Regulations on Genetic Resources in Agriculture. The EC is currently working on a revision of Regulation 1467 from 1994. The former Regulation financed one forest project for elm conservation.

The draft proposal was presented and discussed during two meetings held in Brussels in early 2003. The focus of the new proposal is on animal gene conservation and the budget is € 7-10 million for a period of three years. The scope of the Regulation includes animal, crop, microbial and forest genetic resources with the focus on conservation, characterization, collection, utilization, documentation and evaluation. On-farm conservation and inventories are likely to be also eligible but research activities are specifically excluded.

EUFORGEN is mentioned as the only forest-related framework in the draft document. First call is expected to open by the end of 2003 or early 2004, and a second call is scheduled for 2005. The Regulation is expected to provide funding for one or two forest-based projects.

Documentation

J. Koskela presented the new structure of the EUFORGEN web site, which can be soon accessed directly through a new address (www.euforgen.org) while the old address under the IPGRI web site also remains operational. The web site is database-driven and includes a number of new features such as 'What's new'-section, species summary pages and an improved search engine. The EUFORGEN grey literature database is maintained as part of the new web site and it currently includes nearly 2000 references. The participants were encouraged to provide new references for the database. There is a need to include information on where to find a given reference and it was decided to indicate network members as contact persons in each country.

Technical session

Forest genetic conservation in widely distributed species

T. Geburek made a presentation on forest genetic conservation in Europe with special reference to widely distributed species. He highlighted the need to incorporate science, politics and technical management into genetic conservation. He also presented various approaches developed for genetic conservation and listed a continuum of political framework including forest resources, central/decentralised structure, threats, economics, ownership pattern, nature protection, forest and wildlife conflicts, and different ways of thinking. Common cross-border initiatives and instruments (hard and soft laws) were also mentioned. Based on a recent survey, it

seems that natural regeneration of widely distributed species, such as beech, is relatively good in most countries.

EUFORGEN Strategy, MCPFE process and Phase III

L. Ackzell presented an update to the development of EUFORGEN Phase III. At the EUFORGEN Steering Committee meeting in Sweden in June 2002, it was decided to produce a paper to be adopted by the 4th Ministerial Conference on the Protection of Forest in Europe (MCPFE) held in Vienna in April 2003. A task-force then developed a document called "EUFORGEN Beyond Phase II" in 2002. The main ideas for future work were:

1. Genetic resource friendly forest management practices *i.e.* gene conservation as an integral part of sustainable forest management
2. Long term assessment of genetic resource evolution
3. Cross country approach / common action plan
4. Organisational integration
5. Explore funding mechanisms

Surprisingly, the MCPFE Liason Unit in Vienna first was not receptive to considerations from "independent" bodies. During the preparatory negotiations, prior to the ministerial meeting very little support was shown for the inclusion of forest genetic resources.

At the DYGEN Conference in Strasbourg in December 2002 the audience was requested to contact their negotiators at the MCPFE process to include gene conservation. As a result, a number of countries supported the inclusion of forest genetic resources in the texts.

At the Vienna Ministerial Conference in April 2003, 44 ministers responsible for forestry committed the countries to "*take further steps to maintain, conserve, restore and enhance biological diversity of forests, including their genetic resources, in Europe and also on a global scale"* (paragraph 22 of the Vienna Declaration). In Resolution 4 on Forest Biological Diversity, the ministers also committed themselves to *"promote the conservation of forest genetic resources as an integral part of sustainable forest management and continue the pan-European collaboration in this area"* (paragraph 16).

The participants discussed widely the future work of EUFORGEN and concluded with a number of recommendations to the Steering Committee. The Temperate Oaks and Beech Network recommends the following:

1. Welcome the Vienna resolution on integration of forest management and gene conservation as a future basis for the EUFORGEN work
2. Invest more resources into public awareness activities
3. Review and possibly merge some of the Networks
4. Have available funds for ad hoc activities, e.g. translations
5. Develop methodologies and explore means to facilitate implementation of EUFORGEN outputs at national level where ever needed
6. Practice greater flexibility in terms of agenda of network meetings, working pattern e.g. workshops, joint network meetings, meeting frequency

Technical Bulletin and Technical Guidelines

J. Koskela provided a short introduction to these publications which several EUFORGEN Networks have produced or are currently preparing. A Technical Bulletin is a comprehensive presentation of relevant information targeted for both scientists and managers while the six-page Technical Guidelines are specifically targeted for forest managers.

The Network members had earlier prepared three chapters (Biology and Ecology, *In situ* conservation and *Ex situ* conservation) for the Temperate Oaks Technical Bulletin while two chapters were missing (introduction and conclusions). It was highlighted that the two missing chapters need to be developed as soon as possible and that the existing chapters may need some updating. It was decided that all authors should provide new or updated text to the Secretariat by **15 September 2003** after which they will be circulated to the members of the Network for comments. The participants are then requested to provide their feedback to the Secretariat by **15 October 2003.**

It was also decided to produce Technical Guidelines for *Quercus robur* / *Q. petraea* and *Fagus sylvatica*. It was suggested that A. Ducousso and S. Bordacs prepare the combined Technical Guidelines for the two oak species and that L. Paule and G. von Wuehlisch will do the same for *F. sylvatica*. The authors should send the draft text to the Secretariat by **30 September 2003** after which they will be circulated among the Network members.

The Technical Guidelines also include species distribution maps and A. Ducousso presented drafts of distribution maps for oaks. These are being developed for 20 oak species within 23 countries but feedback has not been received from several countries. Countries should provide their feedback to A. Ducousso by **31 August 2003**. He will then send the distribution maps for *Q. robur* and *Q. petraea* to the Secretariat to be included in the Technical Guidelines.

T. Geburek circulated a beech distribution map among the participants for their comments. He also asked them to define the border between the distribution ranges for *Fagus sylvatica* and *F. orientalis*. He will compile the feedback soon after the meeting and send the revised map to the Secretariat by **30 June 2003**.

Seminar

Distribution of temperate oaks and beech in the Carpathians

L. Paule presented the situation of oaks and beech in Slovakia. Originally only four oak species were recorded in the country but after further botanical studies, nine oak species are currently listed. Oaks are distributed in three vegetation zones, *Q. robur* in western and eastern Slovakian lowlands, *Q. petraea* is usually mixed with beech in higher altitudes up to 800 m. *Q. cerris* is common in southern parts of the country. Beech distribution extends over five vegetation zones from 400 m to 1200 m in

altitude. The vegetation forest zone with beech, silver fir and Norway spruce has a high productivity with standing volume up to 1000 m3/ha.

Fagus sylvatica — Fagus orientalis*: one or two species*?

D. Gömöry addressed the question of whether there are two beech species in Eastern Europe. He provided information on the variation and distribution of genetic diversity as assessed by isozymes and chloroplast microsatellites. The results indicate greater genetic diversity and differentiation in *F. orientalis* than in *F. sylvatica*.

Taxonomical position of minor white oak species

A. Borovics presented a study on the taxonomical position of the minor oak species within the *Q. robur*, *Q. petraea* and *Q. pubescens* complexes based on the study of a number of morphological traits of oak leaves. These data were analysed using multivariate methods and a software package was developed for species determination (the package is available from A. Borovics). *Q. petraea* showed differentiation from other minor oak species. However, the results also showed some overlapping among these minor oak species.

Differences in leaf morphology of F. sylvatica *and* F. orientalis

G. von Wuehlisch presented preliminary results of a study on leaf morphology of *Fagus sylvatica* and *F. orientalis* of which provenances are included in a 20-year-old provenance trial in northern Germany. This gives the opportunity to study morphological characters of trees grown under the same site conditions. The total variation was large within provenances and even within a tree depending on whether the leaf was collected from the top or lower part of the crown. The two provenances studied, Eutin for *F. sylvatica* and Covacici for *F. orientalis* proved to differ significantly in length, leaf area and weight, petiole length and angle of the nerves as compared to the central axis and the distance between leaf base and the widest part of the leaf. The number of nerves, the width and the shape of the leaf proved not to have a high discriminatory power to distinguish between the two provenances representing the species.

Public awareness

A Temperate Oaks and Beech poster presented at the DYGEN Conference was displayed and copies in A4 size were distributed to the participants. Copies of the large-size oak poster developed during the previous meeting were also distributed to the participants. The template for the Network poster is available from the Secretariat.

P. Mertens demonstrated the image database that Dominique Jacques had developed for temperate oaks and beech. There is a great need to include new images into the database and the participants were requested to provide these. P. Mertens also distributed a few CDs for those who did not yet have it.

During the French country update, A. Ducousso mentioned that he had developed a PowerPoint presentation on genetic conservation to train forest managers. Other participants indicated their interest and need to have similar training material. It was suggested that the Secretariat should explore possibilities to translate the training material (approximately 200 slides) into English and then make it available to other countries. A. Ducousso will send the French version to the Secretariat by **30 June 2003**.

Wrap-up session

Any other business

S. de Vries presented Tree Doctor, a software package which enables the user to identify the most frequent pathological conditions in 49 of the most widespread tree genera in Europe. The package is based on direct on-screen visualisation of observable symptoms and takes the user through a succession of simple, didactic stages leading to rapid identification of the pathogenic factors at work. With nearly 2600 illustrations and 1000 photographs, Tree Doctor is an innovative, user-friendly tool combining an effective training approach and diagnostic methodology with the latest available scientific data. Tree Doctor thus offers an operational and training tool for anyone with a professional interest in forest and amenity trees, including managers, experts, advisers, training personnel and students. Tree Doctor has been produced by six institutes from four countries with the support of the EC under the Leonardo da Vinci Programme for 1997-2001. The price of the software package is € 75 per single copy. Those who wish to obtain copies can contact S. de Vries who will forward the requests to the software developers in different countries.

During the country update P. Bonfils presented the new concept for *in situ* conservation in Switzerland ("Forests of special genetic interest; SGI-Forests", published by BUWAL). He displayed a copy of the publication and the participants had an opportunity to order it free of charge. More copies can be ordered through P. Bonfils.

Date and place of next meeting

G. von Wuehlisch offered to host the sixth Network meeting in Germany in 2005. Translocation of forest reproductive material in temperate oaks and beech was mentioned as a topic for the next meeting. This proposal was endorsed by the group. Spain was suggested as an alternative location for the next meeting. The Secretariat will confirm the exact dates in due course.

Adoption of the summary of the meeting

The summary report of the meeting was adopted. The EUFORGEN Secretariat expressed its appreciation of the local arrangements and thanked the local organisers and all participants for their contributions. Ladislav Paule, Chair of the Network declared the meeting closed.

Fifth meeting of the EUFORGEN Temperate Oaks and Beech Network, Kaluža, Slovakia, 21-23 June 2003

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