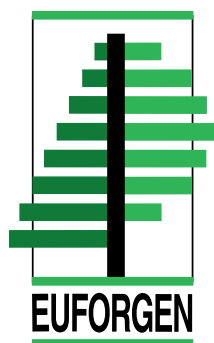




Noble Hardwoods Network

Summary of the fifth meeting

Blessington, Ireland, 17-19 May 2001



European Forest Genetic Resources Programme (EUFORGEN)

Summary of the fifth meeting (Blessington, Ireland)

Opening of the meeting

Diarmuid McAree, Chief Forestry Inspector of the Irish Forest Service welcomed the participants to Ireland and wished them a successful meeting. Currently, 9% of Ireland is forested but the plan is to increase this proportion to 17% over the next 30 years, with 30% of this being broadleaves. He also indicated that hybridization of ash is a problem and hybrids are currently being removed. Dutch elm disease is a concern and alder is also experiencing problems with *Phytophthora*. Rowan and birch are other priority species for Ireland. The availability of reproductive material (particularly acorns) is also a priority of the Forest Service.

To have all timber produced in Ireland from sustainable forest management is another objective together with conservation and enhancement of native resources. A new scheme for conserving or recreating 30 000 ha of native woodlands is being launched under the New Native Woodlands Scheme that has multiple objectives.

In fact, forestry is seen as a good way of creating employment and establishing a sustainable production system for future generations. Wildlife management, creation of bio-corridors for reducing fragmentation and carbon sequestration are also included among the aims.

He concluded by saying that the work of EUFORGEN is highly appreciated by the Irish Forest Service and is considered as a very cost effective international mechanism. Jozef Turok thanked him for his words of encouragement and briefly introduced the programme of the meeting.

Prof. Gösta Eriksson, Chair of the Network could not attend and it was proposed that selected Network members moderate the different sessions of the meeting.

Progress made in countries

Twenty-four countries (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Switzerland, Turkey, United Kingdom and Ukraine) attended the meeting and three more were unable to attend (Armenia, Spain and Sweden. Turkey attended for the first time.

All countries briefly presented the progress made since the last meeting (held in September 1999) on inventories, legislation, research, practical implementation, coordination at national level and public awareness. Many of the participating countries carried out inventories and several new populations of Noble Hardwoods were identified. In some cases, maps were also produced. Regarding legislation, it appears that many countries are in the process of discussing and implementing or adopting EU Directive 1999/105/EC concerning trade and certification of forest reproductive material.

A number of collaborative research projects using both molecular and traditional quantitative techniques are ongoing. Specific results were presented in later sessions. New seed orchards for Noble Hardwood species have been established in a few countries. In general, it appears that coordination at national level continues to develop and it was recognized that further effort is needed.

Public awareness initiatives of the different countries were highlighted. These range from nationwide efforts such as the 'Tree of the year' to more localized training programmes, directed at forest practitioners and managers. Further discussion on public awareness took place in a later session.

Peter Rotach gave a comprehensive presentation on a project on Rare Noble Hardwoods in Switzerland, which could provide as a useful model for similar initiatives in other countries. The main objective was the promotion of rare species in forestry activities. The

project included 10 different species. A first important step was the identification of core populations and genepools, assessing the extent of fragmentation, and genetic and demographic risks. All information collected through inventories was digitized and mapped and priority populations were identified.

Motivation and training were essential components of the project and a large number of foresters were included in the activities both receiving training and providing feedback. Realistic strategies and priorities were identified based on the results of the inventories and incorporating the additional information from local practitioners. Technical guidelines directed at forest practitioners were produced for all species and also included region-specific information to increase local relevance. (the guidelines can be ordered for SF 12. per copy through <http://www.admin.ch/edms> with the order number 310.094d for the German version and the order number 310.094f for the French version). A second phase of the project will be starting this year.

Murat Alan gave a full report on the conservation status of Noble Hardwoods in Turkey. He gave an overview of the general situation in his country. In particular, he highlighted the high biodiversity of Turkey and its importance as centre of origin for many species. He also proposed to include five new species in the list of Noble Hardwoods, i.e. *Liquidambar orientalis*, *Alnus orientalis*, *Pterocarya fraxinifolia*, *Platanus orientalis*, *Ostrya carpinifolia*. These will be incorporated in the Network's list, which will be updated on the Internet.

Seminar: The role of species hybridization in gene conservation

Eric Collin made a presentation on the role of species hybridization and illustrated the different scientific and 'philosophical' aspects of hybridization. He also provided different definitions of the 'species' concept and examples of different types of hybridization.

He indicated that general understanding of the dynamics of the ecosystem and of how the natural environment is constantly evolving is limited. Depending on circumstances, hybridization can be viewed as a negative, neutral or positive event in evolutionary terms. There is a need to clearly distinguish between hybridization of naturally occurring species and introduced species. Molecular studies can be very useful in the identification of the level of hybridization and/or introgression. In any case, 'methods should match objectives'.

He concluded that time and space are key elements in defining whether hybridization is acceptable, depending on individual perceptions. In any case, man has an important role in accelerating the process through mass seed transportation and habitat manipulation. It was clear that, in many countries, the divide between introduced and naturalized species is not well defined and is somewhat discretionary.

Eric Collin proposed to select some populations within gene conservation networks in which hybridization occurs and monitor their evolution. He will provide a written contribution to be added to the Report of the meeting, which will summarize his presentation and capture the views expressed during the discussion.

Technical guidelines

The outcomes of the first Inter-Network meeting of Chairs of the EUFORGEN Networks were presented (held in October 2000). The role of the Inter-Network Group is to harmonize priorities and coordinate activities among the five Networks, in order to share experience and avoid duplication of efforts. With regard to the technical guidelines, the Inter-Network Group agreed that a general document on the objectives, principles and methods of forest genetic conservation should be prepared within EUFORGEN, as a basis for the species-specific guidelines that could be developed as separate modules. This general document is being prepared with inputs from all Networks.

The outcomes of the Inter-Network Group meeting were discussed at length in order to harmonize them with the original concept of the technical guidelines for Noble Hardwoods

(see Summary of fourth Network meeting, held in 1999), which consisted of widely occurring species/situations, rarely occurring species/situations, plus case studies on elms and chestnut.

It was agreed that a separate chapter on the concept of rarity should be added to the general document, and that species modules for Noble Hardwoods should be produced as follows:

- *Acer pseudoplatanus* (M. Rusanen and T. Myking)
- *Sorbus torminalis* (B. Demesure)
- *Sorbus domestica* (P. Rotach)
- *Ulmus* sp. (E. Collin)
- *Prunus avium* (K. Russell)
- *Castanea sativa* (F. Lopez)
- *Fraxinus excelsior* (A. Pliura and M. Heuertz)
- *Malus sylvestris* and *Pyrus pyraeaster* (R. Stephan)
- *Alnus glutinosa* (J. Gracan)
- *Tilia cordata* (J. Jensen)
- *Liquidambar orientalis* (M. Alan)

Each module should be no longer than 4 printed pages, including illustrations etc. The final text should, therefore, be limited to 1200 words. Each module will be composed of the following components: standard introduction paragraph, distribution map (native and naturalized distribution will be highlighted in different colours), biology and ecology of the species, threats to genetic diversity, genetic knowledge, importance and use, and guidelines for genetic conservation and use. The guidelines will consist of a sequence of actions, or steps, ordered according to their technical and economic feasibility, which are required to ensure the conservation and sustainable use of genetic resources within the species' distribution areas in Europe.

The target audience, as agreed at previous Network meetings, includes forest officers and agencies responsible for applied forest genetic conservation in each country. The sheets will be first produced in English, but the template of each will be made available to Network members, who will be responsible for their translation and adaptation to national conditions. The modules will include relevant graphs, figures and illustrations. References for further reading will be included at the end of each module. There will also be a blank box (half-page) in the template, which should be used for specific information related to the individual country. All Network members will search for appropriate illustrations and provide them directly to the authors *as soon as possible*. Essential photos would include botanical features and habit, plus other illustrative material.

The Secretariat will send the standard introduction paragraph and distribution maps for each species or group of species to Network members for comments *before 31 August 2001*. All authors will send draft modules to the Secretariat *before 30 November 2001*. The Secretariat will edit the modules for language and consistency and will circulate them through the EUFORGEN listserver for broader consultation *before 31 December 2001*. The authors may seek inputs or review of the draft modules from other Network members and other specialists as appropriate. The first species modules will be printed *before the next Network meeting*.

Information and documentation

Report of the fourth and fifth Network meetings

The format of country reports was discussed and it was agreed that these would be published in a printed version together with material produced for the previous meeting. The Internet web page (http://www.ipgri.cgiar.org/networks/euforgen/euf_home.htm) will contain the full version of the introductory country reports and the current progress reports.

The table attached to the country update will only reflect the current situation of *in situ* and *ex situ* conservation measures (i.e. total figures). It is the participant's responsibility to ensure that the electronic version of all reports is made available to the Secretariat. Participants were encouraged to visit the web page and check the content relevant to them. Missing material should be sent to the Secretariat by 15 June 2001.

EUFORGEN bibliography

The EUFORGEN online bibliography was presented and discussed. It was agreed that, to make grey literature accessible, a contact address needs to be provided. Permission from the contributors to use their names will be sought. The Secretariat will add a field for 'contact' to the existing Access format and circulate it through the listserver. The issue of what type of references the database should contain was also raised and there was general agreement that contributions should concentrate on grey literature. However, the existing references to refereed journals will be maintained. An introductory text will be added to explain the content of the bibliography and its focus on grey literature. A link to the IPGRI Library website, which includes links to other reference databases, will also be added.

Information platform

The new web page of the IPGRI Regional Office for Europe was presented and the link to national programmes highlighted. At present, the only information provided are details of the National Coordinators and the results of a survey conducted in 1998. In order to make these pages more informative, Network members were encouraged to provide links relevant to their national activities on forest genetic resources to be added to the country pages. To facilitate contacts, it is also proposed to provide details of participants to the last meetings of the five EUFORGEN Networks.

Public awareness

The recommendations of the Inter-Network meeting were briefly presented. A general EUFORGEN brochure is currently under preparation and will be available shortly.

Network members were strongly encouraged to promote genetic conservation at national level and to produce, adapt and use EUFORGEN material as appropriate. The opportunity to take advantage of existing initiatives, particularly those of conservation organizations, which could be more effective in promoting the conservation of forest genetic resources, should not be underestimated.

Sven de Vries reported on the discussion that was held in the Social Broadleaves Network and on the process of creating an interesting and effective poster.

There was general agreement that a set (3-4) of posters on Noble Hardwoods would be useful for raising public awareness on the importance of their conservation. The posters would have to use an attractive photo(s) and contain a simple and clear message. It was agreed that Sven de Vries, Tor Myking and Natalia Demidova would develop the message to be included on the posters. An initial draft will be provided to the Secretariat and *circulated to the Network for discussion at the next meeting*.

It was decided to create a slide collection on CD-ROM to be used by the Network for publications, public awareness, presentations etc., and Bart de Cuyper kindly offered to act as a focal point. It was agreed to acknowledge the source of images every time they are used. Instructions for contributions to the collection will be circulated by the Secretariat before 31 May 2001 and Network members are encouraged to provide slides to Bart de Cuyper by 30 September 2001.

Research overview

CYTOFOR

Brigitte Demesure presented the current activities and results from the multi-species EU-funded project, which will end in June 2001. Nine countries were involved in the project and the activities concentrated on 22 species of 7 different families (14 trees, 7 shrubs and one epiphyte).

The project had a number of objectives, and included phylogenetic studies, history (postglacial migration routes), hybridization between species, linking ecological and population genetic studies, which will have practical implications for forest management. The tools included chloroplast DNA markers for phylogenetic studies. Postglacial migration routes were studied for all species and possible refugia were identified. Recolonization patterns were found to be quite different for the various species, and for some species, no obvious refugia could be defined. Geographical distances and genetic distances for the different species were compared. Distribution patterns of haplotypes appear to be strongly related to the biology of the species or history of the populations. *Sorbus torminalis* showed no geographic structure whereas the patterns for *Ulmus* were comparable to those for *Quercus* showing a clear geographic pattern in Europe.

Final results of the project will be available in a number of papers to be published in different journals. More information can be found at <http://www.pierroton.inra.fr/Cytofor/Introduction.html>

CASCADE

Alfas Pliura presented the EU-funded CASCADE project that focuses on evaluation of genetic diversity at adaptive traits and genetic markers in *Castanea sativa* in relation to evolutionary factors and human impact and on the formulation of long-term conservation strategies. Twelve institutions from Greece, France, Italy, Spain, Sweden and UK participate in this project.

The project includes six work packages that cover different research issues and socio-economic aspects of gene conservation. Preliminary results from studies of adaptive traits through phytotron studies, progeny trials and QTL analysis with different molecular markers were presented. (<http://soi.cnr.it/~chestnut/home.html>).

ResGen78—Conservation of Elm Genetic Resources

Eric Collin presented this project funded by the EU in the framework of the Genetic Resources programme of EU Regulation 1467/94. The project was based on existing *ex situ* collections of European elms (*Ulmus glabra*, *U. minor*, *U. laevis*). It includes 14 partners in 9 countries. The different partners provided different expertise such as molecular markers, cryopreservation, entomology and pathology. The project included six steps: (1) inventories and databases; (2) molecular characterization for taxonomy (nuclear DNA) and mapping migration routes (cpDNA); (3) testing tolerance to Dutch elm disease and identification of adaptive and ornamental traits; (4) building a core collection; (5) maintenance of the core collection; and (6) dissemination of results. More information can be found at <http://www.cemagref.fr/English/ex/rural-areas/Elms/Elms02.htm>

Genetic Resources of Broadleaved Forest Trees Species in Southeastern Europe

Myriam Heuertz presented the objectives of the second Phase of the project and emphasized the complementarities between *in situ* and *ex situ* conservation, as well as capacity building and exchange of scientists between the countries involved and other countries in Europe. The project is carried out in Bulgaria, Moldova, Romania and Ukraine in cooperation with Luxembourg. Species covered by the project include oak, beech, ash and maple. Activities include inventories of genetic resources, production of distribution maps and identification of seed stands. Joint micropropagation experiments were carried out and training on molecular genetics was provided.

Emil Popov presented the results of the inventories of *Fraxinus* sp. and *Acer* sp. in Bulgaria.

Phylogeography of *Fraxinus* sp. in Europe

Myriam Heuertz presented the results of a research effort that aimed at analyzing cpDNA of *Fraxinus excelsior* with regard to its phylogeography in Europe. Chloroplast microsatellite markers were used. A large number of populations and individuals were sampled across Europe. Haplotype distribution was mapped and main differentiation zones and migration routes were identified. The genetic data were congruent with fossil pollen data. Similar work was carried for *Fraxinus angustifolia* and *F. ornus*. The possibility for identifying origin of non-autochthonous populations was emphasized.

Some data from a geneflow study of *Fraxinus* in southeastern Europe were also presented. Sampling was carried out on 10 stands in Bulgaria and one stand in Romania. Nuclear microsatellite markers were used for characterization. The results were used for calculation of neighbourhood size but contrasting results were found at different scales within populations. Therefore, further investigation is needed.

Improving *Fraxinus* productivity for European needs by testing, selection, propagation of improved genetic resources (RAP)

Gerry Douglas of Teagasc, Ireland presented this new EU-funded project that addresses genetic diversity, breeding, sexual and vegetative propagation and other aspects of ash productivity. Existing provenance trials will be analyzed and new provenance trials will be established in six countries.

Bottlenecks for production and utilization of genetically improved material will be identified and evaluated through social studies involving all stakeholders. The chain of influence will be characterized and impacts on certification will be demonstrated. Demonstration plots will be established.

National Council for Forest Research and Development, Ireland (COFORD)

Eugene Hendrick, director of COFORD, provided an overview of the history of the institution and its strategic objectives. The role of COFORD is to coordinate and fund national forestry research in Ireland. The new research programme (2000-2006), is funded by the Irish Government under the National Development Plan. Forest genetics and breeding is one of the subject areas. There are six priority species (*Quercus robur*, *Q. petraea*, *Fraxinus excelsior*, *Acer pseudoplatanus*, *Betula pendula*, *B. pubescens*). Strategic actions include inventories of these species, designation of *in situ* conservation areas and selection of seed collection areas. Within forest genetics there will be capacity building and increased cooperation with EUFORGEN Networks was highlighted. In Ireland, several different research organizations (Coillte, Teagasc, University College Dublin, Trinity College Dublin and Dúchas) are involved in forest genetics and breeding (<http://www.coford.ie>).

Research needs and priorities and dissemination of results

The problem of *Phytophthora* damage to *Alnus glutinosa* was raised and it appears that this is a common concern in many countries. The disease is also damaging other tree species and seems to be gradually spreading. Some research is being carried out in Germany and United Kingdom. It was proposed to invite a phytopathologist to one of the forthcoming meetings.

Hybridization was also thought to be a research priority and it was hoped that there would be better information on mating systems (i.e. of *Fraxinus*, *Sorbus*) available in the near future. There appears to be scope for a research project on hybridization of fruit trees, however it was currently not possible to identify more concrete possibilities.

The need for research funding opportunities for east European countries was raised. Several relevant programmes and projects of the European Union were mentioned. IPGRI will make

available results of a preliminary survey on research funding opportunities conducted in European countries. Bilateral contacts were encouraged among Network members that can provide a further basis for research cooperation.

A request for cooperation and support for genetic research on *Liquidambar* in Turkey was also made.

Election of the Chair and Vice Chair

On behalf of the Network, Sven de Vries expressed the gratitude of the group to Gösta Eriksson for his leadership and the outstanding input he made to the creation and operation of the Noble Hardwoods Network and conveyed best wishes for his prompt recovery. Jochen Kleinschmit, who acted as Vice Chair of the Network, was also thanked for his excellent contribution. It was proposed that Mari Rusanen and Peter Rotach would be the next Chair and Vice Chair of the Network. The Network endorsed the proposal.

Adoption of the report

The participants adopted the summary report of the meeting.

Date and place of the next meeting

An official offer to host the next Network meeting was received from Armenia. Portugal also kindly offered to organize the meeting. The participants appreciated both offers. The potential impact of a Network meeting in Armenia on advancing genetic conservation in the mandate group of species was discussed and the participants expressed their preference for the next meeting to be held in that country. If, for some reasons, this first choice should not be feasible, then the meeting would be held in Portugal. It was proposed that the meeting should take place in early June 2002.

A proposal was also put forward that one of the forthcoming meetings be held in the United Kingdom in conjunction with a meeting of the Fruits Working Group of the European Cooperative Programme for Crop Genetic Resources Networks (ECP/GR). The participants expressed their strong interest in a joint meeting on issues related to complementary conservation strategies in species with both forestry and horticultural importance.

Any other business

It was proposed that a concise summary of the Network's activities, which was recently published in the journal *Investigación Agraria* (INIA, Spain), could be included in the printed Report of the fourth and fifth Network meetings. The Secretariat will confirm the feasibility of including English version of the summary in the Report.

Adolf Korczyk and Richard Stephan announced that they would be retiring in the near future and therefore would not be able to join next meeting. They expressed their satisfaction with having been associated with this Network and wished everybody successful continuation of activities.

Conclusions and closure of the meeting

The Secretariat and the Network members expressed their gratitude to the local organizers for the excellent arrangements and organization.

The newly elected Chair closed the meeting.

Fifth EUFORGEN Noble Hardwoods Network meeting Blessington, Ireland 17-19 May 2001

Wednesday 16 May

Arrival of participants to Dublin and transfer to Blessington

Thursday 17 May

1. Opening of the meeting:
 - 1.1. Welcome (Host country and Chair of the Noble Hardwoods Network)
 - 1.2. Introduction (IPGRI)
 - 1.3. Adoption of the agenda and nomination of rapporteurs
2. Country reports
 - 2.1. Country updates (brief highlights)
 - 2.2. Introductory country reports from newly attending countries
3. Seminar: The role of species hybridization in gene conservation
 - 3.1. Presentation
 - 3.2. Discussion
4. European long-term strategies for gene conservation and management of Noble Hardwoods
 - 4.1. Harmonization of existing strategies
 - 4.2. Adoption at the national level
 - 4.3. Effective dissemination and implementation at the European level

Friday 18 May

5. Technical guidelines
 - 5.1. Results of the InterNetwork meeting
 - 5.2. EUFORGEN general principles of Forest Gene Conservation
 - 5.3. Noble Hardwoods "case studies"
6. Inventories and Documentation
 - 6.1. Application of minimum information standards
 - 6.2. Information platform on the Internet
 - 6.3. Bibliography
7. Public awareness
 - 7.1. Current EUFORGEN public awareness initiatives
 - 7.2. Public awareness activities of the NH Network
8. Research
 - 8.1. Overview of ongoing projects and their results
 - 8.2. Research needs
 - 8.3. Role of the network in the dissemination of results

Saturday 19 May

Morning:

9. Field trip

Afternoon:

10. Adoption of the report

11. Date and place of next meeting

12. Any other business

Sunday 20 May

Transfer to Dublin and departure of participants

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