# European Forest Genetic Resources Programme (EUFORGEN) Phase III (2005-2009)

## Technical report for 2005-2006[1]

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## 1. Introduction

The European Forest Genetic Resources Programme (EUFORGEN) is a collaborative programme among European countries to promote conservation and sustainable use of forest genetic resources. It was established in October 1994 as an implementation mechanism for Resolution S2 (Conservation of forest genetic resources) of the First Ministerial Conference on the Protection of Forests in Europe (MCPFE), held in Strasbourg in December 1990. EUFORGEN is fully financed by its member countries, demonstrating their strong commitment to implement the Ministerial Resolution in practice. The EUFORGEN Steering Committee is composed of National Coordinators from all member countries and it has the overall responsibility of the Programme.

On 1 January 2005, EUFORGEN started its third phase with new objectives and a new network structure. The new phase was launched following the decision taken by the Steering Committee during its fourth meeting held in Židlochovice, Czech Republic on 26–29 May 2004. During Phase III, EUFORGEN continues to operate under the MCPFE framework and it also contributes to the implementation of Resolution V4 (Conserving and enhancing forest biological diversity in Europe) adopted by the Fourth Ministerial Conference, held in Vienna, Austria in 2003. The new objectives for Phase III were agreed 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.

For the new phase, the Steering Committee established a new thematic network to promote better linkages between gene conservation efforts and forest management in Europe. It also decided to restructure the previous four Networks on broadleaves tree species into two new broadleaves Networks. Furthermore, the Steering Committee agreed on specific measures to strengthen information management on forest genetic resources.

This report provides highlights of the progress made during the first two years of Phase III. It also includes a table of financial contributions provided by the member countries and a summary of expenditures during 2005-2006. The other background documents of the fifth Steering Committee meeting will provide additional information on the activities related to the MCPFE process and the EUFGIS project.

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[1] Presented at the fifth EUFORGEN Steering Committee meeting, Novo mesto, Slovenia, 22–24 May 2007

[2] With effect from 1 December 2006, IPGRI and INIBAP operate under the name "Bioversity International", Bioversity for short.

## 2. Progress made during 2005-2006

### 2.1. Implementation of relevant MCPFE Resolutions

The MCPFE Work Programme for the implementation of the Ministerial Resolutions includes three specific actions on forest genetic resources. Firstly, the MCPFE process agreed to "*promote the conservation of forest genetic resources as an integral part of sustainable forest management and continue pan-European collaboration in this area through the EUFORGEN Networks*". Secondly, the Work Programme listed an international capacity-building programme on forest genetic resources to promote conservation and use of biological diversity for development. Thirdly, under Resolution V5 (Climate change and sustainable forest management in Europe), the Work Programme also includes a workshop on the role of forest genetic diversity in improving adaptability of forests to climate change and in maintaining the productivity of forests under changing environmental conditions.

The chapters below provide updates on the implementation of the EUFORGEN work and the workshop while the capacity-building programme is reported under the chapter on 'Wider influences of EUFORGEN' because its scope evolved to provide training at global level from the earlier planned focus on Europe and its neighbouring regions.

#### 2.1.1. Participation in EUFORGEN

The launch of EUFORGEN Phase III initiated the implementation of Resolution V4 in concrete terms. The Steering Committee adopted the objective 1 specifically to reflect the commitment made under Resolution V4 while the purpose of objectives 2 and 3 is to ensure continued implementation of Resolution S2. Under each objective, the Steering Committee also listed several activities that the Programme should carry out to meet the objectives. Subsequently, the Steering Committee urged the EUFORGEN Networks to identify specific outputs and milestones based on the new objectives while they are developing their new work plans for Phase III.

As of 30 April 2007, a total of 34 member countries have been providing both technical and financial inputs to the Programme and thus the implementation of the relevant MCPFE Resolutions. A country is considered a member of EUFORGEN when it has signed the official Letter of Agreement to join the Programme and/or paid its annual financial contribution regularly.

Countries that have signed the Letter of Agreement include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Macedonia FYR, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom. Furthermore, Estonia and Serbia are also considered as member countries since they have provided technical and financial contributions although their have not yet signed the Letter of Agreement for Phase III.

Georgia, Greece, Moldova and Romania are new member countries as compared to the membership situation at the end of Phase II. Of the old member countries, only Albania and Malta have not joined in Phase III nor provided information on their intentions to the Secretariat. During 2005-2006, the Secretariat has also approached focal or other contact persons in other potential new member countries (i.e. Bosnia and Herzegovina, Latvia, Russian Federation and Ukraine) regarding their interest to join EUFORGEN.

### 2.1.2. Workshop on climate change and forest genetic diversity

Bioversity International and the International Union of Forest Research Organizations (IUFRO) organised a workshop on climate change and forest genetic diversity in Paris, France on 15-16 March 2006. It was hosted by the French Ministry of Agriculture and Fishery, and the meeting venue was offered by Ecole Nationale du Génie Rural et des Eaux et des Forêts (ENGREF). The workshop was attended by nearly 80 participants from 25 countries, including representatives of the EUFORGEN Networks and the Secretariat. The workshop objectives were to:

1) Present up-to-date reviews based on the current understanding on how forest trees will cope with and adapt to climate change;
2) Discuss the implications for practicing sustainable forest management in Europe; and
3) Provide inputs and recommendations to the MCPFE process for further action.

The workshop recommended that management of forest genetic diversity should be better linked with national forest programmes and other strategies, such as national adaptation strategies to climate change, for example. Secondly, the workshop recommended that forest management practices that maintain evolutionary processes of forest trees and support natural regeneration of forests should be promoted, especially in areas where long-term natural regeneration is self-sustainable despite climate change. Thirdly, the workshop also stressed that the adaptation of forest trees to climate change can be accelerated through tree breeding and transfer of potentially suitable reproductive material. Finally, it urged the European forest research community to carry out more interdisciplinary studies (e.g. tree physiology, forest genetics, pests and diseases, forest management and economics, and modelling) on the impacts of climate change on forests with the support of the policy makers.

Bioversity International and IUFRO have prepared a joint publication based on the invited papers presented during the workshop. The recommendations of the workshop were also reported to the MCPFE Round Table Meeting, which was held in Wroclaw, Poland on 24-25 April 2006. This meeting initiated preparations for the next Ministerial Conference to be held in Warsaw on 5-7 November 2007.

## 2.2. Other inputs to the MCPFE process

At the fourth meeting in May 2004, the Steering Committee recommended that EUFORGEN should actively disseminate relevant information on forest genetic resources to policy makers and other stakeholders. Subsequently, the Secretariat has provided several addition inputs and information to the MCPFE Process in addition to reporting the progress made in implementing the relevant Resolutions. The following chapters provide summaries of these inputs.

### 2.2.1. MCPFE Expert Level Meetings

Following the Round Table Meeting in April 2006, the MCPFE process organized several meetings to continuing the preparations for the next Ministerial Conference. On 9-10 October 2006, the Expert Level Meeting, held in Warsaw, continued discussions based on the outputs of the Round Table Meeting and subsequently two Drafting Meetings were organized in Krakow and Poznan (1-2 February and 28-29 March 2007, respectively).

As an outcome of these meetings, the MCPFE process has prepared a draft Ministerial Declaration and two Resolutions to be adopted by the ministers responsible for forests during the Warsaw Conference. The Warsaw Declaration will stress countries' commitment to regional collaboration on forest-related issues in Europe and further implementation of all previous resolutions. The first Warsaw Resolution will focus on forests and water and the second one on wood and energy.

The EUFORGEN Secretariat has frequently informed the MCPFE process on the progress made in EUFORGEN activities and stressed the importance of forest genetic resources in the context of climate change. During the MCPFE meetings, several countries also highlighted adaptation of forests and forest management practices to climate change as important issues. However, the Process concluded that as there is no need to have an additional Resolution on climate change as the issue was recently stressed by the previous Ministerial Conference in Vienna. The present wording of the Warsaw Declaration includes some climate change considerations but the recommendations of the Paris workshop are reflected in detail.

The EUFORGEN Steering Committee should discuss the present wording of the Warsaw Declaration and decide whether further inputs are needed regarding climate change and forest genetic resources. The Secretariat will then forward the feedback to the next Expert Level Meeting, which be held in Warsaw on 4-6 June 2007. Before the next Ministerial Conference, there will be another Expert Level Meeting on 3-4 September 2007. Since the MCPFE Process remains committed to all previous Resolutions, it is also important to discuss what actions EUFORGEN could propose to be included in the new MCPFE Work Programme to continue the implementation of Resolutions S2, V4 and V5.

### 2.2.2. Pan-European workshop on afforestation and reforestation

The MCPFE Liaison Unit Warsaw and the PEBLDS Secretariat (Pan-European Biological and Landscape Diversity Strategy) organised this workshop in Vilnius, Lithuania on 24-26 October 2006. EUFORGEN Coordinator was invited to give a presentation on the use of forest genetic resources in afforestation and reforestation.

The workshop discussed draft recommendations for afforestation and reforestation at pan-European level in the context of the Kyoto Protocol. In addition to general guidelines, the recommendations also include ecological and socio-economic guidelines. Among other issues, the ecological guidelines encourage the use of provenances that are well adapted to given site conditions and avoiding negative impacts to genetic diversity of native tree species. After the workshop, the MCPFE Liaison Unit Warsaw and the PEBLDS Secretariat received further comments and feedback to the draft recommendations. Several comments made by the PEBLDS community in particular considered that the draft recommendations put too much emphasis on production aspects.

On 8-9 May 2007, an additional consultation meeting was organized in Vienna, Austria to further discuss a second draft of the recommendations (so called 'non-paper'), modified based on the feedback received. The outcomes of the consultation meeting will be then further discussed at the Expert Level Meeting in June as it is planned that the MCPFE Process could endorse the recommendations as part of the Warsaw Declaration. The ministers responsible for the environment are expected to do the same at the next meeting of the PEBLDS process.

### 2.2.3. MCPFE report on sustainable forest management in Europe

The MCPFE Liaison Unit is preparing a report on "*State of Forests and Sustainable Forest Management in Europe 2007*" in collaboration with the United Nations Economic Commission for Europe (UNECE/FAO). The report will be launched at the Warsaw Conference in November 2007.

The MCPFE Liaison Unit has asked the EUFORGEN Secretariat to collect relevant data on forest genetic resources for the report. The requested contribution is related to the Criterion 4 (Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems) and more specifically to Indicator 4.6 (Area managed for conservation and utilization of forest tree genetic resources (*in situ* and *ex situ* gene conservation) and area managed for seed production). The Secretariat has been collecting the data through the EUFORGEN National Coordinators and Focal Points. A detailed update on this effort will be provided to the Steering Committee during the meeting in Novo mesto.

## 2.3. Network activities

In May 2004, the Steering Committee made several decisions on the Networks and their operations. Firstly, it decided to re-organize the Network structure in response to the requirements of Resolution V4 and the new objectives adopted for Phase III. The Steering Committee agreed that the previous Mediterranean Oaks, Noble Hardwoods, *Populus nigra*, Temperate Oaks and Beech Networks should be restructured into two Networks addressing broadleaved tree species with scattered and continuous distribution. Furthermore, it was agreed that a task force should be established to define the names of the two new Broadleaves Networks. The Secretariat established the task force which then carried out its work during autumn 2004 and made a proposal for the new names. These were subsequently adopted by the Steering Committee through exchange of e-mail messages.

In addition to merging the Networks on broadleaves, the Steering Committee also decided to establish a new thematic Forest Management Network and an Information Working Group. It recommended that country representatives to the Forest management Network should hold national responsibilities in areas related to forest policy, national forest programmes or forest management. This recommendation was made to ensure that the Forest Management Network has a mixture of participants with expertise on both forest management and gene conservation. Regarding the Information Working Group, it was agreed that representatives for specific tasks in this area (e.g. development of information standards) should be nominated by the Networks (1-3 representatives each) and that outside expertise can be invited to participate in carrying out the tasks, as needed.

Concerning Network operations, the Steering Committee decided that each species-oriented Network can organize up to three meetings during Phase III while the Forest Management Network can meet annually. As a change compared to Phase II, it was also agreed that countries can nominate representatives to all those Networks in which they are interested in during Phase III. Subsequently, most member countries have nominated their representatives to all four Networks. A total of 108 experts, scientists, managers or policy-makers have been nominated to represent their country in the EUFORGEN Networks. In 2004, the Steering Committee further decided that for the first meeting of the Scattered Broadleaves Network, the member countries could nominate two representatives, if needed.

During 2005-2006, EUFORGEN has operated through the following Networks: 1) Forest Management Network, 2) Conifers Network, 3) Scattered Broadleaves Network, and 4) Stand-forming Broadleaves. Each Network organized its first meeting (fifth one in the case of the Conifers Network) in 2005 to discuss the new objectives for Phase III and to develop new work plans. The Networks also selected new Chairs and Vice-Chairs (Jason Hubert (United Kingdom) and Bjerne Ditlevsen (Denmark) were selected as Chair and Vice-Chair of the Forest Management Network, respectively; Bruno Fady (France) and Alistair Pfeifer (Ireland) for the Conifers Network, Bart De Cuyper (Belgium) and Berthold Heinze (Austria) for the Scattered Broadleaves Network, and Georg von Wühlisch (Germany) and Alexis Ducousso (France) for the Stand-forming Broadleaves Network).

A total of seven Network meetings were held in 2005-2006 (Table 1) and two meetings are scheduled for 2007. The Information Working Group is not yet operational but will commence its activities as part of the Networks' inputs to the EUFGIS project (see details later on in this report). The Inter-Network Group, i.e. Chairs and Vice-Chairs of the Networks, will meet on 25 May 2007 following the fifth Steering Committee meeting to discuss development of minimum requirements for gene conservation units of forest trees and other cross-cutting Network activities.

**Table 1.** EUFORGEN Network meetings in 2005-2007.

| Network/Group | Meeting venue and date | No. of countries |
|---|---|---|
| Forest Management | 1st meeting, Lambrecht, Germany, 3–5 Nov 2005<br>2nd meeting, Bucharest, Romania, 23–25 Nov 2006<br>3rd meeting, venue to be confirmed, Nov 2007 | 22<br>20<br>to be held |
| Conifers | 5th meeting, Larnaca, Cyprus, 7–9 April 2005<br>6th meeting, Reykjavik, Iceland 7–9 Sep 2006 | 25<br>25 |
| Scattered Broadleaves | 1st meeting, Copenhagen, Denmark, 11-14 May 2005<br>2nd meeting, Valkenburg, Netherlands, 21–23 Sep 2006 | 33<br>30 |
| Stand-forming Broadleaves | 1st meeting, Viterbo, Italy, 20–22 Oct 2005<br>2nd meeting, Novi Sad, Serbia 27–29 June 2007 | 28<br>to be held |
| Inter-Network Group (Chairs and Vice-Chairs) | 3rd meeting, Novo mesto, Slovenia, 25 May 2007 | to be held |

The following chapters highlight some of the Network activities during 2005-2006. The Chairs of the Networks will also present updates to the Steering Committee in Slovenia.

### 2.3.1. Forest Management Network

At the first meeting in Germany in November 2005, the Forest Management Network discussed its role during Phase III and how to promote gene conservation as part of sustainable forest management. The meeting included a seminar on forest management and genetic resources during which genetic aspects of forest management and issues related to the use of forest reproductive material were discussed in detail.

Following the first meeting, the Network carried out a survey in 2006 on relevant policies and practices that influence how the use of genetic resources is incorporated into forest management practices in different countries. As part of the survey, the Network also identified most relevant silvicultural practices in Europe and collected information on associated problems from the genetic point of view. The preliminary results of the survey were then discussed at the second meeting in Romania in 2006. The results will be also presented to the Steering Committee in Slovenia. A working group is now finalizing a report based on the survey results.

During the first meeting in Germany, the Network members discussed the results of a study carried out by Denmark on policy tools to promote the use of high quality forest reproductive material in 10 northern European countries. The study showed that most of these countries just rely on providing information on the appropriate use of the material while only a few countries have taken active measures and encouraged this through legislation or as part of grant schemes. The Network decided to collect more information on these policy tools and carried out the same survey in other member countries during 2006. The results of this second survey were discussed at the second meeting in Romania in November 2006. The results will be also reported to the Steering Committee in Slovenia. Similarly to the other survey, a report of this survey is currently being prepared.

The Network has also made some efforts to collect information on 'systematic failures' in silvicultural practices from the genetic resources point of view. These were defined as things that happen repeatedly or over long periods of time without being corrected. The systematic failures could include failure to register or monitor the use of forest reproductive material in a proper way or repeatedly selecting poor material for use in forestry due to insufficient knowledge or data. A review on silvicultural practices and genetic resources is being prepared in France and the Network will discuss its findings before continuing the efforts on the systematic failures.

Between the two meetings, the Network also collected examples of inappropriate use of forest reproductive material in different countries. These examples demonstrate that problems caused by unsuitable forest reproductive material often become visible within 5-10 years time. However, in some cases it took more than 30 years before any problems could be recognized. The problems include low frost or drought resistance, susceptibility to pests and diseases and poor adaptation to site-specific conditions, for example. The areas affected by these problems are often larger than 1000 ha. However, an extreme case is the planting of red oak (*Quercus rubra*) in France; 400,000 ha were planted with the species between 1970 and 2000 but only 27 000 ha of red oak stands persisted in 2004. Furthermore, the Network found examples where the use of first generation material has been a failure while the second generation can be successful (e.g. *Cedrus* spp. which turned out to a success but only 100 years after its first introduction in France). A summary of the examples is available soon.

The Network has also discussed 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 owing to different conditions and various approaches that need to be considered (e.g. economic or environmental issues). The Network has established a small working group to develop ideas on how to address economic aspects of forest genetic resources as part of the Network activities in the future. At the moment, the working group is waiting for the preliminary outputs of a pilot project in Denmark on economic aspects of forest genetic diversity before developing any concrete activities in this area. The Danish project was initiated in 2006 and it will focus on the genetic conservation programme and the seed source development programme for tree improvement in the country. The project will develop "economic tools" that are relevant for these genetic resources programmes using oak as a pilot species.

As a new activity, the Network discussed the issue of using forest reproductive material (FRM) in the context of energy/biomass plantations. It seems likely that the establishment of biomass plantations with forest trees will increase in the future, especially in Central Europe. As this is not considered as a forestry activity, the FRM used for such purpose does not have to meet the requirement of the Council Directive (EC No.105/1999). Thus there is a danger that poorly documented and low quality seedlings of forest trees may end up planted for forestry purposes if mistakes are made at nurseries or while distributing the seedlings. There are similar problems in using forest trees of unknown origin for hedges or other amenity purposes. A working group is now collecting more detailed information on this problem and it will be further discussed at the third meeting in November 2007.

### 2.3.2. Species-oriented Networks

Most meetings of the species-oriented Networks focused on specific themes or topics identified by the members as important ones. The Networks have also continued their work on the development of minimum requirements for gene conservation units of forest trees. These are needed to better compare the state of gene conservation in different countries, and identify gaps and overlaps in gene conservation efforts at the pan-European level. This will create a sound basis for further development of common action plans to strengthen practical implementation of gene conservation and to link existing gene conservation units of forest trees throughout their entire distribution ranges in Europe.

The Conifers Network focused on the challenges in managing conifer genetic resources in the Mediterranean basin at the fifth meeting in Cyprus and on the impact of climate change on the conservation of forest genetic resources at the sixth meeting in Iceland. Between the two meetings, the Network drafted minimum requirements for gene conservation units of conifers which were then discussed in detail during the meeting in Iceland. The draft minimum requirements set guidelines not only for individual gene conservation units but also a network of these units within the distribution ranges of tree species. The Conifers Network also agreed to include climate change considerations into the minimum requirements and stressed that the minimum size of the unit should ensure long-term evolutionary potential of the target tree species.

Regarding the development of the common action plans, the Conifers Network is currently focusing on four groups of species and has selected, as a first step, the following conifers as target species: 1) stand-forming/widespread species (*Picea abies, Pinus halepensis/brutia,*), 2) scattered/widespread (*Taxus baccata*), 3) rare/threatened (*P. nigra* ecotypes, Mediterranean *Abies* spp.), and 4) exotic conifers (*Picea sitchensis*, *Pseudotsuga menziesii*). These "CAP groups" are now collecting information on what is done in terms of gene conservation in each country where the above-mentioned species are found. Each Network member has been asked to propose a few gene conservation units in their country, based on the minimum requirements, to be included in the pan-European network of the gene conservation units for these target species. Following this, the CAP groups will review the status of gene conservation efforts for the species and then continue the development of the common action plans.

The Conifers Network is also preparing a discussion paper on genetic consequences of silvicultural practices in conifers and continuing the development of Technical Guidelines for conifers. New guidelines are being finalized for European larch (*Larix decidua*), Bosnian pine (*Pinus leucodermis*), Macedonian pine (*Pinus peuce*) and English yew (*Taxus baccata*).

During the first meeting of the Scattered Broadleaves Network in Denmark in May 2005, the earlier Noble Hardwoods and *Populus nigra* groups met shortly to conclude their activities before the meeting of the new Network was started. The Network adopted criteria and minimum requirements for the gene conservation units of scattered broadleaves and set up three working groups to develop the common action plans for three groups of tree species based on their similar habitats. The groups are 1) common ash (*Fraxinus excelsior*), wild cherry (*Prunus avium*), maples (*Acer* spp.), Wych elm (*Ulmus glabra*), limes (*Tilia cordata*, *Tilia platyphyllos*), 2) black poplar (*Populus nigra*), white poplar (*P. alba*), white elm (*Ulmus laevis*), field elm (*U. minor*), and 3) wild apple (*Malus sylvestris*), wild pear (*Pyrus pyraster*), wild service tree (*Sorbus torminalis*), service tree (*S. domestica*). As a first step, the Network decided to collect information on the existing gene conservation units of two species in each group to assess gaps and overlaps in gene conservation efforts in Europe. The first meeting also included a seminar during which several presentations highlighted the work carried out on forest genetic resources in Denmark.

The second meeting of the Scattered Broadleaves Network, held in the Netherlands in September 2006, discussed the use of genetic resources in forest restoration based on case studies from Belgium and the Netherlands. As part of the meeting, the participants also made a field trip to the restoration sites of the transboundary 'Common Meuse River restoration project'. Subsequently, the Network decided to develop a review publication on experiences on restoration projects with scattered broadleaves in Europe.

During the second meeting, the CAP groups provided updates on their work. The first CAP group had selected common ash and wild cherry as its model species. The second group is working with black poplar and white elm, and the third one with wild pear and wild service tree. The working groups have gathered some information on the existing gene conservation units of the selected tree species but further work is needed before the common action plans can be drafted. Based on the experiences of the CAP groups, the Network updated the criteria and minimum requirements used for collecting data on the units to facilitate further work.

The Scattered Broadleaves Network is also continuing to develop another review on methods for genetic monitoring and future use of the gene conservation units for this purpose. The second meeting already discussed a preliminary draft of this review. Regarding Technical Guidelines, the Network has improved the earlier drafts for Italian alder (*Alnus cordata*), walnut (*Juglans regia*) and European white poplar (*Populus alba*) during 2006 and these are expected to be finalized in 2007.

The Stand-forming Broadleaves Network organized its first meeting in Italy in October 2005. The meeting did not have a specific theme but it included presentations which provided an overview to studies on chloroplast, mitochondrial and nuclear diversity in forest trees as well as the work on stand-forming broadleaves carried out by the University of Tuscia in Viterbo.

The Network decided to initiate development of criteria and minimum requirements for gene conservation units of stand-forming broadleaves, following the work of the other species-oriented Networks. The Network also agreed to compile a Europe-wide map of provenance regions based on national provenance delineation for selected species (*Fagus sylvatica*, *Quercus robur*, *Q. petraea*, *Q. suber* and *Q. pubescens*). However, the progress in collecting data for these maps has been slow due to the very different ways countries have created the provenance regions. The Network is also collecting information for case studies on the use of provenances with emphasis on the effects of transfer of forest reproductive material and on the genetic consequences of silvicultural practices for stand-forming broadleaves. These efforts will complement the work of the Forest Management Network.

During 2006, the Stand-forming Broadleaves Network finalised draft Technical Guidelines for beech (*Fagus sylvatica*) and cork oak (*Quercus suber*) and these will be printed in 2007. The Network is developing additional guidelines for four Mediterranean oak species (*Quercus ilex*, *Q. pubescens*, *Q. frainetto* and *Q. cerris*), birch (*Betula pendula* and *B. pubescens*) and oriental beech (*Fagus orientalis*).

## 2.4. Documentation and information management

At the fourth meeting in 2004, the Steering Committee decided to change the way progress made in gene conservation efforts is reported by the member countries. Instead of updates at the Network meetings, it was agreed that the reporting will be done through National Coordinators once every 3-4 years. It was further agreed that the country-based information will be compiled into a new publication on "*European Forest Genetic Resources in 200X*". At the meeting it was also discussed that this new publication should be prepared for the next Ministerial Conference in Warsaw. In 2005, however, the MCPFE Liaison Unit Warsaw contacted the Secretariat and asked it to provide relevant data on forest genetic resources for the report on "*State of Forests and Sustainable Forest Management in Europe 2007*". The Secretariat contacted National Coordinators by e-mail and asked whether EUFORGEN inputs to the MCPFE report would provide better visibility for gene conservation than a separate report. The feedback received was in favour of providing the data for the MCPFE report and postponing the development of the new EUFORGEN publication at the end of Phase III. Thus the Steering Committee should discuss the new publication at its meeting in Slovenia and agreed a new schedule for preparing it.

In 2004, the Steering Committee requested the Secretariat to coordinate the development of the inter-Network proposal on FGR information management for the Council Regulation on genetic resources in agriculture (No 870/2004). Subsequently, in September 2005, the Secretariat finalized the project proposal in collaboration with six partners (Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW), Austria; State Forest Tree Improvement Station (SNS), Denmark; Institut National de la Recherche Agronomique (INRA), France; National Forest Centre (NLC), Slovakia; Slovenian Forestry Institute (SFI), Slovenia; and Forest Research, UK) and Bioversity International submitted it to the first call for proposals. The proposal was titled as "*Establishment of a European Information System on Forest Genetic Resources (EUFGIS)*".

The proposal was approved by the European Commission in June 2006 and the project started its activities on 1 April 2007 for a period of 3.5 years. The total budget of the project is €1,107,721 of which the contribution by the European Commission is €553,860 (50%). The objectives of the project are:

1. To create a Web-based, permanent information system to serve as the European documentation platform for national FGR inventories;
2. To establish a network of FGR inventories in 40 countries to provide data for the information system;
3. To develop minimum requirements for dynamic gene conservation units of forest trees and common information standards for these units at pan-European level;
4. To make available, as a first step, harmonized data on the dynamic gene conservation units of 20 tree species from at least 80 % of the countries within each species' distribution range in Europe; and
5. To provide training on FGR documentation to national focal points in these countries.

The EUFORGEN Networks will provide technical inputs 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 information system will benefit the Networks in their further efforts to develop the common action plans and assess the status of gene conservation efforts for various tree species in Europe.

All EUFORGEN member countries will be invited to participate in the project and the National Coordinators will be asked to nominate a national focal point for it. The focal points will receive training on FGR documentation and are then expected to compile national data for the information system. In October 2007, a European workshop on FGR documentation will be organized in Denmark to discuss the present situation and to initiate the harmonization of the minimum requirements for gene conservation units based on the ongoing work of the EUFORGEN Networks.

During the meeting in Slovenia, the Steering Committee will receive further details on the EUFGIS project and its implementation. It is also expected to discuss Terms of Reference for a national focal point, Memorandum of Understanding for sharing and using national data, and the future role of EUFGIS as part of EUFORGEN activities.

In 2004, the Steering Committee recommended to link the grey literature database to the IUFRO Global Forest Information System (GFIS). In 2005, the Secretariat initiated discussions with IUFRO how to link all relevant EUFORGEN information and publications to GFIS. Bioversity International has been registered as one of the GFIS data providers and the relevant EUFORGEN-related data will be soon available through GFIS.

### 2.5. Publications and public awareness material

In 2004, the Steering Committee agreed that EUFORGEN should continue to produce its publications in English and member countries should translate Technical Guidelines and other relevant publications, if needed, into other languages with their own resources. The Secretariat was asked to provide the necessary templates for this purpose.

Some countries have started translating selected Technical Guidelines (Belgium in collaboration with the Netherlands, Italy and Spain) and several others have also expressed interest doing the same (e.g. Estonia, France, Germany and the Czech Republic). The Secretariat has developed a template and notes to help countries in the process. The content and recommendations of Technical Guidelines as well as authors should remain unchanged after translation while translators or other national experts can author a two-page insert as a supplement to be added to a given publication. The insert should then provide specific national information on a tree species or recommendations for the management of its genetic resources in the country.

In 2004, the Steering Committee further recommended that EUFORGEN could develop guidelines for "genetically friendly" silviculture during Phase III. The development of such "thematic guidelines" has also been discussed by the Networks. The Forest Management Network concluded that the thematic guidelines could be developed at a later stage once there is more relevant information available. The Forest Management Network also acknowledged the interest of the species-oriented Networks to contribute to the development of these guidelines.

The Steering Committee adopted a new publication policy for Phase III. Reports of the Network meetings will not be produced as EUFORGEN publications any more but electronically in PDF simple format. The Networks can continue develop publications independently of their meeting cycle and focusing on relevant themes and issues, which are of interest to wider audiences. The Secretariat has developed a new publication layout in collaboration with Bioversity's Publication Unit and the new style will be also applied for other public awareness tools (e.g. PowerPoint presentations, Web site, leaflets and posters).

In 2005, the Secretariat produced a leaflet on EUFORGEN Phase III and it has been widely used to promote the Programme in various meetings and conferences. The Scattered Broadleaves Network developed a poster on noble hardwoods targeted to general public and it is now preparing public awareness leaflets on poplars, elms, wild cherry and wild fruit trees (apple and pear). In 2006, posters on EUFORGEN and the Conifers Network were updated and printed for the IUFRO Conference on Low Input Breeding and Genetic Conservation of Forest Tree, held in Antalya, Turkey. Other Network posters will be updated in due course.

A list of EUFORGEN publications produced since the fourth Steering Committee meeting in May 2004 is presented in Annex 1.

## 2.6. Wider influences of EUFORGEN

### 2.6.1. Austria-funded training programme

In 2005, Bioversity International started to implement a project on "Developing training capacity and human resources for the management of forest biodiversity" in collaboration with the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW), Austria. The aim of the project is to establish a training programme that will address the urgent needs and challenges of biodiversity management in forest production systems in developing countries. During this five-year project Bioversity is organising five two-week training workshops and providing five two-year research fellowships. Both the workshops and the fellowships will focus on a different region of the world in each year.

The first training workshop on forest biodiversity was held in Puskino, Russian Federation on 13-24 June 2005. The workshop was attended by 25 young scientists from 14 countries in southeastern Europe and the Caucasus (Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Georgia, Iran, Macedonia FYR, Moldova, Romania, Russian Federation, Serbia and Ukraine). The workshop was organized in close collaboration with EUFORGEN and both the Secretariat and National Coordinators or Focal Points in the above-mentioned countries facilitated the preparations of the workshop. Furthermore, several Network members delivered lectures during the workshop. The young scientists trained during the workshop created an active, informal network and continued their professional interaction and collaboration.

The second training workshop was organised in Kuala Lumpur, Malaysia on 5-16 June 2006 in collaboration with the Asia Pacific Forest Genetic Resources Programme (APFORGEN), the Asia Pacific Association of Forestry Research Institutes (APAFRI) and the Forest Research Institute Malaysia (FRIM). A total of 28 young scientists from nine Asian countries were trained. EUFORGEN provided inputs to the planning of the training workshop in Malaysia and is currently doing the same for the third workshop which will be held in Tashkent, Uzbekistan in August 2007 for Central Asian countries. The third workshop will

be organized in collaboration with the Central Asia and Trans-Caucasus Network on Plant Genetic Resources (CA-TCN/PGR). The workshops have strengthened EUFORGEN's collaboration with APFORGEN and CA-TCN/PGR. In 2008 and 2009, similar collaboration will take place with the Sub-Saharan Forest Genetic Resources Programme (SAFORGEN) and the Latin America Forest Genetic Resources Programme (LAFORGEN).

As part of the project, the first fellowship was granted to Jelena Aleksic from Serbia in 2005. She is currently carrying out her research on Serbian spruce (*Picea omorika*) at BFW in Vienna. In 2006, the second fellowship was awarded to Madhav Pandey from Nepal. He is studying genetic structure and reproductive biology of sal (*Shorea robusta*) in Nepal.

### 2.6.2. EVOLTREE Network of Excellence

The EVOLTREE project (EVOLution of TREEs as drivers of terrestrial biodiversity) started on 1 April 2006 for a period of four years. It is a consortium of 25 partner institutes from 15 European countries funded by the European Commission under the sixth framework programme for research.

The main aim of the project is to support integration of work on forest genomics in Europe by developing common research infrastructures and exchanging human resources. More specifically, EVOLTREE will 1) assemble and integrate the complementary disciplines in the field of ecological genetics and genomics (ecosystem genomics), 2) establish and implement a European research platform in this field in the form of "laboratory without walls", 3) install the common infrastructures (e.g. a repository centre), field experimental sites, data management systems, and 4) spread high level excellence to the scientific community, end-users and to the general public.

Bioversity International is a partner institute and it has a leading role in the dissemination activities of the project. As part of these efforts, EVOLTREE will set up a stakeholder group to facilitate two-way dialogue between scientists and policy makers in particular. The stakeholder group will consist of representatives of different interest groups such as the scientific community, policy makers, conservation agencies, land managers, forest owners, and forest services. EUFORGEN and the Forest Management Network in particular have an important role in the stakeholder group.

### 2.6.3. Other EUFORGEN contributions

The Secretariat has provided additional contributions to various initiatives on forest genetic resources and promoted the Programme in meetings and conferences.

A presentation on the role regional collaboration in managing forest genetic resources in Europe was delivered at the XXI IUFRO World Congress in Brisbane, Australia on 8-13 August 2005.

The Coordinator was also invited to give a presentation on regional collaboration on forest genetic resources in Europe to the first Forum on the Conservation of Forest Genetic Resources. The Forum was organised as part of the 30th Biennial Meeting of the Canadian Tree Improvement Association in Charlottetown, Prince Edwards Island on 24-29 July 2006. The event was used for launching the Canadian Forest Genetic Resources Program (CONFORGEN) which aims at strengthening the collaboration between Canadian provinces on FGR conservation.

An update on the EUFORGEN activities was presented during the 14th Session of the FAO Panel of Experts on Forest Gene Resources in Rome, Italy on 31 January – 2 February 2007. The Coordinator also participated as an observer in the 33rd Session of the European Forestry Commission of FAO in Zvolen, Slovakia on 23-26 May 2006, and the 17th and 18th Sessions of the FAO Committee on Forestry (COFO) in Rome (15-19 March 2005 and 13-16 March 2007, respectively).

## 3. EUFORGEN Management Committee

The Management Committee provides technical and management advice to the EUFORGEN Secretariat. It meets usually once year and between the meetings its members interact frequently with the Secretariat. Presently the Committee is composed of three members; Oudara Souvannavong (Senior Forestry Officer, Biodiversity and Conservation) from the FAO Forestry Department, and Laura Snook (Director, Understanding and Managing Biodiversity Programme) and Lex Thomsom (Senior Scientist, Forest Genetic Resources) from Bioversity International. The continuous support and advice of the Committee members are gratefully acknowledged.

## 4. EUFORGEN Secretariat

No staff changes have taken place in the EUFORGEN Secretariat during 2005-2006. Lidwina Koop (Programme Assistant) and Michele Bozzano (Programme Specialist) have continued to provide excellent administrative and scientific support, respectively, for EUFORGEN (50% of their time).

**Annex 1:** List of EUFORGEN and other relevant publications (since the fourth Steering Committee meeting in May 2004).

*Meeting reports*

Koskela, J., S.M.G. de Vries, D. Kajba and G. von Wuehlisch (compilers) 2004. *Populus nigra* Network, Report of seventh (25–27 October 2001, Osijek, Croatia) and eighth meetings (22–24 May 2003, Treppeln, Germany). International Plant Genetic Resources Institute, Rome, Italy.

Vancura. K., B. Fady, J. Koskela and Cs. Mátyás (compilers) 2004. EUFORGEN Conifers Network. Report of the second (20-22 September 2001, Valsain, Spain) and the third meetings (17-19 October 2002, Kostrzyca, Poland). International Plant Genetic Resources Institute, Rome, Italy.

Bozzano M., M. Rusanen, P. Rotach, J. Koskela (compilers). 2006. EUFORGEN Noble Hardwoods Network, Report of the sixth (9–11 June 2002, Alter do Chão, Portugal) and seventh meetings (22 - 24 April 2004, Arezzo, Italy). International Plant Genetic Resources Institute, Rome, Italy.

*Technical Guidelines*

Demesure-Musch, B. and S. Oddou-Muratorio. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for wild service tree (*Sorbus torminalis*). International Plant Genetic Resources Institute, Rome, Italy.

Ducousso, A. and S. Bordacs. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for pedunculate and sessile oaks (*Quercus robur* and *Q. petraea*). International Plant Genetic Resources Institute, Rome, Italy.

Fady, B., S. Fineschi and G.G. Vendramin. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for Italian stone pine (*Pinus pinea*). International Plant Genetic Resources Institute, Rome, Italy.

Isajev, V., B. Fady, H. Semerci and V. Andonovski. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for European black pine (*Pinus nigra*). International Plant Genetic Resources Institute, Rome, Italy.

Mátyás, C., L. Ackzell and C.J.A. Samuel. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for Scots pine (*Pinus sylvestris*). International Plant Genetic Resources Institute, Rome, Italy.

Nagy, L. and F. Ducci. 2004. EUFORGEN Technical Guidelines for genetic conservation and use for field maple (*Acer campestre*). International Plant Genetic Resources Institute, Rome, Italy.

*In preparation*

Ducci F. and A. Tani. 2007. EUFORGEN Technical Guidelines for genetic conservation and use for Italian alder (*Alnus cordata*). Bioversity International, Rome, Italy.

Gil, L. and M.C. Varela. 2007. EUFORGEN Technical Guidelines for genetic conservation and use for cork oak (*Quercus suber*). Bioversity International, Rome, Italy.

Koskela, J., A. Buck and E. Teissier du Cros (editors). 2007. Climate change and forest genetic diversity: Implications for sustainable forest management in Europe. Bioversity International, Rome, Italy.

Koskela, J., C.J.A. Samuel, Cs. Mátyás and B. Fady (compilers) 2007. Conifers Network, Report of the fourth meeting (18–20 October 2003, Pitlochry, United Kingdom). Bioversity International, Rome, Italy.

Palancean I. and N. Alba. 2007. EUFORGEN Technical Guidelines for genetic conservation and use for European white poplar (*Populus alba*). Bioversity International, Rome, Italy.

Varela, M.C., G. Eriksson, R. Lumaret, L. Gil Sanchez, M.P. Díaz Fernández and J. Turok. 2007. EUFORGEN Technical Bulletin: Gene conservation and management of *Quercus suber*. Bioversity International, Rome, Italy.

Vendramin G.G., S. Fineschi, A. Delkov and B. Fady. 2007. EUFORGEN Technical Guidelines for genetic conservation and use for Bosnian pine (*Pinus heldreichii*). Bioversity International, Rome, Italy.

von Wuehlisch, G. 2007 EUFORGEN Technical Guidelines for genetic conservation and use for European Beech (*Fagus sylvatica*). Bioversity International, Rome, Italy.

*Other relevant publications*

Lefèvre, F., Collin, E., De Cuyper, B., Fady, B., Koskela, J., Turok, J. and von Wühlisch, G. 2007. European forest genetic resources: status of current knowledge and conservation priorities. In: Maxted, N., Ford-Lloyd, B.V., Kell, S.P., Iriondo, J., Dulloo, E. and Turok, J. (eds.). Crop Wild Relative Conservation and Use. CABI Publishing, Wallingford, UK (in press).