

**Establishment of a European Information System on Forest Genetic Resources
(EUFGIS) – AGRI RES GEN 2005/009**

Workshop on documentation of *in situ* gene conservation of forest trees in Europe

Magleås Center, Birkerød, Denmark

23–24 October 2007

Summary of the workshop

Opening of the workshop

J. Hubert, the chairperson of the first day, introduced B. Ditlevsen, EUFORGEN National Coordinator of Denmark, who welcomed the workshop participants to Denmark and underlined the relevance of the workshop for the future documentation work on forest genetic resources at pan-European and national level. O. Souvannavong of the FAO Forestry Department then provided an overview to global efforts in this regard and pointed out that EUFGIS is an innovative project from which FAO is keen to learn experiences for developing similar initiatives in other parts of the world.

Introduction to EUFGIS and aims of the workshop

J. Koskela, the project coordinator, welcomed the participants on behalf of Bioversity International and presented a summary the project (see annex A for more details). EUFGIS is one of the actions supported by the European Commission under the Council Regulation (No 870/2004) on genetic resources in agriculture. It is coordinated by Bioversity International and has six other project 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; Forest Research, United Kingdom) The project started on 1 April 2007 and it will run until 30 September 2010.

As background information, he informed the participants that the EUFORGEN Steering Committee requested Bioversity International in May 2004 to coordinate development of a project proposal to establish a Web-based information system to support national inventories of dynamic gene conservation units of forest trees in Europe. Such an information system would also benefit 'common action plans' (CAP) which are currently being developed by the EUFORGEN Networks to strengthen implementation of gene conservation of forest trees from the pan-European perspective (see page 1 for more details).

J. Koskela presented the objectives of the project and its work packages. He also clarified the role of national focal points and what they are expected to do. Before the workshop, a total of 34 countries had nominated a national focal point to EUFGIS. He then explained that the purpose of the workshop is to analyse current state of FGR documentation in Europe (i.e. overall implementation of *in situ* gene conservation

efforts, how countries have organized the documentation of these efforts, what kind of national information systems exist at the moment). The workshop is also expected to make recommendations for the development of the EUFGIS information system. Furthermore, he stressed that the workshop is also a good opportunity for the national focal points to share relevant information and experiences.

Finally, J. Koskela presented the activities planned to take place after the workshop. On 25 October 2007, a small expert group will further discuss the outcomes of the workshop and initiate the harmonization of common minimum requirements and information standards for the dynamic gene conservation units. The expert group will meet again in France in early 2008 and in Slovenia in summer/autumn 2008 to finalize the requirements and the standards. During the process, the EUFORGEN Networks and the national focal points will have an opportunity to comment the draft requirements and standards. In winter/spring 2009, the project will organize sub-regional training workshops on the use of the information system for the national focal points.

State of Europe's Forest 2007: data collected on Indicator 4.6 (genetic resources) for the MCPFE process

M. Bozzano gave a presentation on the areas managed for *in situ* and *ex situ* gene conservation of forest trees and for seed production in 1990, 2000 and 2005. The data was collected by the EUFORGEN Secretariat, through EUFORGEN National Coordinators, for the MCPFE report "State of Europe's Forests 2007". A total of 38 countries provided their data for the report. He then discussed the positive trend in FGR conservation in Europe during the past 15 years but concluded that the level of gene conservation can be considered adequate for only a limited number of tree species in Europe. The report will be released at the fifth MCPFE Conference in Warsaw, Poland on 5-7 November 2007 and it can be downloaded at www.mcpfe.org.

In view of future data collection efforts and the development of the EUFGIS information system, the workshop participants recommended that particular attention should be paid for various roles that seed orchards have in different countries. The workshop also suggested that it would be useful to show the data as percentage of the total forest cover in a given country and percentage of species distribution range in Europe, to be able to better compare the data and analyse the situation.

Sharing biodiversity data at the global level

É. Ó. Tuama introduced the Global Biodiversity Information Facility (GBIF) and gave an overview of its activities. GBIF is an international organisation, based in Copenhagen, with an aim to make the world's biodiversity data accessible anywhere in the world. The members of GBIF include countries and international organisations

which have signed a Memorandum of Understanding for sharing biodiversity data and contributing to the development of effective mechanisms for making the data available via the Internet. He then presented in detail various biodiversity information standards, the GBIF architecture as well as the GBIF data portal and web services. He also highlighted various problems in sharing biodiversity data and showed what kind of strategies GBIF has implemented to ensure quality control and to provide feedback for the data providers.

He recommended that EUGIS should agree on data quality standards, such as common language and nomenclature (taxonomy, country names, etc), as soon as possible in order to minimise possible incompatibilities with putting together and sharing the data on the gene conservation units of forest trees.

The GBIF data portal can be accessed at <http://data.gbif.org/> and the GBIF homepage at <http://www.gbif.org/>.

TREEBREEDEX project and its FGR documentation efforts

L. Pâques presented the TREEBREEDEX project which is an integrating activity funded by the EC as part of the 6th framework programme for research. TREEBREEDEX aims at creating a scientific and technical platform for tree breeders and geneticists in Europe to initiate research projects and to prepare ground for cooperative breeding. He stressed that TREEBREEDEX is not a research project but an effort to strengthen the European research infrastructure in this area and to establish a 'virtual tree breeding centre'. The four-year project is coordinated by L. Pâques at INRA Orléans and participated by 28 institutes in 18 countries.

As part its activities, the project has initiated the development of databases on forest genetic material available in the partner institutions and on various field experiments. The databases will provide an inventory of the material and the existing field trials but they will not include any characterization or field data. However, access to such original data can be requested from the institute holding the material or managing the experiments. Further information on TREEBREEDEX can be found at <http://treebreedex.mediasfrance.org>.

The workshop participants acknowledged that TREEBREEDEX and EUGIS complement each other by improving the documentation efforts for tree breeding and FGR conservation, respectively. It was recommended that TREEBREEDEX and EUGIS should collaborate in their FGR documentation efforts to maximize compatibility and making data available more widely through GBIF.

Development of 'common action plans': experiences of the EUFORGEN Scattered Broadleaves Network

B. De Cuyper, Chair of the EUFORGEN Scattered Broadleaves Network, presented the ongoing work by the Network to develop the common action plans which aim at sharing of responsibilities for FGR conservation among European countries. Basically this means establishing a pan-European network of existing gene conservation units covering the spectrum of ecological variability within the distribution area of target tree species and then analyzing needs for further action.

The Scattered Broadleaves Network has identified three groups of the target species, based on their similar ecological requirements. The Network members have started to develop the common action plans for the first set of species, i.e. 1) *Prunus avium* and *Fraxinus excelsior*, 2) *Populus nigra* and *Ulmus laevis*, and 3) *Pyrus pyraeaster* and *Sorbus torminalis*.

The Network has already agreed the minimum requirements for the gene conservation units of scattered broadleaves. Information on the gene conservation units proposed for the pan-European network (2-3 units per species and per country) have been collected using descriptors developed earlier for noble hardwood species and *Populus nigra*. B. De Cuyper then presented the data received from the Network members up to date and highlighted how EUFGIS can help in finalising the common action plans.

European databases of *Populus nigra* and *P. alba* clones: passport data and general rules for compilation

L. Vietto delivered a presentation on the two European databases on poplar clones and how they were developed. The purpose of the databases is to facilitate exchange of clones among countries, help detect duplications in national clone collections and ease identification of accessions. He then explained in detail the passport descriptors which are used for the two databases. He also summarized the lessons learnt from the development and maintenance of the databases which are available online at <http://www.populus.it> (*Populus nigra*) and <http://www.webainia.inia.es> (*Populus alba*).

EURISCO: European search catalogue for crop genetic resources

M. Skofic presented the EURISCO search catalogue which is a web-based information system on the accessions of crops conserved in the European gene banks. EURISCO provides information on more than 1 million accessions held in 230 institutes in 42 countries (<http://eurisco.ecpgr.org/>). EURISCO is hosted and maintained by Bioversity International on behalf of the Secretariat of the European Cooperative Programme for Plant Genetic Resources (ECPGR).

He explained how EURISCO was developed, what kind of technical choices and options were applied, how it is maintained and how national focal points upload the national data to EURISCO. The EURISCO focal points are responsible for compiling the data from different sources within a country and ensure its quality and accuracy. They will then provide the national data to EURISCO using the multi-crop passport data (MCPD) standard. Bioversity is responsible for checking that the uploaded data includes the most essential descriptors of MCPD before the data is made available online and for providing feedback to the national focal points. This checking procedure helps the national focal points to improve data quality and accuracy at national level. Once the data has been checked, Bioversity imports the national data into the EURISCO database.

M. Skofic pointed out that the EURISCO infrastructure was developed with open source software and that the uploading mechanism was designed to allow an easy way of data checking. He also clarified how the lessons learnt from EURISCO will be used for developing the EUFGIS information system. He also noted that it will be a challenging task for EUFGIS to develop data standards for the gene conservation units of forest trees. At the end his presentation, he demonstrated online how data on gene bank accessions can be searched through EURISCO.

Results of the EUFGIS survey

On the morning of the second day (24 October), M. Bozzano presented the results of the EUFGIS survey on documentation of *in situ* gene conservation of forest trees in Europe. The survey was conducted before the workshop and Bioversity International sent out a request and a link to the online Website with the questions to all national focal points who were nominated by early October 2007. The purpose of the survey was to obtain information on *in situ* gene conservation efforts, how countries have organized their documentation of these efforts, what kind of IT tools are used for this purpose and what kind of national information systems exist at the moment. Please see Annex B for the complete survey results.

Plenary discussions

Following the presentation of the survey results, J. Koskela, the chairperson of the second day, explained to the purpose of the plenary discussions and again clarified the role of the EUFGIS national focal points. He also stressed that the EURISCO experiences provide a useful starting point for developing the EUFGIS information system but that the structure of it or the data standards are still to be developed. Subsequently, the plenary discussions provided a good opportunity for the national focal points to provide their ideas on what kind of information the information system should include and how they would like to use the information system and the data within it.

The workshop participants then discussed the results and other relevant issues during three plenary sessions. These focused on 1) implementation of the gene

conservation and documentation efforts in European countries (questions 2-11), 2) the gene conservation units and the currently available on them (questions 12-26), and 3) FGR information management in European countries (questions 27-34). Before opening the discussions on these three areas, J. Koskela summarized the expectations by the national focal points for the EUFGIS information system based on the results of the questions 35-36 and invited the workshop participants to provide further inputs in this regard.

The workshop participants discussed intensively during the three sessions and made several recommendations which are listed below. The EUFGIS Expert Group is expected to further discuss the recommendations while developing common minimum requirements and information standards for the gene conservation units (based on the earlier work of the EUFORGEN Networks).

Workshop recommendations

1. The workshop participants agreed that seed stands can be accounted as gene conservation units but only if they meet the minimum requirements. It was concluded that although management for seed production is often different from management for gene conservation purposes, seed stands do help conserve valuable genetic material.
2. The development of common minimum requirements for the gene conservation units, based on the earlier work of the EUFORGEN Networks, was strongly supported.
3. The EUFGIS information system should only include gene conservation units which already have a designated status as gene conservation areas or stands, recognized by appropriate authorities or agencies. The designated status does not necessarily mean that such units should have a legal status, an administrative status or other similar arrangement is enough. The minimum requirements should also define management requirements for the units (e.g. a basic management plan and management goals).
4. It was discussed whether EUFGIS should develop and apply different categories as part of the minimum requirements for the gene conservation units, following the approach IUCN is using, for example. However, the workshop participants agreed that categories would not be needed. Information on all units should include certain obligatory descriptors with a possibility to provide additional data on the units. Subsequently, this would allow characterisation or grouping of the units based on different search criteria.
5. The gene conservation units selected for the common action plans should be easily identifiable (i.e. they should have an appropriate flag in the EUFGIS database).
6. It was agreed that the information on buffer zones, if they exist, can be included into the database and that the Expert Group should develop data standards for this purpose.

7. The workshop participants recommended that, in addition to field measurements, the units should be visited frequently to verify that they still serve their purpose and that they have not been damaged or destroyed by storms, insect outbreaks etc. However, this is only a recommendation but it should not be a minimum requirement. It was suggested that damages could also be monitored through remote sensing or using local contacts. Furthermore, it was stressed that the local forest manager needs to know whom to contact if anything happens to a unit
8. As the gene conservation units are basically land areas with defined borders, the database should allow entering either point or polygon data as a geographical reference.
9. It is not necessary to include site-specific climate data. This data will be obtained from other sources based on geographical coordinates and using a common method.
10. Subsequently, geographic coordinates will be mandatory information. However, the coordinates can be provided with low accuracy, if there are national limitations for revealing the exact location of the units.
11. Soil data should also be obtained from already available sources (e.g. Soil Atlas of Europe). In addition, the database should include extra fields to allow the inclusion of more detailed soil information that might be useful at a national level.
12. It should be indicated for each units whether harvesting of seed or other reproductive material is allowed (yes/no option in the database).

Conclusions and next steps

M. Bozzano and J. Koskela summarized the workshop recommendations as they were recorded based on the discussions. The workshop participants asked a few clarifications regarding the recommendations which were then endorsed.

J. Koskela then reminded the workshop participants of the next steps in the project. On the following day, the expert group will further discuss the workshop recommendations and initiate development of common minimum requirements and information standards for the units. The expert group will meet again in France in spring 2008 after which the draft requirements and standards will be circulated for comments to the EUFORGEN Networks as well as to the EUFGIS national focal points. A third meeting of the expert group, to be held in Slovenia in summer/autumn 2008, will then finalise them. In 2008, a test version of the EUFGIS information system will be also developed and the project partners will starting collecting data and testing the system before it made available for all national focal points to upload the national data sets. In winter/spring 2009, the project will organise four sub-regional training workshops (Northern Europe, Central and Western Europe, Eastern and South-eastern Europe, and the Mediterranean region)

for the national focal points. After receiving the training, the national focal points will be expected to compile national datasets and upload them into the information system.

In 2010, EUFGIS will organize a final project meeting to bring together the national focal points and end-users to assess the impact and the results of the action. The meeting will also be used as an official launching event of the information system.

Closure of the workshop

With no other business, J. Koskela thanked all participants and closed the workshop.