

EUFORGEN/FORGER Workshop on Inventories of Forest Genetic Resources

Szombathely, Hungary, 8-10 May 2012

Summary of the workshop

Opening of the workshop

Sándor Bordács, EUFORGEN National Coordinator of Hungary (Central Agricultural Office) opened the workshop and welcomed the participants to Hungary. He thanked the Hungarian Forest Research Institute for hosting the workshop at the Kámon Arboretum in Szombathely and wished the participants fruitful discussions.

Csaba Mátyás (University of West Hungary and the Hungarian Academy of Sciences) provided a brief historical overview of the process that led to the establishment of EUFORGEN. He also noted that the first meeting of the EUFORGEN Steering Committee was held in Sopron, Hungary in 1995 in conjunction of the very first European workshop on forest genetic resources (FGR). He stressed the importance of dynamic FGR conservation in the face of climate change and emphasized the need to integrate genetic conservation into the adaptation strategies of the forest sector in different European countries. He concluded his welcome address by noting that international collaboration is necessary for the development and implementation of effective FGR conservation strategies at the pan-European level.

Attila Borovics, Director General of the Hungarian Forest Research Institute (ERTI) welcomed the participants to the Kámon Arboretum on behalf of ERTI. He briefed the participants on the development of forest area in Hungary and the early work of Hungarian scientists working on forest reproductive material. He also presented *in situ* and *ex situ* conservation efforts for forest trees in Hungary and discussed the impact of climate change on these efforts in the country. He recommended that special silvicultural measures, such as planting a higher number of seedlings and leaving more room for natural selection, should be applied in those areas which are predicted to suffer most from the impacts of climate change. He noted that silviculture should facilitate migration of tree species to new suitable areas and that FGR conservation strategies should pay special attention to the marginal populations of tree species. He concluded that he is very interested in learning the outcomes of the workshop.

Introduction to the workshop

Jarkko Koskela, EUFORGEN Coordinator, welcomed the participants on behalf of the EUFORGEN Secretariat and thanked ERTI and the Kámon Arboretum for hosting the workshop. He started his presentation by summarizing the activities which were carried since the final meeting of the EUFGIS project, held in Vienna, Austria in September 2010. The project ended in March 2011 after a six-month extension and the EUFGIS Portal is now maintained as part of EUFORGEN activities. He pointed out that the EUFGIS National Focal

Points remain responsible for updating and managing the national data in the database. He also noted that the current workshop is one of the activities that have been designed to maintain and further develop the EUFGIS Portal.

He informed the participants that many countries continued compiling and uploading new data into the database throughout 2011 and in early 2012. Subsequently, the EUFORGEN Secretariat has also continued checking the quality of the data entered and providing helpdesk support for the National Focal Points. In 2011, a case study assessing the status of dynamic FGR conservation in Europe was finalized in collaboration with the National Focal Points and another case study on the impact of climate change on the genetic conservation units of forest trees is being finalized by the project partners. He then presented other examples on how the EUFGIS Portal and its use have been promoted at the national and international level.

Regarding the current status of the EUFGIS Portal, he noted that the database contains information on a total of 2563 units and about 100 tree species in 31 countries. These units harbor 3349 tree populations. When the portal was launched in September 2010, it provided data on 2240 units and 3228 populations. This indicates that the National Focal Points have made good progress in continuing their work. However, he noted that the number of data-providing countries has not increased (still 31) although now a total of 36 countries have nominated a Focal Point.

J. Koskela continued by highlighting the importance of the EUFGIS Portal for the EUFORGEN work and especially for the development of a pan-European genetic conservation strategy and a genetic monitoring scheme at the European scale. Regarding further development of the portal, he then presented the planned EUFGIS-related activities which will be carried out as part of the new FORGER project. In addition to the current workshop, they include another workshop on FGR conservation and monitoring (to be held in Finland in September 2012). Furthermore, he explained the EUFGIS Portal and the GD² database will be linked so that it is easier to search and identify which tree populations with the genetic conservation units and nearby the units have been sampled for genetic studies by many of the European research projects. In autumn 2013, EUFORGEN will also organize a training workshop on the linked FGR databases for the National Focal Points as part of the FORGER project.

He concluded by presenting the aims of the current workshop which is expected to:

- provide feedback on the quality of the EUFGIS data and discuss ways to improve it
- demonstrate the use of EUFGIS
- seek inputs for further development of EUFGIS
- provide an overview of other relevant FGR databases
- share information on new developments
- discuss linking of various FGR databases in Europe (from users' point of view)
- exchange ideas and analyze progress made in the national FGR documentation efforts.

Finally, he introduced the meeting agenda which was adopted without changes. J. Koskela and M. Bozzano were nominated as rapporteurs of the meeting.

Assessment of dynamic conservation of forest tree genetic diversity in Europe

Based on the case study done as part of the EUFGIS project, François Lefèvre (INRA-Avignon, France) presented issues related to the data quality and their implications for further FGR inventories. He emphasized that all units entered into the EUFGIS database should meet the pan-European minimum requirements for genetic conservation units of forest trees. Only then, the EUFGIS Portal can be reliably used for assessing and monitoring dynamic FGR conservation in Europe, including gap analyses. Such assessments cannot be done based on the EUFGIS data only and therefore it needs to be used together with other data sources, such as species distribution maps, data or maps on the distribution of genetic diversity and environmental and/or climatic data across Europe. He noted that, before the case study was done, a lot of time and efforts were invested in screening the EUFGIS data and sending requests to the national Focal Points to clarify and correct inconsistencies or errors in the national data sets.

As new data is being uploaded frequently, he explained that it will be a major challenge to carry out the data screening and there he urged all National Focal Points to pay particular attention to the data accuracy and completeness before uploading their data sets into the database. He mentioned that the most common inconsistencies were related to taxonomy, the minimum requirements (typically related to the designated status and dynamic evolution), matching the conservation objectives and the minimum number of reproducing trees, and matching the level of management and the predominant silvicultural system (e.g. “no intervention” vs “clear cutting”). Furthermore, there were inconsistencies in indicating missing data for the size of a unit (both 0 and 999 used).

At the end of his presentation, F. Lefèvre listed several points for further discussion during the workshop. These included the requirements for active management and the designated status, and how these are met in those nature protection areas that have been entered into the database, the option “gene reserve forests” in classifying different types of units. In addition, he asked whether more detailed information should be collected on regeneration and how often the more detailed data screening process should be carried out in the future.

Conservation of Norway spruce in Austria - gap analysis of genetic conservation units, neutral genetic variation and adaptive performance

Heino Konrad (BFW, Austria) presented a study on Norway spruce (*Picea abies*) in Austria to demonstrate how different types of FGR data can be used for conservation assessments and gap analyses. The study focused on analyzing genetic variation in the climate response of 480 Norway spruce provenances grown in Austria and the effectiveness of the existing network of genetic conservation units in the country to conserve both adaptive and neutral genetic diversity of this species. The work was based on combining the provenance trial data, genetic

data from detailed sampling of Norway spruce populations, climatic data (both current and predicted climates) and the EUFGIS data on the genetic conservation units in the country.

The results of the study indicate that the annual heat-moisture index explains between 61 and 69 percent of the variation in tree height (at the age of 15 years) and that under the current climatic conditions, the range of variation in growth among the Norway spruce provenances is rather small. However, under the predicted future climate this range of variation is expected to become larger. Provenance that can be expected to grow well under the future climatic conditions originate from the driest and warmest regions of Austria.

The genetic data showed that the highest number of alleles is found in northern, eastern and south-eastern regions of Austria (both nuclear SSRs and the mitochondrial marker used gave similar results). There are a total of 164 genetic conservation units established for Norway spruce but very few of them are located in northern and south-eastern Austria. This indicates that there are considerable gaps in the current genetic conservation network for this species in eastern and northern Austria. H. Konrad noted that these gaps in the conservation network result from a bottom-up approach which was used earlier while establishing genetic conservation units, i.e. forest owners could propose suitable areas for genetic conservation and forest owners in some regions were more active in this regard.

Development of a pan-European genetic conservation strategy for forest trees – information needs

Sven de Vries (Centre for Genetic Resources the Netherlands) updated the participants on the development of a pan-European FGR conservation strategy which is being prepared by one of the EUFORGEN working groups. In his presentation, he highlighted in particular how FGR inventories, and especially the EUFGIS Portal, have contributed to the development and this strategy. FGR inventories will also have a crucial role in monitoring the implementation of the strategy once it has been discussed and adopted by the EUFORGEN Steering Committee.

S. de Vries explained in detail the purpose of the strategy and the methods used for developing it. The overall goal is to maintain adaptive and genetic diversity of forest trees at pan-European level through dynamic FGR conservation, i.e. maintaining evolutionary processes within tree populations. The strategy will also aim at creating a core network of genetic conservation units for selected model tree species (at the first stage) to cover their adaptive and neutral genetic diversity at the pan-European level. An environmental stratification of Europe is used as a proxy for the distribution of adaptive diversity and the distribution of neutral genetic diversity is obtained from the results of genetic studies, when available. The core network of the conservation units will be selected among those units which meet the pan-European minimum requirements and which have been entered into the EUFGIS database.

He continued by presenting the draft outline of the report that the working group is preparing for the EUFORGEN Steering Committee and some results based on the work with the model species. He noted that some of the gaps in conservation efforts identified by the

working group may be due to missing information, i.e. conservation units which are not yet entered into the EUFGIS database. He said that the working group will recommend the Steering Committee to remind all countries to provide any missing information as soon as possible and to allocate adequate resources for the maintenance and further development of the EUFGIS Portal. He stressed that the portal is crucial for monitoring the implementation of the pan-European strategy and its further improvement.

European research infrastructures relevant for FGR inventories

GD2 database

Antoine Kremer (INRA-Bordeaux, France) gave a presentation on the Geo-referenced Database on Genetic Diversity (GD²) which was developed as part of the EVOLTREE project (Evolution of Trees as Drivers of Terrestrial Biodiversity, 2006-2010). It contains genetic and geo-referenced passport data on tree populations and single trees that have been sampled for genetic studies. The GD² database was developed to make available the genetic data sets (all types of markers) from published studies and it also provides a copy of the publication where a given data set was published. The database makes it possible to display the data in a standardized way and to carry out meta-analyses across species and geographical areas, for example. He also showed a list of data sets from recently published studies that have been entered into the database.

He then reported that more data is being added to the GD² database and many studies carried out during the EVOLTREE project have been, or are about to be, published in scientific journals. He noted that the compilation of data and extension of the database functionalities will also continue as part of the new FORGER project. The GD² database can be accessed through the Quercus Portal (<http://w3.pierroton.inra.fr/QuercusPortal>) or the EVOLTREE website (www.evoltree.eu) (EVOLTREE members).

DNA Repository Centre and EVOLTREE eLab

Silvia Fluch (Austrian Institute of Technology) presented the DNA Repository Centre and the eLab, both created during the EU-funded EVOLTREE project (2006-2010). She started by noting that large amount of data and resources are currently available as a result of numerous projects and that the challenge of forest ecosystem research is to connect these scattered information sources so that they can be used for more comprehensive studies and analyses. The information sources can be virtual (e.g. sequences or data strings from various measurements), immobile (field trials, genetic conservation units, *ex situ* collections or gene banks) or mobile (DNA, tissue samples or seeds).

The DNA Repository Centre is hosted and managed by AIT and it provides a centralized access point to both genetic material and data. S. Fluch reported that a total of 645,000 samples have been stored so far in the Repository Centre. The samples originate from a network of 19 European laboratories which have carried out genetic studies on forest trees.

The Repository Centre is fully automated sample storage and data management facility where as the eLab is basically a search engine. Through the eLab, it is possible to make integrated searches in all databases maintained by the EVOLTREE network.

S. Fluch then highlighted technological and legal issues that need attention while linking different information sources. These include the concepts and terminology used by various databases, traceability of information and data sharing agreements. She concluded her presentation by stressing that large-scale integration of different information sources requires clear concepts and long-term commitment. Based on her experiences, user-friendly and centralized access and search tool will ease research work and also add value to the research results. Finally, she also noted that building trust among experts and organizations involved in these efforts helps avoiding conflicts and solving possible problems.

TREEBREEDEX database

Fulvio Ducci (CRA, Italy) gave a presentation on the TREEBREEDEX project (2006-2010) which was an integrating activity funded by the EC as part of the 6th framework programme for research. The project was coordinated by INRA-Orleans (France) and it brought together a total of 28 institutes in 18 countries. The project created a virtual tree breeding centre, delineated adaptive environment and breeding zones at European level, improved long-term management of forest tree genetic resources (i.e. breeding populations), and developed breeding strategies, methodologies and tools.

He added that one of the most important results of the project was development of a European database on genetic resources used for tree breeding. This database provides metadata on collections (or genetic units) of main commercial forestry species used for breeding and genetic studies (e.g. provenances, families, clones and varieties), field trials (any type) and tested materials that is listed and described according to common criteria. Access to the original data is granted, based on requests, by the institutes which are holding the material or managing the experiments. The database contains metadata on 297,394 genetic units, 7633 field trials and 454,954 tested materials.

F. Ducci noted that access to the database is currently only available for the consortium members and associated members who have provided data. He continued by listing some potential applications of the database. These include identification of core genotype (ex. clones) collections across Europe for a given species, search for specific genotypes or trials with specific requests on ecological conditions, search for sites across Europe where a given genotype has been tested, and identification of those zones within the natural distribution of a species that are not covered by breeding material. He concluded by informing the participants that the database is being further developed as part of the new TREES4FUTURE project. More information on the TREEBREEDEX project is available on its website (<http://treebreedex.eu/>).

New EU-projects dealing with FGR inventories and databases

TREES4FUTURE

Silvia Fluch (Austrian Institute of Technology) introduced the TREES4FUTURE project (Designing Trees for the Future), which was launched in November 2011 for a period of four years. It is an Integrative European Research Infrastructure project that aims to integrate, develop and improve forest research infrastructures. It will provide the wider European forest research community with easy and comprehensive access to currently scattered sources of information (including genetic databanks, forest modelling tools and wood technology labs) and expertise. TREES4FUTURE is coordinated by INRA-Orleans and the European Forest Institute (EFI), and the consortium consists of a total of 28 partners. The project is financed by the EC under the 7th framework programme for research.

The project has a total of 36 work packages and one of them is particularly relevant for FGR inventories, i.e. Work Package 1 (Structuring and providing a common access to databases) which is lead by AIT. The goal of this work package is to provide a common access to existing databases maintained by the partners and link, integrate new data generated by the project's research activities into the databases, and ensure the sustainability of the databases. TREES4FUTURE is also keen to collaborate with other European projects and initiatives, such as the EVOLTREE Network, the FORGER project, the EUGIS Portal and EUFORGEN. More information is available on the TREES4FUTURE website (<http://www.trees4future.eu/>).

FORGER/FGR inventories

Katri Kärkkäinen (Metla, Finland) presented the FORGER project (Towards the Sustainable Management of Forest Genetic Resources in Europe), which is also funded by the EC (FP7-KBBE Programme). The project started in March 2012 and it will end in February 2016. FORGER is coordinated by Alterra (Netherlands) and it has a total of 9 partners. The project aims at integrating and extending existing knowledge to provide science-based recommendations on the management and sustainable use of FGR for the EC, policy makers, forest managers, and managers of protected areas. FORGER has five objectives, namely 1) improve and analyze FGR inventories in Europe, 2) develop a common protocol for measuring and monitoring genetic diversity, 3) analyze past, current and future use and management of FGR, 4) provide improved tools, guidelines and recommendations, and 5) disseminate and communicate the results to stakeholders.

She continued by presenting the tasks of the technical and dissemination work packages of the project. The names and leaders of these work packages are listed below:

- WP1: Inventories of FGR (Metla)
- WP2: Measuring and monitoring genetic diversity (vTI)
- WP3: Use and management of FGR (BFW)
- WP4: Tools, guidelines and recommendations on the conservation of genetic diversity (BFW)
- WP5: Communication, dissemination and knowledge transfer (Bioversity)

In addition to these, there are two work packages dealing with project management. Regarding WP1, she explained that the project will extend FGR inventories in Europe by linking the GD² and EUFGIS databases and then characterize the genetic diversity conserved within the genetic conservation units and found nearby the units.

She also noted the key target groups for communication, dissemination and knowledge transfer include the National Focal Points of EUFGIS in addition to the EUFORGEN Steering Committee, working groups and experts. The FORGER project also plans to collaborate closely with other relevant European projects, such as the TREES4FUTURE project. Further information is available on the FORGER website (www.fp7-forger.eu).

FORGER/historic and current transfer of forest reproductive material

Thomas Geburek (BFW, Austria) presented in detail the planned FORGER work on forest reproductive material. As part of WP3, the project will 1) collate data on impacts of both forest management (including transfer of FRM) and environmental change on genetic diversity, 2) assess the present status of transfer of FRM at the pan-European scale, and 3) develop optimized seed harvest strategies for sustainable use of FGR.

He explained that the transfer of FRM has a long history in Europe with some of the earliest records in Central Europe dating back to 1496. He stressed that we do not know to what extent FRM is moved within the European Community, how much is imported from outside, and where the moved or imported material is finally used as most countries do not collect systematically the necessary data. However, he said that some data is available and presented data on the FRM movements from Austria and Germany. To better assess the present status of FRM transfer at the European scale, the FORGER project will collect relevant data from the official bodies in different EU Member countries. It also plans to discuss the importance of this assessment with the EU Standing Committee on Forestry and collaborate with the partners of the TREEBREEDDEX and TREES4FUTURE projects. Furthermore, he noted that the project will also contact non-EU countries and ask their interest to provide data for this assessment.

Group discussions

In the morning of the second day, J. Koskela reminded the participants on the aims of the workshop and provided some further guidance before the participants were divided into two discussion groups. The first group focused on further development of EUFGIS (D. Ballian, M. Ivankovic, J. Frydl, L. Yrjänä, P. Alizoti, S. Bordacs, C. Ryan, I. Zarina, M.C. Varela,, D. Bednarova, H. Kraigher, E. Notivol, G. Kandemir, R. Volosyanchuk, F. Lefevre, M. Bozzano) and the second one on linking EUFGIS, GD² and other databases (F. Ducci , M. Parv, S. Fluch, R. Longauer, D. Olrik, S. de Vries, K. Kärkkäinen, G. Parnuta, G. Postolache, M. Haverkamp, C. Koziol, P. Vakkari, E. Collin, K. Cesnavicius, J. Koskela). The groups then discussed separately the assigned topics until lunch break.

Improving FGR inventories and database inter-operability in Europe

During the afternoon session of the second day, the two groups presented their recommendations for plenary discussion.

Concerning further development of EUFGIS, the first group made the following recommendations for the improving the layout of the EUFGIS Portal/intranet and for clarifying the minimum requirements and/or data standards:

- The wording of the data standard on population share should be changed to “*share of the area for this population within the unit*”. It would be also useful to add the illustration presented during the workshop on this data standard to the Portal/intranet.
- The word “*percentage*” should be added to *Area share* in the intranet to avoid any misunderstanding.
- Add a reminder for the National Focal Points to enter only units that meet the pan-European minimum requirements (emphasizing the designated status and evolutionary processes). Furthermore, add a list of areas that should not be entered into the database (e.g. provenance trials, clonal archives and other static collections of FGR).
- Explain better what the *ex situ* option means under the data standard on the category of the population, i.e. that a population can originate from another place but that it should be a naturally evolving unit. This would better clarify that, in this context, *ex situ* does not refer to a gene bank, for example.
- A cancel option would be useful in the intranet when updating the information on species and units.

The first group also proposed that the following information should be added to the EUFGIS Portal/database/intranet, if possible:

- IUCN classification of each target tree species
- Climatic data from the WorldClim database (all 19 parameters, not only precipitation and temperature)
- The source of the climatic data should be embedded in the file and displayed in the Portal and intranet
- Environmental stratification data of each unit (i.e. name of the environmental zone in which the unit is located)
- Summary data by country in the intranet

Furthermore, the first group considered that it would be useful to add two data validation features in the EUFGIS intranet. The first one should compare the number of reproducing trees against the area and display a warning if the density of trees per hectare is too high.

This would allow the Focal Points to check right away if there is a typing mistake or error in the original data. The second validation feature should check that options selected for the predominant silvicultural system and the level of management do not contradict each other.

The group also recommended that the existing “*Remarks*” field should be utilized better. The name of subspecies should be removed from the species names and subspecies should be indicated in the “*Remarks*” field. In the same field, it is also possible to indicate if the species is a riparian one and indicate the growing stock percentages of various species, for example. In addition, a remark can be added if the target species is exotic in the country.

Lastly, the first group considered that an option for free text search within the Portal could be useful and suggested some modifications to the advance search fields (add a search field for units which more than one target species and for the IUCN classification).

Before reporting its recommendations and conclusions, the second group pointed out that there is a need for increased collaboration and information exchange between different projects and initiatives in addition to the joint efforts that aim to link databases. It recommended that different projects could organize joint workshops for dissemination of their results and for increasing information exchange.

The second group welcomed the idea of linking GD² and EUFGIS databases but noted that it would be useful if these two *in situ* databases are also linked to *ex situ* databases (e.g. provenance trials and clone collections) and *vice versa*. This would increase the accessibility and usability of all types of FGR data in Europe. The group also proposed that the databases on genebanks, provenance trials and progenies developed by the TREEBREEDEX project could be made available for a broader group of users in the context of the TREES4FUTURE project. Furthermore, the group proposed that it would be important to survey what material is available in seed banks of forest trees and also make this information available.

The group informed other participants on the ongoing data inventory by the EC to link and make publicly available sources of information and data within the policy domain of DG SANCO by using semantic web technology. The EC Forestry Catalogue on seed stands and seed orchards in the Member States will be also linked to this data inventory. It was suggested that the FORGER and TREES4FUTURE projects should also establish links to this EC data inventory. More information on the data inventory is available from the DG SANCO website (http://ec.europa.eu/dgs/health_consumer/information_systems/index_en.htm).

The second group noted that the linking of databases will also promote the use of genetic conservation units for research. It further recommended that future studies on FGR should be targeted to the units to produce different data sets for the same genetic material, to store DNA from the units in the Repository Centre and to collect seeds for experiments. Regarding maps, the second group noted that breeding and seed transfer zones should be delineated across Europe using the same rules and methods. Furthermore, it noted that these zones will have to be modified as a result of climate change as breeders and FRM users are likely to seek new material from abroad in many countries. As additional use cases, the group

mentioned that the interlinked databases help to identify gaps in the genetic conservation efforts and genetic resources for restoration of endangered trees species.

During the plenary discussions, it was also brought up that the work of EUFORGEN and the European projects on FGR should be highlighted in relevant EC documents, when possible. It was further suggested that the FORGER and TREES4FUTURE projects should identify users' groups to promote the use of the databases. The schedule of the database linking was also clarified. The linking of EUFGIS and GD² should be ready by early 2012. This will then allow the linking of EUFGIS also with the EVOLTREE and TREES4FUTURE databases which all use the same code for this purpose. The linking of TREEBREEDDEX and other databases to the TREES4FUTURE Portal should be ready within the next two years.

Wrap-up of the workshop

J. Koskela thanked all participants for their inputs to the discussions and the staff of ERTI and the Kámon Arboretum for the local arrangements. With no other business, he then closed the workshop.

Annex 1. Agenda of the workshop

Tue 8 May		
08:00-09:00	Registration to the workshop at the Hungarian Forest Research Institute	Visitor Centre, Kámon Arboretum
09:00	Opening of the workshop <ul style="list-style-type: none"> • Welcome address by the host country (Prof. Csaba Mátyás, University of West Hungary) • Welcome address by the host organization (Attila Borovics, Director General, Forest Research Institute, Department of Tree Breeding) • Welcome address by the National EUFORGEN Coordinator (Sándor Bordács, Head, Central Agricultural Office, Department of Forest and Biomass Reproductive Material) 	
09:15	Introduction to the workshop (Jarkko Koskela, Bioversity International)	
09:45	Coffee/tea break	
10:15	Assessment of dynamic conservation of forest tree genetic diversity in Europe (François Lefèvre, INRA-Ecologie des Forêts Méditerranéennes) <ul style="list-style-type: none"> • Discussion on data quality issues and the implications of the results for further inventories of forest genetic resources in Europe 	
11:15	Conservation of Norway spruce in Austria - gap analysis of genetic conservation units, neutral genetic variation and adaptive performance (Heino Konrad, BFW, Austria) <ul style="list-style-type: none"> • Discussion on the using different FGR data for conservation assessments 	
11:45	Development of a pan-European genetic conservation strategy for forest trees – information needs (Sven de Vries, Centre for Genetic Resources the Netherlands) <ul style="list-style-type: none"> • Discussion on how FGR inventories can support the development and implementation of the strategy 	
12:30	Lunch	
14:00	European research infrastructures relevant for FGR inventories <ul style="list-style-type: none"> • GD² database (Antoine Kremer, INRA-BIOGECO) • DNA Repository Centre and EVOLTREE eLab (Silvia Fluch, Austrian Institute of Technology) • TREEBREEDEX databases (Fulvio Ducci, CRA, Italy) • Discussion 	
15:30	Coffee/tea break	
16:00	New EU-projects dealing with FGR inventories and databases <ul style="list-style-type: none"> • TREES4FUTURE (Silvia Fluch, Austrian Institute of Technology) • FORGER/FGR inventories (Katri Kärkkäinen, Metla, Finland) • FORGER/historic and current transfer of forest reproductive material (Thomas Geburek, BFW, Austria) • Discussion 	
17:30-18:00	Wrap-up of the day	

Wed 9 May		
09:00	Introduction to the group discussions (Jarkko Koskela, Bioversity International)	Visitor Centre, Kámon Arboretum
09:30	Parallel group discussions <ul style="list-style-type: none"> • Group 1: Further development of EUFGIS • Group 2: Linking EUFGIS, GD² and other databases 	
10:30	Coffee/tea break	
11:00	Parallel group discussions (continued) <ul style="list-style-type: none"> • Group 1: Further development of EUFGIS • Group 2: Linking EUFGIS, GD² and other databases 	
12:30	Lunch	
14:00	Improving FGR inventories and database inter-operability in Europe <ul style="list-style-type: none"> • Results of the group discussions • Plenary discussion 	
15:30	Coffee/tea break	
16:00-17:30	Improving FGR inventories and database interoperability in Europe <ul style="list-style-type: none"> • Plenary discussion (continued) 	
17:30-18:00	Wrap-up of the workshop	
19:30	Social dinner	Hotel Claudius

Thu 10 May		
08:00	Departure for a field trip <ul style="list-style-type: none"> • Kőszeg Mountains and Farkaserdő 	
12:30	Lunch	
14:30-	Transport to Vienna-Schwechat Airport and back to the hotel in Szombathely, as needed	

Annex 2. List of participants

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