# EUFORGEN/EUFGIS Training Workshop on FGR Inventories and GenTree Consultation on the status of conservation of FGR

Rome, Italy, 4-6 April 2017

**Summary of the meeting**

## 1 Opening of the workshop

On behalf of Bioversity International M. Bozzano welcomed the participants in Rome and wished a successful workshop. He explained a dual purpose of the workshop: to improve the way the national focal points (NFPs) are adding and managing genetic conservation units (GCU) in the EUFGIS information system, and to provide a training on new technical features. After the training workshop, a consultation was organized in collaboration with GenTree project on the status of *in situ* conservation of forest genetic resources (FGR) in Europe, aiming at identifying priorities and formulating suggestions on how to improve the existing information systems. A separate report on the event is available on GenTree website[1].

National focal points from 29 out of the 35 countries that have joined the EUFGIS information system who attended the meeting presented themselves. The agenda was accepted without any changes.

M. Bozzano continued by giving an overview of the history, mandate, and objectives of EUFORGEN. He gave a tour of the newly revamped website, highlighting member countries and species pages which display genetic conservation units and link to the EUFGIS system.

## 2 Background

### 2.1 Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units

M. Bozzano gave a brief overview of the pan-European strategy released in the form of a EUFORGEN thematic publication in 2015[2]. The strategy foresees the establishment of a core network of dynamic GCUs, selected among the conservation units entered in the EUFGIS information system[3]. These units are not interconnected by geneflow, but instead, as a whole aim to capture the current adaptive diversity

[1] Consultation on the status of in situ conservation of forest genetic resources in Europe and available documentation http://www.gentree-h2020.eu/fileadmin/Gentree-uploads/documents/Report_of_EUFGIS-Gentree_consultation_Rome_Apr_2017.pdf

[2] Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units http://www.euforgen.org/publications/publication/pan-european-strategy-for-genetic-conservation-of-forest-trees-andestablishment-of-a-core-network-o/

[3] http://portal.eufgis.org/

across the European continent, with the ultimate objective of conserving the evolutionary potential of the species.

### 2.2 Indicator 4.6 of the pan-European criteria and indicators for sustainable forest management

M. Bozzano continued presenting the current indicator 4.6 (Area managed for conservation and utilization of forest tree genetic resources (*in situ* and *ex situ* genetic conservation) and area managed for seed production). This indicator is a part of the set of Criteria and Indicators (C&I) for sustainable forest management adopted by the Forest Europe process. Up to date, European countries have been reporting the number of hectares managed for the conservation and utilization of forest tree genetic resources and area managed for seed production. However, the assessment based on the number of hectares is not optimal for understanding FGR conservation efforts and measuring progress. The number of hectares does not inform neither on the amount of genetic diversity conserved within each country nor on the added contribution of within-country conservation units to the overall genetic diversity conserved at the pan-European scale. To overcome the inadequacies, a EUFORGEN working group has recently developed an alternative way to measure the status of FGR. This method consists of a set of sub indicators expressing countries' number of GCUs, species diversity, ecotype[4] diversity and conservation efforts.

EUFGIS will allow to obtain the main data for this indicator. New features have been integrated in the EUFGIS system to enable the collection of the needed information, allowing NFPs to indicate species' occurrence in the country and to specify eco-geographical presence in the country. Reviewing and receiving training on these new technical features were main reasons for focal points to participate in this workshop.

### 2.3 Development of a decision support tool for the management of the genetic conservation units network

M. Westergren (Slovenian Forestry Institute) presented the current stage of development of the decision support tool for the management of the genetic conservation units network and the idea behind it. The tool is being developed within a EUFORGEN working group and is aimed to be used by forest managers responsible for the management of the national networks of GCUs (essentially EUFGIS NFPs) to take appropriate management decisions with long-term perspective. The tool itself has two focuses: the first one being management of GCUs and the second identification of further possible GCUs for the safeguarding of genetic material elsewhere, e.g. in marginal and peripheral populations. The management part of the tool will i) provide means of monitoring GCUs to determine whether they continue to meet the minimum requirements, ii) simplify the identification of threats at the population level, iii) provide a list of management actions to respond to threats and

[4] *Ecotypes = Species* x *environmental zones*

iv) provide an early warning of decline in the number of GCUs.

The tool builds upon four demographic indicators, two genetic indicators and three indicators for immediate disturbances. Each indicator can be evaluated using a single verifier from a list of appropriate verifiers described in the tool. The selected verifiers can be easily counted, measured or inferred from proxy data. The change in the state of a certain indicator is connected to a certain management action aimed to rehabilitate the GCU or conserve genetic resources *ex situ*. The tool differentiates between seven management actions ranging from "management as is" through *in situ* measures (sylvicultural measures, enlargement of GCU) towards three different *ex situ* strategies.

M. Westergren stated that the genetic aspects of the tool may be difficult to complete for most species at this time due to a general lack of genetic knowledge. However, with time, when more information becomes available, the tool will eventually become more easily applicable and thus more useful.

### 2.4 The Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources – the upcoming FAO questionnaire and EUFGIS Data

J. Koskela (Food and Agriculture Organization) initially presented the background of the Global Plan of Action (GPA) for FGR, which has the objective to enhance the conservation, sustainable use and development of FGR. *The State of the World's Forest Genetic Resources* served as the basis for the identification of the four priority areas for the actions on FGR, which are: i) improving the availability of, and access to, information on FGR; ii) conservation of FGR (*in situ* and *ex situ*); iii) sustainable use, development and management of FGR; iv) policies, institutions and capacity-building. The plan is voluntary and should be implemented in line with existing national legislation. J. Koskela noticed that Europe was already rather advanced on these areas of priority and serves as an example for the other Regions.

The GPA-FGR is closely associated to, and adapted in cooperation with, the four regional networks across the world: APFORGEN, LAFORGEN, SAFORGEN and EUFORGEN.

J. Koskela continued by summarising relevant outcomes from the *16th Commission on Genetic Resources for Food and Agriculture* held in February 2017 where the continued implementation of the GPA-FGR were endorsed. He hereafter went through the targets, indicators and verifiers for assessing the success of the GPA-FGR. In addition, he presented the monitoring plan for the next 6 years of process.

The latest draft of the "Questionnaire for submitting a Country Progress Report" for Monitoring the implementation of the GPA-FGR will be circulated together with the minutes of the workshop.

J. Koskela highlighted that the EUFGIS system is both useful for providing data to the *State of the World's Forest Genetic Resources* reports as well as for monitoring the implementation of the GPA. These are yet additional reasons to keep the system updated. In relation to this, M. Bozzano encouraged NFPs to strengthen the link to the individual countries' representatives responsible for providing data to the SoW FGR reports in order to ease the reporting process.

Finally, J. Koskela encouraged NFPs to contact him for questions, ideas or clarifications regarding the GPA.

**3 Revisiting the basis of the EUFGIS information system**

M. Bozzano introduced the EUFGIS project and highlighted the three main outcomes derived from the project: (i) the pan-European minimum requirements, (ii) the network of focal points and (iii) the EUFGIS information system, which EUFORGEN is committed to maintain in long term. Currently, the EUFGIS information system contains data on 3405 units and 100 tree species in 35 countries. The units harbour a total of 4351 tree populations.

He outlined the *minimum requirements* as the essential component to establish and monitor the GCUs. These are the result of a comprehensive process of examination, discussions and consultation with networks and country representatives. Basically, the minimum requirements form a checklist for what data can be entered in the EUFGIS system. M. Bozzano outlined the three purposes of conserving genetic resources: to maintain genetic diversity, to conserve specific traits in scattered or marginal and peripheral (MaP) populations and to preserve diminishing or threatened populations or species.

Hereafter, M. Bozzano updated participants on the current status of EUFGIS and explained technical aspects of entering conservation units' information into the EUFGIS system and urged the participants to keep maintaining updated and verified information in the system. He also encouraged the NFPs to enter new data as soon as they become available.

**3.1 Identification of species occurring in the countries and environmental zoning**

N. Lauridsen introduced new functionalities in the EUFGIS intranet including how to revise the list of species occurring in the countries, as well as how to indicate the environmental zones in which the species occur. Participants were hereafter invited

to conduct the tasks for their individual countries during a hands-on training session of the workshop.

As a result of this session, several points were raised, pinpointing missing features, flaws and suggesting more comprehensive solutions. S. Mori applied some of the changes during and shortly after the workshop.

Participants highlighted special cases from the countries which uncovered the wide range of grey zones existing in relation to if and how a species exists in a country. After a long discussion regarding how to embrace all possible circumstances, it was agreed to expand the checklist from two to four categories: i.e. (i) *Yes native; (ii) Yes native, but less < 15 reproducing trees; (iii) Yes non native; (iv) No*. Species categorized as *Yes native* are the only ones that require for the country to establish a GCU, as part of the pan-European conservation strategy. In addition, it was agreed to add a comment field for each record with the possibility of explaining e.g. for what reason conservation is not possible or relevant.

Participants were encouraged to send suggestions for additional species for the list to the secretariat on euf_secretariat(at)cgiar.org. Suggested species will be evaluated and added, if relevant.

### 3.2 Ranking of core networks

M. Bozzano explained the concept of *core network* to the participants and presented new related technical functionalities. The core network for each species is composed of selected GCUs that together capture the existing adaptive diversity, as defined and described in the Pan-European strategy for genetic conservation of forest tree. The core network is generated by applying a simple ranking based on a number of selected parameters (ranging from the estimated number of reproducing trees to the size of the unit), through the new functionalities. NFPs can give indication on the final ranking for each species x environmental zones (overriding the automatic ranking based on the previously listed criteria) and suggest which additional conservation units covering migration routes, refugial areas and contact zones should be added to the core network.

### 3.3 Other technical issues clarified at the meeting

The accuracy of the species distribution maps does not allow a precise definition of the environmental zones where the species occurs, generating false positive presence and generating never-reachable conservation targets. The EUFORGEN Secretariat will therefore prepare a preliminary assessment of species presence in all environmental

zones in all countries, which the NFP will be asked to validate[5]. If the Metzger's environmental zone into which individual GCU is inserted based on the geographical coordinates, does not correspond to the situation "in the field" NFPs are kindly asked to make a remark in the core network ranking page without changing the actual coordinates of the GCU to fall into the right environmental zone.

It was requested to add a new feature to archive the GCUs that no longer meet the minimum requirements.

Participants agreed that the new technical features were easy to understand and apply.

## 4 GenTree[6] - providing the forestry sector with better knowledge, methods and tools for optimising the management and sustainable use of forest genetic resources (FGR) in Europe.

B. Vinceti (Bioversity International) provided an overview of the GenTree project, which is an EU-funded research project started in March 2016. The objectives of the project include (i) the expansion of current scientific knowledge on how genetic diversity, phenotypic trait diversity and environmental diversity co-vary over multiple spatial scales, (ii) the generation of inform on the genetic basis of phenotypic trait variability and plasticity, (iii) the characterisation of *in situ* and *ex situ* conservation units and underused natural resources. The main goal of the project is to provide the European forestry sector with better knowledge, methods and tools for optimising the management and sustainable use of forest genetic resources (FGR) in Europe in the context of climate change and continuously evolving demands for forest products and services. The initiative focuses on 12 key European forest tree species, which are subjected to a very wide sampling spreading across Europe, covering large- and small-scale environmental gradients, to unveil patterns of adaptive variation.

A survey was launched two weeks prior to the workshop, targeting the 35 EUFGIS NFPs, to obtain an overview of key aspects of FGR *in situ* conservation across Europe. B. Vinceti presented the results[1], showing the overall trends of how GCUs are designated, managed and monitored in the European countries as well as how GCU data is used.

A discussion regarding the setup and outcomes of the survey followed. This allowed to identify new features to be added to the EUFGIS system, including an easier way to document unit visits, possibility to indicate and search for marginal and peripheral (MaP) populations among the GCUs and an online overview of what projects are

[5] This was decided after the workshop to standardize the approach and facilitate the work of the NFPs
[6] http://www.gentree-h2020.eu/

linked to the GCU. For a detailed report of the consultation, please refer to the 'GenTree report on the consultation on the status of *in situ* conservation of forest genetic resources in Europe'.

M. Bozzano emphasized that GCUs that do not meet the minimum requirements should be removed from the system. A designated status as genetic conservation areas of the given species at national level should be obtained, before these can be entered into the system as this is a minimum requirement. At the same time, all units that do meet the minimum requirements should be entered into the EUFGIS system. He also stated that genetic conservation must be an explicit management goal for the GCUs.

The data in the EUFGIS system can be used for (international) reporting purposes by the countries through in-built features. However, not all countries are taking advantage of this opportunity. The Secretariat is available to support countries in retrieving information from the system for reporting purposes.

**4.1 Workshop exercise – identifying limitations and constraints in FGR inventories**

After the discussion, B. Vinceti initiated a participatory exercise where all NFPs were requested to answer two questions:

1. What are the main limitations in quality and quantity of current FGR inventories?
2. What are the main constraints in effective implementation of FGR *in situ* conservation (country/ pan-European level)?

The purpose of this exercise was to come up with recommendations for how to enhance the management of national inventories and to make the conservation strategy more efficient.

The answers from all participants were clustered under different categories describing overall themes of concern. For *question 1,* these included lack of political support; limited funding; lack of awareness; research gaps and lack of knowledge management/capacity building. For *question 2,* the constraints were insufficient political support; lack of awareness; lack of best practices/guidelines; limited funding; research gaps and conflicting interests. It was found that participants perceived the most critical constraints to be the lack of support by policy-makers and the lack of awareness on the importance of FGR conservation amongst decision makers, general public and forest practitioners. These issues were flagged as priority themes to guide future activities of both EUFORGEN and GenTree project.

**5 Wrap up of the workshop**

M. Bozzano thanked the NFPs for participating in the workshop and for contributing with useful suggestions for how to improve the EUFGIS information system. He further expressed his appreciation to the focal points for maintaining the database.

From this workshop, it was evident that many projects are interconnected with the EUFGIS system, which underlines the importance of continuing the maintenance and contribution of valuable inputs from each country. This is crucial for the project to be meaningful.

It was suggested to establish an online forum in the EUFGIS intranet to exchange questions and issues across the community. The EUFGIS manual will be updated with recent inputs and made accessible online. A selection of photos from the meeting will be made available on EUFORGEN's Flickr account.
(https://www.flickr.com/photos/143081818@N03/albums/72157674505618822)

The outcomes of this workshop will be presented at the 12th EUFORGEN Steering Committee meeting and published online. Ideally a new training workshop for the EUFGIS focal points would be held in a couple of years, depending on the funding.

M. Bozzano officially closed the workshop.

# Annex 1: Agenda

## EUFORGEN/EUFGIS Training Workshop on FGR Inventories and GenTree Consultation on the status of conservation of FGR H10 Hotel, Rome, Italy, 4-6 April 2017

| **Tue 4 April** | |
|---|---|
| 08:30-09:00 | Registration to the workshop |
| 09:00 | Opening of the workshop<br><br>● Welcome<br>● Introduction of the participants (round-the-table)<br>● Adoption of the agenda |
| 09:15 | EUFORGEN update and introduction to the workshop (Michele Bozzano, EUFORGEN Coordinator) |
| 09:45 | Revisiting the basis of the EUFGIS information system<br><br>● Pan-European minimum requirements and data standards for dynamic conservation units of forest trees (M. Bozzano)<br>● Current status of EUFGIS, amount of data, data quality EUFGIS Portal (M. Bozzano)<br><br>Discussion |
| 10:30 | Coffee/tea break |
| 11:00 | EUFGIS Intranet traditional functionalities (M. Bozzano)<br><br>• Editing existing data<br>• Uploading new data |
| 11:30 | EUFGIS Intranet new functionalities (Nina Lauridsen)<br><br>• Validating species list<br>• Validating ecological zones per species |
| 12:30 | Lunch |
| 14:00 | Hands-on training (M. Bozzano and N. Lauridsen)<br><br>● All participants editing and entering data in the Information system<br>● All participants validating the list of species occurring in the country |
| 15:30 | Coffee/tea break |
| 16:00-17.00 | Hands-on training (M. Bozzano and N. Lauridsen)<br><br>● All participants validating ecological zones per species |
| 20.00 | Social dinner (Porto Fluviale Restaurant) |

| **Wed 5 April** | |
|---|---|
| 09:00 | Use of EUFGIS data for reporting purposes<br><br>The Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources – the upcoming FAO questionnaire and EUFGIS Data (Jarkko Koskela, FAO) (TBC)<br><br>Indicator 4.6 of the pan-European criteria and indicators for sustainable forest management (M. Bozzano) |
| 10:30 | Coffee/tea break |
| 11:00 | Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units (M. Bozzano)<br><br>New functionalities in the EUFGIS intranet to monitor the progresses in the implementation of the pan-European strategy and manage the network |
| 12.00 | Development of a decision support tool for the management of the genetic conservation units network (M. Westergren) |
| 12:30 | Lunch |
| 14:00 | Further improvement of the EUFGIS Intranet, Portal and EUFORGEN website<br>Plenary discussion |
| 15:30 | Coffee/tea break |
| 16:00 | Hands-on training and work of individual tasks (continued) |
| 17:00 | Wrap-up of the day |
| | Dinner on your own |

| **Thu 6 April** | |
|---|---|
| 09:00 | Sharing of information & experiences on relevant projects related to FGR inventories and databases (Barbara Vinceti)<br><br>● GenTree project<br>● Consultation on the conservation status of forest genetic resources<br>● Plenary discussion |
| 10:30 | Coffee/tea break |
| | ● Future needs to improve FGR inventories to support conservation of FGR in Europe<br>● Recommendations to EUFORGEN<br>● Final considerations on the overall workshop<br><br>Closing of the workshop |
| 12:30 | Lunch |
| 14:00 | Transportation to the airport as needed |

# Annex 2: List of participants

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