

Developing an information system on gene conservation units of forest trees



The EUFGIS (Establishment of a European Information System on Forest Genetic Resources) project has continued its efforts to harmonize minimum requirements for dynamic gene conservation units of forest trees and data standards for these units at pan-European level. These two elements are crucial building blocks for the establishment of the European information system on forest genetic resources which is the overall goal of the project.

In October 2007, the project organized a workshop which discussed the need for such requirements and standards, as well as the overall status of documentation efforts on forest genetic resources in Europe (see NL35, page 8). The workshop also made several recommendations and these were further discussed in Denmark by a small expert group, including representatives from all EUFORGEN Networks and the UN Food and Agriculture Organization (FAO).

The project partners and the expert group met for a second time in Avignon, France on 8-9 April 2008 to discuss draft documents for the minimum requirements and the data standards which were developed after the workshop. The purpose of the minimum requirements is to provide guidance on what kind of conservation areas or gene reserve forests will meet criteria for long-term, dynamic gene conservation at pan-European level. The requirements also serve as a check list for selecting gene conservation units to be included in the EUFGIS information system.

The minimum requirements are based on the concept of dynamic gene conservation, which emphasizes the maintenance of evolutionary processes within tree populations rather than trying to preserve the present genetic diversity as such. The dynamic gene conservation units should be predominantly located in autochthonous forests within the natural distribution range of a tree species in Europe. However, the requirements also recognize that artificial but dynamically evolving tree populations (*ex situ*) can contribute to dynamic gene conservation in some cases.

The draft minimum requirements highlight that gene conservation should be clearly stated as one of the management goals of relevant areas. This means that silvicultural techniques are applied, as needed, to favour genetic processes maintaining long-term viability of those tree populations which are identified as targets for gene conservation. The required management of the units does not prevent the units from being used for production of timber or other forest-based products or providing various services. Therefore, the gene conservation units can be located in protected areas, production forests or any other type of forests. Seed stands

can be considered as gene conservation units but only if they otherwise meet the minimum requirements.

The draft minimum requirements further include clear guidelines for the minimum size of a unit in terms of population size as well as recommendations on how countries should organize the monitoring of the units. Each gene conservation unit should have a sufficient number of effectively mating and reproducing trees to prevent reduction of genetic diversity. The number of trees should be high enough to reasonably assume that sexual reproduction takes place randomly and that the level of relatedness among the next generation of trees is as low as possible. The sufficient number of reproducing trees is dependent on the biology of a given species, density and spatial arrangement of trees, as well as biotic and abiotic conditions. The expert group is now continuing its discussion on the exact minimum number of reproducing trees required for different tree species before a gene conservation unit can be included in the information system.

The project partners in Austria, Denmark, France, Slovakia, Slovenia and the UK will now start testing the draft minimum requirements and data standards while collecting information on their gene conservation units of forest trees. Biodiversity International has also started developing a test version of the information system. The expert group will have its third meeting in Slovenia in early October 2008 to discuss the experiences learnt during the process and to finalize the draft minimum requirements and data standards.

Further information on EUFGIS is available at the EUFORGEN website (www.euforgen.org).



A beech (*Fagus sylvatica*) stand in central Italy.
Photo: J. Koskela, Biodiversity International