Bioversity International

No 34 - July 2007

Bioversity International newsletter for Europe

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About this Newsletter

Bioversity International is one of the 15 Centres of the Consultative Group on International Agricultural Research (CGIAR). Bioversity's vision is that: "People today and in the future enjoy greater well-being through increased incomes, sustainably improved food security and nutrition, and greater environmental health, made possible by conservation and the deployment of agricultural biodiversity on farms and in forests."

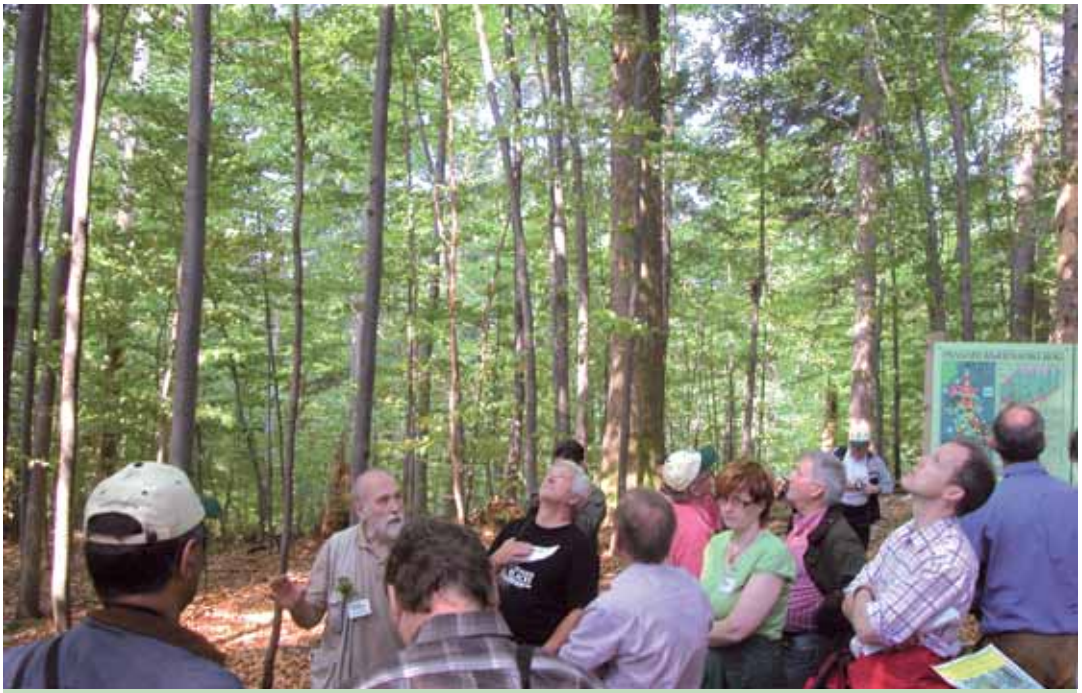
Bioversity's Regional Office for Europe provides the Coordination Secretariats for the European Cooperative Programme for Plant Genetic Resources (ECPGR) and for the European Forest Genetic Resources Programme (EUFORGEN).

Bioversity publishes two issues of the Newsletter for Europe a year. This Newsletter is intended to serve as an informal forum for the exchange of news and views, and to create closer ties within the genetic resources community in Europe. Previous issues are available from the Bioversity Web site: www.bioversityinternational.org

A Russian version of this Newsletter is being produced and disseminated in collaboration with the N.I. Vavilov Research Institute of Plant Industry (VIR), St. Petersburg.

We invite you to send your ideas and contributions for this Newsletter to Bioversity's Regional Office for Europe by Email to bioversity-europe@cgiar.org. Please send all contributions for Issue 35 by **15 October 2007.**

Fifth EUFORGEN Steering Committee meeting



EUFORGEN Steering Committee visiting the Rajhevanavski Rog Forest Reserve, Slovenia. Photo: J. Koskela, Bioversity International

National Coordinators and observers from 27 countries met in Novo mesto, Slovenia on 22–24 May 2007 for the mid-term review of Phase III of the European Forest Genetic Resources Programme (EUFORGEN). This was the fifth Steering Committee meeting since the inception of EUFORGEN in October 1994 and it was hosted by the Slovenian Forestry Institute.

The meeting received strong interest in Slovenia and welcome addresses were given by Andrej Drašler, Director General of the Directorate for Forestry, Hunting and Fisheries at the Ministry for Agriculture, Forestry and Food; Janez Kastelic, Head of the Sector for Nature Conservation Policy, Ministry for Environment and Spatial Planning; and Andrej Pečavar from the Slovenian State Forest Service and Nikolaj Torelli, Director of the Slovenian Forestry Institute. Hojka Kraigher, the Slovenian National Coordinator of EUFORGEN, was also interviewed by a national radio channel.

The meeting started with reviewing the progress made during the first half of Phase III (2005-2009). During the previous Steering Committee meeting in 2004, new objectives were adopted for Phase III of EUFORGEN, with the establishment of a new Forest Management Network to promote better linkages between gene conservation and forest management in Europe. The Steering Committee also decided to restructure the previous four Networks on broadleaved tree species into the Scattered Broadleaves Network and the Stand-forming Network. The Conifers Network has remained unchanged and has continued its work during Phase III. In 2004, the Steering Committee also agreed to strengthen information management on forest genetic resources during Phase III.

EUFORGEN activities have continued to contribute to the implementation of two resolutions of the Ministerial Conferences on the Protection of Forests in Europe (MCPFE). These are Resolution S2 (Conservation of forest genetic resources) and Resolution V4 (Conserving and enhancing forest biological diversity in Europe), adopted in Strasbourg in 1990 and in Vienna in 2003, respectively. Presently, a total of 34 countries provide technical and financial inputs to EUFORGEN. Georgia, Greece, Moldova and Romania joined the Programme at the beginning of Phase III.

During the meeting each Network provided an update on its activities. The Forest Management Network carried out a survey in 2006 on relevant policies and practices that influence how the use of genetic resources

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Fifth EUFORGEN Steering Committee meeting

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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 Network has also collected information on the policy tools countries have in place to promote the use of high quality forest reproductive material. The detailed results of the two surveys were presented at the meeting.

The species-oriented Networks have developed minimum requirements for gene conservation units of conifers, scattered broadleaves and stand-forming broadleaves. These requirements are needed to better compare the state of gene conservation in different countries and to identify gaps in gene conservation efforts at the pan-European level. This is part of the ongoing work to develop so called "common action plans" for target tree species to strengthen gene conservation efforts from the pan-European perspective. The Networks have established four working groups on conifer species and three groups on scattered broadleaves to develop the common action plans. The Stand-forming Broadleaves Network is expected to set up additional working groups for the same purpose at its second meeting in Serbia on 27-29 June 2007. The Steering Committee recognized that the above-mentioned activities and other ongoing work of the Networks are well in line with the new objectives of the Programme.

The Steering Committee then discussed the importance of forest genetic resources in mitigating the effects of climate change. The discussions were based on the outputs of a workshop on climate change and forest genetic diversity, organized by the EUFORGEN Secretariat at Bioversity International and the International Union of Forest Research Organizations (IUFRO) in Paris, France on 15-16 March 2006 (see Newsletter No.32, page 4). The Steering Committee recommended that EUFORGEN follow up with the workshop recommendations and continue similar efforts on climate change.

The National Coordinators also commented on draft recommendations for afforestation and reforestation at pan-European level in the context of the Kyoto Protocol, developed by the MCPFE and PEBLDS (Pan-European Biological and Landscape Diversity Strategy) processes. Furthermore, they discussed how forest genetic resources are addressed in a draft Ministerial Declaration of the fifth Ministerial Conference which will be held in Warsaw, Poland on 5-7 November 2007. The Steering Committee suggested some changes to the present wording of these draft documents to better highlight the importance of forest genetic resources in the context of climate change. The suggestions were then presented to the MCPFE process at the Expert Level Meeting in Warsaw, Poland on 4-6 June 2007.

EUFORGEN is currently contributing to the preparation of the "State of Forests and Sustainable Forest Management in Europe 2007" report, which will be published by the MCPFE Liaison Unit Warsaw and the United Nations Economic Commission for Europe (UNECE/FAO). For this purpose, the EUFORGEN Secretariat has collected, through National Coordinators, data on areas managed for conservation and utilization of forest tree genetic resources (*in situ* and *ex situ* gene conservation) and for seed production. The Steering Committee discussed problems associated with the data collection and urged those countries which have not yet provided data to send it to the Secretariat as soon as possible.

Following its earlier decision on FGR information management in 2004, the Steering Committee further agreed that EUFORGEN should prepare a comprehensive report on European forest genetic resources by 2009. This publication should provide more detailed information on the state of FGR conservation in Europe and on progress made by the countries in this area. The EUFORGEN Secretariat will initiate the development of the report in autumn 2007 and country inputs will be collected through the National Coordinators during 2008. The final draft of the report will be reviewed at the next meeting of the Steering Committee in spring 2009.

In 2004, the Steering Committee also requested the Secretariat to coordinate the development of a proposal on FGR information management for the Council Regulation on genetic resources in agriculture No 870/2004. Subsequently, the Secretariat submitted the proposal for the "Establishment of a European Information System on Forest Genetic Resources (EUFGIS)", in collaboration with six partners and the proposal was approved for co-funding by the European Commission in June 2006 (see the article on page 3 for further details). The Steering Committee noted that the project will benefit EUFORGEN work by providing more accurate data on the gene conservation units of forest trees in Europe. It further encouraged the partners to implement the project activities in close collaboration with the EUFORGEN Networks. It was also concluded that the information system should remain as part of EUFORGEN after the project has been finalized.

The summary report of the meeting is available at the EUFORGEN Web site (www.euforgen.org).

A view of the Krka River, Novo mesto, Slovenia.
Photo: J. Koskela, Bioversity International

EUFGIS - a new project on FGR documentation is launched

On 1 April 2007, a new project on the "Establishment of a European Information System on Forest Genetic Resources (EUFGIS)" started its activities to strengthen documentation work in this area. 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 participating partners: the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW) in Austria, the State Forest Tree Improvement Station (SNS) in Denmark, Institut National de la Recherche Agronomique (INRA) in France; the National Forest Centre (NLC) in Slovakia; and the Slovenian Forestry Institute (SFI) in Slovenia and Forest Research in the UK. The project will run until 30 September 2010.

EUFGIS aims at establishing a Web-based information system to serve as a documentation platform for national FGR inventories and to support practical implementation of gene conservation and sustainable forest management in Europe. The project will create a network of national focal persons in European countries to provide updated data for the information system once it has been established. Before the information system can be developed, the major effort is to harmonize minimum requirements for dynamic gene conservation units of forest trees and develop common information standards for these units at pan-European level. The project will also provide training on FGR documentation to the national focal persons.

EUFGIS is building on the experience gained and lessons learnt from the development of the European Plant Genetic Resources Search Catalogue (EURISCO). Thus, in terms of information technology, the know-how and technical solutions to establish the EUFGIS system are readily available and well tested. Similarly to EURISCO, Bioversity International is committed to hosting and maintaining the EUFGIS system once the project has ended.

The EUFGIS project will directly benefit the EUFORGEN Networks which are currently developing "common action plans" for target tree species to strengthen gene conservation efforts from the pan-European perspective. The common action plans aim at sharing responsibilities for FGR conservation among European countries. A necessary step in the development of the common action plans is to obtain geo-referenced data on the existing dynamic gene conservation units of forest trees throughout their entire distribution ranges in Europe for further analyses and strategy development. However, the development of the common action plans has been hampered by a lack of common minimum requirements for the gene conservation units.
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*A gene reserve forest of small-leaved lime (*Tilia cordata*).*
Photo: J. Koskela, Bioversity International

EUFGIS - a new project on FGR documentation is launched

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As a result, a wide range of protected forests are presently declared as gene conservation areas in addition to more specific gene reserve forests. This creates obstacles for the monitoring of sustainable forest management in Europe and the related reporting efforts. It is also difficult to compare the national data across countries. Most protected areas are established solely for species or habitat conservation and their suitability for long-term gene conservation has rarely been assessed prior to their establishment. Furthermore, gene conservation often has a low priority in the management of the protected areas and in most cases any active silvicultural measures, which are typically needed for managing forest genetic resources, are not allowed in the protected areas.

The EUFORGEN Networks have now developed the minimum requiremens for groups of different tree species such as conifers, scattered broadleaves and stand-forming broadleaves. These requirements will be harmonized by the EUFGIS project and the Networks will provide further inputs for this. The EUFORGEN Steering Committee also provided its inputs to the project by reviewing terms of reference for a national focal person and an agreement to share relevant national data. The EUFORGEN National Coordinators are now in the process of nominating the focal persons and associated European countries interested in the participating in the project have been asked to do the same.

The first meeting of the EUFGIS Steering Group, consisting of representatives from all the partner institutes, was held in Rome on 12-13 April 2007. The meeting discussed the overall project implementation and various activities. On 22-24 October 2007, EUFGIS will organize a European workshop on FGR inventories and documentation at Magleås Center in Birkerød (near Copenhagen), Denmark. In addition to the national focal persons, representatives of the EUFORGEN Networks and other experts in this area are expected to attend the workshop. The purpose of the workshop is to analyze how different countries are collecting and managing FGR information. The workshop will also initiate the harmonization of the minimum requirements for gene conservation units of forest trees and development of information standards for the EUFGIS system.

For further information on EUFGIS, please contact the project coordinator Jarkko Koskela at Bioversity International (j.koskela@cgiar.org).

Forests, energy and water

European forests and their sustainable management provide a number of benefits, services and products for human well-being. Sustainable forest management can also contribute to climate change mitigation, energy supply and water protection. The importance of these issues will be stressed by the 5th Ministerial Conference on the Protection of Forests in Europe (MCPFE), due to be held in Warsaw, Poland on 5-7 November 2007.

The preparatory process for the Conference has included a series of earlier drafting meetings and, on 5-6 June 2007, the MCPFE Expert Level Meeting continued negotiations for the Conference documents in Warsaw. The meeting focused on debating the contents of a draft Ministerial Declaration and two Resolutions, to be adopted under the theme “Forest for Quality of Life”. The Declaration will stress the role forests play in benefiting the quality of life and tackling challenges such as climate change. The Resolution on wood and energy encourages several actions to enhance mobilization of wood and the role of the forest sector in energy production. The second Resolution stresses the protective functions of forests for water resources and mitigation of water-related natural disasters through sustainable forest management.

At the Warsaw Conference, the European ministers responsible for forests will endorse further actions in these areas and continued implementation of earlier Ministerial Resolutions. The Conference will also offer an opportunity for sharing views among the European ministers, representatives of international organizations and non-governmental organizations and delegates from observer countries outside Europe. It will also report on the state of forests in Europe and progress made by the countries in practicing sustainable forest management, including conservation of forest genetic resources.

The MCPFE Liaison Unit has launched the Conference Web site at http://5th.mcpfe.org/. Further information on the MCPFE process is available at www.mcpfe.org

EVOLTREE lays the foundations of ecosystem genomics in Europe

www.evoltree.eu

The EU-funded Network of Excellence EVOLTREE has concluded its first year of activities, marked by its first annual meeting in Florence, Italy, on 26-28 February 2007. The meeting was hosted by the Istituto di Genetica Vegetale of the Italian National Research Council.

EVOLTREE is focusing on very challenging technical and scientific issues and is establishing innovative partnerships among the 25 participating institutions, including universities, national research institutes and international organizations, from 15 countries. For the first time in Europe, population geneticists and ecologists working on different organisms (trees, insects, and mycorrhizal fungi) are collaborating to integrate their knowledge and resources and to engage in new investigations of larger breadth, adopting new research tools and methods.

In its first 12 months of activity, the EVOLTREE community has concentrated its efforts on inventorying the resources available across the participating countries and in defining the research priorities and activities that will link the different disciplines represented in the network. This strengthens European research capacity in the area of ecosystem genomics.

Twenty partners have participated in the establishment of a "Laboratory without Walls for Ecosystem Genomics", one of the core activities of EVOLTREE. The aim is to create a large database that documents genomic and genetic resources across disciplinary boundaries and that will constitute a global reference due to the wealth of information and knowledge stored and to the uniqueness of its focus. To achieve this objective, existing resources, such as genetic maps, molecular marker and transcriptomic databases, were inventoried and new cDNA libraries, microsatellites and Bacterial Artificial Chromosome libraries, for trees and associated organisms, were developed.

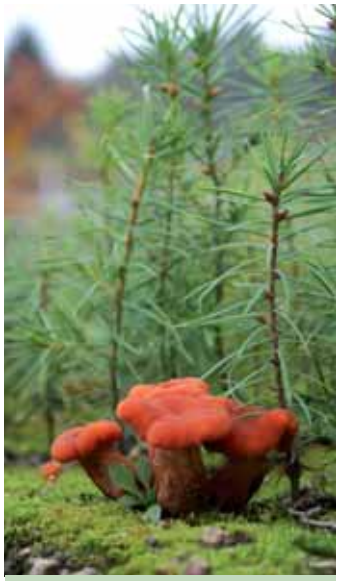
The establishment of centralized infrastructures will imply the consolidation of information on existing genebanks, plant collections, intensively studied plant communities, as well as clone collections. To achieve this, a series of criteria for the selection of the materials, which will be part of a common pool of shared resources, were defined through a consultation among the institutions participating in EVOLTREE. The criteria defined were based on the quality of the materials, the quality and amount of supporting data and documentation. The criteria allowed to: (i) identify libraries to be integrated in the centralized repository; (ii) identify plant material to be collected in a virtual genebank system, distributed across Europe; (iii) select regions and areas where intensive study sites will be established to implement genetic-ecological studies; and (iv) identify national infrastructures to be linked and be part of a virtual research centre.

On the research front, candidate genes involved in determining a variety of traits of adaptive significance, such as phenology and drought resistance, were identified in all model species, including fungi and insects. New neutral markers are being developed and a comprehensive workplan is underway to undertake a comparative mapping of genes and markers in three major tree families (Fagaceae, Salicaceae and Pinaceae) and test transferability of genes and markers from model to target species.

Studies on genomic diversity in natural populations of trees and associated organisms were initiated by examining nucleotide variation at reference loci and at loci related to adaptation (eg. controlling timing of growth, drought and cold tolerance). In addition, analyses of linkage disequilibrium were started for model species of trees (*Pinus pinaster, P. sylvestris, P. halepensis, Picea abies, Populus* spp. *Quercus petraea*), insects (*Lymantria* spp.) and fungi (*Laccaria* spp.), for which some of the necessary genomic resources (eg. expressed sequence tag sequences) are available. This information will be used in association studies, where the relationship between nucleotide variation and phenotypic variation will be analyzed.

So as to better understand the distribution dynamics of tree species in the past and to forecast genetic consequences of global climate change, several modelling approaches were tested and analyses of ancient tree DNA were undertaken. Thanks to this work, the European Pollen Database has been further developed. Furthermore, to assess the genetic basis of phenotypic responses and adaptation to different environmental conditions, experiments in strictly controlled environments were conducted on *Pinus* spp., *Fagus sylvatica* and *Populus* spp.

Finally, proposals for integrated research projects contributing to the research on ecosystem genomics were generated; a mobility plan was developed; different technical and scientific workshops were organized and public awareness materials were prepared to disseminate the outputs of the project.



Fruiting body of the mychorrizal fungus Laccaria bicolor *in association with seedlings of Douglas fir. Photo: F. Martin, INRA-Nancy, France*

Armenian wild pomegranate: a rare and relic fruit

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Despite its small territory, Armenia is very rich in wild relatives of cultivated plants, as it is one of the South West Asian centers of origin of agriculture. Even now progenitors and wild relatives of many crops such as cereals, legumes, fruits, vegetables, etc. still grow. However, as a result of intensive urbanization and land privatization, there is considerable genetic erosion, reduction of areas, loss of some species and populations, as well as a lack of financial resources to conduct monitoring and protection.

The pomegranate, a specimen of genus *Punica* L., fam. *Punicaceae Horan.*, is a valuable plant worth studying and safeguarding. Besides *P. granatum* L., the genus also includes another species – *P. protopunica* Balf., endemic to Socotra island, in the Indian Ocean. An area of wild *P. granatum* covers the eastern part of the Ancient Mediterranean, growing in Anatolia, Transcaucasia, Dagestan, the Caspian belt of Iran, Kurdistan, Turkmenistan, Tajikistan, Northern Afghanistan and Pakistan up to the Himalayas. In Armenia wild pomegranate grows in Idjevan and Noyemberyan regions in the northeast and in Goris, Kapan and Meghri regions in the southeast, in a foothill zone at 500-900m above sea-level. Separate plants occur in some settlements of the Ararat valley, in the vicinity of Yerevan, where pomegranate grows up to 1350 m above sea-level.

Research on wild pomegranate has been carried out on populations from the southeast regions of Armenia, the results of which provide data so far not recorded in the botanical description of a pomegranate. Alongside relatively constant features, it is possible to single out attributes represented by a large spectrum of variations, even within one population, not to mention the huge polymorphism between different populations of wild pomegranate recorded. The variation of the habit, leaf arrangement, size and the form of leaves, flower types, length of styles, quantity of sepals, size, colour and the form of fruits, degree of the fruits' cracking, size, taste and colour of seeds and pest damage rate, were all recorded.

Such polymorphism, according to the botanic-geographic method developed by N. Vavilov (1935), points to the indigenousness of a pomegranate on the given territory. A number of paleo-, archeo- and ethno-botanical discoveries in Armenia also confirm the cultivation of pomegranates in antiquity. The same data confirm the more widespread growth of pomegranate throughout Armenian in the past.

Diversity of forms of wild pomegranate could also be a consequence of the fact that the pomegranate known in past geological eras as a mesophylous, thermophilic and evergreen plant, currently has not yet reached biological stability. Therefore, this territory was not only part of the primary area of origin of *P. granatum* L., but new form origination is still taking place.

The breeding of pomegranates in ancient times could only be carried out by selection and intraspecific hybridization. These methods continue to be the major ones used nowadays. It is for this reason that it is so important to study intra-species diversity of the pomegranate to discover features valuable for selection. However, populations of wild pomegranate are of significant interest, not only as possible donors of valuable genes. As early as half a century ago, A. Ivanova (1950) noted that minimal geotechnical care of wild-growing bushes would broaden the use of wild pomegranate fruits (of which the citric acid content exceeds that of lemon juice). It would also allow the use of wild pomegranate bushes for irrigation-free field-protecting belts, in developing stony hillsides and the so-called "waste" lands and would open perspectives for their forestation, that is especially important for Armenia.

Pomegranate flower from the excavations of fortress Karmir-Blur (near Yerevan), VII BC. Photo: National Academy of Sciences of the Republic of Armenia, Yerevan, Armenia

However, until now, no measures have been undertaken to preserve wild pomegranate *in situ*. Carrying out periodic monitoring and gathering of seed material for conservation *ex situ*, in collections and genebanks, are recognized as important activities. These measures will allow Armenia to preserve this rare and relic fruit, valuable not only as the wild relative of a cultivated pomegranate, but also as a fruit holding a special place in human culture (religion, art, folk rites) in the broader sense.

Wild pomegranate from southeast regions of Armenia. Photo: National Academy of Sciences of the Republic of Armenia, Yerevan, Armenia

Genetic resources in the Romanian pomological collections

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Romania has a long tradition of collecting and preserving biological material in *ex situ* collections and of *in situ* identification. The first accounts of this work can be found in "Pomological sketches" by Mate Bereczki (1877), describing 1075 cultivars on his farm near Cenad, Arad district. In 1924, over 1000 apple and pear cultivars were recorded on Albert Wachsman's farm at Prundul Bargaului, Bistrita-Nasaud district. Subsequently, other collections were established by N. Krier at Pietroasele nursery, Buzau district and by A. Ville at Visani, Iasi district, especially for plum, peach, apricot and sweet cherry species.

The literature has highlighted the importance of these collections in enabling Romanian fruit growers to learn about valuable new cultivars and about the dedication and effort of horticulturists such as Profs. N. Constantinescu, M. Costetchi, D. Stefanescu, I. Botez, V. Cociu, etc. in introducing the best biological material from home and abroad.

Reorganization and extension of the pomological collections within the universities, and more particularly in the fruit research stations, was initiated in 1957 when the Research Institute for Horti-Viticulture (I.C.H.V.) was founded. In 1959 the first official Catalogue of fruit species, varieties and selections (1556 accessions) was published.

Presently, the fruit germplasm fund held in various collections includes biological material from 11 fruit genera and species (*Amygdalus*: 128 accessions; *Armeniaca*: 663; *Castanea*: 42; *Cerasus sativa*: 461; *Cerasus vulgaris*: 160; *Cydonia oblonga*: 73, *Juglans* sp.: 222; *Malus*: 872; *Persica vulgaris*: 1075; *Prunus* sp.: 812; and *Pyrus*: 536), 11 small fruits and strawberry (*Cornus mas*: 29; *Corylus avellana*: 47; *Hippophae*: 11; *Ribes grossularia*: 195; *Ribes* sp.: 25; *Rosa* sp.: 5; *Rubus* sp.: 36; *Rubus idaeus*: 109; *Sambucus* sp.: 19; *Vaccinium*: 50; *Lonicera*: 5; and *Fragaria* sp.: 149), totaling 5724 genotypes, 5568 cultivars and rootstocks and 156 species and interspecific hybrids respectively.

Stanley plum variety.
Photo: Madalina Butac, RIFG. Piteşti-Maracineni, Romania

Strawberry - Floral.
Photo: M. Coman, RIFG Piteşti-Maracineni, Romania

Of these, the old autochthonous and bred varieties represent 42.5%, that is 2984 genotypes respectively, all of which belong to Romania's invaluable national heritage. The germplasm collection has also been integrated subsequent to joining several European PGR working groups (ECPGR *Malus*/*Pyrus* and *Prunus*) with an ample exchange of documentation and biological material (bud sticks, pollen).

The germplasm collection is maintained in 10 centres in Romania, according to the optimum conditions needed by each species. It is entrusted to a curator for each centre to take care of its maintainance, completion, periodical reorganization, evaluation or study of the biological and agronomical traits of each accession, exchange of plants and choosing the potential parents for certain characters needed in the genetic breeding programmes.

Yearly, the collections are integrated with 100-150 new accessions for all genotypes obtained from exchanges or by the selection of new genotypes from field trials. The most intense international exchange has been with Canada, Czech Republic, China, France, Germany, Hungary, Italy, Spain, UK and U.S.A.

The fruit collections are reorganized periodically. The strawberry plants need to be updated more frequently than others (every 4-5 years, starting with "*in vitro*" meristem culture); some soft fruit species e.g. raspberry, currant, gooseberry, blackberry, every 8-10 years; and after a longer period the other pome, stone and nut species and genera. So, in the past 10 years, the collections of plum (Piteşti), quince (Tg. Jiu), peach (Oradea, Baneasa), raspberry (Piteşti), strawberry and blackberry (Cluj) have been enriched.

Genotype evaluation for some accessions in the collections has been performed, studying the major characteristics of trees (vigour, blooming, resistance to cold, drought and diseases) and fruit (size, shape, taste or processing), recording their agrobiological behaviour and the ecological adaptability of various genotypes in the growing areas for choosing the best parent in the breeding programmes.

The present Catalogue of fruit species, varieties and selections is more complex than the previous one and also includes the evaluation of genotypes related to their major agrobiological traits for 2654 accessions, of which 47 species, 1597 foreign varieties and 1052 autochthonous ones have been recorded as a result of the participation of researchers in various national projects and international cooperation with ECPGR working groups. For further information about the collections, please contact Nicolae Braniste (braniste.nicolae@gmail.com or at www.icdp.ro).

ECPGR Fruit Network – Microsatellite Workshop

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Increasingly, microsatellites are being used to fingerprint collections of fruit trees. However, opportunities to compare results between collections, e.g. to check for trueness to name, are hampered as different laboratories tend to use different sets of microsatellites. Moreover, even when the same microsatellites are used on the same accessions, different analytical methods may give "parallel" rather than identical results and little attention has been paid to harmonizing results for easy comparison.

In early December 2006, East Malling Research (EMR) in south-east England welcomed 20 or so participants from 11 European countries to an ECPGR Workshop to discuss and resolve such matters. The aims were to reach consensus and make recommendations relating to: choosing reference accessions, standardizing microsatellite sets, harmonizing allele labeling and standardizing record sheets so that microsatellite fingerprints can be used effectively to characterize accessions in ECPGR *Prunus, Malus* and *Pyrus* collections and, in particular, to facilitate comparison of datasets between laboratories to detect duplicates and synonyms.

There was a demonstration of the European *Prunus* Database by Stephanie Mariette, presentations of the use of microsatellites for fingerprinting *Prunus, Malus* and *Vitis* for the European Databases by respectively, Ken Tobutt, François Laurens and Patrice This, and then a demonstration of microsatellite marker data within the *Vitis* Database by Patrice This. Juerg Frey gave an account of lessons learnt from the genotyping of the Swiss fruit nuclear stock collections, and Eric van de Weg made a presentation drawing attention to matters such as DNA quantity and quality and common interpretation problems that could affect the reliability of data.

Malus baccata.
Photo: Monika Höfer, Bundesanstalt für Züchtungsforschung an Kulturpflanzen, Drezden, Germany

The group discussed the principles of choosing reference cultivars in the various crops (almond, apricot, cherry, diploid plum and peach, in the case of *Prunus*, and apple and pear) in order to standardize microsatellite allele scoring. The participants agreed that a set of eight diverse accessions, five from the crop in question and three from related species, should be sufficient and that each item should be distributed from a unique source. In the case of cherry and pear, the lists were more or less finalized at the meeting.

The group also discussed the principles of choosing standard sets of microsatellites in the various crops, 16 in each of the *Prunus* crops, i.e. two per chromosome, and 17 in apple and pear, i.e. one per chromosome. The microsatellites should ideally be: freely available, largely derived from the crop in question, reasonably polymorphic, well-spaced on the genome, reveal single loci and have no null alleles. It was agreed that the primers should be ranked in order of priority – so if one team uses twelve, another uses eight and another uses ten, at least all three will have used the same eight. The participants more or less finalized lists for cherry and pear and the other lists are being completed.

It was agreed that the key to standardizing the labelling of alleles is the inclusion of reference accessions of agreed scores, which should be published, providing a range of reference alleles. The fingerprints of further accessions should be harmonized to these reference values before the data are submitted to the ECPGR Database. The Database may also choose to use "coded" data in which the allele lengths are expressed in relation to a base value e.g. n - 4, n, n + 2, n + 6 where n is the length of the smallest allele in the set of reference accessions.

It was recognized that a standard recording format is needed to facilitate loading of data in the European *Prunus, Malus* and *Pyrus* Databases. The *Prunus* Database Manager had indicated a preference for receiving data in a standardized Excel spreadsheet with two or more columns per marker – one column for each allele – with appropriate columns for accession name and number, institute code etc. Even for diploids, additional columns may be needed for the tri-allelic genotypes occasionally observed.

Opportunities for dissemination were discussed and the forthcoming EUCARPIA Symposium (September 2007) was identified as a good opportunity to present the recommendations of the workshop to a wider audience. There could also be scope for a refereed paper. Ken Tobutt volunteered to circulate a brief report to participants and would forward it to ECPGR for circulation to the *Malus*/*Pyrus* and *Prunus* groups.

A few weeks after the meeting, groups in New Zealand and America expressed interest in using the same microsatellite sets - paving the way for comparing accessions worldwide - and it has been suggested that similar sets should be proposed for raspberry and strawberry.

For further details contact Ken Tobutt (Email: ken.tobutt@emr.ac.uk) or Kate Evans (Email: kate.evans@emr.ac.uk).

EPGRIS3 - a self-funded initiative for PGR Documentation

A joint meeting of the ECPGR Documentation and Information Network Coordinating Group and the EURISCO Advisory Group was held on 2-3 April 2007 in Maccarese, (Rome), Italy hosted by Bioversity International.

This meeting was organized upon consideration that a recent EU proposal for a European PGR Information Infrastructure (EPGRIS2), as well as other proposals for projects contributing to an improved documentation infrastructure (AEGIS and EGRISI), were regrettably not approved for funding. It seemed therefore necessary to take stock of ongoing initiatives and explore alternative ways to better collaborate in the field of PGR documentation in Europe. The existing framework of the ECPGR Documentation and Information (D&I) Network was considered the most suitable to organize a planning meeting.

The meeting agreed on the need to create a mode of operation whereby PGR documentation activities could be carried out in collaboration on a voluntary and self-funded basis, and thus contribute in a coordinated manner to the achievement of common goals in the European Region. Collaboration should result in adding value to the sum of individual activities. It was considered desirable to create a system that would not be elitist, but rather constituting a driving force that would be able to be inclusive rather than excluding the less developed countries from the initiative. The system would have the ability to collect contributions from several partners, either in the form of technological improvement, or with discussion and ideas. Transparency of operation was considered paramount.

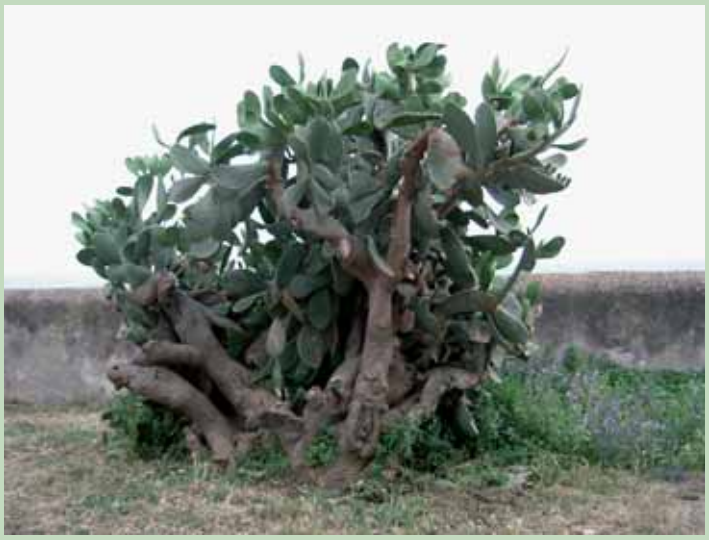
The meeting reached, *inter alia*, the following points of agreement:

- A new initiative will be launched by the ECPGR D&I Network, consisting in a self-funded project called EPGRIS3. The objective of this initiative is to coordinate ongoing, self-funded voluntary actions proposed by European partners for the improvement of a European Plant Genetic Resources Information Infrastructure.
- EURISCO, currently the European *ex situ* catalogue maintained in Rome by Bioversity on behalf of ECPGR as a central infrastructure, will need to be further developed as the entry point for access to all information on European PGR at the accession level.
- EPGRIS3 will specifically aim to achieve a list of workplan elements, related to: discussion on vision and scope of EURISCO; data quality and quantity in EURISCO; uploading mechanism; user interfaces; and networking of National Focal Points.
- EPGRIS3 will be coordinated by Theo van Hintum, CGN, the Netherlands. The ECPGR Secretariat will send a letter to all National Coordinators and D&I Network members inviting participation in the project and seeking available inputs in kind. These may consist of technological inputs, training, staff time, etc.

A few general principles for EPGRIS3 are the following:

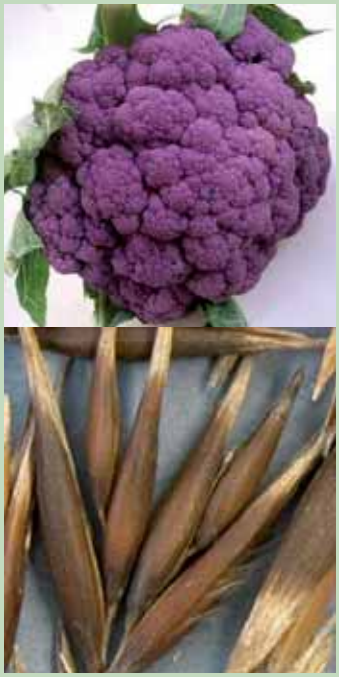
- Time-bound: it is a time-bound project with a five-year life span (2007–2011), after which it should be reviewed and a decision about its continuation should be taken.
- Decentralized: activities will be as decentralized as possible, with delegation of responsibilities to activity leaders.
- Transparent: all the discussions and outputs will be open to the public.

The minutes of the meeting were made available on-line at the project's Web site at www.epgris3.eu/



*A prickly pear-tree (*Opuntia ficus indica*) in Central Italy. Photo: L. Maggioni, Bioversity International*

AEGIS update



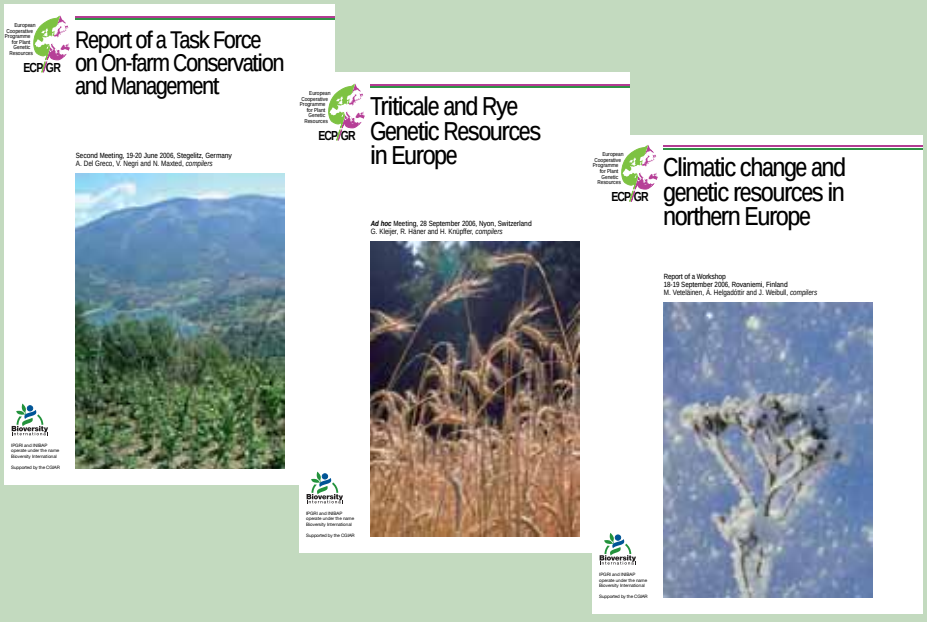
Top: Brassica; bottom: Avena sativa; *and right: Shallots, all species covered by the AEGIS project.*
Photo: top: L. Maggioni, Bioversity International; bottom: BAZ, Quedlinburg, Germany; right: Teresa Kotlinska, Research Institute of Vegetable Crops, Skierniewice, Poland

After the decisive mid-term meeting of the ECPGR Steering Committee in Riga, Latvia last September, and the appointment of the AEGIS Coordinator as of 1 January 2007, the Coordination Unit has been devoting substantial time to a number of priorities. This is a brief summary of the progress made up to the beginning of May 2007.

- The ECPGR Steering Committee endorsed the revised terms of reference of the newly formed AEGIS Advisory Committee and appointed the following persons as its members: Sergey Alexanian (VIR, Russian Federation), Bela Bartha (ProSpecieRara, Switzerland), Frank Begemann (IBV/BLE, Germany), Eliseu Bettencourt (Portugal), Walter de Backer (EC, Brussels), an FAO representative, Erling Fimland (NGB, Sweden), Gert Kleijer (ACW, Switzerland), Andrée Sontot (BRG, France), Silvia Strajeru (Suceava Gene Bank, Romania), Ayfer Tan (AARI, Turkey), Eva Thörn (CBM, Sweden), Garlich von Essen (ESA, Belgium), Jan Engels and Lorenzo Maggioni.
- Based on the numerous comments and suggestions made by the ECPGR National Coordinators on the draft Strategic Framework Paper, a revised version has been produced and shared with the Advisory Committee for comments.
- As part of the revision of the Strategic Framework Paper, a start has been made with the development of a draft Collective Memorandum of Understanding (MoU). This MoU will eventually provide the legal basis for the operation of AEGIS, to be concluded between AEGIS and its partners, to formally establish the commitments and procedures of participating in AEGIS.
- During the Oats Global Conservation Strategy meeting (March 2007 at VIR in St. Petersburg, Russian Federation) and at the EURALLIVEG Project Initiation meeting (April 2007 at IPK in Gatersleben, Germany) the opportunity was used to discuss the next steps of the AEGIS implementation process with the participating members of the two AEGIS Model Crop Groups. Special attention was paid to the development of the selection criteria to identify the European Accessions for each of the genepools and to the role of the Crop Working Groups in this identification process.
- As part of the long-term conservation strategy of the European Accessions, a safety-duplication strategy was developed and shared with partners for comments.
- The Coordination Unit has been working on the revision and updating of the AEGIS Web pages which are available at: www.ecpgr.cgiar.org/aegis/aegis_home.htm

Latest ECPGR publications

These latest three ECPGR publications are available in pdf format only. They can be downloaded from the ECPGR Web site: www.ecpgr.cgiar.org



Sida support to Central Asia in the field of PGR

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Genetic resources for food and agriculture are the biological basis of world food security and, directly or indirectly, support the livelihoods of every person on Earth. They are the raw materials used in the production of new cultivars and breeds and are a reservoir of genetic adaptability that acts as a buffer against potentially harmful environmental and economic change. Erosion of these resources poses a severe threat to the world's food security in the long term.

There are three pillars in agricultural development: 1) genetic resources; 2) education; and 3) improved seed and technology, not necessarily in that order of priority. Plant genetic resources (PGR) plays a very important overall role in agricultural development, whether it is a very advanced scientifically based system providing a number of products for an advanced market, or a subsistence type of agriculture under development, providing food for the farmer and the local community.

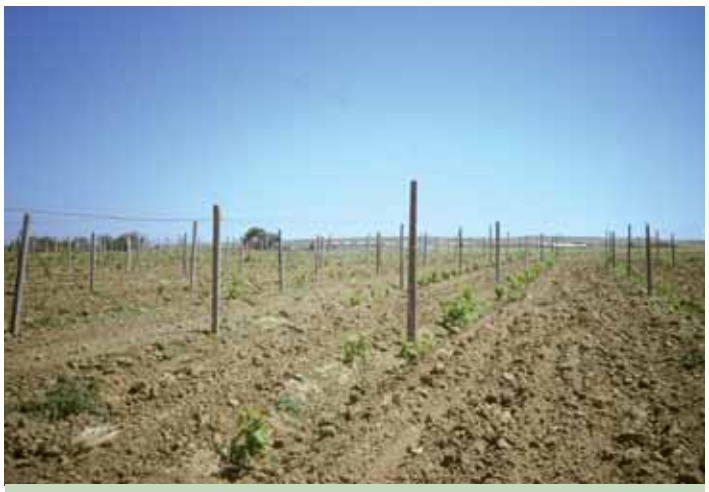
Styrelsen för Internationellt Utvecklingssamarbete (Sida) has given support to the seed sector development in Tajikistan and Kyrgyzstan since 2003. Some support has also been given to the veterinary/ animal husbandry sector in Tajikistan through FAO. In 2005 Sida began discussions with the two countries on extending Swedish support to the already ongoing sub sectors and on including more resources to the PGR sector, on a regional level. In April 2007 Sida started the final preparation phase (inception phase) of the support to the regional PGR work, in line with discussions held with various stakeholders during 2005 and 2006. The formal agreement on the full programme, with a vision of 15-20 years' cooperation, is likely to be signed in October 2007. ICARDA's Central Asia and the Caucasus (CAC) office in Tashkent has, with its partners, already started developing PGR work in the region. This work is very much recognized and appreciated and the planned cooperation must take this into consideration. Sida is convinced that the cooperation on PGR in the future between the CAC office, ICARDA, Bioversity International, FAO, Global Crop Diversity Trust (GCDT) and others in this region is important and will lead to sustainable results.

The programme will be operated by the Nordic Gene Bank (NGB) on behalf of Sida and will assist the national programmes of the Central Asian republics to establish a regional PGR programme, based on the Nordic model. The project will lead to a functional and self-sustainable plant genetic resources programme for the region. It will help educate and develop staff and facilities for conserving PGR, systems of documentation and data capture, and analysis for the evaluation and utilization of the resources in the region.

The planned cooperation concentrates on providing assistance to the national PGR programmes of the former five Soviet Republics of Central Asia - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan - and will discuss the potential for extending the programme to the Trans-Caucasian republics of Armenia, Azerbaijan, Georgia and to Afghanistan.

The Central Asian Region, the Trans-Caucasus and Afghanistan hold a vast potential and PGR remains one of the major keys to improving livelihoods for the whole region. Despite this potential, the unstable political situation and the complexity of running a long-term programme in the region remain a big challenge.

For more information, please contact NGB (Email: martin.rasmussen@nordgen.org) and Sida (Email: peter.herthelius@sida.se).



Establishment of a new grapevine collection at the experimental station in Absheron, Azerbaijan. Drought is a major challenge for agriculture in Central Asia.
Photo: J. Turok, Bioversity International

Urban populations of vetches (*Vicia* spp.) have potential for forage yields

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Top: urban large-flowered vetch; right: urban narrow-leafed vetch, both found growing amid the buildings in the city of Novi Sad. Photos: Aleksandar Mikić, Institute of Field and Vegetable Crops, Novi Sad, Serbia

Vetches (*Vicia* L.) represent not only quality components of natural grasslands, but forage field crops as well. The most widely distributed forage vetches are common vetch (*V. sativa* L.), Hungarian vetch (*V. pannonica* Crantz) and hairy vetch (*V. villosa* Roth), utilized in the form of green manure, hay, forage meal, grain and straw, as well as for grazing and green manure, with an increasing importance in modern trends such as organic farming and sustainable agriculture.

Vetches are largely present in the flora of Serbia and are commonly considered one of the oldest forage crops in the country. The first serious research on the genetic resources of vetches in Serbia, and their evaluation in an agronomic sense, was made during the last decade.

The Annual Forage Legumes Collection of the Institute of Field and Vegetable Crops is constantly enriched with local landraces and wild populations of Serbian origin, mostly collected in the region of Novi Sad and Fruška Gora mountain. The majority of the collected accessions belong to narrow-leafed vetch (*Vicia sativa* L. *subsp. nigra* (L.) Ehrh.), large-flowered vetch (*Vicia grandiflora* Scop.) and hairy vetch, extremely widespread not only in the countryside, but in cities like Belgrade or Novi Sad, often growing together between the buildings, along the roads or in the parks.

A long-term research on the urban populations of narrow-leafed, large-flowered and hairy vetches in the Institute of Field and Vegetable Crops has been aimed at mapping and seed collecting, building up a passport database, and characterization and evaluation of the most important agronomic traits and characteristics. So far, seeds of more than 50 urban populations of all three vetches have been collected. It has been determined that all populations germinate during September *in situ*, and that they have high tolerance to low temperatures, often with a winter survival coefficient of more than 90% in the field trials. Narrow-leafed and large-flowered vetches flower in early April, while hairy vetch reaches that stage two or three weeks later. In a similar way, narrow-leafed and large-flowered vetches produce first seeds in mid-May, with the second one a week after the first sometimes, while hairy vetch reaches the same stage in mid-June or later. If cut in the stages of full flowering, there are urban populations with a great potential for forage yields, with more than 30 t/ha of green forage and 7 t/ha of forage dry matter in the *ex situ* trials. Narrow-leafed and large-flowered vetches are characterized by a more uniform stand if grown in field conditions compared to hairy vetch. The most serious obstacle to the development of cultivars of these three vetches is a prominent non-uniform maturity, with mature seeds, green seeds and flowers on one plant at the same time, and indeterminate stem growth, resulting in rather heavy harvest and low seed yields.

Vavilov Frankel award winners in 2007

This year's winners of Bioversity International's Vavilov Frankel Fellowships will use high-tech methods to study cacao and wheat, hoping to enhance the value of these crops for poor rural farmers. Adriana Arciniegas Leal, from Colombia, will examine samples of cacao diversity to establish whether plants with a similar molecular profile also have similar agronomic characteristics. This will help to rationalize collections of cacao. Mehraj Abbasov, from Azerbaijan, is focused on the ability of wheat to tolerate high salinity. He will screen a large collection of wheats to identify a subset that can be used to further study salinity tolerance. The Fellowships were awarded at a recent meeting of the Bioversity Board of Trustees.

Adriana Marcela Arciniegas Leal from Colombia, currently a consultant with the Biotechnology Laboratory of CATIE, Costa Rica, will carry out a study entitled "Agronomic and molecular characterization of selected cacao germplasm accession groups for efficient conservation and utilization". The work will be carried at the Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica, under the supervision of Wilbert Phillips-Mora and at the USDA Beltsville Agricultural Research Center, Plant Science Institute, Sustainable Perennial Crops Lab, USA, under the supervision of Elizabeth Johnson. This Fellowship is made with the support of Pioneer Hi-Bred International, Inc. The Bioversity focal person will be Jan Engels. Stephen Smith, Bioversity Board member from Pioneer, will also be an advisor to Adriana.

Mehraj Abbasov of the Genetic Resources Institute of the National Academy of Sciences of Azerbaijan, will carry out a study entitled "Eco-geographic distribution of salinity tolerance in diploid wheats". The work will be carried out at the CSIRO Plant Industry, Australia, under the supervision of Rana Munns with a short stay at ICARDA under the supervision of Ken Street. This Fellowship is made with the support of the Grains Research and Development Corporation (GRDC), Australia. The Bioversity supervisor will be Prem Narain Mathur. Bioversity Honorary Research Fellow from CSIRO, Tony Brown will also guide Mehraj in his research.

Press releases are available on http://news.bioversityinternational.org/index.php?itemid=1772. Further information about the Scheme is also available on www.bioversityinternational.org/About_Us/Fellowships/Vavilov-Frankel_Fellowship/index.asp#A_History_of_the_Vavilov_Frankel_Fellowship

Italy inaugurates DNA bank of Mediterranean forest species

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Minister P. De Castro inaugurates DNA bank. Photo: R. Bosi, University of Tuscia, DAF Dept. Viterbo, Italy

In January 2007 the Department of Technology, Engineering and Science of Forest and Environment (DAF) of Università della Tuscia (University of Tuscia, Viterbo, Italy) established the Forest Central DNA Bank, in collaboration with the Italian National Forest Service (Corpo Forestale dello Stato), in the framework of the Convention on Biological Diversity, PEBLDS (Pan-European Biological and Landscape Biodiversity Strategy) and Strasbourg Resolution S2 (MCPFE process) implementation.

The DNA Bank was inaugurated on 8 February 2007 in the presence of the Minister for Agriculture, Food and Forest Policies (MiPAF), Paolo De Castro, the Head of the Italian National Forest Service, Cesare Patrone and the Dean of the Faculty of Agricultural Studies of University of Tuscia (Viterbo), Eddo Rugini.

The DNA Bank aims to collect DNA from all Mediterranean tree species. Woody species from other countries will also be stored for reference. Several National Forest Service teams are in charge of collecting samples in selected or protected areas, representative of Italian forests, to be sent to the DNA Bank for genetic laboratory analysis and storage.

The originality of the collection design consists in harvesting DNA samples from tree populations, instead of single individuals per species, in order to catch a representive amount of the genetic pool existing in each population. To this purpose, the activities will focus on the DNA extraction of 5-30 individuals/pop./species from common taxa and from taxa of particular interest (endemics, hybrids, ecotypes, endangered species), associated with biological, ecological, biogeographical and historical information of the sampled material.

Another major purpose of the project is the collection of desiccated leaf-tissue that will allow indefinite preservation and storage of the sample.

Each sample is vouchered and DNA aliquots, extracted upon request, will be sent to the international scientific community. Requests for DNA samples will be considered only from established botanical institutions or scientific units. DNA samples may only be used for research projects and non-commercial purposes and should not be given or sold to any third party.

The DNA bank will provide the biological resources, as well as the necessary input, for data interpretation.

In order to facilitate worldwide taxonomic and evolutionary studies, the DNA bank might take an active role in various genomics, phylogeographic and biodiversity research projects related to future forest tree species distribution.

New possibilities for certification tests of provenances of the reproductive material for nursery activities may also constitute a further application.

New facilities for National Plant Gene-Bank of Israel (IGB)

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The inauguration of the new facilities of the National Plant Gene-Bank of Israel (IGB) was celebrated in April in a two-day workshop on plant genetic conservation. The workshop, held at the Agricultural Research Organization campus, where the genebank is located, focused on *ex-situ* conservation and genebank management. Israeli and foreign scientists honored the occasion. Among the invited guests were E. Frison, Bioversity International; A. Graner, IPK (Germany); M. Feldman, Weizmann Institute (Israel); C.Q. Qualset, Davis (California, USA); S. Abbo, Hebrew University of Jerusalem (Israel); and J. Dickie, the Millennium Seed-Bank Project (UK).

The new IGB facilities, Bet Dagan, Israel. Photo: Dani Shavit, The Agricultural Organization of Israel

IGB is equipped with state of the art conservation facilities and research laboratories. The short and long-term conservation facilities plan to encompass the rich biodiversity of the Israeli flora, including its genetic diversity. Conservation efforts are carried out in collaboration with local and international research institutes and conservation centres such as the Millennium Seed-Bank Project, CGIAR and others. More information on the IGB, its activities and query of IGB database can be found at http://igb.agri.gov.il/

Emile Frison, DG of Bioversity International making a presentation at the IGB inauguration ceremony. Photo: Dani Shavit, The Agricultural Organization of Israel

Private efforts to safeguard *Vitis* genetic resources in Germany

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"Primitivo" from old vineyards near Heidelberg. Photo: Andreas Jung, Office for Ampelography and Clone selection, Lustadt, Germany

In 2002, a sensation was created by the rediscovery of several ancient varieties in historic vineyards near the city of Heidelberg. Further investigations revealed that the western slopes of the Rhine valley near the city of Heidelberg represent one of the last and invaluable enclaves for ancient grapevine varieties and locally adapted clone variants. So far, 65 varieties of *V. vinifera* L. from a total of 6700 old vines have been identified by the author in 21 inventoried vineyards, estimated at being between 70 to over 200 years old. They reflect the local tradition of 19th century viticulture: densely grouped vines of different ages grow with their original roots in individual mixtures of between 9-33 varieties per vineyard. Some vines represent extremely rare varieties like white, red and blue "Heunisch", "Orleans", "Luglienga bianca", "Lashka", "Blaue Bettlertraube", "Blauer Blank", "Süßroth", "Früher Blauer Wildbacher", "Rot-Weisser Veltliner" and "Weisser Veltliner". All were thought to be extinct in German viticulture.

In the late summer of 2005, vines were detected which closely match the lost variety "Fütterer", a supposed cross of "Heunisch" x "Traminer". This variety was first mentioned by J. Bauhin in 1651. As a noble variety, it was widely cultivated in Swabia and Franconia, but had been lost for over a century. Other historic and traditional varieties were detected, as well as a handful of international varieties such as "Riesling Italico", red "Veltliner", "Auxerrois", "Chardonnay" and the Hungarian "Honigler". Sixty-five vines of "Zinfandel" still grow in eight lots. In all probability, more old vineyards, reflecting variety history and ancient distribution patterns, are waiting to be investigated. However, most owners are well advanced in years and their old vineyards are highly endangered by a lack of pest management, abandonment and eradication. Urgent action is necessary if these rare varieties are to be preserved.

Based on the author's variety inventories, some vines from six old vineyards were saved in 2002 and 2003. Since then, further old vineyards have been detected. Most of the 400 inherited traditional varieties are not listed in the national list of recommended varieties and certified clone material is completely missing. Commercial winemaking is only permitted in an experimental framework, i.e. requiring special permission for plantation and commercial use; experimental planting must be done for some years, after which proof must be given that the investigated varieties are of high quality and value for Germany. Therefore, historic varieties cannot be easily reintroduced in the German wine market. Agenda 21 and other international agreements recommend the national protection of autochthonous genetic resources. However, professional breeders in Germany are mainly focused on a few noble varieties of commercial interest and the six scientific collections held do not serve the purpose of maintaining clone diversity.

To ensure the maintenance of clone diversity of local traditional grapes, an independent safeguarding network was founded in 2005 by this author. More than 300 healthy clones of several endangered and traditional varieties were selected from 15 old vineyards. The collected material was multiplied, grafted with the engaged support of owners, nurseries and winemakers. This spring, these vines were legally planted in a newly installed variety archive in Lustadt, Rhineland-Palatinate.

The city of Heidelberg started a municipal conservation project, focused on the most typical local variety "Blauer Elbling" (syn. "Früher Blauduftiger Trollinger"). This completely neglected variety can still be found in nearly every old vineyard along the Badische Bergstrasse, a winegrowing region on the western slopes of the Rhine Valley in North Baden. In Heidelberg, it has survived with more than 1000 inventoried vines, still representing the second most frequent local variety after Riesling. As a direct relative of "Schiava Grossa", it probably represents the "Suesser Römer" / Blauwelsche" from medieval times. Forty-three virus-free clones were selected, however, new planting of this most typical ancient variety in the wine district of North Baden is not foreseen for the time being. The German wine law does not schedule or enforce private or municipal preservation activities, which therefore depend on the goodwill of the regional wine administration. The 43 clones were subsequently legalized and will now be planted in the adjacent federal state of Hessen.

The formation of an NGO to safeguard neglected traditional varieties is now planned.

The overall detection of and variety inventory of old vineyards in Germany was officially enhanced by the Federal Ministry of Food, Agriculture and Consumer Protection. During a three-year project (2007-2009), this author and cooperating partners in Franconia, plus two laboratories in Switzerland involved in microsatellite analyses, have been contracted to execute the national survey on traditional *Vitis* genetic resources in old German vineyards. It is the last chance to collect and save the autochthonous clone diversity of rare or neglected underrepresented traditional varieties in Germany.

SEEDNet: 13 working group projects approved

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Prunus *flowers blossom in a snowy spring in Ljubljana.*
Photo: L. Maggioni, Bioversity International

Most of the SEEDNet partners have now established national genebank facilities, and inventorying and collecting of local PGR material is presently a priority for the SEEDNet working groups.

The working group members have prepared a number of project applications with focus on these priorities. The applications were evaluated by the Regional Steering Committee (RSC) during its sixth meeting, held in Ljubljana, Slovenia on 19-21 March 2007. Thirteen projects with the following objectives were approved and will be carried out during 2007:

- collecting of *Trifolium pratense* L. and *Festuca pratensis* Huds.;
- inventorying of autochthonous *Prunus domestica* populations;
- inventorying of autochthonous genotypes of apple (*Malus sylvestris* Mill.);
- collecting of potato landraces and training in *in vitro* conservation techniques;
- inventorying and collecting of flax and hemp;
- regeneration, documentation and characterization of local landraces of maize;
- inventorying of local populations of yellow gentiana (*Gentiana lutea* L.);
- inventorying of *Sideritis scardica, Sideritis roeserii, Sideritis syriaca/taurica*;
- collection, characterization, and regeneration of local kale (*Brassica oleracea* var. *acephala*) populations;
- identification, conservation, and characterization of *Vitis vinifera* ssp. *sylvestris* germplasm;
- collection, characterization and regeneration of indigenous onion (*Allium cepa* L.) and leek (*Allium porrum* L.);
- pilot project on collecting seed of local vegetable populations by school children; and
- collecting of Solanacea germplasm.

The SEEDNet RSC members are aware of the benefits of AEGIS and have decided to closely follow the AEGIS implementation process which started earlier this year. In particular, the development of a genebank quality management system and adoption of the AEGIS general principles are of specific interest. An AEGIS sub-regional task force was therefore appointed during the sixth RSC meeting to follow up on AEGIS activities and promote the implementation of AEGIS at the national level.

Further information on the projects, or SeedNet in general, can be obtained from Eva Thörn (eva.thorn@cbm.slu.se).

FAO Panel of Experts on FGR and COFO meetings

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A natural cork oak stand in Portugal.
Photo: Michel Malagnoux, FAO, Rome, Italy

The 14th Session of the FAO Panel of Experts on Forest Gene Resources was organized in Rome from 31 January to 2 February 2007, with the participation of partner institutions, including Bioversity International. The Panel recommended that FAO take stronger action to support the management of forest genetic resources to achieve sustainable forest development, in order to cope with the challenge of mitigating and adapting to global change, and to address worldwide deforestation and potential loss of local diversity from invasive pests.

It also recommended that FAO increase its knowledge base on the current status of forest genetic resources. Priority should be given to the preparation of a State of the World's Forest Genetic Resources report, linking these activities with the Global Forest Resources Assessment, and to the strengthening FAO's information systems such as REFORGEN, as a basis for priority setting in the medium term. The Panel recognized that the integration of forest genetic resources activities of the Forestry Programme with the Multi-Year Programme of Work of the Commission on Genetic Resources for Food and Agriculture would draw attention to the importance of the sector. It would also help to focus the Forestry Department's contribution to FAO's cross-sectoral work on biodiversity and genetic resources, and would support cooperation with other relevant international institutions and partners.

The 18th Session of the Committee on Forestry (COFO) of FAO was held from 13 to 16 March 2007. Items of the agenda included the State of the World's Forests, forests and energy, forest protection, putting forestry to work at the local level, progressing towards sustainable forest management and shaping an action programme for FAO in forestry. In consideration of recommendations of the 14th Session of the Panel of Experts on Forest Gene Resources, COFO recommended that FAO assist developing countries in managing forest genetic resources to achieve sustainable forest management, in collaboration with other institutions, *inter alia* the Convention on Biological Diversity. The report of the meeting is available at: ftp://ftp.fao.org/docrep/fao/meeting/012/j9643e.pdf

GrapeGen06-management and conservation of grapevine GR

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GrapeGen06 is a project co-funded by the European Commission, Directorate for Agriculture and Rural Development, from January 2007 to December 2010, as a targeted action for the Community programme on the Conservation, characterisation, collection and utilisation of genetic resources in agriculture - Council Regulation EC No 870/2004.

Grapevine is not an essential food, yet it is an important commodity for the economy of temperate and Mediterranean regions, whether it is for table consumption or wine making. Most European countries hold grapevine genetic resource collections in order to safeguard important, rare or exceptional varieties, to support research and to provide base materials to the breeders. To bring their best contribution to the European economy and research, it is important that all of these national collections are coordinated, in order to adopt optimized methods and standards, and to compare, characterize and exchange their materials.

Countries participating in the GrapeGen06 project: Austria, Azerbaidjan, Croatia, Czech Republic, Cyprus, France, Germany, Georgia, Greece, Hungary, Italy, Moldova, Morocco, Portugal, Slovak Republic, Spain and Switzerland.
External partners: Armenia, Russian Federation and Ukraine.

In 2006, the European Community Directorate General for Agriculture decided to co-fund a multi-partner, multi-national project to study, compare and safeguard grapevine genetic resources. The GrapeGen06 project covers the majority of European countries and some East European countries in which grapevine is both native and largely utilized.

GrapeGen06 is coordinated by the Joint Research Unit "Diversity and Adaptation of Cultivated Plants" of the National Institute of Agricultural Research of France (INRA). Its aim is to:

- Monitor cultivated and wild *Vitis* germplasm in Europe, including Eastern countries which are home to very diverse genetic resources and to the first grapevine cultivation initiatives dating back some 7000 years.
- Describe this germplasm, using common morphological, agronomic, sanitary and molecular descriptors and link them to a unique Web database (www.genres.de/eccdb/vitis).
- Promote the on-farm study of old, endangered and poorly known varieties for their agronomic performance and genetic relationship with other cultivars, so as to increase the availability of interesting material to be tested and cultivated in modern viticulture.
- Implement true-to-type identification of varieties, thus decreasing the number of errors, homonyms and synonyms that may be present in national collections.
- Promote an overall optimized scheme for the safe conservation of *Vitis* germplasm, including the wild species *Vitis sylvestris*, presently threatened with extinction.

The project aims to address and support the three most relevant challenges to European viticulture: innovation, quality and environmental protection. It will facilitate innovation by making available well characterized genetic resources to the breeders. True-to-type identification will facilitate product and quality certification, as well as consumer information. By providing a large base of variability, including wild genotypes to researchers, it will support the continued search for more resistant varieties, in the hope of reducing the use of chemical treatment as well as the environmental impact of viticulture.

Finally, GrapeGen06 will also provide a better understanding of the wild grapevine parent *Vitis sylvestris* which, as well as being an important reservoir of variability and new genes, is in many instances threatened by local extinction, due to anthropogenic pressure and weak spontaneous regeneration. The preservation effort will focus on both wild and cultivated germplasm and will involve cryopreservation, *ex situ*, *in situ* and on-farm conservation.

The first meeting of the project at INRA Versailles, France on 21-23 March 2007, was attended by all participant organizations, a representative of the Directorate General for Agriculture of the European Union and by a representative of Bioversity International. During the meeting, a number of important decisions were taken concerning the list of grapevine accessions to be studied under the different work packages, the methods to be adopted for molecular identification, morphological and agronomical characterization, as well as the on-farm, true-to-type and database work to be carried out over the next four years. Futher details on the project and its participants can be found at: www.montpellier.inra.fr/grapegen06/

Wild Vitis sylvestris *found in a forest in South France.*
Photo: T. Lacombe, INRA Vassal, France

European leafy vegetables project is not just rocket science

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On 1 January 2007 a new EC-funded project started to stimulate the use of genebank material in leafy vegetable production. The most important European leafy vegetables are lettuce, spinach and chicory, but the minor crops of lamb's lettuce and rocket (rucola) are also becoming increasingly important, especially with the trend towards increased sales of bagged mixed salads. A network has been established of 14 partners from 10 European countries that brings together genebanks, universities, research institutes and NGOs active in the conservation and utilization of the genetic resources of these crops. The project is coordinated by Chris Kik from the Centre for Genetic Resources (CGN), Wageningen, the Netherlands.

Group photo of the participants of the start-up meeting of the GENRES Leafy Vegetable project in Wageningen (February 2007). Photo: CGN, Wageningen, the Netherlands

The potential is huge. Over 8400 accessions of lettuce alone are held in genebanks and living collections by project partners across Europe. Spinach and chicory have more than 900 accessions each and there is a total of 270 accessions of rocket and lamb's lettuce. The task is to characterize more than 1200 of these accessions and to develop the databases of these crops to improve access and utilization of the collections.

Evaluation of important characteristics of more than 750 accessions will allow breeders to use the most promising germplasm to develop improved materials. Promising sources of resistance to pests and diseases will be used to develop varieties requiring fewer fungicides and pesticides. The selection of improved and more attractive varieties should stimulate consumption of these healthy vegetables. Parts of the collections will also be evaluated for nitrates, oxalic acid and glucosinolates, which can have negative effects on health.

The project will run for four years and is far from just an academic exercise. The involvement of NGOs ensures an increased use of the collections by growers and ultimately consumers. Researchers and growers will evaluate selected accessions for agronomic performance, including organic farming systems and market appeal. The NGOs will encourage uptake of the material for supermarkets, restaurants and farmers' markets.

For further information, please contact Chris Kik (Email: chris.kik@wur.nl) or visit: http://documents.plant.wur.nl/cgn/pgr/leafyveg/default.htm

EURALLIVEG Project: "Vegetative *Allium*, Europe's Core Collection, safe & sound"

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Readers of this Newsletter have been informed about the richness of the vegetative alliums genepool in Europe (see Newsletter 32 page 7). The authors of that article are happy to report the successful start of a new project granted by the European Commission under the Council Regulation No 870/2004. Soon after starting date, the kick-off meeting was hosted by IPK Gatersleben, the coordinating partner, on 12-13 April. Eight partner institutions, represented by 14 participants, joined to set up a stable foundation for a European base collection of vegetatively propagated alliums, starting with garlic and shallot. This will be implemented according to the orientations of the AEGIS recommendationsl and in close collaboration with the ECPGR *Allium* Working Group (AWG) and European *Allium* Database (EADB). Jan Engels (AEGIS Coordinator), Bioversity, and Dave Astley, AWG Chairman, participated and contributed substantially to the meeting. Since garlic and shallot cannot be stored as seeds, cryopreservation will form the core activity of the project. It will be organized in a Cryobanks Network, initially formed by three partners, the Czech, German and Polish genebanks and will be open for other institutions to join. Material for this base collection will need to meet the criteria of a Most Appropriate Accession (MAA) and be unique.

Garlic plants growing in the field. Photo: IPK, Gatersleben, Germany

Molecular marker screenings to eliminate duplicates are the primary actions for garlic and shallot. Plant health is another important factor, which will be improved by meristem culture for virus elimination in garlic. Furthermore, the virus eliminating effect of cryopreservation itself will be explored.

The project is highly integrative and needs the close collaboration of the partners from Germany, Czech Republic, France, Italy, the Netherlands, Poland and the Nordic Gene Bank. The meeting was conducted in a very open atmosphere, characterized by vivid discussion around nine main talks covering all aspects of the project. Interesting laboratory and field visits rounded it off. More information is on the EURALLIVEG Web site: http://euralliveg.ipk-gatersleben.de/

XVIIIth EUCARPIA Genetic Resources Section meeting

The picturesque healing spa town of Piešťany, laying in the river Váh valley, at the foot of the Small Carpathian Mountains of southwest Slovakia, welcomed the 18th meeting of the Genetic Resources Section of the European Association for Research on Plant Breeding (EUCARPIA). The meeting was held on 23-26 May 2007. The organizers, the Slovak Agriculture Research Centre - Research Institute of Plant Production, Piešťany, Slovak Republic, very successfully hosted 230 participants from 35 countries, who gathered to discuss "Plant genetic resources and their exploitation in the plant breeding for food and agriculture".

The meeting offered a comprehensive overview of plant genetic resources conservation and use; plant genetic resources enhancement for breeding; challenges and opportunities of molecular and information technologies; and plant genetic resources in the context of climatic changes.

In the opening lecture, P. Ruckenbauer (Austria) outlined the challenges ahead, in the areas where plant genetic resources are expected to offer essential contributions in the future: food security, environmental stress, food safety and food for health.

Several presentations showed the surviving richness in Europe of landraces prevalently conserved in home gardens, mainly by old generations of farmers.

Interesting examples of linguistic and plant genetic resources islands remaining in German speaking villages in Northern Italy were described by K. Hammer (Germany) while M. Scholten (UK) illustrated the example of Shetland cabbage grown for centuries and now in serious decline. The occurrence of over 500 landraces, found in Central Italy with high variation detected between subpopulations (i.e. farmer populations), was described by V. Negri (Italy), who proposed the need to support the preservation of each farmer's activity in order to possibly preserve every different subpopulation.

Several studies presented dealt with the management of the genebank collections, including analysis of their structure with a view to identifying duplicates, establishing core collections and rationalizing conservation with appropriate means, such as with cryopreservation of vegetatively propagated crops. Bioversity International presented the ambitious plan of creating a European Integrated Genebank System (AEGIS), that would facilitate access to high quality germplasm, following formalization of a collaborative European-wide conservation commitment.

A demonstration of the Global Biodiversity Information Facility (GBIF), a powerful bioinformatics tool, was offered by H. Knüpffer (Germany), who concluded his presentation with an invitation to join the GBIF.

Several examples of resistance and quality traits, that could be identified and used in enhanced material, highlighted the great potential to find useful material in the genebank collections and the importance of pre-breeding, which is declining due to lack of dedicated financial resources.

A very informative presentation by J. Latham (UK) described a list of unanticipated consequences following plant transformation. A lively debate then unfolded about unanticipated consequences of conventional plant breeding or the introduction of exotic germplasm, and their relative impact on biosafety.

In the closing session, the need to better understand where European plant breeding is going in the future, the relationship between the public and the private sectors and the role of genebanks in providing what the breeders really need were proposed as subjects for the next EUCARPIA Genetic Resources Section meeting. Understanding and adapting to the current Intellectual Property Rights and access regimes was also considered an issue. Plant genetic resources were believed to have the potential to offer valuable tools for the challenges ahead, but it will be necessary to focus on the prevailing needs. In the words of Eva Thörn, selected as the new Chair of the EUCARPIA Genetic Resources Section, "…it will be important not to drown in the genepool, but rather to be able to profitably fish in the collections". The take-home message was that pooling expertise and sharing resources and responsibilities will be the key for the future.

A continuing close collaboration between the EUCARPIA Genetic Resources Section and ECPGR may offer fertile ground to improve the link between conservation and use of plant genetic resources.

Avena strigosa *and* Secale cereale *landraces on the Outer Hebrides, Scotland.*
Photo: Maria Scholten, UK

Forthcoming meetings

3-4 August 2007
3rd IUFRO Conference on Hardwood Research and Utilisation in Europe.
Sopron, Hungary.
http://hdwconf.fmk.nyme.hu/

1-2 September 2007
ProSpecieRara Foundation 25 year Jubilee.
Bern, Switzerland.
www.prospecierara.ch

3-4 September 2007
MCPFE Expert Level Meeting.
Warsaw, Poland.
www.mcpfe.org/Members/Marta/eve/elm2_07

3-5 September 2007
IUFRO Norway spruce in the conservation of forest ecosystems in Europe.
Warsaw, Poland.
www.iufro.org/events/calendar/

3-7 September 2007
IUFRO Woodland Cultures in Time and Space: tales from the past, messages for the future.
Thessaloniki, Greece.
www.uec.ac.uk/geography/woodlandculturesconference.php

5-9 September 2007
5th Planta Europa Conference: Working Together for Plants and Fungi.
Cluj-Napoka, Romania.
www.plantaeuropa.org

28-30 September 2007
Annual SAVE Foundation and SAVE Network meeting.
Guastalla (Parma), Italy.
info@monitoring.eu.com

07-10 October 2007
EUCARPIA Oil and protein crops section meeting
Budapest, Hungary.
www.altagra.hu/eucarpia

10-12 October 2007
UNECE 6th Ministerial Conference "Environment for Europe".
Belgrade, Serbia.
www.unece.org/env/efe/wgso/Belgrade/welcome.html

22-24 October 2007
EUFGIS workshop on FGR documentation in Europe.
Copenhagen, Denmark.
www.euforgen.org

29 October-1 November 2007
5th International ISHS Symposium on Edible Alliaceae (onions, garlic, leek).
Lelystad, the Netherlands.
www.worldalliumassociation.com

31 October 2007
2nd World Onion Congress.
Lelystad, the Netherlands.
www.worldalliumassociation.com

5-7 November 2007
5th MCPFE Conference.
Warsaw, Poland.
www.5th.mcpfe.org

26-30 November 2007
2nd International Vavilov Conference "Crop Genetic Resources in the 21st Century: Current Status, Problems and Prospects".
St. Petersburg, Russian Federation.
www.vir.nw.ru

13-18-Apr-08
5th International Crop Science Congress
Jeju Island, Korea.
www.cropscience2008.com

Publications and announcements

www.bioversityinternational.org/Publications/index.asp

Case studies on access and benefit-sharing. Robert J. Lewis-Lettington and Serah Mwanyiki (editors). 2006. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1149

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

Enhancing the use of crop genetic diversity to manage abiotic stress in agricultural production systems. 23-27 May 2005, Budapest, Hungary. D. Jarvis, I. Mar and L. Sears (editors). 2006. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1137

Genetic Erosion and Pollution Assessment Methodologies. Proceedings of PGR Forum Workshop 5. Terceira Island, Autonomous Region of the Azores, Portugal, 8-11 September 2004. Brian V. Ford-Lloyd, Sónia R. Dias and Eliseu Bettencourt (editors). 2006. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1171

Hunger and poverty: the role of biodiversity. Report of an International Consultation on the Role of Biodiversity in Achieving the UN Millennium Development Goal of Freedom from Hunger and Poverty. Chennai, India, April 18-19, 2005. S. Bala Ravi, I. Hoeschle-Zeledon, M.S. Swaminathan and E. Frison (editors). 2006. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1170

Manual of Seed Handling in Genebanks (Handbooks for Genebanks No. 8). N. Kameswara Rao, Jean Hanson, M. Ehsan Dulloo, Kakoli Ghosh, David Nowell and Michael Larinde. 2006. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1167

Manuel de manipulation des semences dans les banques de gènes (Manuels pour les banques de gènes No. 8). N. Kameswara Rao, Jean Hanson, M. Ehsan Dulloo, Kakoli Ghosh, avid Nowell and Michael Larinde. 2006. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1168

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Plant Genetic Resources Newsletter, No. 147, September 2006. Source/Contributor: Bioversity (Bioversity International) - FAO (Food and Agriculture Organization of the United Nations) Year: 2006. ISBN-10: 1020-3362 ; Language: English.

Seed Handling in Genebanks. Self-learning module. N. Kameswara Rao, J. Hanson, M.E. Dulloo and E. Goldberg. 2006. CD-Rom. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1175
NOTE: The Self-learning module is also provided on the inside back cover of Manual of Seed Handling in Genebanks (Handbooks for Genebanks No. 8) and Manuel de manipulation des semences dans les banques de gènes (Manuels pour les banques de gènes No. 8).

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Letter from the Regional Director for Europe

Dear Reader,
The European Union (EU) has a leadership role to play in promoting and fostering the long-term conservation, inventory, characterization and sustainable use of plant genetic resources (PGR). Various policies and programmes launched by the European Commission (EC) undoubtedly strengthen this role, both in Europe and at the global level. However, these remain fragmented and often follow narrow sectoral interests within the Commission. This fragmentation is obviously due to the multidisciplinary, multifaceted and multi-sectoral responsibilities involved in PGR. Therefore the challenge for the EU is to develop and effectively pursue a common strategy on genetic resources, which would be based on the commitments made and interests expressed by the Member States and the Community.

This issue of the Regional Newsletter reports on several genetic resources projects recently funded by the EU. In particular, "Establishment of a European Information System on Forest Genetic Resources, EUFGIS" (page 3) and a further three projects on grapevine, leafy vegetables and vegetatively propagated alliums (see pages 16-17) are among the 17 projects selected for funding under European Council Regulation No 870/2004 on genetic resources in agriculture. The PGR community in Europe has been waiting considerable time for the implementation of the Regulation. In addition to the unusually lengthy procedures, the PGR community felt that some of the declared priority topics of the Regulation were ignored. In particular, the proposals for inventory and documentation of cultivated crop plants and their wild relatives were not funded. Recognizing the critical importance of this topic, the ECPGR Documentation and Information Network recently launched a self-funded initiative (see page 9).

Although EC Regulation 870/2004 put a certain emphasis on *in situ* and on-farm conservation, the main policy instrument for supporting this area will be the EC Regulation 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development. It contains provisions for on-farm management of PGR (landraces) in the Member States. In addition, the policy objective of nature protected areas, which are very relevant for in situ conservation of PGR, is pursued through the Natura Network 2000 (Directives 79/409/EEC and 92/43/EEC) and other policies and laws. These will be complemented in the near future by the recently adopted Commission Directive for establishing conditions under which conservation varieties, amateur varieties and preservation seed mixtures are marketed in the Member States. Without it, the current seed legislation would not allow the marketing of seed varieties which would serve the purpose of conservation and sustainable use of PGR. More information on the new Directive will published in one of the next issues of this Newsletter. Another Directive, 1999/105/EC on the marketing of forest reproductive material, provides an important policy instrument specifically affecting the use of genetic resources in forest tree species.

Finally, the existing policy framework for PGR might be further strengthened by collaborative research in the European Research Area. Most relevant opportunities for the PGR community are now available through competitive research funding in the Environment and the Knowledge-based Bio-economy topics of the Seventh Framework Programme for research. Various funding instruments and calls for proposals are described at: cordis.europa.eu

The EU actively supported the adoption and ratification of the International Treaty on PGR for Food and Agriculture. The Treaty was recognized by the EC as essential for agricultural research and crop breeding in the EU. The initial suggestion of the EU during the negotiation process that eventually resulted in the Treaty, was to cover all agricultural crops by a multilateral system of access and benefit sharing. Throughout the negotiations, the EU initiated various actions to keep and accelerate the progress of adoption, ratification and early implementation of the Treaty. Both Community and Member States' competences are concerned in this process. A full involvement of the Commission in the development of AEGIS (further details on page10), will, therefore, be strategic in the efforts to promote the implementation of the Treaty principles in Europe and to extend these to create a European multilateral system covering all crops.

In accordance with the EU's principle of subsidiarity and, based on a common strategy, action by the European Union is now urgently needed to fulfill its leadership role in the long-term conservation and sustainable use of plant genetic resources.

Newsletter for Europe on-line

The Regional Newsletter for Europe is also available on-line. It can be downloaded from the Web at www.bioversityinternational.org/Regions/Europe/Newsletters/index.asp

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