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ECPGR Phase VIII establishes a European Collection

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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 38 by **20 March 2009**.



*Dried okra (Abelmoschus esculentum) fruits sold at the vegetable market in Sarajevo.
Photo: L. Maggioni, Bioversity International*

In September 2008 the city of Sarajevo, Bosnia and Herzegovina played host to the Eleventh meeting of the Steering Committee (SC) of ECPGR. The Steering Committee approved the launch of the eighth Phase of ECPGR (2009-2013) and Phase VIII plans were adopted with an overall budget of €2 759 000. More than 40 countries are expected to participate in Phase VIII. The meeting was attended by representatives of 34 member countries and observers from three potential member countries; FAO, the Global Crop Diversity Trust, the Secretariat of the Governing Body of the International Treaty, NordGen, SEEDNet and a representative of non-governmental organizations (NGOs) also participated.

High on the agenda of the meeting was the adoption by the SC of the Strategic Framework of the European Genebank Integrated System

(AEGIS) as a guiding policy document. The text of the Memorandum of Understanding (MoU) for the establishment of AEGIS was also adopted by consensus, subject to further consultation with the Nordic countries concerning the wording of one article related to non-Annex I crops. As of 2009, the MoU is expected to be circulated for signature, thereby formalizing the entry into force of this AEGIS agreement. In practical terms, this means that during Phase VIII, the concept of a European Collection will be put into practice. This Collection will be composed of accessions that each member country will commit to maintaining in the long-term, under agreed standards, and to making available under the terms and conditions of the Standard Material Transfer Agreement of the International Treaty. At the discretion of the members, accessions that are plant genetic resources for food and agriculture, as well as medicinal

and ornamental plants, will be eligible to be registered as European Accessions. The European Collection is a new concept of "virtual genebank" and its accessions are expected to remain in the respective holding institutions.

In parallel with the start of the process for a formal establishment of AEGIS, all the ECPGR Crop Working Groups will be engaged in the identification of Most Appropriate Accessions to be registered as part of the European Collection, as well as in the definition of agreed minimum standards for conservation and setting up of crop conservation work plans. A specific budget line is dedicated to AEGIS activities and will be available for the Networks under a competitive grant scheme. This opportunity is expected to facilitate the establishment of the European Collection and the management of the European Accessions.

(continued on page 3)

Ad hoc meeting of the Cucurbits Working Group



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The ECPGR Cucurbits Working Group (WG) met at the Warsaw University of Life Sciences, Poland, on 23-24 October 2008 in an *ad hoc* meeting aimed at starting the implementation of AEGIS within the Working Group. Representatives from Bulgaria, Czech Republic, Georgia, Germany, Hungary, Israel, Latvia, the Netherlands, Poland, Portugal, Spain, Turkey and Ukraine attended the meeting. These countries hold the major part of important Cucurbit collections in Europe.

The meeting began with opening remarks and a presentation about the plans and goals in Phase VIII for the Vegetables Network. All the attending members gave an update on the status of the National Collections. The current state of the European Central Cucurbits Database (ECCUDB) was presented by the WG Chair, highlighting the improvements conducted since the last meeting held in Olomouc, Czech Republic in June 2007. WG members were asked to provide new passport and characterization data in order to improve the quality of the database.

The background, goal and scope of AEGIS, as well as the concept of the Most Appropriate Accessions (MAAs) and the role of the Working Groups in the implementation of AEGIS, were explained by the Chair and the Vice-Chair. Using the example of the



A selection of cucurbits from the Polish Cucurbitaceae germplasm collection.
Photo: L. Szymański, WULS (Warsaw University of Life Sciences), Warsaw, Poland

Brassica Working Group, which acted as an AEGIS model crop for the implementation of AEGIS, the Vice-Chair explained the conclusions and recommendations resulting from the experience of the *Brassica* WG. A case study based on the collection of *Cucurbita pepo*, carried out in the COMAV genebank, (Valencia, Spain) was prepared and explained in detail, in order to facilitate the explanation of the selection of MAAs to all members. Afterwards this case study was discussed. It was proposed that further case studies be prepared, to be studied by the Chair and Vice-Chair, based on the specific characteristics of the European collections, in order to cover all the possible features of the Cucurbits WG collections. The level of safety-duplication and status of long-term conservation facilities was revised and updated. Plans for actions to improve the level of safety storage for Cucurbits collections were established. Progress was also made on the development of minimum descriptor lists for *Cucurbita*,

Lagenaria and *Momordica* spp. Because of their involvement with these crops, the WG members from Germany and Israel will develop and review the descriptors. The status of regeneration requirements was revised and possible solutions were discussed, but must be checked with the respective National Coordinators. A survey for conservation, management and regeneration procedures of genetic resources, developed by the *Brassica* Working Group and adapted by the Vice-Chair for Cucurbits, was discussed. Members were encouraged to compile it, in order to initiate the establishment of standards to be used for the maintenance and regeneration of the Most Appropriate Accessions.

Finally, the WG member from Israel, Y. Tadmor informed the WG about the opportunities for funding of group activities through EU calls. He will gather further information which will be shared with and studied by all the WG members.

All the participants thanked the local organizers for the excellent meeting.



Participants in the ECPGR Cucurbits Working Group meeting.
Photo: L. Szymański, WULS (Warsaw University of Life Sciences), Warsaw, Poland

Management of European collections of fruit genetic resources

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An international meeting of the ECPGR Fruit Database (DB) Managers (*Vitis*, *Prunus*, *Malus* and *Pyrus*), as well as an *Ad hoc* meeting of European Experts on Fruit Synonyms were organized at Gembloux, Belgium on 23-25 June 2008 at Centre Wallon de Recherches Agronomiques (CRA-W).

The meetings of European Experts on Fruit Synonyms & Database Managers took place under the umbrella of ECPGR and aimed at harmonizing and sharing progress in the management of European fruit tree collections.

Firstly, the European Central Crop Database managers of *Vitis* (Julius Kühn-Institute, Siebeldingen, Germany), *Prunus* (INRA, Bordeaux, France), *Malus* (University of Reading, UK) and *Pyrus* (CRA-W,

Gembloux, Belgium) compared the databases and evaluated their progress. Exploring techniques that would allow a harmonization of the DBs and comparing experiences in DB management, a vision of the future development of the DBs on-line was developed. The SynoPyrus software, developed by O. Roger and M. Lateur was demonstrated and all DB managers agreed to use it in the future.

Many fruit varieties are known in the same region or in the same country by a large number of names (certain varieties have more than 70 synonyms!). This poses important problems in the management of collections, as well as in the elaboration and use of the DBs.

European fruit tree experts from Belgium, France, Germany, Hungary, Italy, Romania, Macedonia FYR, the Netherlands, Switzerland and UK subsequently analysed the DB accessions for *Malus*, *Pyrus* and *Prunus* with the objective of validating lists of synonyms, according to the best reference books for each crop, in order to identify the Most Appropriate Accessions (MAAs) to be included in the European Collection, currently being defined by the AEGIS initiative. They also checked the traceability of bibliographic encoded references.



Illustration of a diversity of pears.
Image: "Nos Poires", Ets Horticoles Louis Van Houtte, courtesy of J. Bosschaerts, Anvers-Antwerpen, Belgium

More than 1400 pear and 600 cherry accession names were examined by the respective expert groups with the view to defining their most appropriate names, country of historic origin, synonyms linked with bibliographic references and a reference description that could be used for the validation of the accession identity.

Participants also agreed on and defined common rules and methodologies for the introduction of photographs for each accession within the DB, using standardized models as much as possible.

The meeting was concluded with an interesting visit of the cherry collection at CRA-W.

For more detailed information on the outcomes of the meeting, please contact Marc Lateur (lateur@cra.wallonie.be)



The pear experts group working on the list of pear synonyms.
Photo: M. Lateur CRA-W, Gembloux, Belgium

ECPGR Phase VIII continued

(continued from page 1) Apart from task sharing and capacity building, other priority areas for ECPGR activity during Phase VIII will also continue to be addressed. These will include "Characterization and evaluation", "In situ and on-farm conservation and management" and "Documentation and information".

Two new Working Groups, namely the WG on "Wild species conservation in genetic reserves" and the WG on "On-farm conservation and management" were specifically established for this purpose, raising the number of ECPGR Working Groups in Phase VIII to twenty.

In the documentation and information area, ECPGR will collaborate with a global project funded by three international bodies (Global Crop Diversity Trust, International Treaty and Bioversity International). This project, called GIGA (Global Information on Germplasm Accessions-see box on page 19 of this Newsletter), intends to create, among other things, a gateway to accession level information. The well established European EURISCO Catalogue, which is hosted and maintained by Bioversity International on behalf of ECPGR, is expected to become an important source of data within this global initiative. In the European plant genetic resources landscape, EURISCO is increasingly seen as "the European information hub", providing access to all the relevant passport and related information from all European National Inventories. The SC also agreed on the use of EURISCO as a service to the International Treaty, by approving a proposed mechanism of registration of accessions in the Multilateral System, as well as an interim reporting procedure at the national level for reporting on the use of Standard Material Transfer Agreements.

The SC meeting in Sarajevo also provided an opportunity to strengthen collaboration with other relevant international institutions and fora, namely FAO, the Trust, the International Treaty Secretariat, NordGen and SEEDNet. It was, however, noted that a consistent engagement with the European Union had not yet taken place and the overall collaboration between ECPGR and the EU will need to be substantially strengthened in this coming Phase. A strategy for collaboration with the EU will be further developed.

As ECPGR draws closer to its 30th anniversary in 2010, the time has come for a thorough evaluation of its scope, objectives, mode of operation, structure and governance. Consequently, the SC will commission an independent external review of the Programme and resolved to raise funds and make detailed plans for this review in the early part of Phase VIII.

All the Sarajevo meeting details are available in the meeting report at: www.ecpgr.org/SteeringCommittee/SC11/SC11_FinalReport.pdf.

Progress in the establishment of AEGIS



Since June 2008 a number of significant events and developments have taken place with respect to the establishment process of AEGIS. A meeting of the AEGIS Model Crops (*Allium*, *Avena*, *Brassica* and *Prunus*) curators and database managers took place in Radzików, Poland on 1-3 July to discuss key aspects of their progress, such as the identification of Most Appropriate Accessions (MAAs) and the establishment of an AEGIS Quality System. These experiences were then reported during the 11th ECPGR Steering Committee (SC) meeting, which took place on 2-5 September in Sarajevo, Bosnia and Herzegovina. An entire session of the SC meeting was dedicated to AEGIS. The main outcomes of that meeting are reported on pages 1 and 3 of this issue.

Major agreements and developments that resulted from the two aforementioned meetings are listed below:

- The outstanding issues that hindered a full consensus on “A Strategic Framework for the Implementation of AEGIS - Discussion paper” were resolved and an updated policy document version will be published on the ECPGR website.
- The development of a quality system for the management of dispersed accessions of the European Collection was given due attention. The formulation of and agreement on so-called minimum technical standards by the partners concerned was felt to be one of the cornerstones of the quality system. Furthermore, an appropriate system of record-keeping of activities performed, as well as the development of an effective guiding and advisory approach (and not of “policing”) of the AEGIS partners, were identified as key elements of the quality system. The SC requested that the authors of the discussion paper “Quality Management System for AEGIS” revise the draft accordingly.
- The so-called primary selection criteria to identify European Accessions were discussed and approved, and the term “selection requirements” was coined for these criteria, as these are binding in a more formal sense for the countries when accepting responsibilities for the long-term conservation and their availability (see footnote¹). The previously named “secondary selection criteria” that are intended only for guidance of the selection process, especially of possibly unwanted duplicates, were renamed “selection criteria”.
- National Coordinators (NCs) are encouraged to ensure that all relevant non-confidential collection data are included in the National Inventories and transferred to EURISCO as soon as possible, thus facilitating the selection process

of European Accessions.

- The SC noted the importance of establishing a clear road map for the establishment of AEGIS. The final text of the Memorandum of Understanding (MoU) was adopted by consensus, with one single reservation of the Nordic countries on a specific article, which is expected to be reconsidered no later than June 2009. This document will provide the formal foundation for the establishment and operation of AEGIS and will be sent as soon as possible to the respective NCs for signature of membership to AEGIS. Each of the NCs will conclude so-called Associate Membership Agreements with all institutions and organizations in their respective country that plan to participate in AEGIS activities.
- As defined in the MoU, AEGIS members will present lists of identified Most Appropriate Accessions for all plant genetic resources for food and agriculture to the respective ECPGR Working Groups. All the ECPGR Working Groups are expected to actively engage in establishing AEGIS.

Footnote¹

Accessions proposed as European Accessions must meet the general selection requirements adopted by the ECPGR Steering Committee:

- a. Material under the management and control of the member countries and their associate members, in the public domain and offered by the associate members for inclusion into AEGIS;
- b. Genetically unique within AEGIS, to the best available knowledge (i.e. genetically distinct accessions; assessment based on available data and/or on the recorded history of the accession);
- c. Plant genetic resources for food and agriculture as defined in the International Treaty as well as medicinal and ornamental species;
- d. European origin or introduced germplasm that is of actual or potential importance to Europe (for breeding, research, education or for historical and cultural reasons).



Fruit and vegetables on sale at the market in Sarajevo.
Photo: L. Maggioni, Biodiversity International

EURISCO - European PGR information hub for germplasm conservation



It is likely that EURISCO will become the European PGR information hub, providing access to passport and related information from all European National Inventories and all crops, thereby contributing to the Global Information System and to the Multilateral System (MLS) of the International Treaty (ITPGRFA) as a reporting mechanism. With this in view, the current year has been considered the year of change. The website was restyled and its content updated; the EURISCO database structure evolved, becoming easier and faster to use; the factsheet expanded its outreach - translated into 11 languages. The ECPGR Steering Committee approved the proposed mechanism of registration of accessions in the MLS and in AEGIS, via EURISCO. They also concluded that the EURISCO SMTA reporting module (Interim Module) should be considered. The MLS and AEGIS flags are already implemented in the database structure and the first has already been populated with data.

EURISCO will be the European component of the Global Information on Germplasm Accessions (GIGA) Project (see box on page 19), addressing breeders', crop researchers' and other users' specific needs on PGR information and management protocols.

With a view to strengthening national capacities on PGR data handling, training-seminars on EURISCO were organized in Spain in November (see box on page 15), and in Albania in December, with the main aim of strengthening national capacity

and increasing the availability of National Inventories (NIs) to EURISCO.

The EURISCO catalogue has increased not only in information content and in number of accessions, but more importantly in the number of NIs that it makes available, containing almost 1 125 000 accessions maintained in European *ex situ* germplasm collections in 38 countries. Turkey and Albania are the most recent data providers to have joined EURISCO in 2008.

An external EURISCO assessment was carried out during the first four months of 2008. The report describes the current status of EURISCO, analyses the survey results and includes a set of recommendations for further development of EURISCO over the next five years. The report is available at <http://eurisco.ecpgr.org/static/documents.html>.

Another report produced this year, was the "EURISCO Coordinator Report 2004 – 2008 ECPGR Phase VII" for the end of ECPGR Phase VII. A full account of EURISCO activities

for the period is available in the report at www.ecpgr.cgiar.org/SteeringCommittee/SC11/Docs/EURISCO_ProgressReport_SD.pdf.

The monitoring of visitors' log in the new EURISCO website provides a good overview from where people are looking for information and on what. Since its restyling (July 2008) the number of visitors has reached almost the same number as for the whole of 2006, with an average rate of 30-50% of new visitors, with coverage from 79 countries (see map below).

This year the taxonomic and GIS report will be done in the same spirit as last year, i.e. to enhance the data quality and quantity in EURISCO, at the National Inventory and individual institutions level.

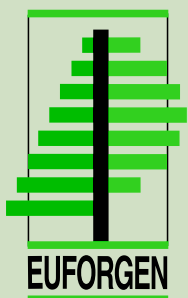
Besides these, many other activities and actions were carried out during 2008. Further information can be found on the EURISCO website at <http://eurisco.ecpgr.org> and in the next E-Bulletin-December 2008. Please go to http://eurisco.ecpgr.org/releases/e_bulletin.php to register for the E-Bulletin.



1,936 visits came from 79 countries/territories

Overview map of countries searching the EURISCO catalogue. Map: EURISCO logs, using Google Analytics by S. Dias, Bioversity International

Conifers Network meets in Hungary



Representatives from 24 countries participated in the seventh meeting of the Conifers Network in Sopron, Hungary on 10-12 June 2008. The meeting was hosted by the University of West Hungary and the participants also visited the Sárvár Experimental Station of the Hungarian Forestry Research Institute as part of the field trip.

In addition to reviewing the progress of the Network activities and updating the workplan, the meeting discussed the use of forest reproductive material and its implications for conservation of forest genetic resources. Forest reproductive material produced for trade is well documented in Europe but most countries do not keep records on how and where the material are finally used. In Hungary alone, there are some 900 registered nurseries producing 307 million seedlings of forest trees annually and a large part of the production is exported to other countries. Imported material may threaten gene conservation efforts, if it is planted close to gene conservation units of autochthonous tree populations, and may cause loss of adaptability of existing forests.

The Network further discussed selection of genetic material for given site conditions and how climate change is expected to impact on this. In marginal environments in particular, the adaptive potential



Seed orchard of European larch (*Larix decidua*) near Sárvár, Hungary.
Photo: J. Koskela, Biodiversity International

of the material is a critical factor. It was considered essential that the knowledge gained so far by testing or by practical experience should be incorporated into the characterization of forest reproductive material and that the properties of the genetic material traded should

be tagged with more detail, where available (e.g. early or late flushing provenance, photoperiod and temperature in relation to flushing and growth, and plasticity if the material is tested in many sites).

The summary report of the meeting is available at www.euforgen.org

EUFGIS update

The Slovenian Forestry Institute hosted a meeting of the EUFGIS project (Establishment of a European Information System on Forest Genetic Resources) in Ljubljana on 1-3 October 2008. The project partners and the expert group met for a third time and discussed finalization of pan-European minimum requirements and data standards for dynamic gene conservation units of forest trees (see the previous issues of this newsletter for additional information).

Subsequently, the database structure of the information system is now being finalized and a test version of the information system is scheduled to be ready by the end of 2008.

In spring 2009, the project will organize four sub-regional training workshops on the information system for national focal points in Avignon (the Mediterranean region), Copenhagen (northern European countries), Ljubljana (eastern and south-eastern European countries) and Vienna (central and western European countries). The workshops will take place during March-May 2009; the exact dates and further information will be communicated directly to the national focal points. Further information can be obtained from the EUFGIS Coordinator, Jarkko Koskela (j.koskela@cgiar.org).



European countries celebrate their forests



20-24 October 2008

On 20-24 October 2008, over 100 forest-related events were organized in 30 countries to celebrate the first European Forest Week. At regional level, a concentration of various events was organized jointly by the UN Food and Agriculture Organization (FAO), the UN Economic Commission for Europe (UNECE), the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and the European Commission at the FAO headquarters in Rome on 21-24 October. The events were built around the 66th session of the UNECE Timber Committee and 34th session of the European Forestry Commission of FAO, attended by more than 400 participants from 45 countries. The purpose of the European Forest Week was to increase the visibility of forests and the forest sector and raise awareness about their importance, as agreed by the fifth MCPFE Conference in Warsaw in November 2007.

The joint plenary sessions of the Timber Committee and the European Forestry Commission focused on adaptation of forests and forestry to climate change, as well as the role of forests in contributing to energy supply and in conserving water resources. The two bodies also adopted a joint market statement following discussion on the main drivers of change in markets of wood-based products, such as increased use of forest biomass for energy and the green building movement.

Each morning plenary session was followed by several parallel sessions, policy dialogues and side events to continue the discussion on various topics, such as forest law enforcement and governance, the new forest policy of the Russian Federation, the role of wood products in climate change mitigation, and adaptation of forest trees to climate change. Further details on the discussions and

outcomes of the European Forest Week are presented in a summary report published by the International Institute for Sustainable Development (IISD) at www.iisd.ca/yimb/efw/.

On 21 October 2008, Bioversity International organized a side event on adaptation of forest trees to climate change, to highlight the importance of forest genetic resources in this process and to promote the work done in the context of EUFORGEN and the EUFGIS and EVOLTEE projects. The side event was chaired by Jarkko Koskela (EUFORGEN Coordinator) who also presented the recommendations of the earlier workshop on climate change and forest genetic diversity, held in 2006 as part of the MCPFE Work Programme (see NL32 page 4). Bruno Fady, INRA-Avignon (France) gave a presentation on how trees can acclimatize, adapt and migrate as a response to environmental changes and what is known on the evolution of forest trees during the past 12 000 years. The second invited speaker was Jason Hubert, Forestry Commission (UK) who focused on the challenge of providing managers with advice on how to use forest genetic resources in the face of climate change. He also discussed the different options that forest managers can deploy to manage the risks and uncertainties in this regard.

Bioversity International also set up a booth at FAO to distribute publications and display posters of EUFORGEN, EUFGIS and EVOLTREE. The presentations of the Bioversity side event are available at www.europeanforestweek.org/51336/en/. Further information on other events held during the European Forest Week can be found at www.europeanforestweek.org.



Bioversity International booth at the European Forest Week (FAO, Rome).
Photo: B. Vinceti, Bioversity International

Fourth meeting of the Forest Management Network

The Forest Management Network gathered for the fourth time in Leuven, Belgium on 4-6 November 2008. The meeting was hosted by the Research Institute for Nature and Forest (INBO) and representatives from 22 countries participated in the three-day event.

The Network reviewed its earlier efforts to increase awareness on genetic aspects of forest management practices and to promote appropriate use of forest reproductive material, i.e. material that is of high-quality and well-adapted to given climatic and site conditions. The meeting stressed the crucial role of forest genetic resources in ensuring that forests and forest management can adapt to climate change. Some countries have analysed various options for future use of forest reproductive material and identified key issues for further consideration in the face of climate change. The Network decided to summarize these analyses and develop an overview of various options and issues for the benefit of other countries.

Forest management decisions, such as the

selection of regeneration method, have far-reaching consequences and the genetic material used today must be able to cope with climatic changes for the next 50 or even 100 years. Therefore, forest managers need to pay more attention to genetic consequences arising from their decisions and practices applied at different phases of the silvicultural chain. The Network agreed to summarize key genetic issues in this regard for forest managers and policy-makers.

The meeting included a seminar on local forest management issues such as delineation of provenance regions and production of planting stock to enhance genetic diversity of autochthonous tree populations. During the seminar, the participants also discussed how to reach practical forest managers and how to disseminate research findings and guidelines to them.

INBO organized a field trip at the end of the meeting in collaboration with the Agency for Nature and Forests (ANB). At the forest of Meerdaal, the participants discussed forest

management problems with local managers and shared their experiences in solving similar problems in other countries. The participants also visited the Sonian Forest, a wooded complex covering over 5000 hectares, located to the south of Leuven. The management history of the Sonian Forest goes back several centuries and in 12th century AD the forest was already managed for hunting purposes by the dukes of Brabant. Today, the Sonian Forest is famous for its beech (*Fagus sylvatica*) forests which are also a highly valued seed source outside of Belgium; many countries are using the material with good results. In 2006, 4000 kg of beech seed was harvested in the Sonian Forest. Both Meerdaal and Sonian areas are managed for economic, ecological and social functions of the forest and the urban residents from the surrounding towns appreciate the excellent recreational opportunities they provide.

A summary report of the meeting is available at the EUFORGEN website (www.euforgen.org).



The meeting participants observing natural regeneration within a fenced plot in the Sonian Forest.
Photo: J. Koskela, Biodiversity International

EVOLTREE implements multi-disciplinary research projects



www.evoltree.eu

After two years of intensive efforts to organize and structure the existing resources, EVOLTREE has now matured into a scientific and technical platform for ecosystem genomics. Tools developed within the integration activities are becoming operational and provide services and information to the different partners. A significant number of databases have been constructed and aggregated to form part of an eLab, accessible through a common web portal. The repository centre is regularly fed with DNA samples and other genomic libraries. The Network of Excellence has also witnessed an increase in training activities, with 15 summer courses and workshops planned within the third year (April 2008 – March 2009) of the four-year project.

Progress is also being made in the implementation of multi-disciplinary research projects established by partners within the Network.

Here we report on two projects that are most representative of the interdisciplinary approach promoted by EVOLTREE and are undertaken within the lifespan of the current phase of the Network of Excellence, officially ending in March 2010: COMMUNI-TREE and META.

COMMUNI-TREE is a project led by René Smulders, a molecular geneticist from Plant Research International of the University of Wageningen (the Netherlands) and involves 12 EVOLTREE partners. It focuses on community genetics of poplar and oak. The aim of the project is to characterize the effects of poplar and oak trees on the genetic structure and diversity of two groups of associated organisms, namely mycorrhizal fungi and tree-related leaf-eating, leaf-mining, and gall-inducing insect species. The effect of tree diversity on the diversity of associated organisms is studied in three ways: i) the effect of the level of genetic diversity within a stand; ii) the effect of genetic distance between genotypes; and iii) the effect of particular genotypes *per se*. A series of experimental plots with complex design was established in 2008 across different countries (France, Germany, Hungary, Italy, Poland and UK) with the objective of investigating all these aspects.

META is led by Bruno Fady from INRA-Avignon (France). This project aims at performing a meta-analysis on within and among population genetic diversity parameters to understand the main ecological processes responsible for the identified patterns of diversity in tree species. Trees are the keystone species of Mediterranean forest ecosystems, as well as other plants and animals associated to forest ecosystems. Meta-analyses are a powerful tool to monitor and test for the importance of either large-scale processes or common biological features in ecology, evolution and conservation. A meta-analysis performed on the genetic diversity of four Mediterranean conifer genera (*Abies*, *Cedrus*, *Cupressus*, *Pinus*) showed that there is a marked east-west trend of diversity (mostly within

population) that could be explained by the climatic trends of the latest glacial cycle.

Starting from this observation and using all available datasets, META links estimates of within and among population genetic diversity of Mediterranean forest ecosystems organisms to climate data derived from published paleo-ecological and paleo-climatological studies, looking for critical climatic factors that could explain the major trends found.

A preliminary analysis of all species currently in the geo-referenced genetic database has shown that micro-evolutionary response to large scale ecological processes differs significantly among families, although the general east-west trend of decreasing genetic diversity remains significant across the Mediterranean. The next steps include: i) testing the hypotheses looking at all possible evolutionary trajectories (taxonomic groups, biological attributes) in a further described ecological and phylogeographic context; and ii) testing whether or not micro-evolution (genetic diversity) matches macro-evolution (species diversity) in the Mediterranean basin, known as a hotspot of species diversity.

Good news for EVOLTREE is the announcement by the European Commission of a topic on "Forest Ecosystem Genomics" in its next Framework Programme call for 2009. EVOLTREE will submit a proposal to respond to this funding opportunity for a Coordinating and Support Action aimed at strengthening European-North American cooperation in the field of forest genomics.

Antoine Kremer, the coordinator of EVOLTREE from INRA (France) sees this call as clear support of the Commission for the activities implemented by EVOLTREE and as a positive signal for durable integration of the Network.



Beech stand within the Sonian Forest, Belgium.
Photo: B. Vinceti, Bioversity International

Umeå conference tackles adaptation of forest and forest management to climate change

In August 2008, about 330 forest researchers, managers and decision makers from over 50 countries met in Umeå (Sweden) to present and discuss ideas, facts and figures relating to the adaptation of forests and forest management to climate change. The conference, entitled "Forest Adaptation 2008" (www.forestadaptation2008.net) focused on the current impacts of climate change on the world's forests and on the implications of these changes for forest management and conservation and for livelihoods.

A report of the conference can be downloaded from the website of the event. The report was prepared with the ultimate objective of informing larger processes focused on the global climate change dialogue, reporting on issues of particular importance to forests, to the forest sector and to people that depend on it. The results of the conference will be used by the

Expert Panel on Adaptation of Forests to Climate Change, a joint initiative on science and technology of the Collaborative Partnership on Forests (CPF), as part of their contribution to technical and strategic discussions taking place in fora such as the UNFCCC COP 14 in Poznań in December 2008 and the United Nations Forum on Forests meeting taking place in the spring of 2009.

The conference report has also contributed to the discussion within other expert meetings organized in China (14th Conference of the International Boreal Forest Research Organization on "The role of boreal forests in a global context", held in September 2008, Harbin, China) and Russian Federation (International Conference on the "Role of Forests in Climate Management: Research-Innovation - Capacity Building" co-organized by the Russian Federal Forest Agency, the World Bank Group, FAO, IUFRO and WHO, held in

October 2008, St-Petersburg, Russian Federation - see article on pages 10 and 11 of this Newsletter).

At the conference in Umeå, Biodiversity staff from the regional office for the Americas, based in Cali (Colombia), presented preliminary results from a study developed in collaboration with the Central America and Mexico Coniferous Resources Cooperative (CAMCORE). The paper is focused on an analysis of the impact of climate change on distribution and performance of tropical pine species in Central America and South-East Asia.

Tropical pines are economically important species and their natural populations are sources of genetic diversity that have been and can be used to sustain and improve plantation productivity under both present and future climatic conditions. Climate change is likely to affect the extent, distribution, growth and

regeneration of tropical pine populations, and can thus represent a threat to their long-term survival, particularly for those that are already considered threatened or endangered.

The objective of the work presented was therefore to evaluate the impact of climate change on both the distribution of natural populations and the suitable plantation areas for these species. How trees can persist across a wide range of climates and environments depends on their plasticity. The plasticity of pine populations was determined based on growth responses and survival rates from provenance trial results, projected to the future to predict both the persistence of natural populations to climate change and the changes in suitable plantation areas. The results suggest that existing pine populations are likely to be more adaptable to climate change than is predicted by climate envelope modeling.

St. Petersburg international conference supports the role of



View of the Teletsky Lake from the Altaiski State Nature Reserve, Altai Region, Russian Federation. Photo: A. Lotov, Russian Federation (www.teletsky.ru)

The International Conference on the "Role of Forests in Climate Management: Research - Innovations - Investments - Capacity Building" took place on 4-7 October 2008 in St. Petersburg, Russian Federation. Organized by the Federal Forestry Agency of Russia's Ministry of Agriculture, the conference was attended by scientists, practitioners and forest managers from all over Russia, plus a few participants from abroad. The World Bank and FAO co-hosted the conference.

Linked thematically and organizationally with the conferences in Umeå, Sweden, held in August (see article above) and in Harbin, China,

László Holly receives Knight's Cross of the Hungarian Republic for over forty years' service



László Holly takes László Sólyom, President of the Republic of Hungary on a visit of RCA, Tápiószéle, in April 2008, as part of the President's three-day tour of the Hungarian national parks. The President showed keen interest in the genetic resources work and was impressed by the the variation and beauty of RCA's germplasm collections. Photo: F. Tóth, "Tápiómenti 2 hetes", Tápiószéle regional newspaper, Hungary

The President of the Republic of Hungary, László Sólyom, honoured László Holly with the Knight's Cross of the Hungarian Republic, in recognition of over forty years of service and work on conservation of biological diversity and genetic resources of native crop landraces. The knightghood was presented on 20 August 2008 by the Minister of Environment and Water, Imre Szabó on the occasion of St. István, the national feast day that celebrates the establishment of the Hungarian Kingdom in 1000 AD.

László Holly began his career at the National Institute of Agrobotany in 1964. He graduated in plant pathology and horticulture and later obtained an MSc degree in conservation and utilization of plant genetic resources at Birmingham University (UK) and a PhD in agricultural botany. He has been involved in the PGR conservation work of the Research Centre for Agrobotany (RCA), Tápiószéle since the first cold stores were established in 1973. He also worked for ICARDA GRU



The Minister of Environment and Water, and State Secretaries present László Holly with the Knight's Cross of the Hungarian Republic. Photo: Z. Kollár, RCA, Tápiószéle, Hungary

as senior genetic resources scientist from 1985 to 1990 and he has been involved in ECPGR activities since its first meeting in Geneva, in 1980. He was appointed as director of RCA in 1990 and has acted as National Coordinator since that date. He has organized and participated in collecting missions in Hungary and

several other countries. As a result of the collecting missions, RCA possesses a very comprehensive collection of landraces, and has conducted extensive research on isoclimatic regeneration near their original collecting sites.

forests in climate management

in September, it was not an isolated event. The conference emphasized the role of the forest sector under national and international climate change prevention and adaptation strategies through innovative mechanisms and investment partnerships. Participants were divided into three parallel sections: research; innovations, technologies and capacity building; and investments.

It was agreed that the contribution of Sustainable Forest Management (SFM) practices to adaptation and mitigation had rarely been considered in climate change debates. In fact, most presentations and discussions in the research section highlighted the experiences and opportunities that SFM

has in different types of forest ecosystems. The research studies demonstrated examples from boreal and temperate forests. The impact of climate change on forest ecosystems and biological diversity was introduced on the basis of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Several talks on productivity and carbon sequestration potentials of Russia's forests also received participants' attention.

The principles of genetically sustainable forest management were mentioned during the Conference. Along with tree breeding and biotechnology, they are of particular importance in promoting the adaptation of forest



A corner of the Rude Skov forest in Birkerød, Denmark. Photo: E. Hermanowicz, Bioversity International

ecosystems and in afforestation schemes.

The conference adopted a resolution with main recommendations from the

three sections. Conference materials are available on the website of the Russian Federal Forestry Agency (www.rosleshoz.gov.ru).

Focus on National Programmes...

Using Armenia's rich agricultural heritage to promote socio-economic development

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Most components of social and economic development in Armenia can be related, directly or indirectly, to biodiversity. Humans have hunted, fished and gathered plants and animals since ancient times and intensive use of natural resources continues today.

The wide range of altitudinal variation and climate zones in Armenia has produced great plant diversity, including crop wild relatives and landraces, as well as different breeding varieties of cultivated plants that offer a rich genepool for present and future utilization in agriculture. The Armenian Ministry of Nature Protection reports of 1999 and 2006 state that around 3500 species of vascular plants have been recorded, including about 120 species of wild berries and nuts. Over 350 species are reported to be used as medicinal, around 150 species known to produce essential oils, and many species related to major crops of the world, according to the Armenia country report to the Leipzig Conference by the Armenian Ministry of Agriculture, 1995.

Armenia maintains a series of germplasm holdings; *ex situ* genebanks, *in situ* reserves, agro-ecosystems and protected natural ecosystems, working collections for research, breeding or teaching purposes, as well as information/documentation systems, as a result of



Armenia's rich diversity: dried fruit on sale in a Yerevan market and a car boot sale of peppers and paprika. Photos: C. Hoogendoorn, Biodiversity International

a number national and international initiatives. At present, as a signatory to a number of international agreements (Armenia ratified the Convention on Biological Diversity (CBD) in 1993 and joined the International Treaty for Plant Genetic Resources for Food and Agriculture in 2007), several legislations have been passed to advance biodiversity conservation. In addition, efforts have been undertaken to develop inventories of plant biodiversity including crop wild relatives.

Within the framework of an FAO-EC project "Designing an Integrated Strategy to Improve Armenia's Food Security through Improved Management and Utilisation of Plant Genetic Resources", a Study was conducted jointly by FAO, ICARDA and the Ministry of Agriculture of the Republic of Armenia to identify elements that would contribute to the effective management and use of Armenian plant genetic resources for food and agriculture (PGRFA) to improve agricultural production and food security.

Other important project outputs include two national stakeholders' workshops held in Yerevan on 2-5 October and 13 November 2007 involving public and private Armenian institutions involved in PGRFA conservation and use, and a project proposal for an Action Plan on "Capacity Building for an Integrated System of Use and Management of plant

genetic resource for food and agriculture in Armenia".

The Study covered all the sectors related to the management of PGRFA, including regulatory frameworks, technology transfer and capacity building, and is based on a thorough review of the current status of PGRFA management in Armenia, stakeholder consultations and information gathering through interviews with relevant stakeholders. This wide participatory approach lead to the identification of emerging challenges and key recommendations towards developing a national policy on PGRFA conservation and use.

The Study found that there is a lack of a comprehensive National Strategy for conservation and use of PGRFA. Stakeholders and representatives of different institutions participating in the Study expressed a strong agreement on the need for a national, integrated and coordinated PGRFA management strategy in order to decrease the threat of loss of the rich diversity of wild and domesticated plants of Armenia. It was also emphasized that this required immediate attention for improvement of Armenian agriculture and increasing production.

The key recommendations made include: i) adoption of a National Programme on PGRFA linking conservation

and use; ii) establishment of a High-Level Coordinating Council dedicated to PGRFA management for food security; and iii) capacity building to enhance PGRFA management for food security.

Armenia's agriculture sector has some significant strength. The country has multiple agronomic zones, conducive to production of a range of crops and animal products. There are extensive high meadows suitable for goats and sheep that can supply the milk for a variety of cheeses. Lower flatlands can support dairy cows and grain. The range of elevations and microclimates allow production of several varieties of grapes and tree fruits that were highly regarded in Soviet times. There are food processing enterprises that are producing quality products with the potential to compete in world markets.

Overall, there is strong need for an integrated and coordinated national PGRFA management strategy to decrease the threat to the loss of Armenia's rich genetic diversity of wild and domesticated plants, and to improve Armenian agriculture and food production. Considerable interest has been shown by the national authorities to follow-up on the Study. However, long-term assistance and cooperation will be essential for the improvement and effective use of PGRFA for strengthening food security in Armenia.

Designing an integrated strategy to improve Georgia's food security through improved use of PGR

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Georgia is a country rich in natural resources and one of the oldest agricultures on earth. Through its agricultural legacy Georgian farmers have developed many unique varieties of plants that provide genetic resources for the future in agriculture. However, these resources are at risk of loss and, in fact, many have been lost, as agriculture advances to be a stronger component of the national economy. The efficient conservation of plant genetic resources and their sustainable utilization in plant breeding and seed systems are a high priority as Georgia strives for greater economic strength through its agricultural industry.

Georgia was one of the early signatories to the international Convention on Biological Diversity (CBD) in 1994. In 2005 Georgia completed a National Biodiversity Strategy and Action Plan (NBSAP).

A project entitled "Elements of a National Strategy for Management and Use of Plant Genetic Resources in Georgia" was developed with international and national consultants working under the guidance of the Plant Production and Protection Division of the Food and Agriculture Organization of the United Nations (FAO),

in close collaboration with the International Center for Agricultural Research for Arid and Dryland Areas (ICARDA), the Ministry of Agriculture of the Republic of Georgia and other relevant national stakeholders, with the support of the European Commission. The main objective of the project was to conduct a National Study and identify elements that would contribute to the effective management and use of Georgian plant genetic resource for food and agriculture (PGRFA) for improvement of agriculture production and food security.

Within the framework of the project two national stakeholders' workshops were organized (15-17 October and 20 November 2007), involving scientific and technical public and private institutions involved in PGRFA conservation and use, to gather critical inputs from the key national partners through a participatory approach to strengthen Georgia's capacity for effective management and use of PGR to contribute to food security.

One of the major outputs of the project is a National Study on "Elements of a National Integrated Strategy for PGR Management and Use in Georgia", as well as a Project Proposal for an Action Plan on "Capacity Building for an Integrated System of Use and Management of plant genetic resource for food and agriculture in Georgia". Both the National Study and the Project Proposal were discussed in a subsequent Policy Dialogue meeting on 13-14 November 2007, involving senior authorities from ministries involved in this sector.

Similarly to Armenia, the National Study covered all sectors related to the management of PGRFA including regulatory frameworks, technology transfer and capacity building. It found that the lack of a comprehensive and integrated national strategy for conservation, management and use of PGRFA threatens

the rich diversity of wild and domesticated plants of Georgia and hampers the development of agriculture. All the participating stakeholders expressed strong agreement as to the need for such a strategy to contribute to food security and agricultural development. It was urged that a national strategy should be adopted and authorized for enactment by the Government.

The key recommendations for developing a national strategy, identified through the National Study are:

- development of national comprehensive PGRFA activity programme;
- establishment of institutions dedicated to the coordination of PGRFA related activities; and
- enhancement of national capacity including policy aspects, legislation, human and physical resources and information systems.

The Study emphasized that Georgia's rich agricultural legacy of traditional crops must be conserved and used to advance agricultural productivity in Georgia. Traditional varieties could be used to develop niche markets for the preparation of traditional foods, thereby providing new markets and generating income for local farm communities. Georgia is also rich in wild species, many of which are genetic relatives of cultivated plants and may serve as genetic resources to solve serious limitations in crop production, such as susceptibility to pests and diseases. It is essential to secure this rich biological resource indefinitely through a strong national, integrated and coordinated PGRFA management strategy. Considerable interest has been shown by the national authorities to follow-up on the Study. As in the case of Armenia, long-term assistance, cooperation and funding will be essential for the improvement and effective use of Georgia's PGRFA for food security.



Grapevine production is one of Georgia's prime agricultural activities. Photo: D. Maghradze, Research Institute of Horticulture, Viticulture and Oenology, Tbilisi, Georgia

Innovative changes to PGR training in Birmingham

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*A student collecting indigenous knowledge from a Moroccan farmer during a Conservation Field Course.
Photo: N. Maxted, University of Birmingham, UK*

The international reputation of the University of Birmingham in the conservation and utilization of plant genetic resources (CUPGR) is well established. Professor J.G. "Jack" Hawkes established the Conservation and Utilization of PGR (CUPGR) programme in 1969 and since then short course and master's degree training has been provided to over 1500 students from 92 countries - many Birmingham graduates now fill key roles in international, regional and national conservation agencies. We are very proud of our past graduate employment rate, with about 95% of our graduates obtaining employment in conservation (e.g. protected area management, seed conservation, conservation and genetic research and environmental monitoring) or related fields (e.g. agriculture, genetics, database administration, plant breeding, taxonomy, management and teaching). However, a recent periodic review indicated a growing requirement from trainees and potential employers for a greater research focus to the training and closer links with industry. To meet this demand the new

twelve month research Master (MRes) format will build on the existing CUPGR training base to create an innovative PGR training opportunity founded on closer industrial links through extended industrial research placements.

The broad aim of the new MRes programme and associated short course training is to provide trainees from developing and developed countries with the practical and theoretical skills they require to conserve and use plant genetic resource diversity for the benefit of humankind. The MRes will provide students with a professional background and experience in genetic variation and botanical diversity of crops, their relatives and wild species, as well as the management of *ex situ* (genebank or botanic garden) and *in situ* (genetic reserve or on-farm) diversity, and the ability and confidence to formulate effective management policies and conservation strategies. Students will also gain transferable skills in how to identify, research and resolve a detailed scientific problem, write and communicate orally, and various numerical,

analytical and IT skills, enabling students to move into diverse related occupations. In terms of the employer market, the course will continue to meet the identified skills shortage for professionally qualified conservationists with field and laboratory research experience in both wild and socio-economically important plant species.

An integral part of the MRes programme is the two research projects, which are carried out during the final eight months of the course, the first based in Birmingham and the second in an industrial placement in one of the country's leading research labs. The research projects are designed to provide direct experience in carrying out a piece of independent research, learning experimental techniques and gaining experience in organizing and writing a scientific paper for peer-review publication.

Further details on the MRes or other courses can be found at www.biosciences.bham.ac.uk/study/Graduate/MResCUPGR.htm or can be obtained by emailing the course tutor at bio-pgtadmissions@contacts.bham.ac.uk

Fourth Austria funded training workshop on forest biodiversity



In June this year 27 young scientists from 16 African countries participated in the fourth two-week workshop on Forest Biodiversity, as part of the Austria funded project "Developing training capacity and human resources for the management of forest biodiversity". The workshop took place in Ethiopia and was organized by Bioversity International and BFW (Federal Research and Training Centre for Forests, Natural Hazards and Landscape, Austria), in collaboration with SAFORGEN (Sub-Saharan African Forest Genetic Resources Network).

The participants had the opportunity to learn how to apply principles of conservation genetics in practical forest management in African landscapes. The programme included lectures on conservation of tree seeds, measurement of genetic variation in tree populations and conservation strategies for threatened African tree species. There were also group work exercises and case studies on changes in African forest ecosystems, trees on farms,



Participants of the Austria funded training course in Ethiopia.
Photo: M. Bozzano, Bioversity International

and the supply of tree seeds, among others.

During the workshop a thematic day on research on Pygeum (*Prunus africana*), an important threatened medicinal tree species, was organized in collaboration with a project aiming to describe the phylogenies of the species, also funded by the Austrian Development Agency (ADA).

The participants were also able to study Ethiopian forest

and agroforestry landscapes during a hands on three-day field trip to Awassa and Wondo Genet.

This training workshop is the fourth of a series of five, each organized in a different region of the world. Previous workshops have been held in Russia (2005), in Malaysia (2006) and in Uzbekistan (2007). The last workshop will be held in Latin America in 2009.

EURISCO training-seminar is held in Spain



Participants of the EURISCO training-seminar in Madrid.
Photo: S. Dias, Bioversity International

A EURISCO training-seminar was held on 3-4 November 2008, in Madrid, Spain, organized by INIA-CRF, Spain and the EURISCO Coordinator from Bioversity International. This is the start of a potential series of training-seminars envisioned to be held in other countries.

The objective of this training-seminar was to strengthen the national capacity in data exchange and the sustainability of EURISCO and pursue the improvement data completeness through the enhancement of the quality and quantity of data flowing into the Catalogue and providing a one-to-one training to the national focal point.

This training-seminar had five main goals: identify and define support needed for the further development of the National Inventories (NIs); discuss and identify ways to increase the availability of NIs to EURISCO; set a plan for new NI upload and update; identify NIs' commitment to implementing the data exchange protocol; and identify the type of support needed to carry out data sharing.

The seminar, involving genebank documentation systems managers, provided up-to-date information to the members of the Spanish network of data providers to the National Inventory and raised awareness of the importance of plant genetic resources information activities. Hands-on training was provided to the newly appointed Spanish National Inventory Focal Person (NFP) and other information specialists.

The training-seminar outputs and recommendations were discussed at the end of each day.

Further information on this training-seminar, as well as the agenda and outcomes, can be found at <http://eurisco.ecpgr.org> and will also be available in the next EURISCO E-Bulletin in December 2008. If you would like to receive the E-Bulletin, please register at http://eurisco.ecpgr.org/releases/e_bulletin.php.

IUCN World Conservation Congress supports plant genetic resources conservation

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Craig Hilton-Taylor launching the new IUCN Red List in Barcelona.
Photo: N. Maxted, University of Birmingham, UK

The IUCN World Conservation Congress was held at the Centre de Convencions Internacional de Barcelona (CCIB) at Barcelona, Spain on 5-14 October 2008. The congress, held once every four years, is the world's largest conservation event with over 8000 leaders from government, the public sector, non-governmental organizations, business, UN agencies and social organizations discussing how to improve our management of the natural environment for human, social and economic development. The congress started with a four-day Forum run by IUCN members and partners discussing various aspects of protected area and species conservation, followed by a four-day IUCN Members' Assembly focusing on the technical management of IUCN. Issues related to plant genetic resources were aired in several of the Forum sessions and the Forum audience showed significant interest in the conservation of plants of socio-economic value and the linking of conservation to exploitation, food security and human well-being.

The IUCN Species Survival Commission Crop Wild Relative (CWR) Specialist Group, co-Chaired by Ehsan Dulloo (Bioversity International) and Nigel Maxted (University of Birmingham), held a "Knowledge Café" that addressed the issue of the "Integration of Biodiversity and Agrobiodiversity conservation". Although it was noted that too often there is a disconnect between the agriculture and environment sectors, and protected area managers overlook the conservation of socio-economic species within their reserves which inhibits agrobiodiversity conservation, suggestions were made for how the two communities might work together more effectively. Examples of good collaborative practice should be publicized, such as the conservation of CWR within protected areas in Czech Republic and the UNEP-GEF

project on *In situ* conservation of CWR through information management and conservation actions, led by Bioversity International, which has shown that bringing together different stakeholders from agricultural, environment sectors, as well as local communities, can result in the production and implementation of *in situ* management plans for CWR conservation. Furthermore, it was agreed that a joint protected area and agrobiodiversity application for EU LIFE+ funding would demonstrate how the two communities could work together to conserve CWR diversity within protected areas.

Bioversity International organized a workshop entitled "Bridging the gap between agriculture and nature conservation", its premise being that too often agriculture and nature conservation are seen as being in conflict with agricultural expansion, described as a major driver of biodiversity loss. Yet to sustain the growing human population increased production is required and the two sectors need to work more closely to ensure the sustainability of agricultural production and natural ecosystems and the wellbeing of the communities who depend on them. Three keynote presentations addressing the natural and agricultural production landscape and their interface were presented by Anita Dierderichsen (TNC-Brazil), Sara Scherr (Ecoagriculture Partners) and Toby Hodgkin (Bioversity International). The workshop agreed on the need to explore better ways of bringing together the relevant stakeholders involved in the interface in agriculture and conservation, to develop approaches and training that contribute to developing a new "professionalism" among conservation workers and managers, one that is more in tune with sustainable agricultural systems, their ecosystem benefits and contribution to future resilience

of ecoagricultural landscapes, and to develop and support institutional models and frameworks that support ecoagricultural development and farmers.

Plantlife International and Botanic Gardens Conservation International organized a workshop entitled "Partnerships for plant conservation - linking *ex situ* and *in situ* conservation in Europe", aimed at engaging congress participants in the implementation of the Global and European Strategies to plant conservation, to showcase successful partnerships between *in situ* and *ex situ* partners and to address gaps in implementation, including further engagement of the European Commission. Brief presentations were made by Juan Rita Larrucea on "Multi-faceted partnership for the conservation of the critically endangered *Apium bermejoi* in Minorca", Peter Skoberne on "Partnerships for the conservation of plants in protected areas", Nigel Maxted on "Initiatives for the conservation of wild crop relatives in protected areas", Constantino Bonomi on "Seeds for the future through the European Nature Seed Conservation Network" and Ainhoa Mendizabel on "Planta Europa's web-based European Information Sharing Platform for Plants"; each presentation being linked to specific objectives within the new European Strategy for Plant Conservation.

It is interesting in retrospect to note just how uniform the message was from the three diverse groupings. If we are to meet the need for food security and human well-being in times of growing human population and ecosystem instability, then the various conservation stakeholders must work together more effectively to conserve both biodiversity and agrobiodiversity. Some of the people who need to hear this message were in Barcelona, let's hope they were listening!

AEGRO project: exciting progress within *in situ* PGR conservation

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AGRI GENRES 057 (AEGRO) is funded by the European Commission, DG AGRI within the framework of Council Regulation 870/2004.

The first coordination meeting of the AGRI GENRES 057 project "An integrated European *in situ* management work plan: implementing genetic reserve and on farm concepts" (AEGRO) was recently hosted by the Julius Kühn-Institute (JKI), in the UNESCO world heritage town of Quedlinburg, Germany. The meeting was attended by 22 scientists from ten European countries on 18-19 September 2008. Project partners discussed the work progress achieved during the first project year with participants.

AEGRO is an initiative of the members of the Coordinating Group of the ECPGR *In situ* and On-farm Conservation Network in collaboration with the ECPGR Crop Networks. The project began with an intensive training workshop in Evershot, UK in early November 2007, addressing issues relating to the development of national crop wild relatives (CWR) and landrace conservation strategies, data sourcing, acquisition and modelling, use of GIS technologies, and aspects of practical site management and monitoring. Thus prepared, AEGRO took on the challenges identified by the PGR Forum project (European Crop Wild Relative Diversity Assessment and Conservation Forum) which ended in November 2005. AEGRO is testing and extending the methodologies

for *in situ* management developed by the PGR Forum project team. It will also further pursue the common goal of halting the loss of genetic diversity in European crop wild relatives and landraces, thus helping the PGR community meet its obligations under the European Strategy for Plant Conservation 2008-2014.

AEGRO structure, partners and vision

The three-year project (10/2007 to 09/2010) consists of five crop case study work packages (*Avena*, *Beta*, *Brassica*, *Prunus* and landraces) and cross-cutting tasks (coordination, generic methodologies, synthesis of data, findings and experiences, information system capacity building, and data processing). The team of eight partners from seven EU countries is coordinated by JKI. Most of the partners are already engaged in the ECPGR Programme and are driven by the vision of an integrated EU PGRFA Conservation Programme consisting of AEGIS as the *ex situ* component and AEGRO as the *in situ* component. They consider AEGRO as a pump-priming action that will result in a well organized European *in situ* conservation workplan, not only for *Avena*, *Beta*, *Brassica*, *Prunus* and landraces, but one that generates methodologies that can be extended to all crops native to or traditionally grown in the EU and their related wild

species. Representatives from other ECPGR Working Groups (Medicinal and Aromatic Plants, Forages, Grain Legumes) not directly included in the project itself participated in both meetings of the AEGRO team. The inclusion of representatives of all the ECPGR Crop Networks would ensure that the CWR and landrace *in situ* conservation case studies being tested in AEGRO will have a direct relevance and application for the other Crop Networks and help ensure the ECPGR *In situ* and On-farm Conservation Network meets the demand for protocols by the Crop Networks.

If, like PGR Forum, AEGRO is to be successful and have a legacy beyond its immediate period of EC funding, the project needs to learn from other related projects and to establish linkages so that its products are sustainable and developed further post-AEGRO for the benefit of the European PGRFA community. During the AEGRO meeting at Quedlinburg working relationships were also established outside of the PGR community with the forest genetic resources sector and plant species conservation sector. Coordinators of national Crop Wild Relative projects in Portugal and Germany gave presentations and were shown to be natural collaborators with the AEGRO scheme.

Through the collaborations and linkages outlined above, and those still to be developed, the AEGRO partners will not only ensure the successful realization of the AEGRO project objectives but also a sustainable post-AEGRO legacy that benefits the European PGRFA community and other stakeholders, and underpins food security in a time of climate change and ecosystem vulnerability.

Further information on the AEGRO project can be obtained from the project coordinator, Lothar Frese (lothar.frese@jki.bund.de) or from the project website: <http://aegro.bafz.de/index.php?id=95>.



Participants in the AEGRO coordination meeting.
Photo: A. Stumpe, JKI, Germany

Conference on “Biodiversity and Agriculture: Today’s Challenges, Tomorrow’s Research for More Sustainable Farming”

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Photo: L. Maggioni, Bioversity International

The strategic importance of research on the impact of agriculture and biodiversity was the main focus of the conference. The conference was articulated in four sessions, each tackling two to three talks, followed by a debate on the topics.

The conference was opened by the President of the French Foundation for Biodiversity Research, the Mayor of Montpellier and the Vice-President of the Languedoc Roussillon region. The importance of responding to research needs more promptly and frequently was highlighted. Montpellier’s student population was recognized as potentially playing a key role in this research and is being targeted with incentives, particularly for biodiversity research. The need to develop a European Platform for Biodiversity with a catalyzing and harmonizing role was also emphasized. Biodiversity is too rarely linked with agriculture and a proposal to compile a list of suggestions for policy-makers, also allowing participation beyond Europe, was made.

Session I focused on Ecosystem Services and Agriculture. Since inception of the Millennium Ecosystem Assessment, there has been increased research focus on ecosystem services interfacing ecology and social organization. Biodiversity contributes directly to farmed ecosystems, via regulating crop pests and diseases, and by contributing to soil fertility. Claire Kremen, Stanford University, suggested that the loss of diversity and ecosystem services in modern agriculture is mainly due to “The Evil Monoculture”. The impact on honey bees

and other pollinators was discussed. Productive and sustainable eco-agriculture in developing countries would avoid intensification, whereas in developed countries sustainability could only be achieved via diversification and large-scale intercropping experiments.

The Session I debate focused on: linked approaches to tackling agriculture and biodiversity issues; restoring loss of competencies in farm-level biodiversity management; redressing the disproportionately low investment in biodiversity research; developing a biodiversity platform incorporating multiple, interdisciplinary actors; and increasing education investment.

In Session II: “Agriculture, Biodiversity and Society – the Footprint and the Drivers”, Youyong Zhu, Yunnan Agriculture University introduced the nexus between a decrease in cultivated varieties and decreasing biodiversity, and increasing diseases which threaten food security, giving the example of rice-blast disease. In China, large-scale field trials developed since 1982 demonstrated that genetic diversity is central to disease control.

Marc Dufumier, representing AgroParisTech, suggested that paradoxically, tropical countries are the most biodiverse, yet suffer the greatest food insecurity. Theoretically, average food-supplies of 300kg of cereals/person/year are more than adequate, yet poor, small-scale farmers suffer significant malnutrition and hunger. The session debate

touched on the current food crisis and the need to engage producers in applying research; and promoting biodiversity, clean water and environmental sustainability through increased financial support to farmers.

In Session III: “Agriculture and Biodiversity in Complex Landscapes – Pointers towards new Policies”, the French Minister of Agriculture and Fisheries gave a video-speech on three challenges to agricultural productivity: Biodiversity, Climate change and Water. By 2050 a global population of 9 billion will require double the current agricultural productivity, via concerted research in these three areas. Secondary and tertiary level education should be prioritized as a means to this end.

Teja Tscharntke, from Göttingen University, presented recent studies analysing the compromise between intensification and standardization of agricultural production, on the one hand, and maintenance of biodiversity on the other.

Andrew Balmford, Cambridge University, affirmed that agriculture is the greatest current threat to biodiversity, citing bird diversity as an example. Two remedial alternatives were studied: i) less productive more land-hungry wildlife friendly farming (WFF); ii) more intensive, Land sparing agriculture. Preliminary results show that modelling these alternatives depends on the species studied and regional context.

The session debate discussed WFF vs. Land sparing showing that WFF is more supported by

governments, except in some cases where, for economical reasons, Land sparing is favoured e.g. Brazil with intensive soybean culture near the Amazon forest; and several networking projects established e.g. PlantNet aiming to identify, produce and distribute plant genetic resources.

Session IV: “The Way forward for Science - What We Need to Know and How to Apply Knowledge to Improve the Situation”, focused on landscape heterogeneity and biodiversity agro-systems through a more systematic approach and greater communication between ecologists, agronomists and social scientists. The need to promote disease-resistant material and a network of long-term socio-ecological research sites was highlighted. “Reconciling food production and conservation: inconvenient truths about farming and the fate of wild nature,” was presented by IUCN and “International assessment of agricultural knowledge science and technology for development” by Hans Herren, IAASTD, linking productivity increase to compromised environmental sustainability, soil quality, water quality, and biodiversity and climate change.

The conference recommendations addressed emphasizing agro-ecological approaches and appropriate technologies; greater policy and investment support for small-scale farmers; empowering women; integrating local / traditional knowledge with formal knowledge; and promoting equitable trade reform with national flexibility.

Genetic resources initiatives under the French Presidency of the EU

A workshop on genetic resources was organized by the French National Institute for Agricultural Research (INRA) in Strasbourg, France on 15 October 2008, at the end of the 7th National Conference on genetic resources. The workshop gathered a few international experts on animal, forest, microbial and plant genetic resources with the objective of collecting an overview of facts, opinions, ideas and proposals related to research and management of genetic resources in Europe.

The outcomes of the workshop were presented by staff of the French Foundation for Research on Biodiversity (FRB) at the Conference of the French Presidency of the European Union "Biodiversity and Agriculture", Montpellier,



Statue symbolizing the Greek myth of Zeus and Europa, seated in front of the European Parliament, Strasbourg, France.
 Photo: L. Maggioni, Bioversity International

4-5 November 2008 (see article on page 18). The objective is to raise the awareness of decision makers on the most important areas for investment and research on genetic resources. Emerging proposals include the need to better coordinate regional, national and local efforts on the definition of genetic diversity indicators and the management of the genetic resources; to reinforce public research bearing in mind the opportunities and impacts of the use of biotechnologies; to strengthen the link between management of genetic resources and research; and engage the European Union as far as possible in funding this undertaking. Further information can be obtained at: www.ue2008.fr/PFUE/lang/en.

GIGA-providing access to worldwide genebank information

The Global Information on Germplasm Accessions (GIGA) project aims to improve the management of, access to and use of plant genetic resources information through standardized information gathering and management protocols. It specifically addresses the obstacles faced by breeders, crop researchers and other users seeking hard-to-find information about germplasm that can provide resistance to pests, diseases and other constraints to productivity. The project will provide researchers and breeders with a single window through which they can not only gain access to accessions in many significant world collections, but also make use of associated information to identify and select those accessions most suited to their research needs.

GIGA consists of three components that address the challenges of accessing information and making greater use of genebank materials:

- i) develop information standards that help describe key characteristics of accessions in collections;
- ii) deploy a new, user-friendly version of the Germplasm Resources Information Network (GRIN) genebank management system being developed by the Agricultural Research Service of the US Department of Agriculture; and
- iii) provide a single window for accessing more than 2 million accessions maintained around the globe. These include the 700 000 accessions in the 11 CGIAR genebanks that are documented by SINGER and more than 1.1 million accessions documented in EURISCO and maintained in 244 European genebanks.

Through all three components, the GIGA project will facilitate the wider use of biodiversity by helping researchers and breeders to identify traits that are essential for maintaining food security in a world faced with changing climates and water deficiency.

This project is funded through a partnership between the Global Crop Diversity Trust, the Secretariat of the International Treaty on Plant Genetic Resources for Food and Agriculture and Bioversity International.

Forthcoming meetings

25-27 February 2009

EUCARPIA Organic and Low-input Agriculture 2009 Workshop.
 Wageningen, the Netherlands.
www.eucarpia.org/

26-28 March 2009

ISHS: III International Symposium on Medicinal and Aromatic Plants SIPAM2009.
 Jerba, Tunisia.
www.sipam.ira.rnrt.tn/

16-18 April 2009

IUFRO: Forest, Wildlife and Wood Sciences for Society Development.
 Prague, Czech Republic.
www.iufro.org

21-24 June 2009

EUCARPIA Maize and Sorghum 2009 Section meeting.
 Bergamo, Italy.
www.eucarpia.org

10-12 March 2009

International Scientific Congress on Climate Change: Climate change - global risks, challenges and decisions.
 Copenhagen, Denmark.
<http://climatecongress.ku.dk/>

5-8 April 2009

1st International Symposium on Cryopreservation in Horticultural Species.
 Leuven, Belgium.
www.agr.kuleuven.ac.be/dtp/tro/ISHSplantcryo

8-12 June 2009

EuroGard V. Congress. Botanic Gardens in the Age of Climate Change.
 Helsinki, Finland.
www.luomus.fi/EuroGardV

11-16 July 2009

Salzburg Global Seminar: "Preparing for Climate Change: Creating Effective Strategies for Adaption and Resilience"
 Salzburg, Austria.
www.salzburgglobal.org/2009

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Letter from the Regional Director for Europe

Dear Reader,

As this Newsletter goes to press, change and reform will be on the agenda of the Annual General Meeting of the Consultative Group on International Agricultural Research (CGIAR). The CGIAR is composed of 64 members, including developing as well as industrialized countries. Bioversity International is one of the 15 Centers supported by the CGIAR members. A total of about 8000 scientists and staff work in the 15 Centers.

After nearly two decades of being undervalued, the role of international agricultural research in poverty reduction starts to receive high-level political recognition. The current international debates on climate change, energy and food are focusing attention back on the fundamental importance of agricultural knowledge and science, and rightly so.

The CGIAR's mission is to achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of

agriculture, forestry, fisheries, policy and environment. It is widely agreed that the impact of the CGIAR has been substantial, however it is also recognized that it has fallen short of its potential in addressing the new and emerging global challenges. Diluted Center missions, governance complexity, overlaps in mandates, stagnating resources and lack of donor coordination have been widely seen as the main obstacles to the CGIAR's relevance and effectiveness.

For this reason the CGIAR has engaged in and conducted a change management process. The initiative was launched by Katherine Sierra, Chair of the CGIAR (and Vice-President of the World Bank, a co-sponsor of the CGIAR) in February 2008. Emile Frison, Bioversity's Director General, has played an active role as member of the Change Steering Team, which during the past year, together with four Working Groups composed of representatives of the main stakeholder groups (donors, Centers, partners), has developed a proposal entitled

"A revitalized CGIAR – a new way forward".

The text is available at the CGIAR's website (www.cgiar.org/changemanagement/index.html), where it is also possible to engage in a stakeholder discussion. This is the document presented and discussed at the annual general meeting in December. The proposal is a significant achievement and its vision of the extent of change is unparalleled in the CGIAR's history.

According to the proposal, the revitalized CGIAR has several new characteristics:

- funding will increase and shift from fragmented and restricted project and Center-based programming to funding against major, large research areas;
- clarified accountabilities: the overlay of reporting and funding relationships will give way to clearer roles for those who implement and those who fund research;
- partnerships will be built more strongly into the development of the research agendas;
- an exciting research environment: simplified funding procedures and reporting requirements, releasing scientists to focus on research with incentives to obtain results;
- a new Consortium is to be formed as a legal entity by the Centers to provide a single voice for the system, and to enhance managerial effectiveness and reduce costs by addressing overlaps and providing common services for human resources, information technology, financial policies and procurement systems.

Throughout 2009, the CGIAR will be in a stage of transition. Its influence on programmes, projects, Centers and their regional offices remains to be seen. The New Year will bring about new ways of working together in the CGIAR system – a revitalized CGIAR with greater relevance and capacity to address the challenges in agricultural research for development. We shall keep our readers posted with news and information during these interesting times for the CGIAR.



Photo: B. Vinceti, Bioversity International

**New Year's greetings
from the Regional
Office for Europe**