

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 36 by 14 March 2008.

Diversity flourishing in European home gardens



Near Zagarolo, a small town on the outskirts of Rome, 83 year-old Italian farmer, Raffaele Passari, continues to grow a landrace of leafy kale cultivated by his grandfather.

Photo: L. Maggioni, Bioversity International

A rich diversity of traditional crop varieties and landraces is still flourishing in home gardens throughout Europe. Even though the large scale cultivation of commercial varieties dominates European agriculture, there is a different kind of agriculture that is taking place in peoples' back yards, one that allows crop diversity to thrive and to evolve. It is thanks to the efforts of Europe's gardeners and small scale farmers that many rare varieties of crops such as beans, celery, kales, lettuce, tomatoes, but also maize, wheat, potatoes and fruits, continue to exist.

These varieties are grown for a reason. Mostly it is because they meet a person's particular needs such as being well-suited to local growing conditions. They might also be appreciated for their distinctive flavour or used in the preparation of a particular dish. In other cases, the reasons for growing and conserving

diversity are entirely personal. "One Italian woman I met during my research, grew two varieties of tomatoes on a very small plot of land" explained Donato Silveri, an extension officer with the Agency for Rural Development of the Abruzzo region. "One variety was short and bushy and the other was tall and climbing," he said. "When asked why she had chosen to grow both varieties, the woman explained that both had been given to her as a wedding gift when she first married. The problem was that one variety was a gift from her mother while the other variety was given to her by her mother-in-law. To grow only one of the varieties, would have sparked a family feud," said Silveri.

This and countless other stories emerged during the Home gardens workshop that was held on 3-4 October 2007 in Ljubljana, hosted by the Agricultural Institute of Slovenia. About 50 experts

from 23 countries gathered to discuss and exchange information about the state of knowledge and research in the field of European home gardens, especially focusing on the genetic diversity of crops conserved and on the significant gaps in knowledge that would need to be filled by further collaborative research. Considering that these are fragile agroecosystems, policy recommendations and socio-economic factors influencing their survival were also taken into account. Regulations and policies on designation of geographic origins for agricultural products, landscape heritage and organic agriculture and environmental conservation all provide a window to promote home gardens as an important component of agricultural biodiversity conservation and regional and local agricultural development.

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Ninth meeting of the Forages Working Group



The small town of Piešťany, Slovakia, a well known spa and health-resort, is also the seat of the national genebank, managed by the Research Institute of Plant Production (RIPP) of the Slovak Agricultural Research Centre. On 23-25 October 2007 RIPP hosted the Ninth meeting of the Working Group (WG) on Forages.

The meeting, attended by 35 participants from 28 countries, focused on the ongoing effort to create a European Forages Collection. This will be done by defining a number of Most Original Accessions, for which the holding institutions would take long-term responsibility for conservation, according to jointly agreed standards.

The analysis of the ECPGR *Poa* Database, by database manager Evelin Willner,

Germany, identified 336 duplicate accessions (by variety name), while for 70% of all the accessions, she was able to suggest institutions that could become "Primary Holder". The respective curators accepted the related responsibility for most of these accessions during the meeting, therefore, a first selection of about 3500 *Poa* accessions will be marked in the database as belonging to the European Forages Collection. A similar exercise was carried out by Petter Marum, Norway on the ECPGR *Phleum* database and "Primary Holder" institutions were suggested for about 5000 accessions. Agreements from curators holding *Phleum* accessions to take on the "Primary Holder" responsibility will be sought soon after the meeting. The WG agreed that, all the forage crop collections will go through this type of exercise in the near future.

Another highlight of the meeting was the discussion on the results of the EU-funded Fifth Framework project on "Improving germplasm conservation methods for perennial European forage species" (ICONFORS) and the influence that these findings should have on the regeneration guidelines agreed by the Group. The main conclusions from the experiments presented by Maurice Jones, UK, were that a Europe-wide plan for regeneration is not feasible since even populations grown

in their country of origin were differentially sensitive to the environment; regeneration methods should be considered on a species by species basis; and it is more important to consider "how" a population is regenerated rather than "where" it is regenerated. P. Marum presented the ICONFORS experiment of genetic contamination by windborne pollen as an effect of isolation distance. The main conclusion was that isolation distances of at least 30m are needed with a tall barrier crop to reduce the contamination level to below 1%. The Group agreed to revise the standards for regeneration procedures, namely a bulk harvest of 100 plants or more grown in isolated field plots was set as the preferred procedure for grasses. The preferred isolation distance was set at a minimum of 30m with an efficient barrier crop, while for insect pollinated crops, the preferred standard to be used remains isolation cabinets. More details will be available on the ECPGR Web site, in the report of the meeting, which also includes reports of national collection and database activities, experiences of on-farm conservation and research activities.

After five years, Beat Boller, Switzerland, hands over the task of Chair of the WG to the newly elected Chair, Merja Veteläinen, Finland. E. Willner remains to serve as Vice-Chair of the Group.

Third MAP WG meeting

The ECPGR Working Group (WG) on Medicinal and Aromatic Plants (MAPs) met for the third time on 26-28 June 2007, on this occasion hosted by the local Department of Vegetables and Special Crops of the Crop Research Institute, Prague-Ruzyne in Olomouc, Czech Republic. Representatives from 23 ECPGR member countries revised the agreed workplan for the period 2005-2007 and discussed its implementation for the remaining part of Phase VII (2004-2008). New responsibilities for the compilation of species-specific descriptor lists were reassigned for *Artemisia absinthium*, *Melissa officinalis*, *Origanum* spp. and *Salvia officinalis*. As a new task, Zlatko Šatović (Croatia) agreed to compile protocols on the most appropriate molecular tools to assess the genetic variability among populations of the target species.

The development of European MAP conservation strategies for a priority list of species (*Achillea millefolium* agg., *Artemisia absinthium*, *Carum carvi*, *Gentiana lutea*, *Hypericum perforatum*, *Melissa officinalis*, *Mentha* spp., *Origanum vulgare*, *Salvia officinalis*, *Thymus* spp.) remains the main goal of the WG. Missing knowledge on the distribution and genetic diversity of wild populations and the high level of threats to their survival were deemed limiting factors to ensuring long-term conservation. It was recognized that inventories or surveys on MAP distribution and abundance have not been documented at European level, mainly due to the lack of appropriate descriptors and of financial support, both at national and international levels.

The updated version of the "Proposal for a MAP descriptor list" was presented by the WG Chair and was unanimously considered finalized by the members. The list will be submitted to Biodiversity for endorsement.

A proposal was made to implement the AEGIS concept for *Origanum*. The first step would be to define criteria for the Most Appropriate Accessions (MAAs) to be included in a European collection. Technical guidelines for conservation should then be agreed by the MAP WG. A collaborative project proposal on: "Characterization of *Origanum* spp. populations in member countries" has been planned for submission to the Steering Committee as part of the workplan for the next Phase of ECPGR.

The report of the Third meeting will be published in a single volume jointly with the report of the Second meeting (December 2004, Strumica, Macedonia F.Y.R.).



Lavender growing in the fields of the Crop Research Institute at Olomouc, Czech Republic.
Photo: L. Maggioni, Biodiversity International

Collection of vegetable crops, medicinal plants and their wild relatives in Ukraine

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Route of exploration mission traced from data recorded by GPS unit.

Map background courtesy of Wikipedia on GNU Free Documentation License

During 2006, a collecting mission to collect vegetable crops, medicinal plants and their wild relatives in the Ukraine was organized by the Plant Genetic Resources Laboratory of the Research Institute of Vegetable Crops, Skierniewice, Poland, in collaboration with the National Centre for PGR of Ukraine (NCPGRU), Kharkiv. The mission was funded by Bioversity International and by the Polish Ministry of Agriculture and Rural Development.

The expedition was carried out in two parts. The first part was conducted in western Ukraine from 24 September to 5 October 2006 (four participants from Poland and three from Ukraine). The mission started in L'viv and covered Lvivska, Rivnienska, Ternopil's'ka, Chmelnycka, Chernivec'ka, Iwano-Frankivs'ka and Zakarpat'ska provinces, covering a total of 3600 km.

The second part was conducted in southern Ukraine from 24 November to 7 December 2006 (three participants from Poland and two from Ukraine). The mission started in Vinnytsa and covered Vinnyts'ka, Cherkas'ka, Mykolayivs'ka, Odes'ka and Kirovograds'ka provinces, covering a total of 4000 km.

The route of both missions covered regions located in forest-steppe, steppe and mountain geographic zones, rich in diversity of cultivated crops, wild relatives of crop plants and wild medicinal plants.

The aim of the mission was to collect and preserve the diversity of vegetable crops, medicinal plants and related wild species endangered by extinction.

Achievement of independence in 1991 caused changes in the structure of Ukrainian agriculture. State and collective farms were divided among the farm workers. Most of the privatized land was leased to newly created private agricultural associations. It is

therefore necessary to preserve the diversity where traditional varieties are being replaced by modern cultivars.

Germplasm was collected in home gardens, farms, local markets, scientific institutions, botanical gardens, natural and ruderal habitats, field margins, etc. Seeds, bulbs or other propagules were gathered. During seed sampling, attention was paid to keeping a good representation of population diversity. Geographical coordinates, the elevation of each collection site and the mission route were recorded by Global Positioning System (GPS) unit. Data from the GPS were downloaded to MySQL database during the mission. Other relevant information about collection sites and passport data of accessions were entered into the database. Farmers were interviewed to obtain information about collected accessions (local names, origin, usage of the material, etc.).

A total of 1309 accessions (583 in the first mission and 561 in the second) were collected of 160 species. Germplasm was collected at 190 sites (92 in first mission and 98 in the second). Most of the accessions (78,6%) were obtained from people living in villages, 9,6% were bought in markets, 5,6% were collected in the wild, 3,6% came from experimental stations and 2,7% were found in ruderal habitats. The collected material was shared between the Polish and Ukrainian partners. None of the germplasm collected existed in either of the countries' collections. Both collections have been enriched with valuable landraces, old cultivars and medicinal plants traditionally cultivated for a very long time. The material is stored in both genebanks and is freely available to the ECPGR Vegetable Network, all qualified scientists/organizations and domestic and foreign users.

Strong expansion of western seed companies and the move from traditional, small-scale production to large-scale



Steppe near Yarovoye, Odes'ka oblast.

Photo: M. Kotliński, Warsaw University, Poland

production will, in all probability, cause the extinction of valuable landraces. The great diversity of crop plants observed in the Ukraine is endangered and requires urgent protection. This can only be accomplished through further collecting missions, which should be organized as soon as possible.



Vegetable landraces on local market in Kamieniec Podil's'kij, Chmelnycka oblast'.

Photo: M. Kotliński, Warsaw University, Poland

Number of collected accessions

Crop name	Acc. no.
Common bean	202
Onion	74
Tomato	70
Common garlic	63
Runner bean	51
Dill	47
Pumpkin	45
Pepper	45
Parsley	44
Corn	41
Red beet	36
Cucumber	33
Watermelon	32
Musk melon	29
Carrot	27
Shallot	23
Winter squash	17
Peas	16
Lettuce	16
Caraway	14
Broad bean	13
Lettuce	12
Radish	11
Soyabean	10
Fodder beet	10
White cabbage	9
Coriander	8
Parsnip	7
Other 134 species	304

Vegetables Network second meeting in Olomouc in Moravia

With the participation of about 50 people from 26 countries, the Second meeting of the Vegetables Network was held on 26-28 June 2007 in Olomouc, Czech Republic, hosted by the local Department of Vegetables and Special Crops of the Crop Research Institute, Prague-Ruzyne.

The six vegetable Working Groups (WGs) gathered at this meeting to review their progress and make plans for the future.

The *Allium* WG took stock of the approval of the EU-funded EURALLIVEG project, in which the garlic collections will be rationalized using molecular marker characterization for the elimination of redundant duplicates, elimination of viruses and the cryopreservation of an important part of the collections. A garlic image database is available on the IPK Web site and a shallot image database is under development. Special attention will be dedicated in the near future to the value of wild relatives of onion, leek and garlic for pre-breeding.

The *Brassica* WG reported recent updates of the ECPGR *Brassica* database, including nearly 20 000 accession data. As an exemplar for AEGIS, the WG refined their criteria to identify Most Appropriate Accessions (MAA) (www.ecpgr.cgiar.org/AEGIS/AEGIS_home.htm) and resolved to start the identification of MAA within the *Brassica rapa* collections. Among the priorities for future action, the WG identified the need to better characterize and evaluate the collections for traits of common interest and to make the data publicly available. The collection of wild *B. rapa* accessions was recommended considering their poor representation in genebanks and the threat posed by climate change to the survival of several sites. Strategies for *in situ* and on-farm conservation of *Brassica* species will be developed by the EU-funded project AEGRO, a three year project starting in October 2007. The WG will closely monitor the results of the AEGRO project as a basis for consideration when developing its own strategies for *in situ* conservation of brassicas.

The Cucurbits WG reported on the establishment of the European Central Cucurbit Database, comprising minimum characterization data and links to information to determine taxonomic nomenclature and regeneration methods for *Cucurbita* species. Future plans for the database foresee the improvement of data quality including characterization and evaluation data, the definition of quality standards for conservation, the definition of minimum descriptors for *Lagenaria* and *Momordica* and the compilation of information about on-farm conservation of cucurbit crops.

The WG on Leafy Vegetables will benefit from the EU-funded project on "Leafy vegetables germplasm, stimulating use", which started in 2007. This project will result in the updating of the lettuce database and development of spinach, chicory and minor leafy vegetables databases. Accessions will be regenerated, characterized and evaluated for pests, disease and utilization aspects. Inventory of regeneration protocols, status of safety-duplication, regeneration and characterization will need to be carried out among the members with a view to harmonizing methodologies and ensuring good



The main square in Olomouc, Czech Republic.
Photo: L. Maggioni, Bioversity International

management of the collections. Attention will be given to other leafy vegetables such as Rheum, Asparagus and artichoke in the future.

The WG on Solanaceae reviewed the progress of its databases on Eggplant, Pepper, Tomato, *Physalis* and *Cyphomandra*. All the databases are accruing data and plans were made to improve their functionality and nomenclature systems. The Pepper database was installed in Turkey using the Eggplant database software with the help of the Dutch database managers. It was jointly agreed to transfer the Tomato database to CGN, the Netherlands (see box below). A new ECPGR database on Pepino will be developed in Spain. Plans are underway to map the genetic diversity of the European *Capsicum* collections with molecular markers, with the help of a consortium of breeding companies. Increased characterization and evaluation of the collections, based on agreed minimum descriptors, is envisaged, as well as inventories of the Solanaceae genetic resources existing on-farm in the European countries.

The Umbellifer WG was able to analyse the results of a questionnaire giving an overview of the status of conservation facilities, different distribution practices and level of safety-duplication in European collections. A significant level of characterization has been achieved with work on carrot, celery, dill, fennel and parsley. There was agreement to focus more in the near future on characterization and evaluation of minor Umbellifer crops, particularly on disease resistance, quality traits (flavour, pigments, essential oils) and abiotic stress.

Safety-duplication of collections was considered an ongoing priority by all the WGs. They also confirmed their support for the AEGIS concept and are all prepared to actively contribute to this collaborative programme. The *Brassica* WG will be the model group for the outbreeding seed-propagated taxa in AEGIS. A report of the meeting is available at: www.ecpgr.cgiar.org/Networks/Vegetables/vegetables.htm

European Tomato Database

<http://documents.plant.wur.nl/cgn/pgr/tomato/>

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Following a decision at the ECPGR Solanaceae Working Group meeting in September 2001 in Nijmegen, The Netherlands, VIR, Russian Federation took responsibility to develop a searchable database for tomato germplasm. Passport data of many countries were gathered but several technical problems were encountered in the management of files which delayed the creation of the European Tomato Database. In May 2007 Web access to the European tomato collection was opened on VIR's Web site but the passport data of the European accessions were presented as spreadsheets and were not easily searchable.

Considering the urgency and importance of having an on-line searchable European Tomato Database, it was agreed at the ECPGR Solanaceae Working Group meeting in September 2007 in Olomouc, Czech Republic to give CGN, The Netherlands the responsibility to develop a searchable central crop database for tomato germplasm, collected and preserved by ECPGR members and associated countries.

The technical work of this version was carried out by Willem van Dooijeweert and Frank Menting at CGN. The database has been available since November 2007 and contains passport data for more than 20 000 accessions of several species. The database is being developed following the FAO/IPGRI Multicrop Passport Descriptors. An extra field for original taxonomic data has been added. The taxonomy in the searchable fields is in accordance with Mansfeld or GRIN accepted nomenclature. In future more fields will be added to incorporate characterization data.

Progress with the implementation of AEGIS



www.ecpgr.cgiar.org/AEGIS/AEGIS_home.htm



*Prunus, one of the AEGIS model crops.
Photo: J. Engels, Bioversity International*

Since May 2007 a number of activities were implemented by the various AEGIS partners and stakeholders, in particular the ECPGR Steering Committee, the AEGIS Advisory Committee, the Local AEGIS Task Force as well as the staff members of the Coordination Unit. The main achievements

can be summarized as follows:

- General agreement among the Steering Committee members on the key elements of the AEGIS approach. These are included in the Strategic Framework document that will be published in due course.
- The Local AEGIS Task Force prepared a first draft Memorandum of Understanding (MOU) that is intended to provide the formal basis for agreements

between governments of the European countries and AEGIS on the operation of the latter. A first draft was shared with the AEGIS Advisory Committee for comments. The first part of the MOU is an agreement between the governments and AEGIS; the second part is the Annex consisting of a joint agreement and undertaking between the ECPGR National Coordinators and eligible institutions in the countries to become Associated Members of AEGIS. The MOU consists of the following articles:

1. Establishment of AEGIS;
2. Countries and regional organizations eligible for membership in AEGIS;
3. Objectives of AEGIS;
4. Relationship of AEGIS with the European Cooperative Programme for Plant Genetic Resources (ECPGR);
5. Responsibilities of members of AEGIS;
6. Responsibilities of ECPGR National Coordinators with respect to AEGIS;
7. General principles

applicable to European Accessions under AEGIS

8. Associate membership of AEGIS;
 9. The usual legal articles on entry into force, amendments, withdrawal etc. as well as the depositary of the MOU.
- The implementation activities undertaken by the four model crops have focused largely on defining a list of Most Appropriate Accessions, as well as on the development of a quality management system for each of the crops.
 - Several meetings were attended by members of the Coordination Unit to update the participants on AEGIS and to request feedback on specific topics. Meetings attended include EUCARPIA Genetic Resources Section, Planta Europa, a SEEDNet policy workshop and the ECPGR Vegetables Network and Forages Working Group. Where applicable, travel reports have been made available on the newly developed AEGIS Web site (www.ecpgr.cgiar.org/AEGIS/AEGIS_home.htm).

On-farm Conservation and Management Task Force meeting

The third meeting of the On-farm Conservation and Management Task Force (TF) was hosted in Ljubljana, 2-3 October 2007, by the Agricultural Institute of Slovenia, in collaboration with the Slovenian Institute of Hop Research. The meeting was attended by 21 country representatives, a larger group than ever before, testifying an increased interest in on-farm activities. The TF took note of the newly established dedicated Web site (www.ecpgr.cgiar.org/Networks/Insitu_onfarm/OnfarmTF_intro.htm), where contacts, activities, bibliographies and related documents provided by the TF members were being uploaded. A new version of minimum descriptors for the documentation of on-farm conservation and management activities was proposed by the Suceava genebank, Romania and the University of Perugia, Italy. These were being tested in ongoing missions carried out on the Apuseni mountains and will be open for further refinement and suggestions by the Task Force.

The importance of unconventional information (grey literature) and guidelines to find these sources were described by Zdenek Stehno (Czech Republic) and Beate Schierscher-Viret (Switzerland), who also presented the Swiss database for the conservation and sustainable use of plant genetic resources for food and agriculture, which is rich in historical and bibliographic information on Swiss traditional crops and varieties (www.bdn.ch).

Two case studies on "On-farm management of fodder beets in Germany" and "Common bean on farm conservation in Italy" were presented by Lothar Frese (Germany) and Valeria Negri (Italy) to serve as possible models for the preparation of similar studies in other countries.

Pedro Moreira (Portugal) presented possible options for promoting on-farm conservation in Europe. The status of progress of the approval of the so-called "Conservation varieties" directive was outlined by Paul Freudenthaler, Austria. This directive is expected to provide derogations for marketing of seed of landraces and varieties threatened by genetic erosion. Controversial points remain the geographical and quantitative restrictions for the marketing of seeds. The TF resolved to establish a sub-group to prepare a consensus position on this directive from the perspective of the genetic conservation of landraces diversity.

Among the plans made for future activities, the TF agreed to further strengthen the links between the TF and the ECPGR Crop related Networks and also to take on the role of developing landraces data structures for the creation of European inventories. The TF also agreed to undertake the preparation of a book describing, with a European perspective, some methodological approaches to conserve landraces on-farm, as well as methodologies to establish on-farm national inventories. It was considered important that the TF receive the inputs of plant breeders, farmer organizations, organic agriculture movements and NGOs in the future, and representatives of these categories will be invited to be associate members of the Task Force.

National experiences on on-farm conservation were described in 20 posters. Abstracts of their content will be included in the report of the meeting, which will be published by the ECPGR Secretariat in electronic form. V. Negri was reconfirmed as Chair of the Task Force.

Second Session of the Governing Body of the International Treaty

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The Second Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), held at FAO in Rome from 29 October to 2 November 2007, was well attended and quite successful.

The Governing Body noted with appreciation that almost 100 000 samples of germplasm had been distributed under the Multilateral System using the Standard Material Transfer Agreement (SMTA) by the CG Centres alone during the first seven months of operation. It also welcomed the activities being undertaken by the Global Crop Diversity Trust and appreciated in particular the progress made in the establishment of the Svalbard Global Seed Vault. It was, however, concerned that progress had not been so fast on the development of other elements of the Funding Strategy. Several Contracting Parties recalled the link between implementation by developing countries of their commitments under the Treaty and the effective allocation by developed countries of adequate financial resources. This even led some NGOs attending the meeting to call for the suspension of the Treaty pending more progress on the funding strategy. In the end the meeting stressed that successful mobilization of adequate financial resources was essential to the implementation of the Treaty and decided to reconvene the *Ad Hoc* Advisory Committee on the Funding Strategy during the intersessional period to develop a strategic plan for its implementation.

The Governing Body was unable to reach consensus on the Financial Regulations and in particular on whether or not there should be an indicative scale of assessment for voluntary contributions. It also did not have time to adopt operational mechanisms on compliance. It did, however,

decide to put the issue of compliance high on the agenda of the third session and to establish, as appropriate, a contact group at its next session. It also requested the Secretariat to prepare draft procedures to be followed by FAO, which has accepted in principle to act as the Third Party Beneficiary under the SMTA, and decided to establish an *ad hoc* Third Party Beneficiary Committee to report to the its next Session. It further decided that the establishment of a Permanent Technical Advisory Committee would be premature and that *ad hoc* technical bodies with focused specialized and outcome-oriented terms of reference offered the best approach for the time being.

On a positive note, the session reached consensus on the proposal of the CG Centres to use the SMTA for non-Annex 1 material acquired before the entry into force of the Treaty, as well as for Annex 1 material. The use of a single SMTA was strongly favoured by the CG Centres as simplifying distribution procedures and thus reducing costs. The Governing Body approved the option proposed by the CG Centres for interpretative footnotes clarifying that certain provisions of the SMTA should not be interpreted as precluding its use for transfers of non-Annex 1 material. The whole question will be reviewed by the Governing Body at its next session in connection with the assessment and review of the SMTA itself.

The Governing Body adopted a resolution on Farmers' Rights. The Resolution acknowledges that there is uncertainty in many countries as to how Farmers' Rights can be implemented and encouraged Contracting Parties and other relevant organization to submit their views and experiences as a basis for a Secretariat paper to be considered its next

Session. It also reiterated the high importance it places on the promotion of Article 6 on Sustainable Use of PGRFA, and requested the Secretariat to prepare a comprehensive document for its next session.

Other positive outcomes of the session included the appreciation expressed by the Session for the Joint Programme being set up by FAO and Biodiversity International to provide assistance to developing countries in implementing the Multilateral System. The session approved requests by the International Cocoa Genebank and the Secretariat of the Pacific Community to enter into agreements with the Governing Body placing their germplasm collections within the purview of the Treaty.

Perhaps the most significant outcome of the meeting was the adoption by consensus of the Programme of Work and Budget for the Treaty for 2008-09. Under the budget, the Core Administrative Budget for the Treaty is set at just over US\$5 million, plus a working capital reserve of just under US\$350 000. The contribution from FAO is set at US\$1.6 million, leaving a shortfall of US\$3.8 million to be found from Contracting Party contributions. The Core Administrative Budget includes provision for completing a Joint FAO/CGIAR Project on technology support for the implementation of the Multilateral System. The Netherlands announced that it was paying a contribution based on its understanding of what would be due from it under an indicative scale of assessment and called on other Contracting Parties to do the same. In addition, the Governments of Spain and Italy pledged substantial additional contributions to the Treaty's budget.

Agricultural biodiversity for improved nutrition and health

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Vitis, one of the species being evaluated by the project.
Photo: Jan Engels, Bioversity International

Diet-related chronic diseases such as diabetes and cardiovascular disease affect an increasingly bigger part of the population in both developed and developing countries. A major cause is the simplification of diets that in turn leads to micronutrient deficiencies. The proportion of fruits and vegetables, pulses and legumes and a variety of root and tuber crops is declining in most diets. Diets, on the other hand, are high in energy. Energy is derived from refined carbohydrates and processed fats and oils. Poor nutrition is thus determined by lack of diet quality. To reverse these unhealthy trends, agricultural biodiversity has been identified as a crucial resource that can be more widely used to underpin more diverse diets.

A new project "Conservation, characterization and evaluation for nutrition and health of vegetatively propagated crop collections at the Vavilov Institute" funded by the Government of Luxembourg, addresses this issue. Bioversity International, the Centre de Recherche Public Gabriel Lippmann (CRPGL), Belgium and the N.I. Vavilov Research Institute of Plant Industry (VIR), Russian Federation are working together to evaluate nutritional and health properties of selected accession from VIR's genebank. The project focuses on small berries (*Ribes*, *Rubus*, *Lonicera*, *Sorbus*), grapevine (*Vitis*) and potato (*Solanum tuberosum*). These crops are

particularly important for health and nutrition. They deliver nutrients, micronutrients and a huge amount of antioxidant phytochemicals. Just one cup of berries provides all the disease-fighting antioxidants that we need in a single day. Antioxidants are substances which can prevent or slow the oxidative damage to the body. When cells use oxygen, they naturally produce free radicals which can cause damage. Antioxidants act as "free radical scavengers" and hence prevent and repair this and other forms of oxidative damage. Oxidative stress may lead to many diseases, including cancer, heart disease, Alzheimer's disease and Parkinson's disease. The antioxidant phytochemicals the project examines are polyphenols and carotenoids. Among carotenoids, particular emphasis is put on lycopene and lutein. Their health effects may exceed those attributable to beta-carotene or other nutrients. Lycopene present in tomato, red citrus fruits, watermelon, guava and some other fruits has been shown to prevent prostate cancer in men and may offer other benefits. Lutein, which concentrates in retina, helps to protect eyes from harmful effects of UV radiation. Small berries will be screened for high bioactive compounds as the latter vary from cultivar to cultivar.

The crops the project focuses on can all be vegetatively propagated. Their germplasm is maintained

in field genebanks as long-term storage of seeds at low temperature is not appropriate in their case. The field genebank collections are endangered by diseases, pests and abiotic stress. Thus, the project also aims at advancing conservation techniques of vegetatively propagated crops. The project partners are collaborating on improving *in vitro* preservation techniques and adapting cryopreservation techniques to various vegetatively propagated crops to monitor and increase survival rate after cryopreservation (*Vitis*, *Rubus*, *Fragaria* and *Solanum*). The strategy to accomplish these goals relies on technology transfer between the participating institutions and on joint capacity-building activities.

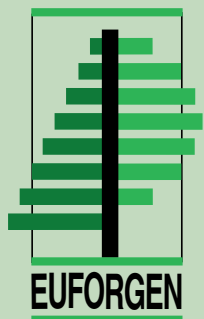
The project will have a significant impact on conservation, crop improvement and human health. The partners intend the results of their work to go beyond the scientific community and reach the wider public. The objective is to build linkages with policy-makers first in the Russian Federation and at a later stage in the EU. It will enable them to create policies enhancing economic opportunities for producers and delivering health and nutrition benefits to consumers. The project will last four years and the first meeting of the project partners was held in Rome in June 2007.

Sixth Ministerial Conference "Environment for Europe"

The Sixth Ministerial Conference "Environment for Europe" was held on 10-12 October 2007 in Belgrade, Serbia. Ministers and other high-level representatives from 51 UNECE member States and the European Commission, international organizations, NGOs and other stakeholders discussed environmental policy, including measures to tackle global warming. The Ministerial Declaration "Building bridges for the future" was adopted. Commitments expressed in the Declaration include: to strive to achieve and maintain a healthy environment for present and future generations; to significantly reduce the rate of loss of biological diversity by 2010; and to further improve indicator-based environmental assessments and reporting. It welcomed efforts to meet the objectives of the United Nations Decade for Education for Sustainable Development and noted opportunities to diffuse tension amongst governments via environmental collaboration.

This was the first in the series of Ministerial Conferences "Environment for Europe" to be carbon neutral. It was estimated that the Conference emitted about 3000 tons of greenhouse gases (considering participants' flights, local transport, energy consumed and waste generated). The UN Economic Commission for Europe, which provided the Conference secretariat, had initiated renewable energy projects that would compensate for the emissions. These projects should result in an equivalent reduction in greenhouse gas emissions, thus cancelling out the Conference's effect on global warming. Further information on the outcomes of the Conference is available at the UNECE Web site (www.unece.org/env).

EUFGIS project organizes workshop on FGR documentation



The EUFGIS (Establishment of a European Information System on Forest Genetic Resources) project, coordinated by Biodiversity International and co-funded by the European Commission under the Council Regulation (No 870/2004) on genetic resources in agriculture has initiated the development of an information system for dynamic gene conservation units of forest trees in Europe. The concept of dynamic gene conservation emphasizes maintenance of evolutionary processes within tree populations to safeguard their potential for continuous adaptation. In most cases this means managing tree populations at their natural

sites, within the environment to which they are adapted to (*in situ*). In some cases, artificial but dynamically evolving tree populations outside their place of origin (*ex situ*) also contribute to dynamic gene conservation.

A total of 34 European countries have nominated a national focal point for the EUFGIS project. The national focal points are expected to compile national data sets on the dynamic gene conservation units, following data standards which will be developed as part of the project in collaboration with the EUFORGEN Networks.

On 23-24 October 2007, the focal points met representatives of the EUFORGEN Networks, invited speakers and the project partners at a workshop held in Birkerød, Denmark. The workshop discussed the present documentation efforts of the gene conservation units in Europe, identified future needs in this regard and made recommendations for the development of the EUFGIS information system.

Prior to the workshop, a survey was carried out among the national focal points to obtain detailed information on the gene conservation of forest trees and related documentation efforts at national level. The survey revealed that a typical size of the gene conservation units is 1-10 hectares while some units can reach hundreds of hectares in countries with large forest areas. The gene conservation units are often located within protected forest areas but the survey confirmed that many countries also use seed production stands for gene conservation purposes. Furthermore, forest areas managed for multiple uses, following the principles of sustainable forest management, harbour a considerable amount of the gene conservation units in several European countries.

The workshop participants then held intensive discussions on the various requirements for a dynamic gene conservation unit and welcomed the objective of EUFGIS to develop common minimum requirements and data standards for the units at pan-European level. About half of the participating countries have national databases on the gene conservation units, but only in two countries are the national databases publicly available online. Many national focal points in countries which do not yet have a national database expressed their interest in using the EUFGIS information system instead of developing their own databases.

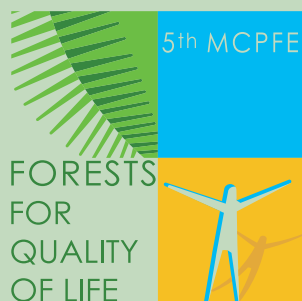
The workshop outputs and recommendations were further discussed by an expert group on 25 October 2007. The expert group consists of representatives of the EUFORGEN Networks and other invited experts. This group's task is to develop common minimum requirements and information standards for the gene conservation units, which will later be circulated to the EUFORGEN Networks, the national focal points and other relevant stakeholders for their comments in spring 2008.

Further information on the EUFGIS project, as well as the workshop presentations and outcomes, can be found at www.euforgen.org



The Rude Skov forest in Birkerød, Denmark.
Photo: E. Hermanowicz, Biodiversity International

Forests for Quality of Life



The Fifth Ministerial Conference on the Protection of Forests in Europe (MCPFE) was held on 5-7 November 2007 in Warsaw, Poland. The Summit brought together delegations from 42 European countries, the European Community, five observer countries and 28 observer organizations to discuss how forests can improve and benefit the quality of life. At the end of the conference, the Signatory States and the European Community adopted the Warsaw Declaration and two Ministerial Resolutions.

The Warsaw Declaration recognizes the role of forests and their sustainable management in climate change mitigation and highlights the need to ensure adaptation of forests and forest management to climate change. As part of the Declaration, European countries also reinforced their commitment to conserve and enhance the biological diversity of forests, including their genetic resources, through sustainable forest management.

Warsaw Resolution 1 (Forests, Wood and Energy) urges the countries and the European Community to enhance the contributions of the forest sector to energy production and mobilization of wood resources. Warsaw Resolution 2 (Forests and Water) called for action to coordinate policies on forests and water, as well as to promote the management of fresh water resources as part of sustainable forest management.

In addition, the conference declared the week of 20-24 October 2008 to be the Pan-European Forest Week 2008. It will be jointly prepared by the MCPFE process and the European Forestry Commission of FAO and The Timber Committee of the UN Economic Commission for Europe (UNECE). Forest Week will provide a framework for a series of events and for various European actors to raise awareness on the inputs of forests and the forest sector to the protection of the environment and the development of

economy and society in Europe.

Two reports were also published at the conference, one on sustainable forest management in Europe (State of Europe's Forests 2007) and another on the implementation of the MCPFE commitments between 2003 and 2007. The first report shows that the forest area in Europe has increased by nearly 13 million ha between 1990 and 2005. This area is almost the size of Greece. The same report also reveals that forest management practices have changed considerably to promote the conservation of forest biological diversity and that the area of protected forests is now almost 5% of Europe's forests. The increased conservation efforts have in part led to a decline in employment but still around 4.3 million people work in the European forest sector.

Regarding forest genetic resources, the area managed for *in situ* and *ex situ* conservation of forest trees more than doubled between 1990 and 2005. Gene conservation and seed production efforts are

being carried out for 135 tree species (including subspecies and hybrids) but the level of genetic conservation can be considered adequate only for a limited number of tree species in Europe. The second report concludes that good progress has been achieved in implementing the MCPFE commitments both at national and pan-European levels. The implementation report also highlights the work of EUFORGEN in implementing relevant commitments related to forest genetic resources.

In the closing ceremony of the conference, Poland passed the presidency of the MCPFE process to Norway which will establish a new Liaison Unit in early 2008. Germany and the Slovak Republic were invited to replace Austria in the General Coordinating Committee which facilitates and coordinates the MCPFE work. Other members of the Committee include Norway, Poland and Spain.

The MCPFE reports are available at www.mcpfe.org. Further information on the conference can also be found at www.iisd.ca/ymb/mcpfe5



River Zagożdżonka in the primeval Kozienicka Forest, Poland.
Photo: J. Koskela, Bioversity International

Collaboration on Forest genetic resources in Central Asia and the Caucasus

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With the support of Biodiversity International, five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) organized a regional consultative meeting on forest biodiversity and forest genetic resources on 21-23 August 1997 in Bishkek, Kyrgyzstan. Representatives of these five Central Asian countries came together for the first time after the break

down of the Soviet Union to discuss opportunities for the establishment of a Central Asian Working Group on Forest Genetic Resources and to develop a joint action plan with shared tasks. The initiative to organize this consultation meeting in Kyrgyzstan was welcomed by the Kyrgyz State Forest Agency, Ministry of Environment protection, Kyrgyz National Academy of Sciences and Kyrgyz Agrarian Academy.

With the aim of improving the scientific and practical activities on forest biodiversity and forest genetic resources in the region, the participants of the meeting agreed on: 1) Establishment of a Forest Genetic Resources Working Group (WG) and development of collaborative activities for enhancing studies, conservation and rational use of biodiversity of forest resources, including training; 2) Priority forest species; 3) Development of National Programmes for the conservation and rational utilization of forest resources; 4) A Working Group workplan; and 5) Establishment of a regional database on genetic reserves, plus stands and plus trees, experimental plantations, clonal archives, etc.

The newly established WG recognized that fruit and nut forests possess unique genetic diversity in populations of trees and shrubs and that the area they occupy in southern Kyrgyzstan is the largest existing example of such forests in the world. However, this unique resource was under threat of disappearance due to complete harvesting of walnuts, cutting trees for fuel and handicrafts, grazing, etc. In order to conserve this unique gene pool, the WG acknowledged that urgent conservation actions needed to be undertaken at the international level and suggested that a genebank and a scientific facility be constituted to contribute to the conservation and use of the genetic resources of these forests at an international level.

Following the recommendations of the consultative meeting in Bishkek and the agreed workplan, the Central Asian Working Group on Forest Genetic Resources established a regional database on forest genetic resources in 1999. Missions to survey the distribution and intra-specific diversity of pistachio (*Pistacia vera*) and pear (*Pyrus spp*) in the region were also conducted in 2000-2001. In 1999 the Working Group became a part of the Central Asian and Transcaucasian Network on Plant Genetic Resources. Representatives of Azerbaijan, Armenia and Georgia have actively participated in the Working Group meetings and activities since then.

The visit of Biodiversity International's Board of Trustees (BOT) in 2000 to the regional pistachio field genebank in Galla Aral, Uzbekistan (established as a result of joint efforts of the Working Group) received high appreciation from the BOT members. The Group prepared and published "Guidelines for Inter and Intra-specific Diversity Assessment of Forest Genetic Resources in Central Asia and the Caucasus" in Russian (2000). In 2001 the Group, together with Fruit Genetic Resources Working Group of the Central Asian and Transcaucasian Network on Plant Genetic Resources, initiated the development of a five-year project proposal on "In situ/On farm Conservation and Use of Agrobiodiversity (Fruit Crops and Wild Fruit Species) in Central Asia" which was approved by UNEP-GEF in 2005. The Working Group on Forest Genetic Resources organizes its meetings every two years with continued secretariat and technical support from Biodiversity International. At its meetings the Group assesses progress and identifies constraints in order to facilitate development of a collaborative action plan and its implementation.

Winner of Research Fellowship on Forest Genetic Resources for 2007

This year's winner of the fellowship is Sultangaziev Ormon Esenbekovich from Kyrgyzstan. Ormon is a Forestry engineer from the Kyrgyz Agrarian University, presently a second year PhD student. The title of Ormon's research project is "Characterization of genetic structure and reproductive biology of *Juniperus seravschanica* Kom. in Kyrgyzstan". Ormon began his fellowship at BFW in November 2007.

Biodiversity International is implementing an Austria funded project "Developing training capacity and human resources for the management of forest biodiversity", in collaboration with the Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW), Vienna, Austria. The aim of the project is to establish a multidisciplinary collaborative training programme that will address the urgent needs and challenges of biodiversity management in forest production systems in developing countries.

Every year of the five-year project a two-year fellowship is awarded to an outstanding young scientist (with 1-5 years' working experience in the area) from respective national programmes in the target region, identified on the basis of research innovation and practical relevance of the research topic to the home institute and country. The fellowship takes the form of a research project conducted at the BFW Department of Genetics, the host institute in Austria, which provides the technical backstopping and laboratory facilities.



Austria funded training workshop

As part of the Austria funded project "Developing training capacity and human resources for the management of forest biodiversity", the two-week training workshop for the project year 2006-2007 took place in Tashkent, Uzbekistan on 12-25 August 2007. Twenty-three participants from Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan participated in the training workshop.

The workshop aimed to give a common background to graduate students and young scientists already working on forest biodiversity gives strong emphasis to promoting the links between forest biodiversity and forest genetic resources and sustainable livelihoods. The ecosystem approach is used as a general concept for addressing the challenges associated with the conservation and sustainable use of forest biodiversity. Lectures were given in Russian by Drs Konstantin Krutovsky, Texas A&M University, USA; Lev Yampolsky, East Tennessee State University, USA; Vyacheslav Tarakanov, West-Siberian Branch of V. N. Sukachev Institute of Forest, Russian Federation; and Dmitri Politov, Russian Academy of sciences, Russian Federation.

Bioversity hosts the EVOLTREE Governing Board meeting



The Governing Board of EVOLTREE (EVOLution of TREEs as drivers of terrestrial biodiversity) met on 24 October 2007 in Rome, at Bioversity International, one of the 25 main partners. EVOLTREE is a Network of Excellence (NoE) launched in April 2006 under the EU Sixth Framework Programme for Research (FP6) to look at the evolutionary history of forest ecosystems and their potential to adapt to climate change.

NoEs are an instrument designed within the FP6 to strengthen Europe's scientific impact in different research fields, in particular by reducing the fragmentation of research efforts and by spreading excellence within and beyond the NoE. One of the main purposes of NoEs is to create a framework that will allow a long-term integration of common infrastructures and other shared resources among the members of the NoE. This framework will also allow the partners to share a common vision on research priorities, as a way of ensuring the future competitiveness of European research and technology.

The EVOLTREE Governing Board convened to discuss ways to ensure the long-term future and sustainability of the NoE, once EU support ends in March 2010. Despite uncertainties, EVOLTREE

partners expressed their willingness to extend their network activities beyond the duration of EVOLTREE and the meeting offered the opportunity to explore the legal and financial structures, circumstances and possibilities to: (i) set up a legal framework representing all participating organizations in the NoE; (ii) decrease the dependence of the NoE on the funding of the European Community (EC); and (iii) design a strategy to enable access to external funding sources (both public and private) for the long-term maintenance of the consortium beyond March 2010.

The meeting was attended by representatives of all the main partner institutions of EVOLTREE, by Hartmut Barth, scientific officer at DG Research of the European Commission and by a few members of Bioversity. Unfortunately, the participation of executive members was quite limited and preliminary formal agreements could not be reached.

The agenda of the meeting included a presentation of the major achievements of EVOLTREE, with an emphasis on the common infrastructures that will constitute the main resources to be shared and maintained after 2010. These include the common DNA repository soon to be installed in Vienna, the networks of intensive study sites and the Web portal that links databases hosted by the different institution participating.

Furthermore, long-term vision and research perspectives were presented by the EVOLTREE coordinator, Antoine Kremer (INRA, Bordeaux, France). An audio interview with A. Kremer is available at: <http://news.bioversityinternational.org/index.php?itemid=1996>

Finally, various options and scenarios for a legal and financial agreement, which would formalize the long-term collaboration among the partner institutions in the consortium, were presented.

The participants

expressed their opinions about long-term integration and sharing of resources and manifested different expectations concerning the activities to be carried forward (research, training, dissemination, integration of infrastructures), and the formal status the consortium may take. Legal aspects will need to be explored in further detail and the definition of a future strategy for integration will closely involve executive representatives of the partner institutions.

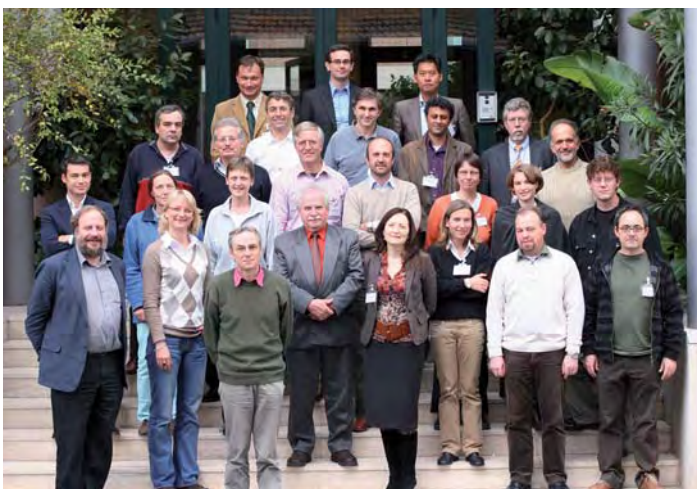
Five milestones were identified as part of the process EVOLTREE is investing to achieve long-term integration:

- 1) Identify long-term research priorities;
- 2) Identify common goals and expectations;
- 3) Identify alternative funding sources;
- 4) Stimulate support of stakeholders; and
- 5) Define a suitable legal status for the future entity.

Indeed, the achievement of durable integration is one of the main challenges that the NoEs face. The obstacles are varied, from institutional impediments to legal constraints. However, it is indeed the conversion of the NoEs into permanent legal structures which should guarantee their survival after the duration of EC funding.

The main difficulty encountered so far is the identification of a suitable legal platform that will be in harmony with the statutory framework and operating constraints of the partners.

The future of European NoEs was the topic of discussion on 20 November 2007, in Brussels, when the European Union met with a group of coordinators and managers of NoEs who have taken the initiative of launching a debate on this issue. An opinion paper entitled "Creating an Integrated European Research Area - The Future of the Network of Excellence", endorsed by more than 50 FP6-funded NoEs, describes the current status of the debate (www.supportresearchnoes.eu/files/Opinion_Paper_2007-10-05_2.pdf).



Participants in the EVOLTREE Governing Board meeting held at Bioversity, Rome, Italy.
Photo: F. Di Paolo, Bioversity International

1st International Conference on Conservation of Forest Genetic Resources in Siberia

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The 1st International Conference on Conservation of Forest Genetic Resources in Siberia was jointly organized by forest research organizations from Russian Federation and USA, and by the Altai forest service agencies. Eighty-seven participants from Belarus, Bulgaria, Italy, Russian Federation, Slovakia and USA, including official representatives from the International Union of Forest Research Organizations (IUFRO) and Biodiversity International, took part in the conference on 30 July to 4 August 2007 in Barnaul, Russia.

Siberian forests play an important biospheric role in global climate regulation. The importance of current breeding programmes in the conservation and study of the genetic potential of conifer populations in Siberia, the

insufficient study of genetic population structure of forest tree species in the Siberian boreal forests, and the need for a synthesis of traditional and newest molecular genetic approaches for intensification of forest tree improvement were the premises for organizing such a conference.

Altogether seventy-one reports were presented at the five conference sessions:

- 1) Memory of outstanding forest geneticists and breeders;
- 2) Study and conservation of forest genetic resources using traditional methods;
- 3) Study and conservation of forest genetic resources using molecular genetic methods and biotechnology;
- 4) Genetic basis of forest breeding and tree improvement; and
- 5) Breeding programmes in Siberia.

The contribution of Y.P. Altukhov, S.A. Mamaev, G. Namkoong, T.P. Nekrasova, L.F. Pravdin, L.F. Semerikov, and N.V. Starova in studying and conserving forest genetic resources was reviewed and summarized in the session dedicated to the memory of the recently deceased outstanding forest geneticists and breeders.

The reports and discussions of the conference demonstrated the extensive work on the study and conservation of forest genetic resources conducted in Siberia by Russian and foreign scientists. Research of spatial population structure, genetic differentiation, and introgressive hybridization of forest-forming conifers (*Pinus*, *Larix*, *Picea* and *Abies*) has been continued. Information on geographic variability and inheritability of adaptive and economically valuable traits in *Pinus sylvestris*, *P. sibirica* Du Tour and *Larix* sp. has been summarized. New approaches to conservation of genepool during forest restoration have been developed. The prospects of applying molecular genetic methods

and biotechnology to the purposes of conservation, sustainable forest management and rational use of the boreal forest have been discussed.

The conference, however, also highlighted a number of negative processes that jeopardize the conservation of forest genetic resources in Russia and impede the conservation of forest genetic resources in the Asian part of Russia by blocking the implementation of international conventional resolutions on biodiversity and reduction of CO₂ emission. These constraints include a massive loss of valuable natural and experimental populations, the practice of thinning that has now become selective cutting ("high-grading"), insufficient coordination and funding of genetic studies, breeding programmes, seed production, and introduction of woody plants and the closure of the only research institute of forest genetics in the Russian Federation – the Research Institute of Forest Genetics and Breeding in Voronezh and its branches.

A decision was taken by the conference participants to address the Russian Federation government, forest management agencies and State Duma with suggested strategies to correct this situation. In addition, participants agreed that an appeal should be made to the international community and foreign research organizations to support these strategies by ensuring the fulfillment of international conventions on conservation of forest biodiversity and genetic resources. Further details on the outcomes of the conference are available in the resolution paper, which can be viewed at: http://sibwood.ssga.ru/index_en.html

The proceedings of the conference will be published in the special issues of the "Forest Genetics" and "Boreal forests" scientific journals.



Conference participants visit the Teletsky Lake, Altai Region, Altaisk State Nature Reserve, Russian Federation.
Photo: Aleksandr Lotov, Russian Federation (www.teletsky.ru)



Participants in the 1st International Conference on Conservation of Forest Genetic Resources.
Photo: E.P. Kashkarov, Altai State University, Barnaul, Russian Federation

Grapevine conservation in the Caucasus and Northern Black Sea Region

Since 2003, six partners, comprising research institutes for viticulture and winemaking from Armenia, Azerbaijan, Georgia, Moldova, Russian Federation and Ukraine, have worked together to support and improve the conservation of grapevine genetic resources in the countries of the Region.

The representatives of the partner institutes met on 15-17 October 2007 at the State Agrarian University in Krasnodar, Russian Federation, to review the progress made in the past year and to discuss future plans and perspectives. This was the fifth coordination meeting of the partners involved.

The joint activities focus on three main areas: 1) Documentation – development of a database following the inventory of varieties in all six countries; 2) Identification, mobilization, characterization and conservation of local varieties in the collections; and 3) Exploration of wild grapevine resources.

Evaluation of the database and its publication via the European *Vitis* Database and the *Vitis* International Variety Catalogue were among the main issues discussed. Following intensive communication during the past few years, the total number of accessions in the database has reached 2654, of which 1283 are different cultivars. Three-quarters of the cultivars exist only in the project partner collections. Small improvements of data were agreed upon. The second major outcome of the initiative is a monograph with detailed ampelographic description of at least 25 traditional varieties from each of the six countries. This is currently being compiled and will be published in English and Russian in 2008.

The initiative has given high priority to ensuring proper maintenance of the collections established in all countries, especially traditional varieties that have a high potential for local or region use. Their importance was



Vitis vinifera collection at the National Institute for Viticulture and Oenology, Chisinau, Moldova.
Photo: Gh. Savin, National Institute for Viticulture and Oenology, Chisinau, Moldova

demonstrated during the participants' field trip to the National Grapevine Collection in Anapa, on the Black Sea coast. During the severe winter in 2006, local varieties almost exclusively made up the 15% of the collection that was not damaged by frost.

The meeting was also attended by Thierry Lacombe and Roberto Bacilieri, from Research Unit Diversity and Adaptation of Cultivated Plants, National Institute for Agricultural Research, INRA Montpellier, France. This provided an opportunity to discuss issues of common scientific interest and linkages with the French-funded initiative ECO-Net, and the new project on grapevine genetic resources, GrapeGen06, which is co-funded by the European Commission, Directorate for Agriculture and Rural Development and is coordinated by INRA Montpellier (see NL34 page 16). In fact, most of the partners from the Region are involved in both initiatives. A number of researchers and some policy-makers from the Russian Federation also attended the meeting as observers.

During the final session, the participants identified and

discussed several priorities for future collaborative work:

- Exploration, collecting and study of wild grapevine, *Vitis sylvestris*, in the entire geographic area (including Turkey, Iran, Turkmenistan and northern Iraq), thought to be the centre of the species' primary domestication;
- Conservation of local, adapted resources – their identification, maintenance in collections and safety-duplication;
- Monitoring and provision of emergency support to collections under threat – a case most recently reported from Dagestan; and
- Harmonization of standards and methodologies.

During 2003-2007 the collaborative initiative on grapevine genetic resources in the Caucasus and Northern Black Sea Region was financially supported by the Ministry of Finance of Luxembourg as part of its regular contribution to Bioversity. Further details can be obtained from David Maghradze, project facilitator (d_maghradze@geo.net.ge).

EURISCO moves forward

During 2007 EURISCO activities focused on improving data quality and quantity, namely taxonomy and GIS data; translation of the two fact sheets into ten languages; EURISCO database technology updating; Web site redesign and updating; and monitoring visitors/users.

To enhance the data quality and quantity in the EURISCO Catalogue, at the National Inventory (NI) and individual institutions level, two types of reports were made: taxonomic and GIS. For the taxonomic reports the Taxonomic Checker (GRIN taxonomy) (<http://pgrdoc.ipgri.cgiar.org/taxcheck/grin/>) was used.

The taxonomy was checked in the following order: all elements; genus, species, epithet and epithet author; genus, species and epithet; genus, species and species author; genus and species; genus.

The reports were of two types:

1) Partial match: whenever part of the latin name provided matches GRIN taxonomy and the remaining part of the name not matching (e.g. *Aegilops tauschii* Cosson (matches) var. *meyerii* (Griseb.) Tezvelev (not matching)). In this type of file a link to the respective GRIN entry was provided.

2) No match: none of the elements of the latin name provided matches the GRIN taxonomy (either because it does not exist in GRIN or it might be some type of misspelling).

As a result of this exercise reports on 31 NI were generated, representing a total of 220 institutions.

For the GIS reports, latitudes and longitudes available in the Catalogue were mapped (using Google earth) and the results checked against the declared country of origin, which resulted in reports on 16 NIs, regarding GIS data. These reports were composed of three types of files:

1) Missing country: latitude and longitude provided, but the country of origin was not identified;

2) Other country: latitude and longitude provided, but does not match the identified country of origin (falling in another country); and

3) No country: latitude and longitude provided, resulting point not on land.

The reports generated were sent to the National Focal Points (NFPs) for correction and update of the NIs and subsequent uploading of the data to EURISCO. This will ensure the improvement of data quality in the system and at the data providers' level. There is an intention to make this data quality monitoring exercise a routine activity.

There is an intention to make this data quality monitoring exercise a routine activity.

The English version of the EURISCO fact sheets were updated as of September 2007 and simultaneously translated into nine other languages. These were an input-in-kind from the NFPs, while Biodiversity provided the layout and printing. The updated EURISCO fact sheets are now translated into the following languages: Azerbaijani, Croatian, Czech, Danish, German, Norwegian, Romanian, Slovak and Turkish, and will be available on the EURISCO Web site.

The Web site redesign and the database updating (technology wise), on the agenda for sometime, are in progress and well advanced. The estimated date of release is planned for the end of 2007.

A few facts:

The monitoring of visitors' log on assesses who is looking for EURISCO data, when, how often and from where. It provides useful feedback to data providers and the Catalogue management, contributing to adjusting the contents and aims of the Catalogue and to helping to better respond to the users' needs. This important exercise is finally bridging the gap that, for

too long, has separated the genebank community and the germplasm user community.

There has been a marked increase in the number of visitors to the Catalogue. This increase reflects the added impact of the Catalogue as a one stop shop for accession level information on the material maintained in European *ex situ* collections, as well as on the countries' National Inventories it makes available.



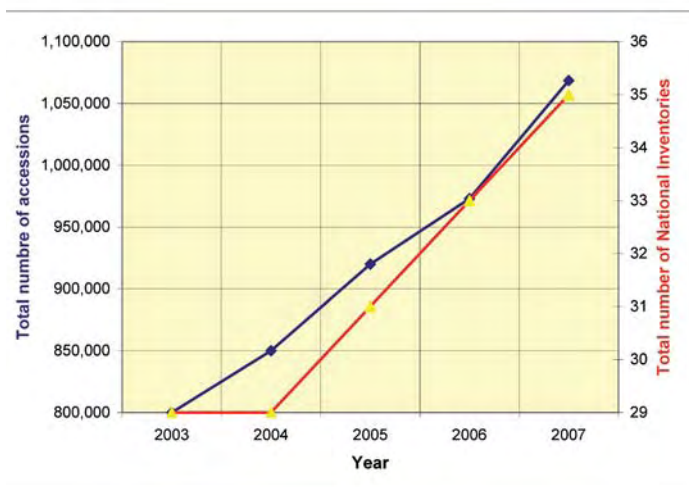
Year	# Hits	# Page Viewed	# Visitors	Size
2005	31,225	11,498	599	441.32 MB
2006	79,903	36,703	2,401	937.76 MB
2007	111,730	54,378	5,229	1.54 GB
Total	222,858	102,579	8,229	-

Since 2006, there has been a decrease in the "average time per session". A possible explanation could be that there has been an increase in the number of repeated users who have familiarized with the Catalogue and who are thus able to more rapidly access and view the information they are looking for.

	All days to Nov. 06	All days to Sept. 07
Total accesses	21,364	60,424
Sessions by repeated users	4,272	18,003
Total sessions users	1,617	6,612
one-time users	1,099	4,191
repeated users	518	2,421
Six+-time users	177	674
Average accesses (time) per session	3.98	2.72

The general interest in the Catalogue is also geographically expanding. It is now being accessed from a total of 125 countries, compared to 68 countries in 2006.

(continued on page 15)



Going Global - info4seeds

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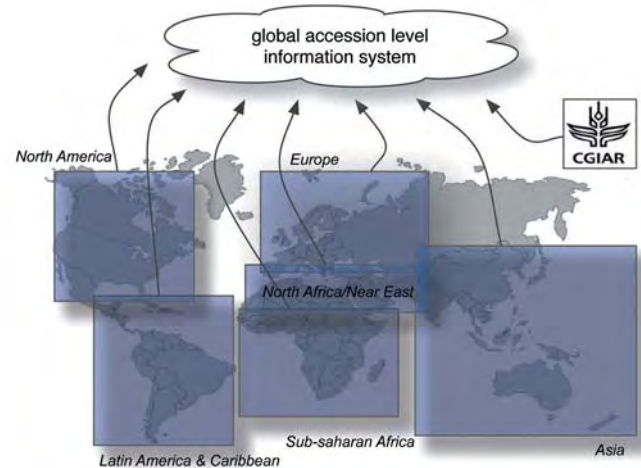
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Linking and integrating genebank information on a global scale is no longer a dream but rather a reality.

Today there are approximately 1500 genebanks or germplasm collections worldwide, housing some 6 million accessions. Only a fraction of this total can be easily accessible over the Internet through individual genebank Web sites or existing dedicated portals such as the CGIAR System-wide Information Network for Genetic Resources

– SINGER, the European Plant Genetic Resources Search Catalogue – EURISCO and the Germplasm Resources Information Network – GRIN, USDA. The challenge set for the international community of genebank information experts is to make accession level information data readily accessible to scientists. Such an information network should allow any genebank willing to share accession level information to easily join an international network of information providers in the simplest and most cost effective manner.

With the recent and rapid changes in information technology, the development of a Global Information System on Plant Genetic Resources, as called for by Article 17 of the International Treaty on Plant Genetic Resources (ITPGRFA), could proceed more rapidly at the genebank community level by taking other successful



Graphic: Possible role of regional information networks in support of the global accession level information system.

information systems, such as the Global Biodiversity Information Facility (GBIF), as a source of inspiration. This provides the opportunity to establish a sustainable global communication and information access network linking dedicated portals and individual genebanks to information providers.

Since 2007, Bioversity International has embarked on such a challenge. It is developing such a global informatics platform or Accession Level Information System – ALIS. Based on existing Biodiversity Information Standards (TDWG) standards and tools, ALIS will take inspiration from the existing successful GBIF Portal implementation projecting it to a myriad of information

providers. With the recent financial support of the Global Crop Diversity trust, ALIS is expected to develop and grow faster than anticipated.

By the end of 2010, ALIS should provide a global entry point to information on more than 4 million accessions held in genebanks worldwide. This unique effort would be an essential tool to breeders and researchers seeking germplasm with valuable traits and characteristics. Finally, ALIS should be seen as a key contribution to the implementation of a coherent Global Information System in the framework of the ITPGRFA.

EURISCO moves forward cont.

(continued from page 14)

The increase in the number of NIs in the Catalogue, currently holding data on 35 National Inventories, as well as the quantity and quality of accession level data made available through the Catalogue, is a reflection of the overall success of this regional network that is bridging the gap between data holders and users at the global level, representing more than half of the *ex situ* accessions maintained in Europe and roughly 18% of total worldwide holdings.

EURISCO, considered one of the most successful and sustainable examples from which to learn, will therefore be one of the elements for the global Accession Level Information System (ALIS) on Plant Genetic Resources, (see article “Going Global - Info4seeds” on page 15).

Starting in 2008 and for the following five years, EURISCO work will turn the page. It will focus on the future road map, i.e. development, deployment and sustainable support to the EURISCO network.

The Heritage Seed Library - Heritage and heirlooms in the home garden

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Plant breeders should be flattered by the idea that their creations might rank alongside the works of Matisse, Rembrandt or Van Gogh. Lawrence D. Hills, the founder of Garden Organic, UK (first registered as a charity in 1958 with the name Henry Doubleday Research Association) described them just so, works of creative art by nature as well as by the breeder, making that one of the reasons why he started to collect and save old varieties of vegetables in the 1970s. He was just as interested in traditional "peasant" varieties and landraces and sought to track down as many of these as he could, fearing the effect on non-commercial varieties of the then recently adopted European Directive on Marketing of Seeds. Hills died in 1991, the same year that Garden Organic, now Europe's largest organic gardening organization with 41 000 members, launched the Heritage Seed Library (HSL), allowing gardeners access to these rare treasures by membership, and, in so doing, ensuring their future.

The collection focuses on vegetables suited to a northern European climate that are rare or unavailable. Some of these varieties, such as the Martock bean, a *Vicia faba* landrace dating possibly from the 13th century, have reached



Promoting awareness - lettuces on display to the public.
Photo: Garden Organic (HDRA), Coventry, UK

us through several centuries of careful seed saving; others were once popular cultivars now fallen from favour from gardening or commercial catalogues. A surprisingly high number, however, have never been listed in any catalogue but are the result of selection by home gardeners, lovingly maintained often over several generations. The collection now has over 800 varieties of vegetables (excluding potatoes), several hundred more donations waiting to be evaluated and a membership of 11 500. For their membership they receive six packets of seed annually from a catalogue that is sent out in December. They have until March to order and then the shop closes for the summer. The catalogue is not a simple listing of varieties. Each entry includes, where possible, fascinating anecdotal history from the donors and observations from members as to their experience of growing and, perhaps more importantly, eating them. It is interesting to note that about half the members do not order seed, an indication of how readily British gardeners have understood the issues and seen the need to support our conservation work as a principle without wanting any benefit in return.

Garden Organic can never hope to conserve everything. Our aim for HSL is to collect a good selection of rare and endangered vegetable varieties and make them available to the

public to grow in their natural environment, i.e. gardens, as widely as possible. Our current facilities are relatively new and allow us to clean and dry seed effectively, as well as keeping them in cool (but not cold) storage. The Genetic Resources Unit at nearby Warwick HRI keep a sample of everything we collect in a "black box" facility at -20°C. We produce seed at our own headquarters site at Garden Organic Ryton and are keen to find funding to enable us to make use of vacant land at another of our sites at Yalding in Kent, to increase seed production and assess more of our recent donations of seed. Essential to our ability to supply members is our team of around 300 volunteer Seed Guardians. Each takes responsibility for one or more varieties and sends in bulk quantities of seed to supply to members.

Garden Organic is not alone in Europe as an NGO in this field. Arche Noah in Austria, ProSpecieRara in Switzerland and Sesam in Sweden amongst others are conserving large collections in a similar way. Between us we are generating a great deal of new activity, encouraging tens of thousands of home gardeners to take part voluntarily in genetic conservation.

www.gardenorganic.org.uk



A basket of genetic bounty - some tomatoes from the HSL collection.
Photo: Garden Organic (HDRA), Coventry, UK

First European DIVERSEEDS workshop

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The European Commission (FP6) funded project DIVERSEEDS is establishing a communication platform for European and Asian researchers to discuss current challenges for the conservation and use of plant genetic resources. DIVERSEEDS has ten partners from three regional sub-groups in Southeast Asia, China and Europe. Each subgroup held a first regional workshop to define and discuss relevant PGR-issues and ways to improve interaction between

the regions. The European workshop was held in Ljubljana, Slovenia on 5 October 2007 immediately after the third meeting of the ECPGR On-farm Conservation and Management Task Force, and shortly after the two Asian DIVERSEEDS workshops took place in Beijing and Hanoi. The workshops are a preparatory step towards the first international DIVERSEEDS meeting to be held in December 2007 at Bioversity headquarters in Rome, in cooperation with the ECPGR Inter-Regional Cooperation Network (IRCIN). At the international meeting priority issues will be pre-selected/identified for an inter-regional discussion. Close cooperation between

DIVERSEEDS and the IRCIN, and the integration of existing regional networks in Europe (ECPGR), South East Asia (RECSEA) and China (EAPGR) is important to further improve the dialogue on conservation and use of PGR between Europe and Asia. Also part of DIVERSEEDS is an open on-line conference to be held at the beginning of 2008 to discuss the pre-selected PGR issues with a wider group of experts.

Further information is available from the Project coordinator Markus Schmidt (markus.schmidt@idialog.eu), the Bioversity contact person Jan Engels (j.engels@cgiar.org) or the Project Web site (www.diverseeds.eu).



Diversity of vegetables sold in the local market of a small town in northern Vietnam.
Photo: M. Schmidt, International Dialogue and Conflict Management, Vienna, Austria

DIVERSEEDS project partners:

- International Dialogue and Conflict Management, Biosafety Working Group (Austria);
- University of Natural Resources and Applied Life Sciences; Vienna (Austria);
- University of Birmingham, School of Biosciences (UK);
- University of Kassel (Germany);
- Israeli Gene Bank for Agricultural Crops, Volcani Center (Israel);
- Institute of Botany, Chinese Academy of Sciences (China);
- Chinese Academy of Agricultural Sciences (China);
- Khon Kaen University (Thailand);
- Hanoi Agricultural University and CARES (Vietnam);
- Bioversity International.

Diversity flourishing in European home gardens

(continued from page 1)

However, many of these laws and policies may need to be modified to allow for the small scale of home gardens and the fact that household consumption and local exchange remain the key motives for growing diversity in home gardens. It was agreed that knowledge of the value and existence of home gardens in Europe is not sufficiently widespread among the scientists and that a systematic survey is needed. This should include descriptive studies of home gardens' potential as well as threats to survival in different geographic and climatic areas of Europe, in order to know what exists, who maintains it and the level of genetic diversity involved. Home gardens management practices, their sustainability and the linkage to other production and seed systems should also be investigated.

Home gardens research was thought to be in line with several elements currently recommended by the EU policy for research, such as: i) organic agriculture and low input systems; ii) Neglected and underutilized crops for new and novelty niches, e.g. in the health sector; and iii) understanding the role of biodiversity in plant systems and agrarian landscapes. The multi-functionality of home gardens was also stressed, ranging from nutrition, recreation, environmental benefit, landscape management, ecotourism and treatment of illness. The educational aspect was also highlighted, considering the link between land management and local culture, including food culture. Above all, the unique genetic diversity that is maintained in home gardens cannot be found anywhere else.

Participants resolved to develop a European-wide research agenda to be implemented over the next five years. There is still time to save this precious bio-cultural resource but the pace of change is also accelerating. Participants are seeking partnerships and funding for this research agenda and will increase their efforts to communicate to the public and policy makers on this important issue.

The proceedings of the meeting will be published by Bioversity International.

5th Planta Europa Conference and meeting of the Bern Convention Group of Experts on the Conservation of Plants

The 5th Planta Europa Conference, hosted on 5-9 September in the pleasant university town of Cluj-Napoca, Romania, reviewed the European Plant Conservation Strategy (EPCS), which is ending in 2007. The launch of a new Strategy was discussed, to be more aligned with the Global Plant Conservation Strategy, including feasible targets and suitable leaders for specific actions.

The conference was attended by ca. 150 participants from all over Europe, including representatives from Botanical Gardens, University Departments of Botany and other organizations focused on wild plant conservation. Strategic coordination during the meeting was offered by staff of Plantlife International.

The new Strategy, drafted with the contribution of Working Group sessions, will cover the period 2008-2014, with a first review in 2010. The Strategy document will be finalized towards the end of 2007, focusing on five objectives:

- 1) Understanding and documenting plant diversity;
- 2) Conserving plant diversity;
- 3) Sustainable use of plant diversity;
- 4) Awareness and education for plant diversity; and

5) Capacity building for plant conservation.

The standpoint of the PGRFA community was presented during the sessions by Nigel Maxted, University of Birmingham, UK and Lorenzo Maggioni, ECPGR Coordinator, whose presentations raised interest and awareness of the need to initiate closer dialogue between wild plant and PGRFA communities. The intention is to raise the profile of crop wild relatives (CWR) and landraces in the frame of the EPCS. A number of points in this direction were picked up during the conference. In particular, some actions planned by the ECPGR *In situ* and on-farm conservation Network that are being implemented by the recently EC 870/2004 funded AEGRO project were included in the EPCS and this Network was indicated as the potential leader for the target of "Establishing 25 European crop wild relative genetic reserves covering the major hotspots of species and genetic diversity", with the following activities: 1) Establish a baseline of genetic diversity for priority crop complexes of European socio-economically important wild species; 2) Assess genetic diversity change against time for European socio-economically important

wild species; 3) A preliminary list of crop wild relative *in situ* hotspots of species and genetic diversity at national and European levels; 4) Gap analysis review of *ex situ* holdings of European crop wild relative species; 5) Prepare a European inventory of traditional, local crop landrace varieties; 6) Prepare a priority list of European crop wild relatives. and the need to make passport data of all *ex situ* wild plant collections available on-line was also recommended as an action. This will be an opportunity for a proactive collaboration between the ECPGR Secretariat and Planta Europa to promote the inclusion of these data into EURISCO.

The meeting of the Bern Convention Group of Experts on 6 September 2007 had two main topics on the agenda: invasive species and conservation of mushrooms in Europe. A number of recommendations on the control or eradication of invasive species were presented, including proposed lists of invasive and potentially invasive animal, plant, fungi, micro-organisms and virus species. These will be submitted for approval to the Standing Committee of the Bern Convention in November 2007.

A paper on mushroom conservation in Europe, presented by Beatrice Senn-Irllet, Switzerland, raised the issue of the need to consider fungi conservation in land management plans, particularly of forest land.

Further information on Planta Europa can be found at: www.plantaeuropa.org. A consultation document can be viewed at: www.plantaeuropa.org/assets/publications/consultation-draft-ESPCnov%2012.pdf. Readers' comments are invited on this document (seona.anderson@plantlife.org.uk).



Melampyrum bihariense A. Kerner, an endemic plant of Romania.
Photo: L. Maggioni, Biodiversity International

Forthcoming meetings

3-7 March 2008

ICUC International Symposium on "Underutilized plants for food, nutrition, income and sustainable development". Arusha, Tanzania.
www.icuc-iwmi.org/Symposium2008/index.htm

13-18 April 2008

5th International Crop Science Congress. Jeju Island, Korea.
www.crops2008.org

20-24 April 2008

XII International Symposium on Virus Diseases in Ornamentals. Haarlem, The Netherlands.
www.plantenvirologie.nl

13-15 May 2008

EUCARPIA Tomato Working Group meeting. Wageningen, The Netherlands.
www.eucarpiatomato2008.org

19-30 May 2008

9th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP-9). Bonn, Germany.
www.cbd.int/meetings/default.shtml

21-24 May 2008

EUCARPIA Cucurbitaceae Working Group meeting. Avignon, France.
www.inra.fr/cucurbitaceae2008

27-29 May 2008

IUFRO Forest Technology and the Environment (3rd FORTECHENVI Conference). Praha, Czech Republic.
www.icv.mendelu.cz/fortechenvi

11-15 August 2008

IVth International Conference on The Comparative Biology of the Monocotyledons; Vth International Symposium on Grass Systematics and Evolution. Copenhagen, Denmark.
www.monocots4.org

Introducing...

The Regional office welcomes Ewa Hermanowicz. Ewa joined the Europe team in August 2007 as half-time Programme Assistant to the EUFGIS project (Establishment of a European Information System on Forest Genetic Resources), which is co-funded by the European Commission. In this position, Ewa will provide support for the project administration, liaise with project partners and prepare visual presentations and public awareness materials. She will also provide logistical support for project meetings and interact with external agencies.

Ewa is a Polish national. She holds a M.Sc. in International Cooperation and European Union Policies (Roma Tre, Italy) and a Master of Art in Foreign Languages and Literature (La Sapienza, Italy and University of Gdansk, Poland). She also has a DAFA Diploma in Economic Studies (Chambre de Commerce et d'Industrie de Paris). Prior to joining Bioversity, Ewa worked as Programme Assistant at the CGIAR Science Council Secretariat at FAO in Rome. More recently Ewa undertook a consultancy for FAO, enriching the Education for Rural People Tool Kit with about 50 CGIAR learning materials and gave seminar on this during the Workshop on interaction between research, education and innovation (knowledge triangle). Ewa is fluent in English, French and Italian.



Farewell...

The Regional Office for Europe bids farewell to Monika Kiczakajlo after a one-year assignment. Monika joined the Regional Office for Europe in September 2006 for an internship as part of her Master in Business Administration studies at the University of Malta Link Campus in Rome. The internship gave Monika an opportunity to study change management in an international non-profit organization, which was the subject of her thesis.

During her time with the Regional Office for Europe, Monika played a major role in the logistic and technical preparations for the Second European Workshop on National Plant Genetic Resources Programmes that took place in Luxembourg in November 2006. In the follow-up process, she developed and submitted a research idea for an EU-funded COST action on pgr policy frameworks in Europe. More recently Monika assisted in developing the dissemination activities within a research project on the functional properties for nutrition and health of germplasm stored at the N.I. Vavilov Institute (VIR), St. Petersburg (see article on page 7), coordinated by Pablo Eyzaguirre (Bioversity International).

Monika holds an MA degree in European studies from the Faculty of Political Science in Bialystok, Poland. In October 2007 Monika moved to Brussels where she started a traineeship in the area of International Cooperation in research and technology at the European Commission.

Publications and announcements www.bioversityinternational.org/Publications/index.asp

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Letter from the Regional Director for Europe

Dear Reader,

In recent years climate change, if not without controversy about the predicted scenarios, has received broad attention and has been accepted by the general public as a reality. It has been a mainstream policy issue in Europe during the past few years and has been highlighted by different regional fora, most recently by the Fifth Ministerial Conference on Forests in Europe (see article on page 9 in this issue).

The PGR community in Europe has taken initiatives to review the present state of knowledge about possible implications of climate change for the management of plant genetic diversity. Both EUFORGEN and ECPGR organized thematic cross-cutting workshops on climate change last year (the latter focusing on northern Europe; see NL33, page 3).

As highlighted during these workshops, average temperature is predicted to increase by 2-4 °C in Europe over the next 50 years. This change is

likely to be more rapid than previous changes experienced by natural populations of plants. The increase will cause considerable changes in regional and seasonal patterns of precipitation. Altered climate patterns will certainly have significant effects on agriculture and forestry, including new relationships between plants and animals in ecosystems, through soil fertilization and different interactions with pests and diseases.

Plant genetic diversity plays a key role in helping agriculture and forestry to adapt to climate change. The levels and patterns of genetic variation within species determine their potential to adapt to changes in the environment. Some species are so plastic that they can withstand substantial changes, whereas others might migrate to more suitable conditions. Widely-distributed plant species in Europe are unlikely to face extinction at the species level due to climate change, but local populations may decline, especially at the margins of the

distribution ranges. As climate change is not only a threat to species and their populations, the wise use of genetic diversity provides opportunities to accelerate adaptation strategies, especially through plant breeding and transfer of genetic materials.

The main outcome of the ECPGR and EUFORGEN workshops was the recognition of the research challenges that climate change brings with it, regarding plant physiology, genetics, ecology, pathology, about the quality and nutritional aspects of genetic resources. Ecosystem genetics and genomics is also an emerging discipline, pioneered by EVOLTREE (see page 11). The consequences of climate change need to be analyzed in a multidisciplinary, holistic manner. Proactive research must take place now so that European and other countries can better manage the consequences. Good communication and cooperation between research and policy making is critical, in order to effectively implement adaptation and mitigation strategies to climate change. Policy needs to formulate clear demands to the research community.

The proceedings of both workshops have been published and are now available from Bioversity.

New look for the Newsletter

The paper we are using to print this issue of the Newsletter for Europe is whiter, however, it is more environmentally friendly than the previous paper and is less expensive. It also absorbs less ink. This means that we get better, brighter images while producing a lighter Newsletter that will also save on postal costs.

We hope that our readers will appreciate the new look and feel of the Newsletter, as well as our drive to perform more economically/efficiently.

Your comments are welcome by Email at:
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Photo: L. Maggioni, Bioversity International

**Season's Greetings from
the Regional Office
for Europe**