

Report of a Task Force on On-farm Conservation and Management

Second Meeting, 19-20 June 2006, Stegelitz, Germany
A. Del Greco, V. Negri and N. Maxted, *compilers*





Report of a Task Force on On-farm Conservation and Management

Second Meeting, 19-20 June 2006, Stegelitz, Germany
A. Del Greco, V. Negri and N. Maxted, *compilers*

Bioversity International is an independent international scientific organization that seeks to improve the well-being of present and future generations of people by enhancing conservation and the deployment of agricultural biodiversity on farms and in forests. It is one of 15 centres supported by the Consultative Group on International Agricultural Research (CGIAR), an association of public and private members who support efforts to mobilize cutting-edge science to reduce hunger and poverty, improve human nutrition and health, and protect the environment. Bioversity has its headquarters in Maccarese, near Rome, Italy, with offices in more than 20 other countries worldwide. The Institute operates through four programmes: Diversity for Livelihoods, Understanding and Managing Biodiversity, Global Partnerships, and Commodities for Livelihoods.

The international status of Bioversity is conferred under an Establishment Agreement which, by January 2007, had been signed by the Governments of Algeria, Australia, Belgium, Benin, Bolivia, Brazil, Burkina Faso, Cameroon, Chile, China, Congo, Costa Rica, Côte d'Ivoire, Cyprus, Czech Republic, Denmark, Ecuador, Egypt, Greece, Guinea, Hungary, India, Indonesia, Iran, Israel, Italy, Jordan, Kenya, Malaysia, Mali, Mauritania, Morocco, Norway, Pakistan, Panama, Peru, Poland, Portugal, Romania, Russia, Senegal, Slovakia, Sudan, Switzerland, Syria, Tunisia, Turkey, Uganda and Ukraine.

Financial support for Bioversity's research is provided by more than 150 donors, including governments, private foundations and international organizations. For details of donors and research activities please see Bioversity's Annual Reports, which are available in printed form on request from bioversity-publications@cgiar.org or from Bioversity's Web site (www.bioversityinternational.org).

The European Cooperative Programme for Plant Genetic Resources (ECPGR) is a collaborative programme among most European countries aimed at facilitating the long-term conservation and the increased utilization of plant genetic resources in Europe. The Programme, which is entirely financed by the member countries and is coordinated by Bioversity International, is overseen by a Steering Committee composed of National Coordinators nominated by the participating countries and a number of relevant international bodies. The Programme operates through nine networks in which activities are carried out through a number of permanent working groups or through *ad hoc* actions. The ECPGR networks deal with either groups of crops (cereals; forages; fruit; oil and protein crops; sugar, starch and fibre crops; vegetables, medicinal and aromatic plants) or general themes related to plant genetic resources (documentation and information; *in situ* and on-farm conservation; inter-regional cooperation). Members of the working groups and other scientists from participating countries carry out an agreed workplan with their own resources as inputs in kind to the Programme.

The geographical designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of Bioversity or the CGIAR concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries. Similarly, the texts and taxonomic definitions in these proceedings reflect the views of the respective authors and not necessarily those of the compilers or their institutions.

Mention of a proprietary name does not constitute endorsement of the product and is given only for information.

Citation:

Del Greco, A., V. Negri and N. Maxted, compilers. 2007. Report of a Task Force on On-farm Conservation and Management. Second Meeting, 19-20 June 2006, Stegelitz, Germany. Bioversity International, Rome, Italy.

Cover illustration: Field of 'A pisello' common bean (*Phaseolus vulgaris* L.) landrace grown in Central Italy (Colle di Tora, Rieti province). Courtesy of © V. Negri, University of Perugia.

Acknowledgements to Dr L. Currah for English language editing and to E. Lipman and L. Maggioni for their contribution to the compilation.

ISBN: 978-92-9043-746-8

Bioversity International
Via dei Tre Denari 472/a
00057 Maccarese
Rome, Italy

© Bioversity International, 2007

CONTENTS

SUMMARY OF THE MEETING	1
Introduction	1
<i>Welcome addresses and opening remarks</i>	1
<i>Briefing on ECPGR Phase VII</i>	2
Tasks agreed at Isola Polvese meeting and progress made	4
<i>Directory of organizations and individuals</i>	4
<i>Seed legislation systems in the EC and support to on-farm conservation</i>	4
<i>On-farm conservation issues in Europe</i>	6
<i>On-farm conservation issues in Europe – The Nordic area</i>	8
<i>Historical inventories</i>	9
Public awareness	10
<i>The role of Bioversity and Network members</i>	10
Methodologies for the creation of National/European inventories	11
<i>Introduction</i>	11
<i>What is a landrace?</i>	14
<i>What constitutes landrace diversity?</i>	15
<i>Scope of a landrace inventory</i>	15
<i>How to collate information on landrace diversity?</i>	17
<i>Data collated for a national landrace inventory</i>	18
<i>Post-inventory follow-up</i>	19
Towards a more comprehensive definition of “landrace” than currently published	19
National experiences	21
<i>Twenty years of participatory maize breeding (Portuguese landraces) in the Sousa Valley, Portugal</i>	21
<i>On-farm conservation of fruit tree genetic resources in Belgium: a case study of the development of orchards network in the Walloon Region</i>	21
<i>On-farm management work in northeastern Germany</i>	22
<i>On-farm conservation of Romanian traditional crop varieties and landraces</i>	23
International projects funded/submitted	24
ONFARMSAFE	24
EGRISI	25
AEGRO	26
Development of new projects	27
Redefine tasks, responsibilities and time frame	28
Conclusion - Endorsement by the group of the progress report form to be addressed to the ECPGR Secretariat and the Steering Committee	29
APPENDICES	31
Appendix I. Workplan of the Task Force on On-farm Conservation and Management	32
Appendix II. Progress report of the Task Force on On-farm Conservation and Management for the period 2004-2006	34
Appendix III. Acronyms and abbreviations	37
Appendix IV. Agenda	38
Appendix V. List of participants	40

SUMMARY OF THE MEETING

Introduction

Welcome addresses and opening remarks

The second meeting of the ECP/GR¹ Task Force on On-farm Conservation and Management, organized in collaboration with the Landesumweltamt Brandenburg (LUA), was held in Stegelitz, near Magdeburg, Germany on 19-20 June 2006.

The first section of the meeting was opened and chaired by Nigel Maxted, Coordinator of the ECPGR *In situ* and On-farm Conservation Network. All members introduced themselves, providing specific information on their fields of interest and work. It was noted that since the last meeting of the On-farm Conservation and Management Task Force (TF), held in 2000 at Isola Polvese, Italy², the majority of the group members have changed.

Rudolf Vögel, local organizer of the meeting, welcomed the participants.

During his opening remarks, N. Maxted stressed the fact that landraces are undoubtedly the most threatened element of biodiversity in most countries. This rather bold statement is justified by the following facts:

- a. We have no idea how many landraces of traditional seed-saved varieties are present in any country, as there are no complete national inventories of landraces.
- b. With each year the current maintainers of these landraces are dwindling, since they are often maintained by older people who are literally dying off, and the landraces with them.
- c. In many countries currently no one agency has responsibility for landraces' inventory or conservation. For example in the UK, it is outside of the remit of all the UK conservation agencies and although the Department for the Environment, Food and Rural Affairs (DEFRA) funded a pre-inventory study, no funds are available to complete the inventory, let alone to ensure the material is conserved (even if only *ex situ*).
- d. Unless action is taken immediately, loss of landraces will continue and is likely to become exponential with time.
- e. Landraces represent a real economic resource in terms of maintaining our options for the future, e.g. to deal with climate change and breeders' needs, to meet local consumer demand, etc.

Therefore, such a meeting to focus on on-farm conservation of European landraces was very timely; however, N. Maxted stressed that networking alone was not an end in itself, and that there is need for conservation action if European landraces are to be conserved for future generations, to ensure wealth creation and crop sustainability in times of ecological uncertainty.

¹ Following the decision of the Tenth Meeting of the ECPGR Steering Committee in September 2006, the name of the Programme was simplified to "European Cooperative Programme for Plant Genetic Resources" and the acronym was also modified to "ECPGR", removing the traditional slash of "ECP/GR".

² Laliberté, B., L. Maggioni, N. Maxted and V. Negri, compilers. 2000. Report of a joint meeting of a Task Force on Wild Species Conservation in Genetic Reserves and a Task Force on On-farm Conservation and Management, 18-20 May 2000, Isola Polvese, Italy. International Plant Genetic Resources Institute, Rome, Italy.

Briefing on ECPGR Phase VII

On behalf of the ECPGR Secretariat, Aixa Del Greco explained that the ECPGR entered its VIIth Phase (2004-2008) with certain modifications made to the structure and mode of operation by the Steering Committee at its last meeting in Izmir, Turkey, in October 2003.

The Steering Committee endorsed four priority areas for Phase VII: 1) Characterization and evaluation; 2) Task sharing; 3) *In situ* and on-farm conservation; and 4) Documentation and information. The Steering Committee requested each Network to identify a Network Coordinating Group (NCG). The *In situ* and On-farm Conservation Network selected six people as members of the NCG:

Nigel Maxted, Birmingham, United Kingdom (Network Coordinator)

Lothar Frese, Braunschweig, Germany

Paul Freudenthaler, Linz, Austria

José Iriondo, Madrid, Spain

Valeria Negri, Perugia, Italy

Zdeněk Stehno, Prague, Czech Republic

The first task of the NCG was to make proposals, in consultation with Network members, for actions on the basis of an allocated budget of about 42 000 euro. As a result of this exercise, carried out during 2004, the following use of funds was eventually approved by the Task Force on On-farm Conservation and Management, chaired by Valeria Negri:³

- On-farm TF meeting I – June 2006 (11 000 euro)
- On-farm TF meeting II – Sept. 2007 (12 600 euro)
- European Home garden / on-farm conservation meeting (7500 euro) – (2007)
- Publication of “European landrace conservation” in Bioversity Technical Bulletin series (former IPGRI Technical Bulletin series⁴) (5000 euro)
- Non-governmental organizations (NGOs) and plant genetic resources (PGR) network meeting (5000 euro).

For further information on ECPGR, the ECPGR Web site can be consulted, where several reference documents are available, including the Networks’ budgets and the Terms of Reference for the ECPGR operational bodies. A specific Web page will also be dedicated to the Task Force on On-farm Conservation and Management and this can be improved with the help of TF members and to meet the needs of the TF.

At a meeting of all the ECPGR NCGs, held in Bonn, March 2006, the following progress of the TF was documented:

- ONFARMSAFE (*On-farm safeguard of plant genetic resources*) project submitted/resubmitted;

³ In September 2006 the ECPGR Steering Committee revised the Network budgets and the funds allocation was eventually refined by the Network as follows:

- On-farm TF meeting I – June 2006 (9264 euro)
- On-farm TF meeting II combined with Home garden workshop – Sept. 2007 (19 000 euro)
- Publication of “European landrace conservation” in Bioversity Technical Bulletin series (5000 euro)
- Publication of “European landrace conservation Case Studies” (2000 euro)
- NGO and PGR network meeting (5000 euro)

⁴ With effect from 1 December 2006, IPGRI and INIBAP operate under the name “Bioversity International”, Bioversity for short. This new name echoes their new strategy, which focuses on improving people’s lives through biodiversity research.

- Directory of on-farm conservation organizations and individuals produced;
- Information regarding seed legislation collected;
- Draft descriptors for the documentation of on-farm conservation and management produced; and
- Methodologies for the conservation of traditional varieties involving farmers and local communities drafted.

At the same meeting, the Crop Networks were asked to indicate their needs and suggestions for collaboration with the *In situ* and On-farm Conservation Network.

The following areas were identified (in brackets the responses of the Network):

- Increase public awareness (use of Web site and newsletters);
- Promote the use of *in situ* conserved material (a project ONFARMSAFE will be submitted and a stakeholder survey will be carried out);
- Establish systematic links between Crop Networks and the *In situ* and On-farm Conservation Network (to make use of meetings and personal contacts);
- Develop *in situ* methodologies (done and continued through the ONFARMSAFE project); and
- Document and analyze genetic change.

At the Bonn meeting, the following additional actions to the existing workplan were planned:

- Actions associated with current project applications;
- Possibility of joint meeting with Crop Networks in 2008;
- Stakeholder/user survey; and
- Minor changes to the budget needed.

Finally, the following suggestions were made for ECPGR Phase VIII (2009-2013):

- Carry out ONFARMSAFE (*On-farm safeguard of plant genetic resources*) project;
- Carry out EGRISI (*European Genetic Resources In Situ Inventory*) project;
- Carry out AEGRO (*An integrated European in situ management workplan: implementing Genetic Reserves and On-farm concepts*) project;
- Produce new Web pages and newsletters; and
- Organize Task Force meetings.

A Network budget of 82 000 euro was considered desirable and put forward for the attention of the ECPGR Steering Committee.

Discussion

N. Maxted provided more detailed information about the project on genetic erosion, which would be focused only on developing countries, and is currently under development in partnership with Bioversity.

He then proposed that something similar but in the context of the European region could be formulated for submission as a project proposal under Framework Programme VII. Many participants showed their interest in participating in this new proposal.

Tasks agreed at Isola Polvese meeting and progress made

Directory of organizations and individuals

Valeria Negri, Chair of the Task Force, fully agreed with N. Maxted on the exponential loss of biodiversity in general and of landrace diversity in particular. In her opinion there is a pressing need to increase public awareness about the importance of conservation and to strengthen action in on-farm conservation. She asked the ECPGR Secretariat about the possibility of publishing a Web page entirely dedicated to the Task Force, in order to present an outline of on-farm conservation issues, case studies and general activities in Europe. In her opinion the Web is the easiest means to use for increasing public awareness and facilitating contact among possible stakeholders.

About the specific topic to be presented at this point on the agenda, she recalled that it had been one of the tasks agreed during the meeting at Isola Polvese (2000) and pointed out that she had prepared and sent to the ECPGR Secretariat a list of individuals and institutions involved in on-farm conservation soon after that meeting. This directory was intended to spread information about on-farm conservation aims and activities and to help information exchange among stakeholders about on-farm experiences and related problems. This could also facilitate planning of on-farm conservation actions, improve efficiency of ongoing actions and generally lead to a wider cooperation on the issue of conservation than was presently occurring. The directory was supposed to be published on the Web by ECPGR. However, this was not uploaded, owing to privacy issues. A copy of the list of addresses was recently sent to the ECPGR Secretariat for revision.

V. Negri said that the idea of facilitating contacts among stakeholders now has even greater value than six years ago. She asked the opinion of the Task Force on the subject and also on the possible willingness of Bioversity and ECPGR to cooperate.

Seed legislation systems in the EC and support to on-farm conservation

Paul Freudenthaler mentioned that the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) states:

“Article 6 - Sustainable Use of Plant Genetic Resources

6.1 The Contracting Parties shall develop and maintain appropriate policy and legal measures that promote the sustainable use of plant genetic resources for food and agriculture.

6.2 The sustainable use of plant genetic resources for food and agriculture may include such measures as:

...

(g) reviewing, and as appropriate, adjusting breeding strategies and regulations concerning variety release and seed distribution”.

In the European Community, to market seeds which are covered by the Seeds Directives about marketing of seeds, a seed certification or registration is needed. Thus marketing of seeds is only allowed if the variety is listed in the Common Catalogue for agricultural plants or in the Catalogue for vegetable plants and the seed lot meets the quality standards. It is not permitted to market seeds of varieties or ecotypes which are not listed in a Common Catalogue or which have already been removed from this.

Therefore in 1998 the European Council decided that genetic resources which are threatened by genetic erosion and adapted to local or regional conditions can be marketed under specific conditions (Council Directive 98/95/EC of 14 December 1998):

“ ...

(17) Whereas it is essential to ensure that plant genetic resources are conserved; whereas a legal basis to that end should be introduced to permit, within the framework of legislation on the seed trade, the conservation, by use in situ, of varieties threatened with genetic erosion;

...

Article 22a

1. Specific conditions may be established in accordance with the procedure laid down in Article 21 to take account of developments in the areas of:

...

(b) conditions under which seed may be marketed in relation to the conservation in situ and the sustainable use of plant genetic resources, including seed mixtures of species which also include species listed in Article 1 of Council Directive 70/457/EEC, and are associated with specific natural and semi-natural habitats and are threatened by genetic erosion;

...

2. The specific conditions referred to in paragraph 1 shall include in particular the following points:

(i) in the case of (b), the seed of these species shall be of a known provenance approved by the appropriate Authority in each Member State for marketing the seed in defined areas;

(ii) in the case of (b), appropriate quantitative restrictions.”

The Standing Committee on Seeds of the European Community in Brussels has to set out these specific conditions. Drafts of these conditions were elaborated in 2002 and 2003. The draft is now under discussion. This draft reads:

- landraces and other genetic resources can be listed in the national catalogue as a “Conservation Variety” (CV) if it is adapted to local or regional conditions and if it is not listed in the common catalogue.

For acceptance of a variety it has to fulfil the requirements of stability, distinctness and uniformity (DUS). For varieties of plant genetic resources the member states may depart from these acceptance criteria.

- the CV should be maintained in the region of adaptation

It is planned, that varieties of plant genetic resources should be maintained in the region of origin or region of adaptation. Multiplying of seeds can be made in another region, if there are natural or technical obstacles (e.g. steepness in alpine regions). The applicant should describe the genetic resource in accordance with the UPOV guidelines. Unofficial tests can be used for the description of a variety.

- quantitative restrictions (at national level) for seed production

The member states have different views on the issue of quantitative restrictions. The current draft intends that Member States shall ensure that the quantity of seed for each conservation variety shall not exceed 0.1% of the seed of the same species utilized yearly in the Member State(s) for which it is intended. But some Member States prefer no quantitative restrictions.

- conditions for seed production:

For seed production field inspection (for varietal purity, weeds, diseases) and official tests on seed quality (germination, seed purity, diseases) are requested. For plant genetic resources this should be an option. But the seed lots have to meet the minimum standards. The seed lots have to be marked and sealed with a supplier label. The rules for packaging must be kept.

- *post-control (after the seed has been introduced in the market)*
To ensure minimum quality of seed (germination, purity) and to verify its varietal identity the national authorities have to make post-controls.

Conservation varieties are therefore possible for agricultural and vegetable crops.

For vegetable crops also, plant genetic resources described as “varieties with no intrinsic value for commercial crop production but developed for growing under particular conditions” can be registered as an “Amateur variety”. These varieties should also be listed in the national catalogue. These varieties have no specific region of origin or special adaptation. But their seed production should also have quantitative restrictions. Marketing of seeds from these varieties should be possible only in small packages.

“Preservation seed mixtures” should also be a part of these regulations. Region of origin and region for marketing should be the same. But little has been discussed about this in Brussels.

Final remarks

Regulations on the marketing of seeds from genetic resources should give the trade in seeds from plant genetic resources a legal basis. Their identity and high seed quality should be ensured.

If the regulations are not too bureaucratic and the procedure is not too complicated, encouragement of a trade in these seeds could be a good way to support the broader use and the utilization and on-farm conservation of plant genetic resources for food and agriculture.

Discussion

A copy of the “Critical Points” (DOC SANCO 2635/05, 5.4.2006) drafted by Marco Valvassori, EC responsible for the implementation of Directive 98/95, in preparation for the meeting of the Standing Committee on Seeds (10 July 2006) was distributed to all participants. P. Freudenthaler encouraged the members to raise any relevant points to be conveyed to Brussels for discussion during the next meeting of the Standing Committee.

Many members agreed on the opportunity to increase public awareness of on-farm conservation importance and the relevance of putting stakeholders in contact.

N. Maxted asked if seed companies really wished the seed legislation process to succeed, considering that they are powerful lobbies in Europe. P. Freudenthaler said that the situation differs from country to country, hence some in Germany are in favour, while others in Austria are not in favour of the new Directive.

It was noted that subsidies from governments to grow local varieties are often not provided (i.e. in the UK) since these varieties are not registered and, consequently, farmers are not at present supposed to be growing them.

Beate Schierscher-Viret explained that in Switzerland farmers are legally allowed to grow landraces, but they cannot commercialize more than 10 kg of seed per year. Should this amount be exceeded, the variety needs to be officially registered.

Béla Bartha (Director of the NGO Pro Specie Rara, Switzerland) explained that about 60 varieties of the NGO Pro Specie Rara are sold by the COOP Supermarkets chain.

On-farm conservation issues in Europe

Zdeněk Stehno explained that activities on plant genetic resources (PGR) on-farm conservation have been supported by documents at international level such as the Convention on Biological Diversity (CBD) and the Global Plan of Action (GPA) for the conservation and sustainable use of PGR.

More complete information on the present state of on-farm conservation in Europe and in the rest of the world is needed for further development. The amount and distribution of genetic diversity maintained by farmers, information on who maintains genetic diversity, what are the procedures to maintain genetic diversity on farms and what factors influence farmers' decisions to maintain traditional cultivars are important for the definition of possible recommendations for the future. Some of the measures that can support maintenance of genetic diversity on-farm can be listed as follows:

- promotion of positive and mitigation of negative impacts of agricultural systems on agrobiodiversity;
- keeping diversity in production systems;
- growing landraces and obsolete cultivars adapted to local conditions; and
- participatory plant breeding.

Support from the formal sector side is expected in the following areas:

- national plans and strategies for conservation and sustainable use of agricultural biodiversity;
- on-farm conservation methodologies; and
- strengthening of traditional resource rights and systems of benefit sharing.

Conditions for PGR on-farm conservation in Europe are very variable. Within the European territory there are very different pedoclimatic conditions; particular regions have distinct history and specific dietary habits, etc. Socioeconomic conditions in European regions also differ significantly. Considerable differences in farm size can be found among European countries, ranging from small farms at one extreme to large farms and former cooperatives on the other.

In Europe, as elsewhere, PGR on-farm conservation is mainly practised on small farms traditionally growing landraces or obsolete cultivars. In addition, organic farmers, outdoor museums and similar institutions can also play an important role in this activity.

Farmers can be motivated to cultivate landraces and old cultivars by highlighting certain advantages such as cultivar adaptability to local conditions, better quality of product, demand for local specific (niche) products, traditional home consumption, etc.

On the other hand, some constraints such as the increasing age of traditional farmers and the lack of willingness of the new generations to accept the older farming systems can negatively influence the further development of PGR on-farm conservation in Europe. Other factors such as the reduction in numbers of people working in agriculture, competition from highly productive "modern" cultivars, weak landrace seed supply, legislative constraints, low level of coordination and lack of incentives, all combine to influence negatively the conditions for on-farm conservation.

Additional measures which might support further progress in PGR on-farm conservation in Europe could be: monitoring of landraces and obsolete cultivars cultivated by farmers, which would enable us to obtain a survey of biodiversity maintained on farms; inclusion of on-farm diversity maintenance into national biodiversity strategies, which would offer a more stable background for this activity. Framework methodology for on-farm conservation of PGR would improve the scientific status of the work and equalize differences among particular farms. Economic analyses would help farmers to select crops and cultivars for conservation on farm. Increased public awareness might also contribute to improving the system of incentives for conservation of plant genetic resources on-farm.

On-farm conservation issues in Europe – The Nordic area

Merja Veteläinen reminded the group that the state of on-farm conservation within the Nordic area was reviewed by the Task Force on On-farm Conservation and Management in 2000. In a summary she updated the situation to year 2006.

There have not been any dramatic changes in on-farm conservation activities in the Nordic area since the last report. The survey from 2000 is still valid. However, some new activities have been started or documented during recent years. In Finland there is now a formal system that supports on-farm conservation of cereals and forages. There has not been a visible increase in the number of farmers carrying out cultivation of landraces or old cultivars (EVIRA register of on-farm contracts). However, a recent pre-study (Heinonen and Veteläinen 2007)⁵ showed that many farmers maintaining such material choose to remain outside the formal system. The reasons for the failure of a support system to attract farmers are under study during 2006-2009 and the work is being financed by the Ministry of Agriculture and Forestry in Finland and MTT. The results of the pre-study are presented during the present workshop.

In other Nordic countries there are no formal systems for on-farm conservation of crops. However, the national programmes for plant genetic resources are following up the developments in Finland. In Norway a new example is on re-introduction and reconstitution of forage landraces (Daugstad project report 2006).⁶ The aim of the project is to utilize the entire genetic variation of some grass species and clover preserved in the Nordic Gene Bank. Intercrossed material is being planted on several farms in different geographical areas in Norway. The aim is to utilize natural selection for the development of “novel landraces”. In Sweden a book based on stories from individuals carrying out on-farm/on-garden conservation is being prepared (Nygårds 2006).⁷ The stories will highlight the historical diversity of crops and the reasons for their preservation. From Denmark some more cases since year 2000 of on-farm conservation have been reported by the national programme for plant genetic resources (Poulsen 2006, personal comm.). Also, a system that supports demonstrations of plant genetic diversity on farms has been launched in 2006 (<http://www.dffe.dk/Default.asp?ID=27084>).

The only example of reported on-farm conservation from Iceland is the use of natural pastures around the farms (Helgadóttir 2006, personal comm.).

In all Nordic countries the most obvious threat to preservation of landraces and local strains is the ageing of farmers: it is the older generation who typically value the cultural heritage of their family. However, with increasing public awareness of biological diversity and the value of local crops, young farmers are taking over the cultivation of landraces. They may, however, need to receive financial support for this activity. As mentioned above, a study in order to provide decision-makers with new means to enhance the cultivation of landraces and local strains on farms has been initiated.

Discussion

The main discussion topics focused on different ways to carry out on-farm conservation, on different farmers' reasons for growing traditional crops and on constraints for on-farm conservation. The problem of repatriation of landraces was addressed, including related difficulties such as indigenous/traditional knowledge on sowing, harvesting, etc. The

⁵ Heinonen, M. and M. Veteläinen. 2007. Vanhojen viljakantojen ylläpitoviljely Suomessa [On-farm cultivation of cereal landraces in Finland]. Maaseudun uusi aika 1. (In Swedish). (*in print*)

⁶ Unpublished report.

⁷ Nygårds, L. 2006. Vi odlade till husbehov - fröet till nytta och nöje [We cultivated for household - seeds for use and joy]. FAKTA Trädgård-Fritid nr 114. (In Swedish).

evidence for a certain imbalance between the *ex situ* and the *in situ* conservation was also stressed.

V. Negri highlighted the point that more awareness should also be raised among farmers involved in on-farm practices. N. Maxted added that this should be carried out in the scientific community as well, since some scientists are not aware of the importance of landraces.

Historical inventories

Z. Stehno introduced the topic of historical inventories, which represent important sources of information on crop landraces and varieties grown historically in particular localities. Former cropping systems mentioned in the literature are also very interesting from the point of view of on-farm conservation of plant genetic resources. Recipes for traditional local (niche) dishes described in old cookery books can be advantageously used to extend the range of locally specific foods utilizing traditional landraces or neglected crops for their preparation.

Information interesting from this viewpoint can be found first of all in historical archives. However, the archives include many documents from different branches and finding information related to plant genetic resources can be very random. Chronicles written for a long time in small villages can also contain interesting information on landrace growing and processing of the products. More recent data can be found in historical lists of varieties, historical annual reports of farm societies and old leaflets published by seed growing companies. Further information can be found in current databases of plant genetic resources such as EURISCO (European Internet Search Catalogue), Central Crop Databases, GRIN (Germplasm Resources Information Network of the United States Department of Agriculture), etc.

In general, the importance of historical inventories consists in the possibility of finding information on forgotten landraces and obsolete cultivars. Such information sources enable comparison of the original descriptions of landraces with their present characteristics. They also enable us to use the retrieved information for the preparation of special products such as traditional local dishes, various craftworks and so on.

Discussion

N. Maxted recalled that a database on collecting missions was available from Bioversity, which fairly well provided information on what was collected where. A public search interface is not currently available. However, requests for data can be addressed to Imke Thormann (i.thorman@cgiar.org).

N. Maxted then asked the participants in which countries the government provides funding to prepare inventories on landraces. Four countries replied affirmatively: Austria (from not specifically dedicated funds), Finland, Germany (one ongoing project proposal for fruit trees) and Switzerland.

Z. Stehno was invited to produce a paper, taking account of grey literature, on how to establish local or regional historical inventories.

Diana Rusu recalled that among the tasks agreed at the Isola Polvese meeting there was the preparation of a draft descriptor list for on-farm conservation practices. This document was prepared by the Suceava Genebank and it was circulated to the members.

V. Negri noted that a similar sheet, aimed at collecting on-farm information, was produced and used by her Department at the University of Perugia (Italy). In addition to the information available in the Romanian document, the latter includes the gender role for the most relevant items.

Public awareness

The role of Bioversity and Network members

Aixa Del Greco presented the current version of the ECPGR Web site with relevance to the *In situ* and On-farm Conservation Network Web pages. At present, information on Task Force members, publications and meetings is available, as well as other relevant documents and information, but there is no specific section entirely dedicated to the On-farm Conservation and Management Task Force. She presented a draft of a possible new Web page to be built, which takes into account the requests received by the Secretariat from V. Negri and the outputs of the meeting of the NCGs held in Bonn.

Overall, the Web page should contain an outline of on-farm conservation issues, case studies and general activities carried out in Europe on the matter.

The following items were mentioned as a proposed starting point:

- On-farm Task Force background information
- On-farm Task Force activities
 - Directory of on-farm conservation organizations and individuals
 - Seed legislation documentation
 - Draft descriptors for the documentation of on-farm conservation and management
 - Methodologies for the conservation of traditional varieties involving farmers and local communities.

All items would have a hyperlink leading to new Web pages displaying the relevant content. More specifically, the draft layout for the “Directory of on-farm conservation organizations and individuals” was shown and proposed for discussion. It would be a list aiming at providing information on persons, institutes, associations and other organizations involved in the on-farm conservation work carried out all over Europe. The list could be organized by country names in alphabetical order.

A. Del Greco stressed that the ECPGR Secretariat can offer the technical skills to prepare, publish and update information of the new Web pages, but has no resources to obtain new/updated data. Therefore, all TF members are requested to contribute as volunteers to make the information available to the ECPGR Secretariat. TF members should also make sure they obtain the consent of the providers for data publishing.

Discussion on volunteers to fill in a dedicated Web page

The possibility of publishing on the new Web page dedicated to the Task Force some relevant examples of on-farm practices was discussed. It was noted that methodologies for conservation vary significantly from place to place, even within the same country. V. Negri stressed that, although situations are so different within Europe, describing examples of on-farm conservation activities would help in increasing public awareness. She volunteered to prepare an initial page reviewing the main on-farm conservation issues, as well as to prepare an on-farm conservation example relative to beans (chosen from many cases available in Italy). She then asked for contributions from other Task Force members in preparing similar pages on different crops.

N. Maxted suggested that, in addition, it would be worthwhile to produce glossy publications on different crops, to be prepared in cooperation with the Chairs/relevant persons of other ECPGR Networks. This would stress the “service” role to other Networks played by the On-farm Conservation and Management Task Force, a role which was emphasized at the ECPGR Network Coordinating Groups meeting in Bonn, Germany (March 2006), and help in creating synergies among the different Task Forces and Networks of the Programme.

With reference to the list of stakeholder addresses to be published on the Task Force-dedicated Web pages, as a preliminary list, and to avoid privacy problems, it was proposed that the initial document would include only public organizations – both from the formal and informal sector – with no specific person's contact details. P. Freudenthaler suggested interacting with National Coordinators in order to compile an exhaustive list.

N. Maxted noted that since the ONFARMSAFE project (see pp. 24-25) aims at building a complete list on the same subject, it may be advisable to wait for the results of the project proposal. In this way efforts would not be duplicated and a link could be created to the list from the On-farm Conservation and Management Task Force Web page. V. Negri commented that building a "complete" list was not among the ONFARMSAFE aims, because the project only focused on certain crops. In addition, once agreement is reached on the usefulness of such a directory, and also provided that ONFARMSAFE gets funded, it will be useful to start compiling the list as soon as possible, so to have it ready for the next Task Force meeting and available through the ECPGR Web site.

It was also noted that making widely available a list of publications related to on-farm conservation in each country could help in improving public awareness.

Workplan

- *The Task Force agreed upon preparing a list of organizations involved in on-farm conservation to be published on the Web. The list will initially consist only of organizations and will not provide private individuals' contact details. Minimum required information will be the full address plus the type of crop(s) managed by the relevant organization. Action: **all TF members** will send their information to V. Negri **by 30 March 2007**. V. Negri will then revise the above list and will send it to the ECPGR Secretariat for on-line publication.*
- *Produce a publication on case studies to be co-authored by relevant representative persons of Crop Networks and make it available widely. Volunteers for the purpose were identified: V. Negri (Italy, for beans); M. Veteläinen (Finland, to request external contribution for forages and cereals); L. Frese (Germany, for sugar beet); B. Bartha (Switzerland, for vegetables); and N. Ferant (Slovenia, for medicinal and aromatic plants).*
- *Each Task Force member will provide a list of publications related to on-farm conservation in their respective countries to build up an on-farm centralized bibliography which will also be available from the dedicated Web pages. Due **by next meeting (2007)**.*
- *D. Rusu and V. Negri agreed to finalize the minimum descriptors list for the documentation of the on-farm conservation and management activities **by next meeting (2007)**.*
- *Z. Stehno and B. Schierscher-Viret, with input from all Task Force members, will produce a paper on how to establish local or regional historical inventories **by next meeting (2007)**.*

Methodologies for the creation of National/European inventories

(Introduced by N. Maxted and M. Scholten)

Introduction

The Convention on Biological Diversity (CBD – <http://www.biodiv.org/default.shtml>), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA – www.fao.org/ag/cgrfa/itpgr.htm) and the Global Plant Conservation Strategy

(www.biodiv.org/programmes/cross-cutting/plant/) each calls for conservationists to improve the efficiency and effectiveness of their conservation actions. More recently the Conference of the Parties (COP) to the CBD has established the 2010 Biodiversity Targets which draw attention to the need for conservation of the: “*genetic diversity of crops, livestock, and harvested species of trees, fish and wildlife and other valuable species conserved ... restore, maintain or reduce the decline of populations of species*” and establishes an explicit target of “70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved” (www.biodiv.org/2010-target). If this target is considered in conjunction with the first UN Millennium Development Goals (www.un.org/millenniumgoals/) of eradicating extreme poverty and hunger, then there is an obvious link between the conservation and use of socioeconomically important plant species, commonly referred to as plant genetic resources. Plant genetic resources being that “*genetic material of plants which is of value as a resource for the present and future generations of people*” (IPGRI 1993).⁸

Countries which have ratified the CBD and International Treaty and wish to meet the target outlined above are obliged to make inventories of their biodiversity, design national conservation plans and monitor diversity to assess the efficiency of conservation actions. Although the production of national inventories of the wild components of biodiversity are well established (botanists have been creating checklists and floras since the time of Theophrastus in the third century BC: Davis and Heywood 1973)⁹, inventories of the cultivated components of biodiversity are much more limited. Regional and national inventories of crop wild relatives are largely limited to Europe (e.g. Heywood and Zohary (1995)¹⁰ and Kell *et al.* (2007)¹¹ for Europe, Schlosser *et al.* (1991)¹² for the former German Democratic Republic and Mitteau and Soupizet (2000)¹³ for France) and as far as is known there are no national inventories of crop landraces as yet.

As a signatory of both the CBD and the ITPGRFA, the United Kingdom government and particularly the Department for the Environment, Food and Rural Affairs (DEFRA) has national jurisdiction and responsibility for the conservation of species of actual or potential socioeconomic use. As a step towards fulfilment of this obligation it commissioned a review of the current strategy for the conservation and sustainable use of genetic resources important for agriculture in the UK (DEFRA 2001)¹⁴ and subsequently commissioned an inventory of UK animal, microbe and plant genetic resources for food and agriculture. The resultant inventories are available via the UK’s Information Portal on Genetic Resources for Food and Agriculture (www.grfa.org.uk). To prepare an inventory there is first a need to define the scope of the activity. Within the context of preparing the UK plant genetic

⁸ IPGRI. 1993. Diversity for development. International Plant Genetic Resources Institute, Rome.

⁹ Davis, P.H. and V.H. Heywood. 1973. Principles of Angiosperm taxonomy. Krieger, New York.

¹⁰ Heywood, V.H. and D. Zohary. 1995. A catalogue of the wild relatives of cultivated plants native to Europe. *Flora Mediterranea* 5:375-415.

¹¹ Kell, S.P., H. Knüpffer, S.L. Jury, B.V. Ford-Lloyd and N. Maxted. 2007. Crops and wild relatives of the Euro-Mediterranean region: making and using a conservation catalogue. *in* Crop Wild Relative Conservation and Use (N. Maxted, B.V. Ford-Lloyd, S.P. Kell, J. Iriondo, E. Dulloo and J. Turok, eds). CABI Publishing, Wallingford.

¹² Schlosser, S., L. Reichhoff and P. Hanelt. 1991. Wildpflanzen Mitteleuropas. Nutzung und Schutz [Wild plants of Middle Europe. Utilization and protection]. Deutscher Landwirtschaftsverlag Berlin GmbH.

¹³ Mitteau, M. and F. Soupizet. 2000. Preparation of a preliminary list of priority target species for *in situ* conservation in Europe. Pp. 32-42 *in* Report of a joint meeting of a Task Force on Wild Species Conservation in Genetic Reserves and a Task Force on On-farm Conservation and Management, 18-20 May 2000, Isola Polvese, Italy (B. Laliberté, L. Maggioni, N. Maxted and V. Negri, compilers). International Plant Genetic Resources Institute, Rome, Italy.

¹⁴ DEFRA. 2001. Review of Policy on Genetic Resources for Food and Agriculture. DEFRA, London.

resources for food and agriculture (PGRFA) inventory, PGRFA may be partitioned into six components: modern cultivars, breeding lines and genetic stocks, obsolete cultivars, crop landraces and crop wild relatives (Fig. 1). The first three components are already being actively conserved in the UK by existing plant breeder and genebank networks. Commercial uses of wild harvested and traditionally managed plant species in the UK have also recently been surveyed by Sanderson and Prendergast (2002)¹⁵ who found approximately 100 wild useful taxa in England and Scotland. Therefore the plant element of the UK inventory of PGRFA focused on surveying crop wild relatives and extant landraces. The production of both inventories involved the development of methodologies for objective inventory creation. The methodology for creation of the Crop Wild Relative (CWR) inventory is reported by Maxted *et al.* (in preparation)¹⁶ and the creation of the national landrace inventory is discussed here.

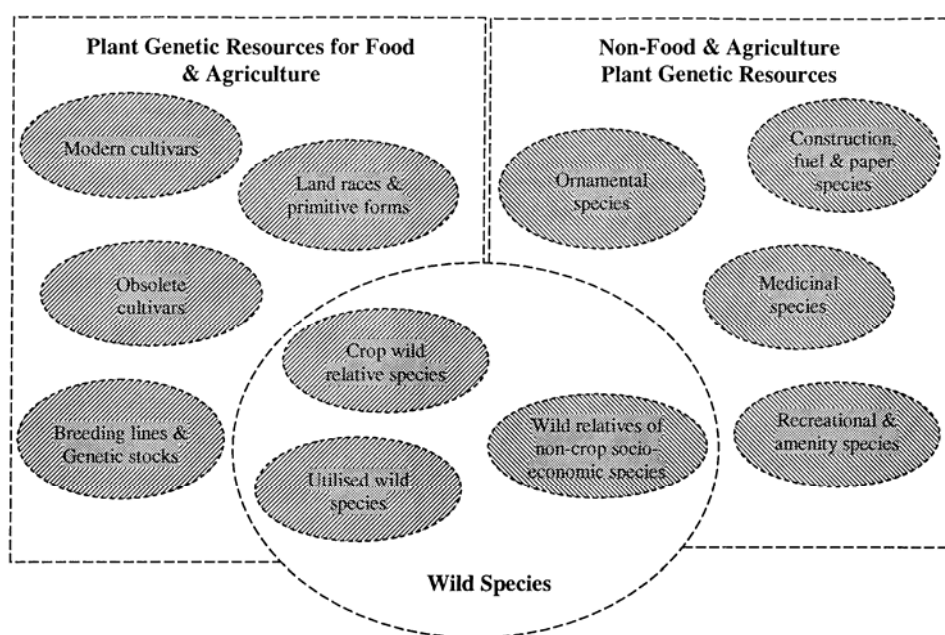


Fig. 1. National Plant Genetic Resources.

The creation of the national landrace inventory is timely. Firstly, because landrace diversity is generally accepted to be in decline due to the replacement of landraces by modern varieties, and specifically by the effect of the variety and seed certification system associated with the European Common Catalogue for agricultural and vegetable varieties (Velvé 1992¹⁷; Stickland 1998¹⁸). Maxted (2006)¹⁹ has argued that landrace diversity is the

¹⁵ Sanderson, H. and H.D.V. Prendergast. 2002. Commercial uses of wild and traditionally managed plants in England and Scotland. Royal Botanical Gardens, Kew.

¹⁶ Maxted, N., M. Scholten, S.P. Kell and B.V. Ford-Lloyd. (in preparation). Developing a national plant genetic resource strategy: crop wild relatives. Plant Genetic Resource: Characterization and Utilization.

¹⁷ Velvé, R. 1992. Saving the seed: genetic diversity and European agriculture. Earthscan Publications, London.

¹⁸ Stickland, S. 1998. Heritage vegetables. The gardeners' guide to cultivating diversity. Gaia Books Ltd., London.

¹⁹ Maxted, N. 2006. UK land-races – a hidden resource? Plant Talk 44:8.

most threatened element of biodiversity because it is the only element of biodiversity for which we have no idea how many traditional seed-saved varieties remain extant, but we know from anecdotal evidence that each year those who maintain landraces are dwindling in number: they are often older people who are literally dying off and the landraces are going with them. Further Maxted (2006)¹⁹ argued that landrace conservation falls outside the remit of conventional conservation agencies, and the agricultural community has tended to focus its conservation efforts on *ex situ* genebank maintenance of an almost random rather than a systematic selection of landraces. Unless action is taken immediately their loss will continue and complete extinction is the only possible conclusion. Secondly, there is the need to monitor and achieve a significant reduction of the current rate of biodiversity loss if the UK is to meet the 2010 Biodiversity Targets (COP 2004).²⁰ How can we conserve landraces if we are unsure of what we have, and how can we reduce diversity loss if we have no inventory to allow comparison and assessment of change?

What is a landrace?

It is difficult to precisely define what constitutes a landrace. In fact Zeven (1998)²¹ goes so far as to conclude that the definition of a landrace is not possible. However, if it were impossible to define a landrace then it would necessarily be impossible to recognize an entity for which there is an extensive literature, to build a national inventory and ultimately conserve the diversity contained within; therefore there was a pragmatic imperative to produce a definition as a precursor to the production of an inventory. Camacho Villa *et al.* (2005)²² review the defining characteristics associated with an accession being recognized as a landrace and on the basis of these provided the following working definition:

“A landrace is a dynamic population(s) of a cultivated plant that has historical origin, distinct identity and lacks formal crop improvement, as well as often being genetically diverse, locally adapted and associated with traditional farming systems.”

However, it was recognized that this definition needed to be applied pragmatically, since few entities recognized as landraces showed all six defining characteristics and exceptions to each may be encountered. However, the application of this definition does provide a working foundation for the creation of a national landrace inventory.

To illustrate some of the exceptions to a strict application of the definition, Mayr (cited by Zeven 1998)²¹ recognized two classes of landraces: autochthonous (landraces cultivated for more than a century in a specific region) and allochthonous (a landrace that is autochthonous in one region introduced into another region and becoming locally adapted). The latter are increasing in frequency as a result of total loss of local landraces following civil conflict or the preference of those in the organic movement for growing traditional varieties. A further third class of landrace is known as ‘Creole’, being derived from originally bred varieties that have become a *de facto* landrace following numerous continued cycles of planting and farmer seed selection in a specific location (Bellon and Brush 1994²³; Wood and Lenné 1997²⁴).

²⁰ COP. 2004. Decision VII/30. Strategic Plan: future evaluation of progress. Convention of the Parties of the Convention on Biological Diversity (<http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7767&lg=0>).

²¹ Zeven, A.C. 1998. Landraces: A review of definitions and classifications. *Euphytica* 104:127–139.

²² Camacho Villa, T.C., N. Maxted, M.A. Scholten and B.V. Ford-Lloyd. 2005. Defining and identifying crop landraces. *Plant genetic resources: characterization and utilization* 3(3):373–384.

²³ Bellon, M.R. and S. Brush. 1994. Keepers of maize in Chiapas, Mexico. *Economic Botany* 48:196–209.

²⁴ Wood, D. and J.M. Lenné. 1997. The conservation of agrobiodiversity on-farm: questioning the emerging paradigm. *Biodiversity and Conservation* 6:109–129.

There are also specific terms used for crop groups that would be regarded as the equivalent to landraces, e.g. forage landraces which are often referred to as local varieties (Zeven 1991)²⁵ and heirloom vegetable varieties cultivated for private purposes by families (Stickland 2001)²⁶ would both be regarded as landraces. It is also possible, as is the case in the UK, that many vegetable and arable crop landraces are commercially maintained and registered on the National List (Oldham 1948²⁷; MAFF 1960²⁸).

Ultimately the definition of landrace used in preparing the national inventory is likely to be inventory-specific, in that it will depend on the resources available for undertaking the inventory, the relative availability of landrace distributional data and the interests of the commissioning agency. However, for the national landrace inventory to be comprehensive there is a need to adopt a broad definition of what constitutes a landrace and the definition provided by Camacho Villa *et al.* (2005)²² provided pragmatic scope for the national inventory of UK landraces.

What constitutes landrace diversity?

The answer to this question is relatively straightforward but may be difficult to apply in practice. Once a definition of a landrace is agreed, the inventory aims to catalogue the distinct landrace entities that constitute the breadth of diversity. So the landrace inventory is made up of a list of landraces that are each distinct and different from one another. This then leads to a second question, of how is distinction and difference to be recognized? The answer would be to investigate genetic diversity between and within landrace material, but when creating a national inventory it would be impractical to consider investigating the patterns of genetic diversity both between and within all national landrace material, either by using molecular or even morphological evaluation techniques.

It is therefore necessary to use a proxy for estimating genetic diversity between and within landraces. Pragmatically the two proxy measures that are often employed are nomenclature and expert knowledge. It may be assumed that if two landraces have different names they are in fact different, they are internally consistent and distinct from each other. Also while preparing an inventory, if an expert (e.g. crop specialist, local extension officer or farmer) says two landraces are distinct then it is assumed that they are distinct. While both of these assumptions will on occasion be false, in the absence of actual knowledge of patterns of genetic diversity or knowledge to the contrary, the assumption will more often than not be correct. Therefore, the diversity of landraces to be included in the inventory will be pragmatically based on landrace nomenclature and expert knowledge. This was the approach taken in the preparation of the UK landrace inventory.

Scope of a landrace inventory

The actual scope of the landrace inventory will be defined by the commissioning agency that will make the resources available for the data collation and thus may explicitly (stating which species should be covered) or implicitly (sufficient resources are only available to cover a limited range of species) establish the breadth of the inventory. Therefore the plant scope may be universal, covering a complete inventory of all socioeconomically important

²⁵ Zeven, A.C. 1991. Four hundred years of cultivation of Dutch white clover landraces. *Euphytica* 54:93-99.

²⁶ Stickland, S. 2001. Back garden seed saving. Keeping our vegetable heritage alive. Eco-logic books, Bristol.

²⁷ Oldham, C.H. 1948. Brassica crops and allied cruciferous crops. Lockwood, London. 295pp.

²⁸ MAFF. 1960. Cabbages and Brussels sprouts and other green crops. MAFF Bulletin 132. Her Majesty's Stationary Office, London.

species with landrace diversity, or be restricted to a subset, e.g. major field crops, forages, fruits, medicinal species or wild harvested species.

In terms of the UK national landrace inventory, the inventory was commissioned by the UK Department for the Environment, Food and Rural Affairs (DEFRA) who commissioned a complete inventory of plant genetic resources for food and agriculture; however, funding was limited and therefore the inventory was practically restricted to cereals, forages and vegetable landraces. The reason these groups of landraces were selected was because the information on these landraces was thought *a priori* to be relatively easily available and they covered a broad range of landraces that were likely to be found in the UK. Also a partial inventory of fruit landraces had already been undertaken for apples and gooseberries (Palmer 1999)²⁹, and hops (Darby, personal comm.).

As well as restricting the scope of the inventory to crop groups, the inventory might conceivably also be restricted in terms of landrace localization or threat. In terms of localization, it might be desirable to restrict the inventory to what might be considered “native” landraces, autochthonous as defined above rather than allochthonous or Creole landraces. It is likely that autochthonous landraces will have evolved unique local adaptations over time, and may therefore be of greater interest to plant breeders; certainly the characteristics of the landrace would be more easily predicted.

Another aspect of scope will be the relative level of cultivation of the landrace to warrant inclusion in the national inventory. For example, would only commercially available landraces be included, or would a landrace held by a single farmer be considered for inclusion in the inventory? For the UK national landrace inventory the focus was conservation value, so landraces were included whatever the level of cultivation. This resulted in the inclusion of a landrace of the forage legume sainfoin (*Onobrychis vicifolia* Scop.), Hampshire Common, which has been grown by the Cholderton Estate in Hampshire (www.cholderton-sustainable.com) since 1720. Currently the estate cultivates approximately 440 ha in a legume/grass ley-cereals rotation and 4 to 5 tonnes of seed are produced on average per year for their own use. Hampshire Common was delisted from the UK National List in the 1980s because of the rising certification fees.

An extension of the question over the relative level of cultivation of the landrace is whether the landrace has to be grown by a farmer or whether home garden cultivation of landraces would also be included. Obviously the inclusion of home garden cultivated material would greatly expand the scope of the landrace inventory, but it is well known that home gardens have a particular wealth in vegetable and fruit diversity, much of which has been cultivated and the seed saved for generations. As such they would fall within the definition of a landrace outlined above and so should be included in the national inventory. However, their inclusion is likely to expand the resources required to undertake the inventory as the number of landrace growing units (farmers or house holders) would be liable to be expanded by a degree of magnitude. Also the formal agricultural or plant genetic resource networks would have less direct access to the material and there may be a need for collaboration with more informal sectors, such as NGOs working to promote organic gardening or traditional rural pursuits. For the UK national landrace inventory home garden cultivated landraces were excluded, but had further resources been available they would have been included, and the UK NGO Garden Organic (formerly the Henry Doubleday Research Association – www.gardenorganic.org.uk/) would have been ideally placed to undertake the home garden landrace inventory.

²⁹ Palmer, P. 1999. Orchard mapping. UK *Malus* Network Newsletter 2.

How to collate information on landrace diversity?

Information relating to landraces, their cultivation and use is often anecdotal; historically such information was obtained during germplasm collecting missions. A more comprehensive “checklist” approach was developed by Hammer and associates (Hammer 1990³⁰; Hammer *et al.* 1999³¹; Hammer 2001³²) and also by Negri (2003)³³, where farmers and gardeners were approached directly and their gardens or fields screened for all crop diversity. Smaller scale surveys targeting specific amateur vegetable varieties used publicity campaigns directed at the target community. Hammer *et al.* (1977)³⁴, for example, collected home garden landraces following advertisements in amateur gardening magazines and Zeven (1979 and 1990)^{35,36} used local newspapers as well as a radio announcement to collect Dutch bean and Dutch kale landraces. In the UK a similar approach was used to assess heirloom vegetables by Stickland (2001)²⁷. So to summarize, the possible means employed to track extant landraces might include:

- **Expert advice** – from genebanks, national testing centres, research institutes, agricultural extension divisions, farmers’ organizations, agricultural statisticians, other professionals and NGOs;
- **Commercial companies** – companies involved in seed production, brewing, milling, distilling, etc.;
- **Scientific literature** – including reviews of historical literature, research reports, papers and articles;
- **“Grey literature” archival materials** – associated with genebanks, research institutes, seed companies, NGO newsletters;
- **Internet searches**;
- **Official documents** – such as agricultural statistics, e.g. EU Common Catalogues of varieties of agricultural (EU 2007a)³⁷ and vegetable (EU 2007b)³⁸ plant species or UK National List 2003 (DEFRA and PVRO 2003)³⁹; and

³⁰ Hammer, K. 1990. Botanical checklists prove useful in research programmes on cultivated plants. *Diversity* 6(3-4):31-34.

³¹ Hammer, K., G. Laghetti and P. Perrino. 1999. A checklist of the cultivated plants of Ustica (Italy). *Genetic Resources and Crop Evolution* 46:95-106.

³² Hammer, K. 2001. Contributions of home gardens to our knowledge of cultivated plant species: the Mansfeld approach. Pp. 27-33 *in* Proceedings of the Second International Home Gardens Workshop: Contribution of home gardens to *in situ* conservation of plant genetic resources in farming systems, 17-19 July 2001, Witzenhausen, Federal Republic of Germany (J.W. Watson and P.B. Eyzaguirre, eds). International Plant Genetic Resources Institute, Rome.

³³ Negri, V. 2003. Landraces in central Italy: Where and why they are conserved and perspectives for their on farm conservation. *Genetic Resources and Crop Evolution* 50(8):871-885.

³⁴ Hammer, K., P. Hanelt and C. Tittel. 1977. Sammlung autochtoner Kulturpflanzen auf dem Gebiet der DDR [Collecting autochthonous crops in the territory of the German Democratic Republic]. *Kulturpflanze* 25:89-99.

³⁵ Zeven, A.C. 1979. Collecting genetic resources in highly industrialized Europe, especially in The Netherlands. Pp. 49-58 *in* Proceedings of the Conference “Broadening the genetic base of crops”, 3-7 July 1978, Wageningen, The Netherlands (A.C. Zeven and A.M. van Harten, eds). PUDOC, Wageningen.

³⁶ Zeven, A.C. 1990. Landraces and improved cultivars of bread wheat and other wheat types grown in The Netherlands up to 1944. Wageningen Agricultural University papers 90(2).

³⁷ EU. 2007a. Common catalogue of varieties of agricultural plant species (http://ec.europa.eu/food/plant/propagation/catalogues/comcat_agricultural/index_en.htm).

³⁸ EU. 2007b. Common catalogue of varieties of vegetable plant species (http://ec.europa.eu/food/plant/propagation/catalogues/comcat_vegetable/index_en.htm).

³⁹ DEFRA and PVRO. 2003. National listing of varieties of agricultural and vegetable crops in the UK. PVS Gazette 461. NIAB, Cambridge.

- **Farmer interviews** – farmers themselves may be approached indirectly through advertisements, articles in farmers’ magazines and local newspapers or other non-print media, and directly via personal contacts.

All contacted persons should be clearly informed of the goal of the inventory in promoting landrace conservation and use. When dealing directly with the landrace maintainer, the desired information may be obtained by questionnaires either completed remotely or in the presence of the researcher via telephone or interview. However, for areas considered to be particularly rich in terms of landrace diversity, ideally the researcher would visit the area and interview the maintainers. For the UK national landrace inventory once such area was the Outer Hebridean islands of Western Scotland, which have unique, very light, manganese deficient machair soils in areas that are prone to high winds. The inability to import “modern” agriculture to the islands because of their unique characteristics has led to the retention of traditional farming structures where small-scale tenant farmers (crofters) grow cereal and vegetable landraces, which have until recently been ignored by the formal agricultural sector because of the small scale of cultivation. Interviewing these farmers confirmed they do maintain a unique resource, that for the most part is not duplicated outside the islands, and which is highly threatened by the fact that the ageing population of crofters are retiring and not being replaced by younger generations.

Data collated for a national landrace inventory

The actual data collated for each landrace inventory will be dependent on the resources available for collation, the scope of the landrace inventory, diversity of landraces encountered, level of knowledge of the inherent diversity within the landraces, cultural practices involved and how the landrace information is obtained. Obviously much more information will be recordable if the landrace has been extensively studied at first hand, as opposed to a landrace known simply from a remotely completed questionnaire. However, the broad categories of information that might be included in a national landrace inventory will be:

- Scientific name
- Name of landrace
- Maintainer details (e.g. name, contact details, age, gender, family structure, education, main source of income, owned or rented land, farm size, organic status, arable or mixed farming system)
- Geographic location (e.g. province, nearest settlement, latitude, longitude, altitude)
- Landrace characteristics (e.g. characterization and evaluation details, perceived value for the maintainer, length of seed saving, relationship to other landraces)
- Cultivation details (e.g. area currently sown, history of area sown, time sown, time harvested, cultural practices, cultivation inputs, method of seed-saved selection, method of seed storage, maintainer exchange frequency, other and non-landrace material grown, maintainer’s comparison to modern varieties, local or national maintainer incentives)
- Relative uniqueness of landrace (e.g. grown on single farm or more widespread, genetic distinction)
- Usage (e.g. description of main usage, secondary usage, home consumption or marketed, marketing, current and past values, member of grower or marketing cooperative)
- Threats (e.g. perverse incentives, lack of sustainability of farming system, lack of market).

This list is relatively extensive and it is unlikely that all the above information will be recorded for each landrace in the national inventory.

The creation of the national landrace inventory is not an end in itself; the information contained in the inventory must be made available. Once the data are collated into the inventory database they should be made publicly available, ideally via a Web-enabled database. For the UK national landrace inventory the landrace database is available at <http://grfa.org.uk/>.

Post-inventory follow-up

As already noted, the creation of the national landrace inventory is not an end in itself: the inventory must justify its creation in terms of the promotion of landrace conservation and use. The generation of the inventory will enable the *in situ* landrace diversity to be matched against the conserved diversity, either as accessions of the landrace held in *ex situ* collections or as landrace diversity effectively conserved with on-farm conservation systems. The inventory should also act as a stimulus to the formal use of landraces in breeding programmes, promotion of specialized or novel marketing niches and the underpinning of local cultural heritage. Use of conserved landraces is essential and is likely to underwrite the long-term sustainability of any landrace.

Discussion

P. Freudenthaler asked whether it is possible to develop new landraces. N. Maxted responded that yes, it is possible and gave the example of the landraces currently being developed by the organic and biodynamic movements, but it needs a lot of time (i.e. decades) and many generations of cultivation and seed saving before they could be seen as equivalent to more “traditional” landraces. N. Maxted also made the point that landraces are almost by definition constantly evolving within the *in situ* context as a result of farmer selection and environmental changes, and so in a sense all landraces were new.

N. Maxted also mentioned the existence of a “B list” in the UK for old landrace varieties which did not enter the main list of crops of EU catalogue. Within the UK it is still possible to commercialize these seeds/products. He also asked for inputs/suggestions for other methods to think about for landrace conservation procedures.

V. Negri pointed out that in Italy a bottom-up approach (i.e. farmers themselves declaring that they cultivate landraces) was proved to be effective in building regional inventories of populations maintained on-farm (see for example: <http://www.arsial.regione.lazio.it/portalearsial>).

V. Negri stressed the difference between an original landrace and a reintroduction of a cultivated variety. N. Maxted agreed and added that the definition of “landraces” used needs to be suitable to its application. It was noted that a lot of diversity could certainly be lost if the definition gets too narrow and restricting.

Towards a more comprehensive definition of “landrace” than currently published

Introduced by N. Maxted

As stated in the National Landrace Inventory paper above (see p. 14), it is difficult to precisely define what constitutes a landrace.

Ultimately the definition of a landrace is purely a matter of semantic importance and as such academic, but without at least a working definition it would be difficult if not impossible to prepare an inventory or conserve this important element of a country’s biodiversity.

Discussion

L. Frese, B. Bartha and B. Schierscher-Viret pointed out that the proposed definition is not appropriate for vegetatively propagated crops where a landrace is likely to be made up of very similar genotypes. N. Maxted pointed out that the authors recognized that there were exceptions to all six defining characteristics which they identified, particularly in regard to their being genetically diverse, locally adapted and associated with traditional farming systems; that is why they proposed these characteristics were “often” but not necessarily always present. V. Negri agreed that it is often impossible to give a satisfactory definition of a landrace; nonetheless a definition is needed and should be attempted. She stressed that an important feature of a landrace is its link with the “human factor” that developed it, as many authors have already pointed out for contexts different from the European one (Asfaw 2000⁴⁰; Brush 1992⁴¹; Papa 1996⁴², just to mention some of them). It is this trait that distinguishes a landrace from any other type of cultivated population, increases its value (because the biological value of its diversity is increased by the value of the complex of knowledge belonging to a specific human community) and makes it unique. The cultural identities of human populations are also at risk and need to be preserved. When cultural identity is (also) based on a certain type of food obtained from a landrace, the way it is cooked, processed and produced, the ways of talking about it, the dialect terms and the celebrations or feasts linked to it, all of these have to be acknowledged and may help in preserving cultural identity itself. Farmers themselves are often conscious of their own cultural identity being linked to a typical product obtained from a landrace and are proud of it, at least in some countries. On the basis of this peculiar identity, legal protection of a certain product is often requested by Italian farmers. This form of “protection” often promotes the cultivation of the landrace because it increases its market value as typical crop and consequently promotes on-farm conservation itself. N. Maxted agreed this was an additional important dimension to landrace characterization, which was touched on by Camacho Villa *et al.* (2005)²² in their paper but not made explicit in their proposed definition.

Taking all this into account, V. Negri proposed the following definition which combines several other ones:

“A landrace of a seed-propagated crop can be defined as a variable population, which is identifiable and usually has a local name. It lacks “formal” crop improvement, is characterized by a specific adaptation to the environmental conditions of the area of cultivation (tolerant to the biotic and abiotic stresses of that area) and is closely associated with the traditional uses, knowledge, habits, dialects, and celebrations of the people who developed and continue to grow it”.

The above definition is more restrictive than that proposed by N. Maxted, since it includes the cultural component. According to V. Negri this definition, if accepted by the EU legislation as the basis on which to build national inventories, will also be able to direct EU and other funds more appropriately in favour of those on-farm activities where the cultural dimension is present.

⁴⁰ Asfaw, Z. 2000. The barleys of Ethiopia. Pp. 77-107 in *Genes in the field. On-farm conservation of crop diversity* (S.B. Brush, ed.). IPGRI, Rome/IDRC, Ottawa/Lewis Publishers, Boca Raton, FL.

⁴¹ Brush, S.B. 1992. Ethnoecology, biodiversity and modernization in Andean potato agriculture. *Journal of Ethnobiology* 12:161-185.

⁴² Papa, C. 1996. The ‘farre de Montelione’: landrace and representation. Pp. 154-171 in *Hulled Wheats. Promoting the conservation and use of underutilized and neglected crops. 4. Proceedings of the First International Workshop on Hulled Wheats, 21-22 July 1995, Castelvecchio Pascoli, Tuscany, Italy* (S. Padulosi, K. Hammer and J. Heller, eds). International Plant Genetic Resources Institute, Rome, Italy.

Within the context of landrace definition it was recognized that the debate on conservation varieties and landraces is still lively; however it was stressed that these were two different concepts. There is overlap between the two concepts but they must not be regarded as synonyms. The latter is particularly important in terms of EC legislation, since if conservation varieties and landraces were to be seen as synonyms, it is likely that those landraces not included within the definition of conservation varieties would suffer further significant genetic erosion. It could mistakenly lead to the assumption that landraces not regarded as conservation varieties are worthless and so to their not being ascribed conservation priority: clearly this situation should be avoided.

National experiences

Twenty years of participatory maize breeding (Portuguese landraces) in the Sousa Valley, Portugal

Pedro Moreira reported that participatory maize breeding (PMB) in Portugal was initiated in 1984 by Dr Silas Pêgo in the Sousa Valley (VASO). This project was intended to answer the problems of small farmers, i.e. increasing yield without losing the parameters defined by farmers as being needed in polycropping systems, and maintaining the quality traits under a sustainable agriculture. This model is based on the Integrant Philosophy, which contrasts with the Productivist Philosophy. The Integrant Philosophy is intended to be applied to a multicrop agricultural system where corporate agriculture does not reach, due to incipient market conditions. The ongoing work (Moreira 2006)⁴³ intends to contribute to: 1) the 20-year study at VASO; 2) methods used in PMB in Portuguese maize open-pollinated varieties; 3) ongoing research.

Discussion

On-farm production is not necessarily conservation. A farmer would select for better crops and higher quality. N. Maxted wondered if this participatory approach would bring about some loss of genetic material. P. Moreira replied that more data are needed to answer this question, but his feeling is that there will not be any loss or just a minimal one.

“On-farm” conservation of fruit tree genetic resources in Belgium: a case study of the development of an orchards network in the Walloon Region

Marie Manguette explained that for nearly 30 years the Walloon Agricultural Research Centre has been involved in the collection, conservation, evaluation and valorization of old fruit varieties. The Department's collection of old varieties to date comprises 3400 accessions including apple, pear, plum, cherry, peaches and grapes. Its size and the originality of the material – a majority of original landraces collected in the country sites – make this one of the most important collections in Europe. Each year, several hundred people ask us to identify fruit cultivars. Original cultivars showing interesting characters are introduced into our collection. Selection criteria include disease and pest resistance, originality of the fruit and the enlargement of the phenotypic diversity of traits. Accessions are grafted in experimental nurseries and are planted in both an *ex situ* repository and in evaluation orchards that are free of any pesticide. The trees and their fruit are assessed annually and evaluation data

⁴³ Moreira, P.M. 2006. Participatory maize breeding in Portugal. A case study. Acta Agronomica Hungarica 54(4):431-439.

(disease susceptibility, flowering period, fruit quality, keeping ability, etc.) are stored in a central database.

As a long-term safe conservation strategy for the collection, all unique and original material is planned to be safety-duplicated in a decentralized network of outdoor conservation orchards in the form of “standard” trees. This plant material will be preserved at different sites and under different soil and weather conditions. A further aim of the project is to reintroduce all the regional and local varieties to their original areas. This coordinated network of repository orchards provides a “backup copy” as well as expanding our knowledge about potential soil and climatic adaptation of the different old varieties.

At the same time lectures are given in the countryside and popularization leaflets are also distributed to enhance public awareness. Active prospecting for the old endangered trees is promoted by helping people to identify the varieties based on fruit samples collected by local collaborators. All selected original material is designated to be conserved at both their original site and in *ex situ* orchards. The different orchards are managed by partners: either by local NGOs, public organizations or farmers. A collaboration contract is established between the Department and the partner. The Department gives graft wood of chosen cultivars from our *ex situ* collection to professional nurseries. Technical and scientific follow-up is proposed and training is given to the people involved, helping them to manage their orchard properly, mainly to provide for the correct pruning of the trees during the first 5 years. Currently, about 30 orchards are already planted on a total area of 42 ha; it is planned to plant at least 60 ha of such orchards. This is a project with a lot of positive and negative experiences that will be very interesting to share. Therefore, a European inventory of such initiatives is needed with the view to building up a dynamic network of people actively working on on-farm and *in situ* fruit tree repository orchards.

On-farm management work in northeastern Germany

Rudolf Vögel informed us that in northeastern Germany a regional system of biosphere reserves and nature parks (including a national park, 3 biosphere reserves and 11 nature parks, covering about 30% of the whole region) was established between 1990 and 2004.

Combined with the tasks of management of biosphere reserves (BRs), according to UNESCO rules of the Man and Biosphere (MAB) plan, a network of garden sites/PGR coordination sites, connected to the system of protected areas, was developed by private initiatives together with the official park administration.

The effort was based on an initial call by the genebank and governmental authorities (on-farm management of PGR, ideas of dynamic development, bringing back seeds/cultivars to farmers and gardeners).

By close contact with the collections of the Leibnitz Institute of Plant Genetics and Crop Plant Research (IPK), Germany, older regional cultivars and regional landraces of the usual agricultural and horticultural crops were reintroduced and regenerated for the purposes and individual interest of farmers and gardeners in the nature reserves.

The main and outstanding interest of the nature protection administration was to develop new strategies for endangered species, depending on cultivation, to implement a better and more effective connection between biodiversity and agrobiodiversity tasks.

Connected to the relatively new development of organic agriculture in the northeastern region, organic farmers and private gardeners were supplied with pre-selected useful material for their own use.

The association Verein zur Erhaltung und Rekultivierung von Nutzpflanzen (VERN) was founded in 1996 to operate as a regional network: it manages a regional PGR collection (currently 2500 samples including fruit trees, cereals, legumes, ornamentals, fodder and semi-wild species) at several garden sites. There is also cooperation with a network of

commercial farmers, using their fields for the cultivation and regeneration of landraces and older cultivars.

Main tasks are:

- Re-introduction of PGR to private and commercial sectors
- Public awareness: information, advice, exhibitions, training courses
- Improving availability of rare and endangered crops and cultivars
- Regeneration, multiplication, marketing, legalization of PGR.

The association is mainly self-financed and has about 300 members.

PGR objectives and steps for improvement include: encouraging traditional use and local knowledge, organizing training for local breeding efforts and establishing regional historic inventories of PGR. *In situ*/on-farm activities are organized with regard to the conditions for highly developed modern agriculture in middle Europe.

Knowledge/information: selected results of the work, starting from 1993, are the following:

- EC-funded Potato project (EC-Reg.1497, RESGEN CT95/34)
CPRO-DLO/CGN, The Netherlands (project leader) plus 12 European collaborators
 - "Genetic Resources of Potato" including "Conservation, characterization and utilization of secondary potato varieties for ecological production systems in Europe" (http://www.genres.de/infos/vern/pdf/resgen_ct95_3435-ende.pdf)
 - The European Cultivated Potato Database (www.europotato.org)
- Agro-environment programme "*Cultivation of endangered regional crop cultivars*" (KULAP, 2000-2005, prolonged by ELER-EC-reg.)
"*Erhaltung von Generosion bedrohter regionaler Kulturpflanzenarten und -sorten*" (KULAP 2000) (<http://www.mlur.brandenburg.de/cms/detail.php/164486>)
- Federal Ministry for Education and Research (BMBF) socioecological research programme "*STRATUM*": development of agrobiodiversity, 2002-2004 (http://www.agrobiodiversitaet.net/site/page/home/home_en.php)
The project "*Developing Agrobiodiversity!*" started in September 2002 and was completed in April 2004.
- "*Anthocyanins: potato ingredients for non-food processing*" (<http://www.genres.de/infos/vern/pdf/abs-kart.pdf>)
- "*Red List for endangered cultivated crops*", study in the charge of the Federal Ministry of Agriculture (BMELV) (http://www.mlur.brandenburg.de/cms/media.php/2320/fb_n100.pdf)

On-farm conservation of Romanian traditional crop varieties and landraces

Diana Rusu explained that Romania includes three special geographical zones which are identified as real agrobiodiversity centres for certain species of cultivated plants: Bucovina, Maramures and the Apuseni Mountains. In these zones landraces of wheat, maize, bean, rye, barley and oat are still used in traditional agricultural systems.

These geographical areas with very rich agrobiodiversity and special interest for on-farm conservation activity are considered as the last refuges of Romanian traditional agriculture,

because they include geographically isolated, poorly populated villages, where the old landraces are maintained. The main plant genetic resources collected in Bucovina, Maramures and the Apuseni Mountains are *Avena sativa*, *Phaseolus vulgaris*, *Brassica napus*, *Triticum aestivum*, *Phaseolus coccineus*, *Cucurbita pepo*, *Secale cereale*, *Pisum sativum*, *Cucumis sativus*, *Triticum monococcum*, *Vicia faba*, *Papaver somniferum*, *Hordeum vulgare*, *Solanum tuberosum*, *Coriandrum sativum*, *Zea mays*, *Brassica oleracea* and *Capsicum annuum*.

Farmers from these ecological areas still use landraces in cultivation because they continue to practise traditional agriculture for several reasons: because of the perfect adaptability of these old varieties to pedoclimatic conditions, through the lack of financial resources to obtain new varieties, the isolation of some villages, lack of access by car and the ageing populations of the villages due to migration of young people to towns or abroad.

With regard to on-farm descriptors, while collecting samples of plant genetic resources, in our collecting missions we gather several types of information: about pedoclimatic conditions of the ecological zones, which helps us to identify the plant biodiversity; information on the dispersion of the landraces/varieties, and on the local traditional methods used by the farmers in spreading, keeping, maintaining and utilizing these PGR, as well as the usual information on taxonomy.

Our objectives for on-farm conservation are agroecosystem factor assessment, study of socioeconomic reasons for conservation and management, and measurement of the genetic diversity conserved.

In order to protect and maintain the existing agrobiodiversity, we are attempting to realize some concrete ideas such as establishing mechanisms of interaction between all participants involved in on-farm conservation, making inventories of local knowledge, assessing genetic erosion and determining the factors which affect the genetic diversity of local germplasm.

In the near future the intention is to focus on collecting activities, by exploring other accessible geographical zones in which the old methods of traditional agriculture are still maintained, looking for landraces and valuable old cultivars threatened by extinction. It is planned to fine-tune our collecting methods for cultivated species, so that every sample reflects the respective genetic population, to assess genetic diversity, to identify landraces and to study their genetic structure, to carry out collecting expeditions with the participation of many other countries and with the assistance of other research institutes.

International projects funded/submitted

ONFARMSAFE

V. Negri reported that the ONFARMSAFE (*On-farm safeguard of plant genetic resources*) project is currently being prepared to be submitted to the second call of Reg 870/2004. Considering that landraces are highly threatened PGR and very few efforts have been made both to understand the context where on-farm conservation is practised and to preserve them at an European level, this project aims to:

- a) collect socioeconomic information on farmers maintaining landraces (LRs) in Europe;
- b) describe morphological, qualitative and genetic traits which can enhance the use of targeted LR in plant breeding;
- c) promote products obtained from LR both in local and wider markets;
- d) establish a dialogue between European LR conservationists;
- e) promote the appropriate management of LR over the years;

- f) establish a coordinated European network of conservation and demonstration field/gardens of traditional crop LRs which can serve as models for further development;
- g) establish a discussion forum for European LR cultivation;
- h) communicate project activities to the widest possible group of European stakeholders, policy-makers and legislators; and
- i) provide case study exemplars for the various LR grower communities to continue the cultivation, added value processes and marketing of traditional crop diversity.

The project is built on real landrace on-farm conservation examples of important crops (cereals, beans and brassicas). Nine partners in seven countries from different parts of Europe have provided the examples of crop LRs still maintained on-farm, which will be addressed. They will work in close cooperation among themselves and with local farming communities to meet the project's aims in its 4-year lifetime.

The project, should it be approved, will allow for the first time an information exchange on methods, techniques and experiences of on-farm activities, including utilization and marketing concepts which are likely to promote the use of landraces and contribute to the diversification of agriculture. It will also permit the establishment and coordination of a European network of conservation and demonstration field gardens of endangered and underutilized crop genetic resources.

A better knowledge of plant genetic resources in Europe and on-farm conservation strategies to be applied in the future, and a better integration of activities devoted to their protection at the national and international level is the strategic aim of ONFARMSAFE.⁴⁴

EGRISI

Nigel Maxted illustrated the project EGRISI (*European Genetic Resources In Situ Inventory*), in preparation for submission to the second call of Reg 870/2004. The aim of EGRISI is to inventory European crop wild relatives (CWR) and crop landrace (LR) *in situ* resources and make the information available via a decentralized, permanent and widely accessible Web-based information system. To achieve this, EGRISI has seven subordinate objectives:

- i. To establish a European network of *in situ* National Focal Points (NFPs) that will support the creation of and provide technical assistance for the development of national inventories of CWR and LR resources, as well as being responsible for the regular contribution of national data to the European Inventory.
- ii. To build on and agree ECPGR data structures for inventorying CWR information, identify CWR data sources via National PGR Coordinators and collate existing CWR data. Establishment of a permanent mechanism for updating the European CWR Inventory.
- iii. To build on and agree ECPGR data structures for inventorying LR information, identify LR data sources via National PGR Coordinators, and collate existing LR data. Establishment of a permanent mechanism for updating the European LR Inventory.
- iv. To create an easily accessible Web-based *In Situ* PGR Inventory of baseline biodiversity data for European CWR and LR, which builds on the existing Crop Wild Relative Information System (CWRIS) already established by PGR Forum (EVK2-2001-00192), adding a novel LR module and linking to the *Ex Situ* PGR Inventory EURISCO that is managed by Bioversity on behalf of ECPGR. The establishment of National Inventories will facilitate the creation of the European

⁴⁴ The results of the second call of AGRI GEN RES were released in December 2006: ONFARMSAFE was not included among the selected projects for funding.

- Inventories for CWR and LR and will also provide a baseline for its temporal and spatial assessments.
- v. To undertake threat and conservation assessment, including gap analysis, of CWR and LR, as a move towards rationalizing the conservation of *in situ* conserved genetic resource diversity in a minimal number of designated genetic reserves and on-farm sites across Europe. An *in situ* "core" of the most important designated plant genetic reserves and on-farm sites will be identified and the establishment of formal genetic reserves and on-farm conservation will be proposed.
 - vi. To characterize available CWR and LR diversity using existing ecogeographic and farmer-based knowledge, together with contemporary geographic information system (GIS) techniques, to pinpoint populations that contain useful and relevant genes for sustainable and biological agriculture (e.g. conferring tolerance to pests, diseases, environmental stress or climate change), and thus facilitating the future use of *in situ* conserved germplasm in agriculture.
 - vii. To communicate project results to European stakeholders, policy-makers and legislators as a means of aiding the efficient and effective conservation and use of European CWR and LR diversity; and to establish a European level on-going forum to enhance dialogue between European national and regional CWR and LR conservationists with their user communities, thus ensuring the long-term conservation and use of crop diversity that will continue beyond the EGRISI project lifetime.

EGRISI will bring together leading European PGR conservationists drawn from the geographical breadth of Europe to assist National PGR Programmes to collate information concerning their national *in situ* CWR and LR diversity. These national inventories will be shared and made available at the European level via an enhanced EURISCO platform that will incorporate both *in situ* modules as well as the existing *ex situ* module. The resulting Inventory of European CWR and LR *in situ* resources will be used for the first time to assess threat and conservation status, thus permitting more efficient targeting of the limited PGR conservation resources across Europe as a whole, but also within individual member states. It is accepted that conservation is not an end in itself, therefore the European CWR and LR *In Situ* Inventory will also provide an opportunity for *in situ* characterization using GIS techniques, with the end result that plant breeders and other PGR users will have easier access to the *in situ* genetic diversity they require.⁴⁵

AEGRO

Lothar Frese summarized the content of the project AEGRO ("*An integrated European in situ management workplan: implementing Genetic Reserves and On-farm concepts*"), in preparation for submission to the second call of Regulation 870/2004.⁴⁶

The duration of the project would be from 01 October 2007 to 30 September 2010, with eight partners, including the following countries: Denmark, Germany, Greece, Italy, Portugal, Spain and the United Kingdom. Case study crops are *Avena*, *Beta*, *Brassica* and *Prunus*.

⁴⁵ The results of the 2nd call of AGRI GEN RES were released in December 2006: EGRISI was not included among the selected projects for funding.

⁴⁶ In December 2006, the project AEGRO was approved for funding by the EC.

Objectives

1. Development of crop-specific *in situ* management (ISM) workplans based on the genetic reserve concept;
2. Identification of sites suited for the organization of genetic reserves;
3. Case crop studies to reveal constraints impairing the application of the genetic reserve concept;
4. A GIS analysis of genetic reserve sites will discover the Most Appropriate Areas where a high amount of diversity can be maintained at good cost-value ratio;
5. The establishment of generic quality standards, since a European genetic reserve network requires standards;
6. A genetic reserve network in the Member States is similar to the ECPGR network of *ex situ* germplasm holdings. The collaboration between institutions requires (i) within-crop specific information systems and (ii) an information system for all CWR (see EGRISI proposal). AEGRO aims at the projected development of the European Central Crop Databases towards central coordination instruments for ISM;
7. Results arising from 1-6 above will be used to improve the generic concepts and methodologies launched by the already achieved PGR Forum project and to establish a Web-based helpdesk function for the development of national CWR and landraces ISM strategies.

Discussion

B. Bartha enquired why NGOs were not involved in these project proposals.

For ONFARMSAFE, V. Negri answered that an NGO is actually among the partners, and farmers' communities are going to be involved as subcontractors if the project is funded. She also pointed out that the ONFARMSAFE preparation process lasted over two years and that, in its initial phase, all Task Force members and many other colleagues were contacted in order to collect information about ongoing on-farm conservation activities and to spread information about this project. The present partnership is the result of this long process.

P. Freudenthaler added that when he was looking for ONFARMSAFE partners the main problem was the co-funding and the fact that the NGOs would have not been able to fund themselves in order to participate.

N. Maxted asked how the links between the formal sector and NGOs could be improved. B. Bartha replied that connections could be strengthened by creating an information platform at an international level. Indeed, NGOs rarely remain in contact and when this happens, it is mainly and most commonly only at a national level.

As a concrete proposal, N. Maxted suggested submitting to the attention of the Steering Committee the possibility of funding the participation of NGOs' representatives at ECPGR meetings. P. Freudenthaler commented that it is the responsibility of each country representative to bring the message from his/her relevant country, including the NGOs' point of view.

Development of new projects

László Holly chaired this section of the meeting and he asked for ideas and proposals.

The research topics agreed at the Isola Polvese meeting had already been reviewed according to the agenda (see pp. 4-9). It was noted that certain of these topics could be addressed if the 870/04 projects in preparation are funded.

L. Frese noted that the group suffered from a shortage of economists and that this does not help with project proposal preparation, since part of the necessary information is missing.

L. Holly added that the socioeconomic side is usually not well known to the policy-makers and possibly some public awareness raising should be carried out to overcome this problem. P. Freudenthaler mentioned that the *Avena* Working Group also proposed something similar. It was noted that an effort to raise funding for on-farm conservation activities is needed.

N. Maxted believes that a great opportunity to strengthen links with NGOs would be created by the submission of projects on vegetable conservation, vegetable dynamics or conservation of fruit trees (since these are the most grown crops) that would involve home gardens. He volunteered to write a half page note on this idea and submit it to the attention of the ECPGR Secretariat, in order to seek suggestions for funding opportunities. N. Maxted also informed the meeting that the Regional Office for Europe, Bioversity, was developing a Web page on where to find funds for projects.⁴⁷

B. Bartha commented that this seemed to be a national project rather than an international one. M. Manguette reported that in Belgium projects involving home gardens currently exist, and that Gembloux receives funds to carry them out, but they are strictly obliged to operate within the country.

The kind of information provided by genebanks was regarded as a problem, since members recognize that it is mainly, if not exclusively, restricted to passport data. P. Freudenthaler commented that genebanks should also make available characterization and evaluation data, since this would give a better idea of the material in store. Genebanks ask for this kind of information from outside users of the material. Denise Fu Dostatny commented that it is sometimes very difficult to collect data from farmers.

Workplan

N. Maxted will write the draft concept note on the European home garden project proposal to be circulated to all members for comments by August 2006.

Redefine tasks, responsibilities and time frame

V. Negri reminded the participants of the tasks agreed during the Isola Polvese meeting (2000). The entire list of past tasks was revised and decisions were taken and agreed on a new workplan for the TF, as shown in Appendix I.

Recommendations

- *Public awareness: the Task Force recognized the need to improve public awareness of on-farm conservation issues at all levels (i.e. within each of the Task Force members' remits, locally and internationally). Each Task Force member should commit her/himself to improve communication about on-farm conservation issues.*
- *The Task Force should strengthen links with farmers, farmer organizations, NGOs and amateurs, aiming at a better knowledge of the different on-farm conservation realities throughout Europe and of the needs of relevant stakeholders in on-farm conservation.*

⁴⁷ As of 1 December 2006 the Web page is no longer accessible.

- *Economists should be involved in this group in order to assess relevant economic advantages of on-farm conservation and to indicate relevant economic traits that should be recorded or monitored in on-farm conservation activities. A suggestion was made to invite economists working at Bioversity or other institutions to take part, or to contact them before the next meeting.*
- *Utilization aspect: how are landraces traded in different parts of Europe? For example, in Finland there is a legal procedure for trading in place. The TF should produce guidelines based on examples of how this is done in Europe and link this document with the planned publication on case studies of on-farm conservation practices.*
- *It was considered that closer links with Crop Networks should be created. The sustainability of the TF must be linked to the services it can provide to the other groups. The TF should be aware of the needs of the Crop Networks.*

Stefan Adam, a journalist who is a correspondent for DPA (German Press Agency) came to take a picture of the group and interviewed some members on the topics of the meeting and on its activities. His article was published by the local newspaper "Maerkische Oderzeitung".

Conclusion - Endorsement by the group of the progress report form to be addressed to the ECPGR Secretariat and the Steering Committee

A copy of the draft "progress report" was distributed to all members for approval. V. Negri requested feedback from the group. The members discussed it and asked for clarification of several different points of the proposed plan. They eventually agreed on the amended points of the document. They commented that if the work planned could be carried out by the end of next year they would do a great job!

The agreed version of the progress report of the Task Force for the period 2004-2006, submitted to the attention of the ECPGR Steering Committee during its meeting in September 2006, is given as Appendix II.

The group thanked Rudolf Vögel and Landesumweltamt Brandenburg (LUA) for organizing the meeting and Verein zur Erhaltung und Rekultivierung von Nutzpflanzen (VERN) for kindly showing its activities to the group.

The meeting was closed and the group then went for a visit to the Schorfheide-Chorin Biosphere Reserve.

APPENDICES

Appendix I. Workplan	32
Appendix II. Progress report of the Task Force on On-farm Conservation and Management for the period 2004-2006	34
Appendix III. Acronyms and abbreviations	37
Appendix IV. Agenda	38
Appendix V. List of participants	40

Appendix I. Workplan of the Task Force on On-farm Conservation and Management

Agreed at the Second Meeting of the ECPGR Task Force on On-farm Conservation and Management, 19-20 June 2006, Stegelitz, Germany. Updated as of January 2007.

Action	Carried out by	Date by when action should be completed
Revise the list of contacts considering only organizations and not private individuals involved in on-farm conservation activities, on the basis of information gathered by the TF members. This would include, at least: full address plus type of crop(s) managed.	V. Negri (Chair, Italy) in collaboration with all TF members	30 March 2007
TF members send their information to V. Negri	All TF members	30 March 2007
Documentation		
Finalize the minimum descriptors list for the documentation of on-farm conservation and management activities	V. Negri and D. Rusu (Romania), in consultation with other ongoing initiatives (EGRISI, ONFARMSAFE, Bioversity)	By next meeting (2007)
Produce a paper, taking into account grey literature, on how to establish local or regional historical inventories	Z. Stehno (Czech Republic) and B. Schierscher-Viret (Switzerland) with contribution from other TF members	By next meeting (2007)
Provide a list of available publications related to on-farm conservation in their respective countries	All TF members	By next meeting (2007)
Write a draft of possible project proposals to be carried out in close collaboration with NGOs and circulate it to all members of the TF	N. Macted	August 2006
Submit the proposal to the ECPGR Secretariat seeking guidance for funding sources	N. Macted	September 2006 (this matter is to be discussed further at the next TF meeting)
Provide information regarding seed legislation for genetic resources	P. Freudenthaler	As soon as possible
Compile information on developed methodologies for the conservation of traditional varieties. This would include information on: people, institutions, non-governmental organizations, local communities, farmers involved in and carrying out such activities, as well as on crops maintained on farm	V. Negri and P. Mendes Moreira (Portugal) with input from B. Bartha (NGO representative, Switzerland)	
Provide a report on on-farm activities in their relevant countries. This should include, at least: information on people, institutions, non-governmental organizations, local communities carrying out this kind of work	All TF members	By next meeting (2007)
Present this report during the meeting planned for 2007	All TF members	By next meeting (2007)

Action	Carried out by	Date by when action should be completed
<p>Public awareness</p> <p>Produce a publication on case studies to be co-authored by relevant representative persons of Crop Networks</p> <p><u>DRAFT SCHEMA:</u></p> <p>The following information should be reported:</p> <ul style="list-style-type: none"> • Species • Location • Main actors in conservation (i.e. governmental organizations, farmers, NGOs, private persons etc) • Activities carried out • Results • Perspectives • References • Contact(s) <p>Produce an “European landrace conservation” paper(s) in Bioversity Technical Bulletin</p>	<p>Volunteer members: V. Negri (Italy, for beans); M. Veteläinen (Finland, to request external contribution for forages and cereals); L. Frese (Germany, for sugar beet); B. Bartha (Switzerland, for vegetables); and N. Ferant (Slovenia, for medicinal and aromatic plants)</p> <p>All interested TF members</p>	<p>Timing and type of this publication to be clarified at the next meeting</p>

Appendix II. Progress report of the Task Force on On-farm Conservation and Management for the period 2004-2006

Submitted to the attention of the ECPGR Steering Committee during its meeting in September 2006

I. RESULTS			
a. Comparison of workplan (milestones) versus results obtained			
<i>Workplan (milestones)</i>	<i>Which results have been obtained?</i>	<i>Which aims/goals have not been (fully) reached?</i>	<i>Completeness ratio (%)</i>
Milestone 1 Produce a directory of on-farm conservation organizations	Preliminary directory produced	Publication on Bioversity Web site	> 80%
Milestone 2 Produce information about seed legislation	Verbal report of seed legislation was provided by P. Freudenthaler, Austria (see report published for the Second meeting)	N/A	100%
Milestone 3 Descriptors for the documentation of on-farm conservation and management	Examples made available from Italy and Romania. Likely to be further developed as a product of the 870/2004 applications	A complete publication on descriptors for on-farm documentation	50%
Milestone 4 Methodologies for the conservation of traditional varieties involving farmers and local communities	Examples made available from Portugal, Italy and UK	A complete publication on methodologies for on-farm documentation	75%
Milestone 5 Develop a model to establish local or regional historical inventories, based on information collected	Verbal report was provided by Z. Stehno, Czech Republic (see report published for the Second meeting)	N/A	100%
Milestone 6 (NEW) Formulate and publish methodology for the creation of national inventories of landraces	A presentation of case studies (from UK) plus generalized methodology was given during the Second meeting. The paper will be published soon	N/A	100%

b. Contribution to the four ECPGR priorities for Phase VII	
1. Characterization/evaluation (including modern technologies)	
<p>Members of the Task Force are partners in the EC 870/2004 application EGRISI which will involve a component of predictive characterization and evaluation of on-farm conserved diversity. Members of the Task force are also partners in the EC 870/2004 application ONFARMSAFE which will involve the morphological and molecular characterization of on-farm maintained genetic resources (landraces) of important crops like <i>Brassica oleracea</i> and <i>Phaseolus vulgaris</i>. So future actions are planned if the grant applications are successful.</p>	
2. Task sharing	
<p>The group has worked very well in sharing tasks. It was collaborative, as evidenced by the results given above. The group has made a direct link and established a dialogue with the ECPGR Crop Networks, via the NCG Meeting in Bonn, to ensure the group is working to meet the needs of the Crop Networks. Members of the Task Force are also partners in the EC 870/2004 application AEGRO which will result in closer working links between the Crop Networks and the On-Farm Task Force to implement on-farm exemplar conservation. So further action is planned if the grant application is successful.</p>	
3. <i>In situ</i> /on-farm conservation and development	
All our actions conform to this priority.	
4. Documentation and information	
<p>Refer to the milestones section for the documents produced. The TF looks forward to a closer collaboration with the Documentation and Information Network such as the inclusion of a member of the Task Force within the Documentation and Information Network to promote synergies.</p>	
c. Relevance (regional / international)	
<i>Did your work and/or outputs have inter-regional dimension? (if it did, give precisions)</i>	
Yes. See: impact factors of the papers published by members of the TF (references p. 36).	
d. Lessons learnt (recommendations)	
<i>Which lessons learnt are also relevant for other Working Groups?</i>	
Continuity guarantees results. Lack of funding remains a limitation to progress.	

II. ANALYSIS	
a. Bottlenecks	
<i>What were the experienced bottlenecks?</i>	<i>How do you plan to solve the bottlenecks?</i>
1. Identification of sources of funding	Ask for ECPGR Secretariat support in locating funds
2. Most of members of the TF changed since the last Phase (VI)	Ask the ECPGR Secretariat to review the Nomination process for Task Force membership
b. Internal support needed (Secretariat, Steering Committee, other Working Groups, etc.)	
Support is required from the ECPGR Secretariat as outlined above. Clearer definition of what other Working Groups require from the On-Farm Task Force to help us meet their needs.	
c. External resources needed (collaboration, external funding)	
External funding required for more activities.	

III. PLANS	
a. Planned activities	b. Expected results
1. List of contacts revised, considering only organizations and not private individuals, on the basis of information gathered by the TF members	Better circulation of information with relevance to on-farm conservation activities
2. Descriptors for the documentation of on-farm conservation and management finalized	Better recording of on-farm information
3. Methodologies for the conservation of traditional varieties involving farmers and local communities completed	Better information on prospects for increasing use of traditional varieties
4. List of published literature + grey literature produced, on developed model(s) to establish local or regional historical inventories, based on information collected	Useful information in carrying out historical research to assess the socioeconomic and cultural context of landraces
5. Reports of on-farm activities in different European countries collected and compiled	Better information on on-farm activities at the European level
6. Public awareness: publish glossy fact sheet publications on case studies to be co-authored by relevant representative persons of Crop Networks	Increased public awareness on on-farm conservation and tightened links with Crop Networks

Bibliography

1. Porfiri, O., R. Torricelli, D.D. Silveri, R. Papa, G. Barcaccia and V. Negri. 2001. The *Triticeae* genetic resources of central Italy: collection, evaluation and conservation. *Hereditas* 135:187-192.
2. Tosti, N. and V. Negri. 2002. Efficiency of three PCR-based markers in assessing genetic variation among cowpea (*Vigna unguiculata* subsp. *unguiculata* (L) Walp.) landraces. *Genome* 45:268-275.
3. Negri, V. and N. Tosti. 2002. *Phaseolus* genetic diversity maintained on farm in Central Italy. *Genetic Resources and Crop Evolution* 49:511-520.
4. Maxted, N., L. Guarino, L. Myer and E.A. Chiwona. 2002. Towards a methodology for on-farm conservation of plant genetic resources. *Genetic Resources and Crop Evolution* 49:31-46.
5. Negri, V. 2003. Landraces in central Italy: Where and why they are conserved and perspectives for their on farm conservation. *Genetic Resources and Crop Evolution*. 50(8):871-885.
6. Negri, V. 2005. Agro-biodiversity conservation in Europe: ethical issues. *J. of Agricultural and Environmental Ethics* 18(1):3-25.
7. Tosti, N. and V. Negri. 2005. On-going on-farm microevolutionary processes in neighbouring cowpea landraces revealed by molecular markers. *Theoretical and Applied Genetics* 110:1275-1283 (DOI: 10.1007/s00122-005-1964-1).
8. Camacho Villa, T.C., N. Maxted, M.A. Scholten and B.V. Ford-Lloyd. 2005. Defining and identifying crop landraces. *Plant Genetic Resources: Characterization and Utilization* 3(3):373-384.
9. Gauchan, D., M. Smale, N. Maxted and M.A. Cole. 2005. Managing rice biodiversity on farms: The choices of farmers and breeders in Nepal. Pp. 162-175 in *Valuing crop biodiversity: On-farm genetic resources and economic change* (M. Smale, ed). CABI Publishing, Wallingford, UK.
10. Gauchan, D., M. Smale, N. Maxted, M. Cole, B.R. Sthapit, D. Jarvis and M. Upadhyay. 2005. Socioeconomic and agroecological determinants of conserving diversity on-farm: The case of rice genetic resources. *Nepal Agriculture Research Journal* 6:89-98.
11. Gauchan, D., N. Maxted, M. Cole, M. Smale, M. Upadhyay, B. Baniya, A. Subedi and B.P. Sthapit. 2005. Policy incentives for conservation and the sustainable use of crop genetic resources in Nepal. Pp. 135-148 in *On-farm conservation of agricultural biodiversity in Nepal. Volume II: Managing diversity and promoting its benefits. Proceedings of the Second National Workshop, 25-27 August 2004, Nagarkot, Nepal.* (B.R. Sthapit, P.K. Shrestha, M.P. Upadhyay and D.I. Jarvis, eds). International Plant Genetic Resources Institute, Rome, Italy.
12. Gauchan, D., M. Smale, N. Maxted, M. Cole, B.R. Sthapit, D.I. Jarvis and M. Upadhyay. 2005. On-farm conservation of crop genetic diversity: examining farmers' and breeders' choice of rice varieties in Nepal. Pp. 17-27 in *On-farm conservation of agricultural biodiversity in Nepal. Volume II: Managing diversity and promoting its benefits. Proceedings of the Second National Workshop, 25-27 August 2004, Nagarkot, Nepal.* (B.R. Sthapit, P.K. Shrestha, M.P. Upadhyay and D.I. Jarvis, eds). International Plant Genetic Resources Institute, Rome, Italy.

Appendix III. Acronyms and abbreviations

AEGRO	An integrated European <i>In Situ</i> management workplan: implementing Genetic Reserves and On-farm concepts
CBD	Convention on Biological Diversity
CCDB	Central Crop Database
COP	Conference of the Parties (of the CBD)
CWR	Crop wild relatives
CWRIS	Crop Wild Relative Information System
DEFRA	Department for Environment, Food and Rural Affairs, UK
ECP/GR	European Cooperative Programme for Crop Genetic Resources Networks (<i>now ECPGR</i>)
ECPGR	European Cooperative Programme for Plant Genetic Resources (<i>formerly ECP/GR</i>)
EGRISI	European Genetic Resources <i>In Situ</i> Inventory
EURISCO	European Internet Search Catalogue
EVIRA	Food Safety Authority, Finland
GIS	Geographic information system
GPA	Global Plan of Action
GRIN	Germplasm Resources Information Network
IPGRI	International Plant Genetic Resources Institute (<i>now Bioversity International</i>)
IPK	Leibnitz Institute of Plant Genetics and Crop Plant Research, Germany
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LR	Landrace
NCG	Network Coordinating Group
NFP	National Focal Point
NGO	Non-governmental organization
ONFARMSAFE	On-farm safeguard of plant genetic resources
PGR	Plant genetic resources
PGRFA	Plant genetic resources for food and agriculture
PMB	Participatory maize breeding
TF	Task Force
VERN	Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg (Association for the conservation and recultivation of crops in Brandenburg)

Appendix IV. Agenda

Second Meeting of the ECPGR Task Force on On-farm Conservation and Management 19-20 June 2006, Stegelitz, Germany

Monday 19 June 2006

Morning session (Chair: N. Maxted)

- 8.30–8.45 **Welcome addresses** (*R. Vögel and V. Negri*)
- 8.45–9.00 **Briefing on ECPGR Phase VII** (*A. Del Greco, 15'*)
- 9.00–10.15 **Tasks agreed at Isola Polvese meeting and progress made**
- Directory of organizations and individuals (*V. Negri, 10'*)
 - Legislation and support to on-farm conservation (*P. Freudenthaler, 30'*)
- Discussion (35')*
- 10.15–10.45 *Coffee break*
- 10.45–12.30 **Tasks agreed at Isola Polvese meeting and progress made** (*continued*)
- On-farm conservation issues in Europe (*Z. Stehno - M. Veteläinen, 30'*)
 - Historical inventories (*Z. Stehno, 15'*)
- Discussion (60')*
- 12.30–13.00 **Public awareness**
- The role of Bioersivity and Network members (*introduced by A. Del Greco, 15'*)
 - Discussion about volunteers to fill in a dedicated Web page (*15'*)
- 13.00–14.30 *Lunch*

Afternoon session (Chair: V. Negri)

- 14.30–15.30 **Towards a more comprehensive definition of “landrace” than currently published** (*introduced by N. Maxted, 15'*)
- Discussion (45')*
- 15.30–16.15 **Methodologies for the creation of National/European inventories** (*introduced by N. Maxted, 15'*)
- Discussion (30')*
- 16.15–16.45 *Coffee break*
- 16.45–17.30 **National experience**
- Twenty years of participatory maize breeding (Portuguese landraces) in the Sousa Valley, Portugal (*P. Moreira, 15'*)
 - Conservation of fruit tree varieties in the Walloon region (*M. Manguette, 15'*)
 - On-farm management work in northeastern Germany (*R. Vögel, 15'*)
- 17:30–18.00 **International projects funded/submitted**
- ONFARMSAFE (*V. Negri, 15'*)
 - EGRISI (*N. Maxted, 15'*)
 - and possibly others

Tuesday 20 June 2006**Morning session (Chair: L. Holly)**

- 8.30–9.00 **Development of new projects** (*All*)
- 9.00–10.00 **Redefine tasks, responsibilities and time frame** (*All*)
- 10.00–10.30 *Coffee break*
- 10.30–11.00 **Drafting of recommendations from the meeting** (*V. Negri, N. Maxted and A. Del Greco*) / *Free time for the rest of the group*
- 11.00–12.30 **Assessment of progress made by the Task Force: preparation of the form to be provided to ECPGR Secretariat and Steering Committee (in the standard format)** (*V. Negri, N. Maxted and A. Del Greco*) / *Free time for the rest of the group*
- 12.30–14.00 *Lunch*

Afternoon session (Chair: V. Negri)

- 14.00–15.00 **Endorsement by the group of the progress report form to be addressed to the ECPGR Secretariat and the Steering Committee**
- 15.00–18.00 *Visit to the Schorfheide-Chorin Biosphere Reserve*
- 19.30 *Social dinner*

Appendix V. List of participants

Second Meeting of the ECPGR Task Force on On-farm Conservation and Management 19-20 June 2006, Stegelitz, Germany

Chair

Valeria Negri
Dip. di Biologia Vegetale e Biotecnologie
Agroambientali e Zootecniche,
Sez. Genetica e Miglioramento Genetico
Facoltà di Agraria,
Università degli Studi di Perugia
Borgo XX Giugno, 74
06121 Perugia

Italy

Tel: (39) 0755856218
Fax: (39) 0755856224
Email: vnegri@unipg.it

Task Force members

Paul Freudenthaler
Austrian Agency for Health and Food
Safety GmbH (AGES)
Institute for Potatoes and Plant Genetic
Resources
Wieningerstrasse 8
4020 Linz
Austria
Tel: (43-732) 381261/260
Fax: (43-732) 385482
Email: paul.freudenthaler@ages.at

Natiga Nabiyeva
Genetic Resources Institute of National
Academy of Sciences of Azerbaijan
Azadlig ave 155
AZ1106 Baku
Azerbaijan
Tel: (994-12) 5629171
Fax: (994-12) 4499221
Email: gen_eht@yahoo.com

Marie Manguette
Centre Wallon de Recherches
Agronomiques (CRA-W)
Dépt. de Lutte biologique et Ressources
phytogénétiques
Rue de Liroux 4
5030 Gembloux
Belgium
Tel: (32-81) 620333
Fax: (32-81) 620348
Email: villette@cra.wallonie.be

Zdeněk Stehno
Genebank Department
Crop Research Institute
Drnovska 507
161 06 Praha 6-Ruzyně
Czech Republic
Tel: (420) 233022364
Fax: (420) 233022286
Email: stehno@vurv.cz

Merja Veteläinen
MTT Agrifood Research Finland
Biotechnology and Food Research
Tutkimusasemantie 15
92400 Ruukki
Finland
Tel: (358-8) 2708 4527
Fax: (358-8) 2708 4599
Email: merja.vetelainen@mtt.fi

Taiuli Berishvili
Agrobiodiversity Protection Society "Dika"
III Delisi Str., Nakveti 16
380077 Tbilisi
Georgia
Tel: (995-32) 328321
Fax: (995-32) 536487
Email: crop@dika.org.ge

Rudolf Vögel
Landesumweltamt des Landes
Brandenburg (LUA), Abt. GR
Tramper Chaussee 2
16225 Eberswalde
Germany
Tel: (49-3334) 662728 (switch: 66260) /
mobile: 0172-9935497
Fax: (49-3334) 662650
Email: rudi.voegel@lua.brandenburg.de

László Holly
Central Agricultural Office, Directorate of
Plant Production and Horticulture
Research Centre for Agrobotany
Külsömezö 15
2766 Tápiószele
Hungary
Tel: (36-53) 380070
Fax: (36-53) 380072
Email: lholly@agrobot.rcat.hu

Denise Fu Dostatny
(on behalf of Zofia Bulinska)
Plant Breeding and Acclimatization
Institute (IHAR)
National Centre for Plant Genetic
Resources
Radzików
05870 Blonie
Poland
Tel: (48-22) 7253611/279
Fax: (48-22) 7254714
Email: d.dostatny@ihar.edu.pl

Pedro Manuel Reis Mendes Moreira
Departamento de Fitotecnia
Escola Superior Agrária de Coimbra
Bencanta
3040-316 Coimbra
Portugal
Tel: (351) 919256447
Fax: (351) 239802979
Email: pmoreira@mail.esac.pt

Diana Rusu
(on behalf of Silvia Strajeru)
Banca de Resurse Genetice Vegetale
Suceava
Bulevardul 1 Decembrie 1918 nr. 17
720237 Suceava
Romania
Tel: (40-230) 521016
Fax: (40-230) 521016
Email1: dia_sv@yahoo.com
Email2: genebank@suceava.astral.ro

Daniela Benediková
Research Institute of Plant Production
Genebank Piešťany
Slovak Agricultural Research Centre
Bratislavská cesta 122
921 68 Piešťany
Slovakia
Tel: (421-33) 7722311/12/26/27
Fax: (421-33) 7726306
Email: benedikova@vurv.sk

Nataša Ferant
Institute for Hop Research and Brewing
Cesta Žalskega tabora 2
3310 Žalec
Slovenia
Tel: (386-3) 7121635
Fax: (386-3) 7121620
Email: natasa.ferant@guest.arnes.si

Beate Schierscher-Viret
(on behalf of Gert Kleijer)
Swiss Commission for the conservation of
cultivated plants CPC-SKEK
Domaine de Changins
CP 1012
1260 Nyon 1
Switzerland
Tel: (41-22) 3634701
Fax: (41-22) 3634690
Email:
beate.schierscher-viret@rac.admin.ch

Nigel Maxted
School of Biosciences
University of Birmingham
Edgbaston
Birmingham B15 2TT
United Kingdom
Tel: (44-121) 4145571
Fax: (44-121) 4145925
Email1: N.Maxted@bham.ac.uk
Email2: nigel.maxted@dial.pipex.com

ECPGR Secretariat

Aixa Del Greco
Regional Office for Europe
Bioersity International
Via dei Tre Denari 472/a
00057 Maccarese
Rome
Italy
Tel: (39) 066118224
Fax: (39) 0661979661
Email: a.delgreco@cgiar.org

Observers

Bidzina Peradze
St Petersburgs str. 1/86
Tbilisi
Georgia
Tel: (995-32) 954589
Fax: (995-32) 536487
Email: crop@elkana.org.ge

Lothar Frese
Federal Centre for Breeding Research on
Cultivated Plants (BAZ)
Research and Coordination Centre for
Plant Genetic Resources (FKZPGR)
Erwin-Baur-Str. 27
06484 Quedlinburg
Germany
Tel: (49-3946) 47701
Fax: (49-3946) 47255
Email: l.frese@bafz.de

Dang Van Nien
Verein zur Erhaltung und Rekultivierung
von Nutzpflanzen (VERN e.V.)
Burgstr. 20
16278 Angermunde
Germany
Tel: (49-3334) 170232
Fax: (49-3334) 185102
Email: niendvan@hotmail.com

Mihaela Černe
Španova pot 5
1000 Ljubljana
Slovenia
Tel: (386-1) 2563433
Email: mihaela.cerne@siol.net

Béla Bartha
ProSpecieRara
Pfrundweg 14
5000 Aarau
Switzerland
Tel: (41-62) 8320820/21
Fax: (41-62) 8320825
Email: bela.bartha@psrara.org

Task Force members unable to attend

Nikolaos Stavropoulos
Greek Gene Bank,
Agricultural Research Centre of
Makedonia and Thraki (ARCMTH)
PO Box 312
57001 Thermi-Thessaloniki
Greece
Tel: (30) 2310471544
Fax: (30) 2310471209
Email: kgeggb@otenet.gr

Zofia Bulinska-Radomska
Plant Breeding and Acclimatization
Institute (IHAR)
National Plant Genetic Resources Centre
Radzików
05870 Blonie
Poland
Tel: (48-22) 7254715
Fax: (48-22) 7254714
Email: z.bulinska@ihar.edu.pl

Lambert Visser
 Centre for Genetic Resources,
 the Netherlands (CGN)
 Wageningen University and Research
 Centre
 PO Box 16
 6700 AA Wageningen
The Netherlands
 Tel: (31-317) 477184
 Fax: (31-317) 418094
 Email: Bert.Visser@wur.nl

Silvia Strajeru
 Banca de Resurse Genetice Vegetale
 Suceava
 Bulevardul 1 Decembrie 1918 nr. 17
 720237 Suceava
Romania
 Tel: (40-230) 521016
 Fax: (40-230) 521016
 Email1: genebank@suceava.astral.ro
 Email2: silvia_strajeru@yahoo.com

Juan José Ruiz Martínez
 Escuela Politécnica Superior de Orihuela
 (EPSO)
 Universidad Miguel Hernandez (UMH)
 Carretera de Beniel km 3.2
 03312 Orihuela, Alicante
Spain
 Tel: (34-966) 749615/75
 Fax: (34-966) 749619
 Email: juanj.ruiz@umh.es

Gert Kleijer
 Ressources Génétiques/Qualité
 Station de Recherche Agroscope
 Changins-Wädenswil
 Case postale 1012
 1260 Nyon 1
Switzerland
 Tel: (41-22) 3634444/4726 (dir)
 Fax: (41-22) 3634690
 Email: geert.kleijer@acw.admin.ch

Ayfer Tan
 Aegean Agricultural Research Institute
 (AARI)
 PO Box 9 Menemen
 35661 Izmir
Turkey
 Tel: (90-232) 8461331
 Fax: (90-232) 8461107
 Email1: etae@aari.gov.tr
 Email2: pgr@aari.gov.tr

Observers unable to attend

Lorenzo Maggioni
 Regional Office for Europe
Bioversity International
 Via dei Tre Denari 472/a
 00057 Maccarese
 Rome
 Italy
 Tel: (39) 066118231
 Fax: (39) 0661979661
 Email: l.maggioni@cgiar.org

