

**Promoting implementation of national and regional
crop wild relative (CWR) conservation strategies through
sharing of knowledge and experience to create an
integrated European strategy for CWR conservation
(CWR Conservation Strategies)**

January – December 2016

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April 2017

CWR Conservation Strategies

Activity Report

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INTRODUCTION

The 'ECPGR Concept for *in situ* conservation of crop wild relatives in Europe' (Maxted et al. 2015) states that "achieving effective and systematic *in situ* conservation of CWR diversity in Europe centres on two core levels of conservation strategy planning: national and regional (European). At each level, priority CWR populations (Most Appropriate Wild Populations [MAWPs]) are designated for inclusion in an *in situ* management network of national and regional MAWPs as part of an integrated CWR conservation strategy for Europe. The integrated strategy therefore combines complementary national (bottom-up) and regional (top-down) approaches to conservation planning". This requires input of different stakeholders at both levels. The previously implemented EC-funded projects PGR Forum, AEGRO and PGR Secure have stimulated the identification of priority CWR populations and the development of national CWR conservation strategies in about half of European countries. Yet, many crucial questions remain unanswered and implementation at both national and regional level is required to achieve effective and systematic European CWR conservation. As the creation of the *integrated* European CWR conservation strategy combines multiple national CWR strategies with the regional strategy, it is of crucial importance to effectively share knowledge and experience between as many European countries as possible and involving all stakeholders.

To achieve this goal and move towards a self-sustaining, integrated European CWR conservation strategy, the tasks of the Wild Species Conservation in Genetic Reserves Working Group (below shortened to Wild Species Conservation WG) are to: (1) develop, debate and agree the standards for European CWR genetic reserve designation and so provide a practical *modus operandi* for European CWR genetic reserve designation; (2) provide recommendations as for which potential CWR populations should be nominated for inclusion in the network of CWR *in situ* conservation reserves at the national and European levels. The latter includes approval of European priority CWR species and other issues of European level. The ECPGR Activity "CWR Conservation Strategies" was initiated to discuss and implement these goals and thus contribute to the Outputs 3.1–3.3 of the Objectives of ECPGR for Phase IX (2014–2018) (ECPGR 2015) concerning the most topical issues of the national, regional and integrated CWR conservation strategies. The Activity Proposal, including the list of partners is available from the [CWR Activity webpage](#).

APPROACH

The Activity included three steps:

1. The preparatory phase, where activity leaders planned and initiated a participatory process to achieve the two goals mentioned above and developed the agenda of the workshop. For this purpose, an extensive email communication and Skype conferences were used. A key action prior to this was the preparation of a questionnaire for WG members "On current status of the development of national CWR conservation strategies and action plans in European countries" (see Annex). The questionnaire was sent to the Activity partners from 39 countries soon after the project was approved by the ECPGR Executive Committee in November 2015 and responses analysed and presented during the workshop.
2. A discussion workshop, with two sessions (a joint Nordic / ECPGR Wild Species Conservation WG meeting and a separate meeting of the WG alone) was organized. Three discussion sessions (on national, regional and integrated CWR conservation strategies) with four discussion groups (two from each counterpart) were convened. Most of the presentations and part of the discussions were broadcast over the Internet to the whole community of the ECPGR WG.
3. Finally, in the post-workshop phase the final draft of the Workshop Proceedings was prepared. Guidelines for further activities and a draft document detailing the prioritization process and a list of CWR species and related information are also under preparation.

RESULTS

The core action of the Activity was the [Joint Nordic / ECPGR Workshop](#) held 19–22 September 2016 in Vilnius, Lithuania. It was attended by 46 persons, including 17 members of the ECPGR Wild Species Conservation WG and 9 National Coordinators, from 20 countries. Among the participants there were representatives from universities, research institutes, genebanks, ministries of environment, forestry, food and agriculture, agencies, protected areas, natural history museums and botanical gardens. Abstracts of presentations, discussions and participant lists are presented in the Workshop Proceedings (Maxted et al. 2017), available online from the [CWR Activity webpage](#).

In the post-workshop period the WG concentrated on the preparation of a Horizon 2020 Community Support Action for the Work Programme 2016–2017 (short name ‘Farmer’s Pride’) which calls for the building of new partnerships and tools to enhance European capacities for *in situ* conservation. A document detailing the CWR prioritization process and a list of CWR species and related information, as planned during the Workshop, is still under preparation and it is anticipated that this will be circulated to stakeholders for feedback in the first quarter of 2017. Also, the Chair of the WG anticipates contacting National Coordinators to ask them for action regarding the development of national strategies for each country in Europe by sending them a letter in the first quarter of 2017.

RECOMMENDATIONS

The Joint Workshop came up with a number of recommendations to ECPGR and to Nordic policy-makers. Those addressed to ECPGR are copied below (extract from the Proceedings).

Recommendations to ECPGR

These recommendations are based on discussions held within the ECPGR discussion groups and relate to future Wild Species Conservation WG actions.

1. Encourage National Coordinators to take a more proactive role in organizing and coordinating multi-stakeholder involvement in the development of effective national CWR strategies in European countries.
2. Raise awareness of CWR importance on European-wide scale by producing a general talk on CWR and share with the countries (University of Birmingham – UoB), factsheets for general public, technical and policy-makers (UoB), creation of Facebook page, Twitter, etc.
3. Foster the application of genetic reserve quality standards (Iriondo et al. 2012) in the development of national CWR conservation strategies.
4. Include investigation of the impact of global changes, i.e. climate change, on genetic reserve conservation planning as appropriate.
5. Improve cooperation between Wild Species Conservation and other Working Groups to facilitate the implementation of ECPGR objectives and, particularly, the Outcome 3, by starting with a large joint meeting.
6. Implement European and national genetic reserve networks through agreement on regional (European) and national MAWPs (Most Appropriate crop Wild relative Population) based on scientific and pragmatic argumentation.
7. Link CWR conservation to use by employing tools to be provided by Documentation and Information WG.
8. Lobby EU policy decision makers to establish an EU agency responsible for plant genetic resources conservation and utilization.
9. Search for funding opportunities for CWR research and networking projects both at national and European levels.
10. Develop more effective communication strategy for ECPGR with other stakeholders by employing examples of good practice (investigate successful approach of EUFORGEN).
11. Invite representatives from other stakeholder groups, primarily, policy-makers from ministries of environment and nature conservation sectors to join the Wild Species Conservation WG.
12. Put further efforts to promote cooperation with the nature conservationists at both national and European levels towards better integration of CWR conservation with other biodiversity conservation activities in Europe.

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ANNEX. ECPGR WILD SPECIES CONSERVATION IN GENETIC RESERVES WG QUESTIONNAIRE 2015

The questionnaire focused on obtaining information on current status of the development of national CWR conservation strategies and action plans in European countries

Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
1. At what stage is your national CWR conservation strategy prepared?	• Not yet started	Indicate reason(s): lack of funds, lack of technical expertise, lack of data, other reason.	
	• In preparation	Indicate what is already done: national CWR checklist prepared, priority CWR list prepared, identified threats to priority CWR, etc.	
	• First draft prepared	Manuscript submitted for publication	
	• In press	Manuscript accepted for publication	
	• Published	Provide reference to the published paper	
	• Published and approved	Published and endorsed at national level	
2. What main elements are included in your national CWR conservation strategy?	• Creation of national CWR checklist	A taxonomic checklist of CWR diversity.	
	• Prioritization of national CWR taxa/diversity	The CWR taxa are prioritized, particularly if the number of taxa exceeds the number that can be conserved using the available resources.	
	• Diversity analysis of priority CWR	Diversity analysis consists of identification of hotspot, complementarity, ecogeographic and genetic diversity.	
	• Gap analysis and statement of priority conservation actions required.	Identification of gaps in current conservation activities and statement of most necessary actions needed to improve situation.	
	• Implementation of <i>in situ/ex situ</i> CWR conservation priorities by appropriate agencies	This is the statement of how the priority conservation actions identified above should be implemented.	
	• Increased awareness of CWR value, need of conservation and use of CWR diversity by various user communities	This can be emphasised in the introduction of the strategy or stated in a separate chapter if particular measures are planned.	

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Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
3. What is the occurrence status (autochthony) of the priority CWR included in the strategy?	<ul style="list-style-type: none"> • Only native species included 	Also called autochthonous species	
	<ul style="list-style-type: none"> • Native and archaeophyte species included 	Archaeophytes generally are plant species introduced in a given geographical region before 1500 A.D.	
	<ul style="list-style-type: none"> • Native, archaeophyte and neophyte species included 	Neophytes are plant species that were introduced after 1500 A.D. Indicate if using different datum-line.	
4. Which categories of crop use were selected to prioritize the nation's CWR?	<ul style="list-style-type: none"> • Human food 	May include beverages.	
	<ul style="list-style-type: none"> • Animal food 	Forage and fodder species.	
	<ul style="list-style-type: none"> • Forestry species 	May include short rotation forestry, coppice.	
	<ul style="list-style-type: none"> • Cultivated medicinal and aromatic plants 		
	<ul style="list-style-type: none"> • Industrial crops 	Oil, fibre, energy crops, etc.	
	<ul style="list-style-type: none"> • Cultivated ornamental plants 		
	<ul style="list-style-type: none"> • Other 		
5. Which other prioritization criteria were applied?	<ul style="list-style-type: none"> • Economic value of the related crop 	Economic value can be assessed using official statistical data, like FAOSTAT, EUROSTAT and national statistics portals.	

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Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
	<ul style="list-style-type: none"> Utilization potential of the CWR (based on the degree of relatedness to the crop and/or known potential for conferring useful traits) 	Degree of relatedness to the crop is being assessed by employing 'gene pool' and 'taxon group' concepts as described by Harlan and de Wet (1971) ¹ and Maxted et al. (2006) ² , respectively. In addition, a 'provisional gene pool concept' (PGP), proposed by Vincent et al. (2013) ³ , is suggested when there is published crossability evidence between a certain crop and a related taxon.	
	<ul style="list-style-type: none"> Relative level of threat 	IUCN, Regional and National Red List assessments.	
	<ul style="list-style-type: none"> Other criteria: 		
6. What method of prioritization was applied?	<ul style="list-style-type: none"> Serial 	Using one criterion then another, etc.	
	<ul style="list-style-type: none"> Parallel 	Scoring each criterion then summing the scores.	
7. How many CWR species are included in the national checklist and in the national priority list?	<ul style="list-style-type: none"> Number of CWR species in the national checklist 	Indicate also the number of subspecies included if available.	
	<ul style="list-style-type: none"> Number of CWR species in the national priority list 	Indicate also the number of subspecies included if available.	

¹ Harlan JR and de Wet JMJ. 1971. Toward a Rational Classification of Cultivated Plants. *Taxon* 20(4): 509–517.

² Maxted N, Ford-Lloyd BV, Jury SL, Kell SP, Scholten MA. 2006. Towards a definition of a crop wild relative. *Biodiversity and Conservation* 15:2673–2685.

³ Vincent H, Wiersema J, Kell S, Fielder H, Dobbie S, Casteñeda-Álvarez NP et al. 2013. A prioritized crop wild relative inventory to help underpin global food security. *Biological Conservation* 167: 265–275.

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Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
8. What types of CWR conservation actions have been proposed in your national strategy? Please indicate the number of each type.	• Number of genetic reserves	Genetic reserves (GR) to be established within existing protected areas (PA).	
	• Number of extra-PA <i>in situ</i> sites	<i>In situ</i> conservation sites to be established outside existing PAs.	
	• Number of taxa requiring <i>ex situ</i> sampling	Number of species, subspecies, etc., requiring <i>ex situ</i> sampling	
	• Number of populations requiring <i>ex situ</i> sampling	Number of populations (subpopulations) within species or subspecies requiring <i>ex situ</i> sampling	
	• Other (please specify):		
9. Have any priority CWR sites (GR) identified in the strategy been formally established?	• Yes / No		
	• If yes, how many?		
	• Size (hectares, min–max):	Indicate average size and its range	
	• Do the sites meet Iriondo <i>et al.</i> (2012) ⁴ minimum criteria? Yes / No	The answer may be “Partly” too.	
10. Have any priority CWR extra-PA <i>in situ</i> sites been formally established?	• Yes / No		
	• If yes, how many?		
	• Size (hectares, min–max):	Indicate average size and its range	
	• Do the sites meet Iriondo <i>et al.</i> (2012) minimum criteria? Yes / No	The answer may be “Partly” too.	

⁴ Iriondo JM, Maxted N, Kell SP, Ford-Lloyd BV, Lara-Romero C, Labokas J, Magos Brehm J. 2012. Quality standards for genetic reserve conservation of crop wild relatives. In: Maxted N, Dulloo ME, Ford-Lloyd BV, Frese L, Iriondo JM, Pinheiro de Carvalho MAA (eds.). *Agrobiodiversity Conservation: Securing the Diversity of Crop Wild Relatives and Landraces*. Pp. 72–77. CAB International, Wallingford, UK.

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Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
11. What is coverage of priority CWR conserved by PA and extra-PA <i>in situ</i> sites?	• Number of CWR taxa included	Indicate number of CWR species, subspecies, etc.	
	• Percentage of CWR taxa included	Indicate percentage of CWR species, subspecies, etc.	
12. What is coverage of priority CWR conserved <i>ex situ</i> as seed accessions in genebanks?	• Number of CWR taxa included	Indicate number of CWR species, subspecies, etc.	
	• Number of CWR taxa with more than 5 accessions	Indicate number of CWR species, subspecies, etc., represented with more than 5 accessions <i>ex situ</i> .	
	• Percentage of CWR taxa included	Indicate percentage of CWR species, subspecies, etc.	
	• Percentage of CWR taxa with more than 5 accessions	Indicate percentage of CWR species, subspecies, etc., represented with more than 5 accessions <i>ex situ</i> .	
13. What are limitations found in the generation of the national strategy? Please assess their impact (use 1= very low, ..., 3= medium, ..., 5= very high; 6= unsure)	• Quantity of inventory data		
	• Quality of inventory data		
	• Lack of a central, national data base on CWR		
	• Divided political competences		
	• Lack of cooperation between the species conservation sector and the agricultural genebank sector		
	• Lack of public awareness		
	• Lack of expertise		
	• Lack of political interest at the national level		
	• Lack of political interest at the EU level		
• Lack of a EU regulation for plant genetic resources			

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Question	Answer (choose appropriate)	Explanation	Enter Answers in this column
	<ul style="list-style-type: none"> • Lack of a EU agency for genetic resources • Other (please specify) 		
14. Which competent authorities have been involved in the development and implementation of your national CWR conservation strategy?	<ul style="list-style-type: none"> • Authority involved in the development of CWR conservation strategy: 	Examples: Ministry of Agriculture, Ministry of Environment, etc.	
	<ul style="list-style-type: none"> • Authority involved in the implementation of CWR conservation strategy: 		
	<ul style="list-style-type: none"> • Authority involved in the coordination of the related activities: 		
15. Please use the box to provide any additional comments			