



U **Farmer's Pride** **B**
Networking, Partnerships and
Tools to Enhance *in situ*
Conservation of European
Plant Genetic Resources:
Deliverables and Impact

Nigel Maxted and all Farmer's Pride collaborators

Farmer's Pride collaborators

Representing diverse stakeholders, including farmers, agrobiodiversity and nature conservation NGOs, plant breeders, seed sector, research institutes and protected area networks

19 project partners

8 External Advisory Board

19 Farmer's Pride Ambassadors

Reviewing and evaluating project progress and outputs, and providing advice and guidance to the project partners

Dynaversity project

Contributing expertise, contacts and experience, building bridges with stakeholders and extending our geographical reach

European Commission



Improving and promoting best practices

Farmer's Pride focused on:

- Improving knowledge of PGR population management *in situ* / on-farm
- Showcasing how *ex situ* and *in situ* conservation can be integrated
- Creating tools to manage information associated with PGR conservation *in situ* / on-farm and to promote PGR conservation and sustainable use
- Testing and refining guidelines for community seed bank management



Enhancing the use of *in situ* conserved PGR

Farmer's Pride focused on:

- Promoting and **facilitating access** to *in situ* / on-farm conserved diversity
- Engaging with plant breeders, farmers and other users of PGR to determine **which traits** are likely to be most important to meet future agricultural and market needs
- Undertaking analyses to **predict** which populations are most likely to contain these traits to prioritize them for conservation action
- Creating stronger and long-lasting **local, national and international seed conservation networks**



Influencing the policy environment

Farmer's Pride focused on:

- Investigating the suitability of the **current policy environment** to support the European network governance structure
- Identifying **cost-effective strategies and policies** to **improve the PGR conservation and use** system in Europe
- Improving our understanding of the **public and private benefits** associated with PGR conservation and use
- Identifying **gaps and needs for policy change** and establishing a dialogue to communicate **recommendations to policy-makers**



Briefing on Network Governance to EC Directorate Generals (ENR, AGRI, SANTE), ECPGR (ExCo), Agro- and in-garden conservation NGOs, and Euroseeds - 23rd February 2020, Brussels, Belgium

Establishing a **European network for *in situ* conservation and sustainable use of PGR**

Farmer's Pride is establishing the Network now. Why?

- Meet **policy and legislative obligations** (CBD, SDGs, EC Biodiversity and Farm to Fork Strategies)
- Address the threats posed by **climate change**
- **Conserve threatened resources** in a globally important hotspot
- Fill the **conservation gaps**
- Fill the **germplasm availability gaps** for users
- Re-focus PGR activities at **regional and national** levels
- Build on the scientific knowledge foundation established by the Working Groups of the European Cooperative Programme for Plant Genetic Resources (**ECPGR**)



Benefits of network membership

For all members....

- ✓ Make a **contribution to something bigger: add value** to your work, providing **recognition** for different contributions and fostering greater **cross-sector collaboration**, understanding and **mutual valuation**.

For custodian members....

- ✓ Lend **recognition** at national and regional levels to your plant genetic resources populations, providing **added value** to your **in situ conservation and sustainable use** activities, such as increased opportunities for **landrace product marketing through a certification** scheme.
- ✓ Ensure that *in situ* plant genetic resources populations are **securely backed up** in a gene bank and provide an **emergency repatriation service** when a population is under threat. Material would be deposited according to terms agreed between the provider and the gene bank.
- ✓ **Assistance with ABS**, so custodians can be secure that the GD they share and is used will benefit them.

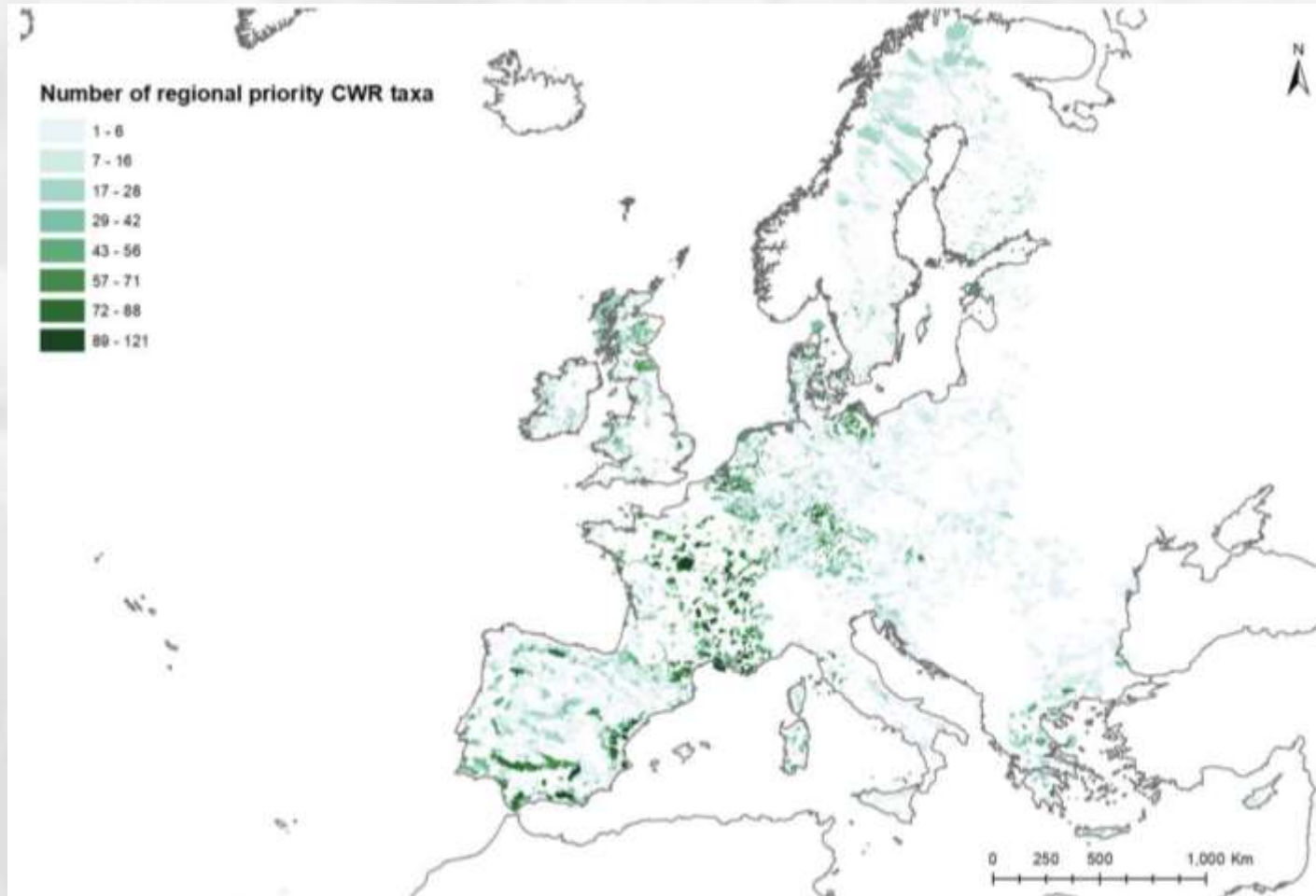
For custodian and non-custodian members....

- ✓ Offer **technical support** and **training** for *in situ* plant genetic resources conservation and sustainable use activities, as well as **guidance in seeking funds** and **agri-environmental schemes** to support specific initiatives.
- ✓ Provide a platform for access to **reliable information, knowledge sharing and collaboration**.
- ✓ Facilitate **access to a greater breadth of plant genetic resources** in accordance with the requirements of the ITPGRFA and the CBD Nagoya Protocol.

For non-custodian members....

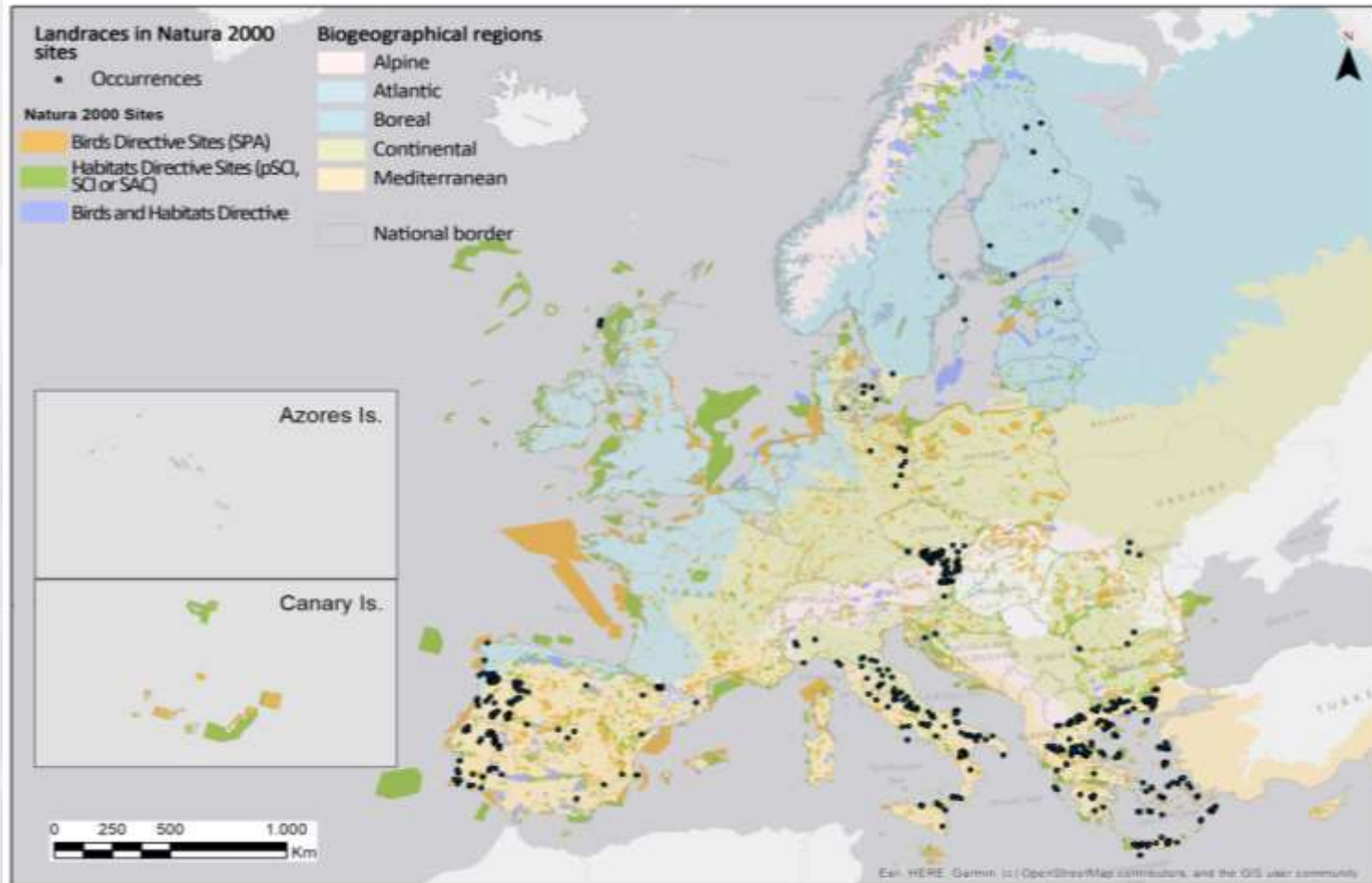
- ✓ Afford **secure back-up** of *in situ* managed populations in a gene bank according to national and regional priorities.

Conservation strategies: CWR Taxon richness



Natura 2000 sites that host populations of European priority CWR (Rubio Teso et al., 2020 farmerspride/wp-content/uploads/sites/19/2020/10/MS19_Crop_Wild_Relatives_in_the_Natura_2000_Network.pdf).

Conservation strategies: LR Taxon richness



Geographical location of the landrace records in Natura 2000 sites; multiple records with the same geographic coordinates appear as a single locality (Raggi *et al.*, in prep., Landrace *in situ* conservation across Europe: lessons learnt through extensive data analysis). Full report available at <https://more.bham.ac.uk/farmerspride/key-documents/landraces/>

Conservation techniques: *ex situ*

Other questions and lessons learnt

How to identify, sample and conserve taxa in the field?

Field guides and taxonomy training for collection staff

Which conservation technique to apply?

Primarily germplasm maintained by farmers on-farm

Which conservation technique to apply?

Primarily seed is stored in gene banks, but species dependent

Which taxa and populations to sample?

Use ELC mapping and target specific populations or emergency / threat based acquisition



How to promote use of conserved resource?

Primarily by provision of C & E data

Ex situ conservation

Conservation techniques: *in situ*

Other questions and lessons learnt

In situ sites are standalone or part of a network?

Network is preferable – why?

- Facilitating coordination
- Fostering stronger partnerships (funding)
- Ease of linking global, region and national actions
- Linking like-minded local communities
- Facilitating ABS for protected areas and farmers / farming communities
- Facilitating access to PGRFA held in protected areas and farmers / farming communities
- Safeguarding PGRFA diversity in perpetuity
- Improve linkages between conservation and sustainable use

In situ conservation



N.I. Vavilov

M.I. Vavilov Research Institute of Plant Industry

In situ sites established as 'new' sites or as part of existing PAs?

Both but primarily part of existing PA and non-PA sites

How to manage sites to maximise genetic diversity maintenance?

Continue management in the manner that is already occurring

How will users gain access to the *in situ* conserved resource?

Four routes, see next slide

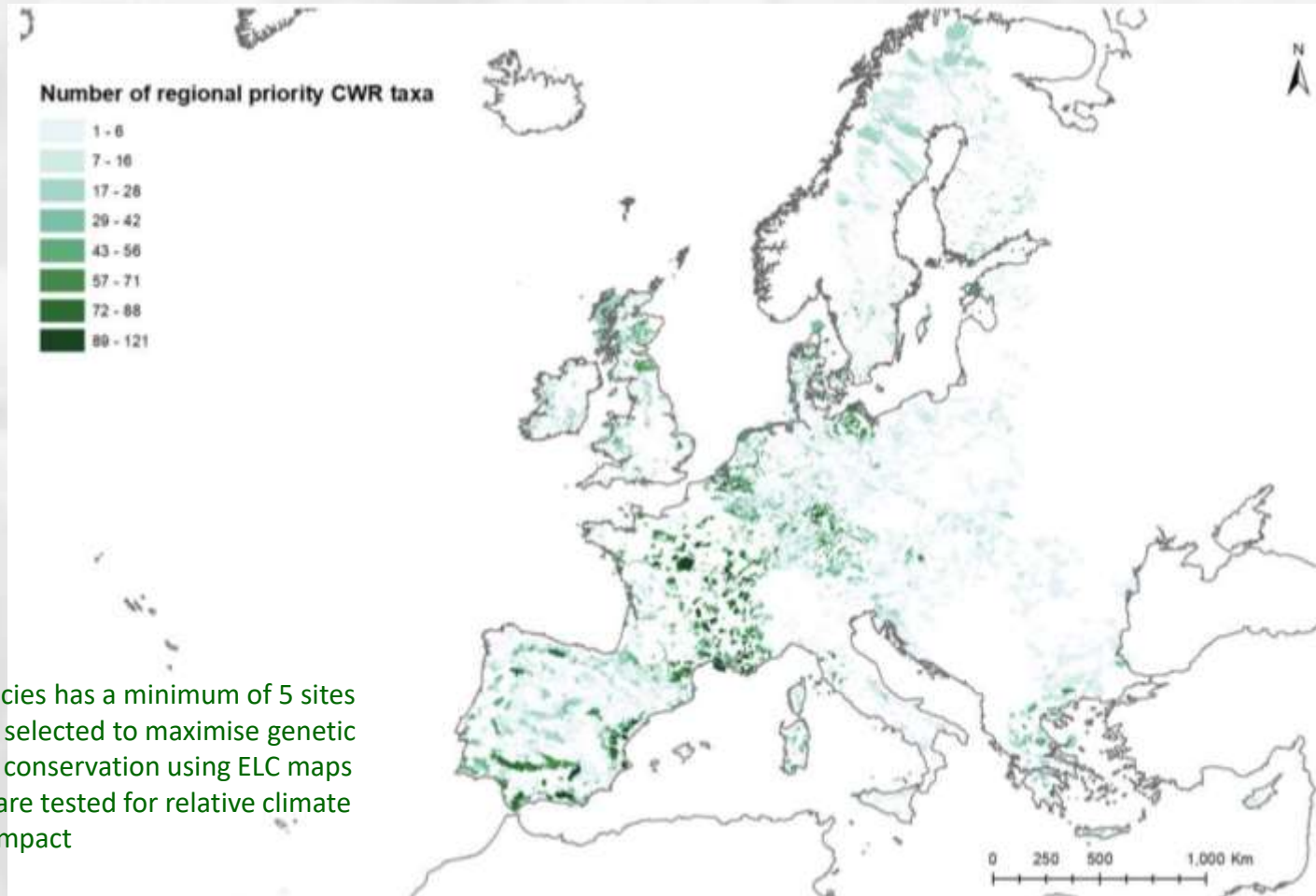
How to convince PA managers of benefits of network membership?

Recognition for provisioning ecosystem services and ABS value

Network sites: function, structure, governance, and financing?

Governance is the remaining issue still to resolve

Conservation techniques: *in situ* CWR priorities

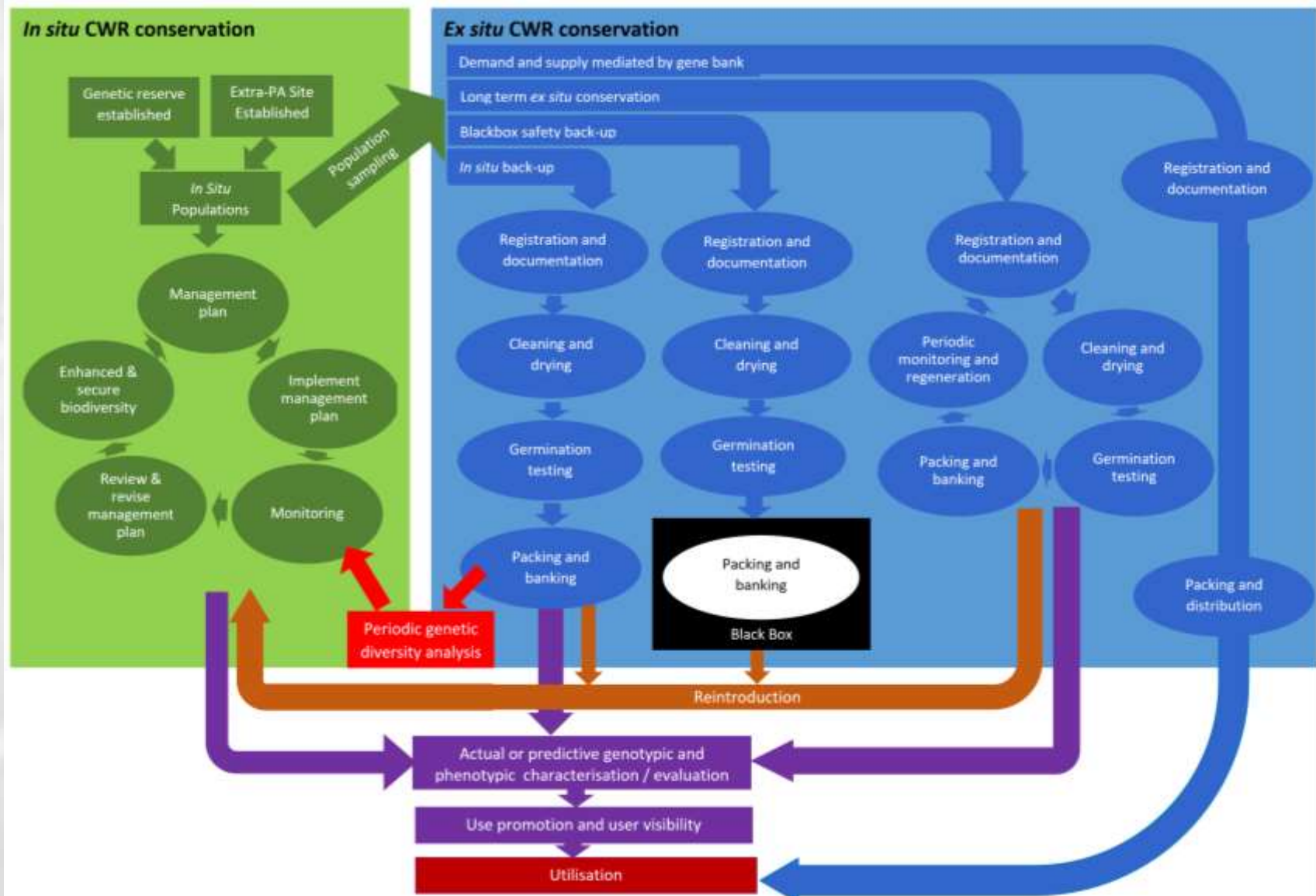


- Each species has a minimum of 5 sites
- Sites are selected to maximise genetic diversity conservation using ELC maps
- All sites are tested for relative climate change impact

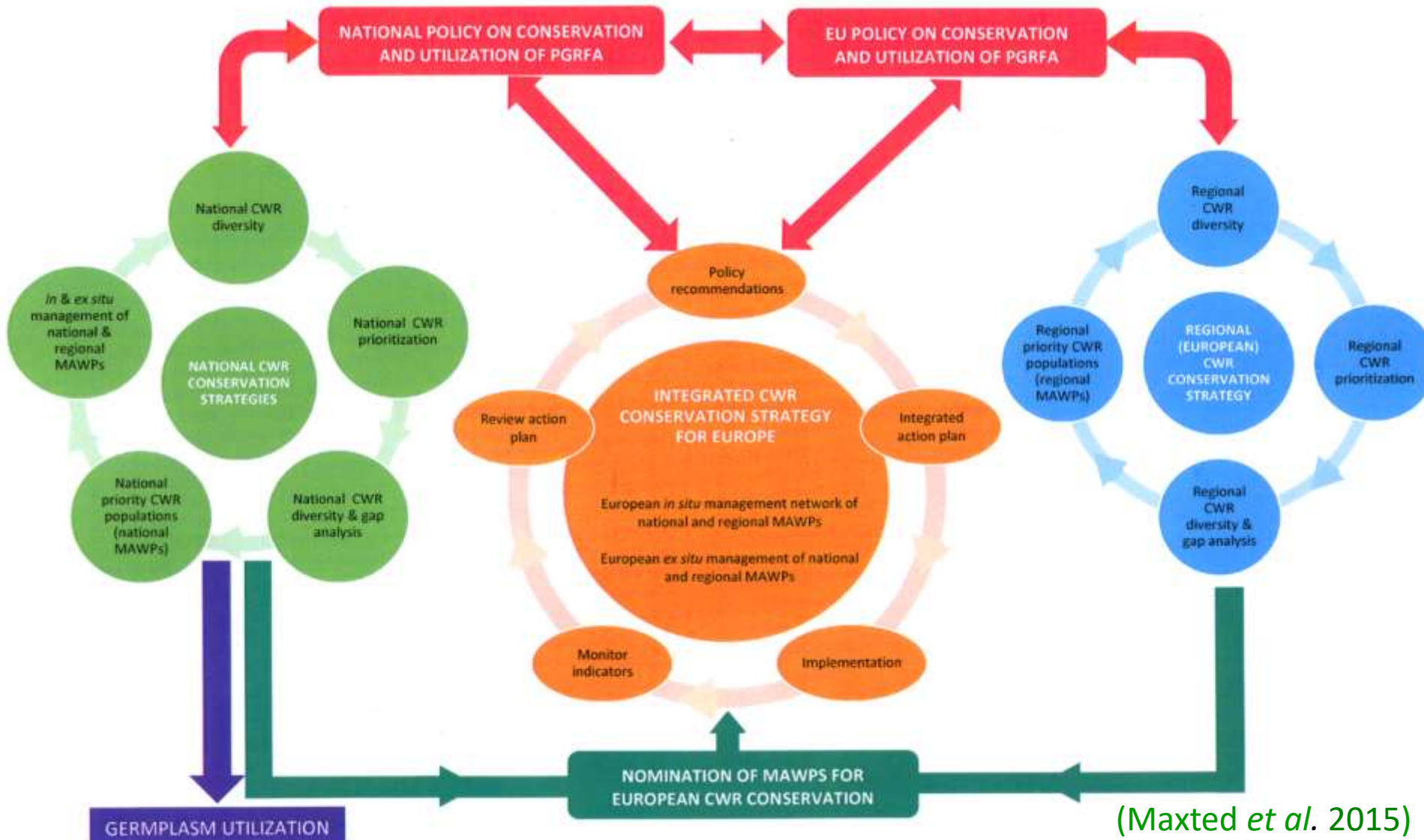
Natura 2000 sites that host populations of European priority CWR

(Rubio Teso et al., 2020 farmerspride/wp-content/uploads/sites/19/2020/10/MS19_Crop_Wild_Relatives_in_the_Natura_2000_Network.pdf).

Conservation techniques: *in situ* / on-farm Network to user linkage



Conservation techniques: *in situ* CWR Network Structure



Farmer's Pride Deliverables

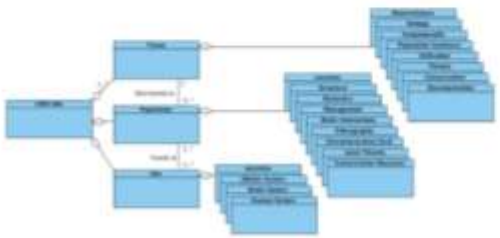
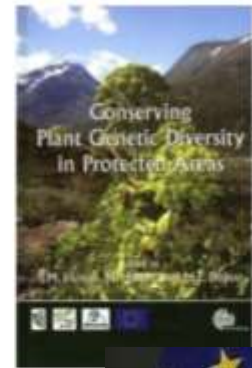
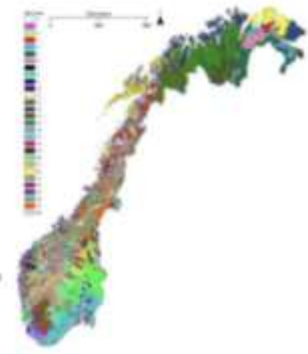
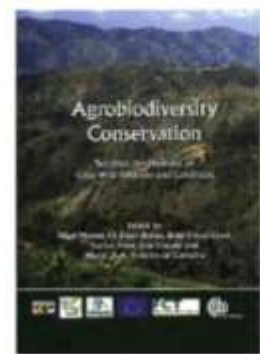
Deliverable Nos.	Deliverable Title	Deliverable Content	Lead
D1	Identify <i>in situ</i> stakeholders	Report of <i>in situ</i> conservation stakeholder networking options (>4000 stakeholders identified)	UNIPG
D2	Knowledge of <i>in situ</i> resources/sites	Report on CWR (>5,000) and LR (>1,500) <i>in situ</i> populations and related information	UNIPG
D4	LR Network Showcases	Networking model summarized in a fact sheet that can form the basis of wider implementation	PSR
D3	LR hotspots identification	European LR hotspots identified (top 50 sites across Europe)	UNIPG
D5	CWR Network Showcases	List of selected CWR (>50) showcase populations with analysis of success	URJC
D7	CWR population management guidelines	CWR population management guidelines	URJC
D6	<i>In situ</i> conservation information management tools	Suite of five related <i>in situ</i> conservation information management tools	UOB
		a. In situ landraces: best practice evidence-base database: https://www.ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database	UOB / UNIPG
		b. Landrace repatriation tool prototype which will be web-enabled	UOB
		c. Crop wild relatives in European protected areas – A tool for protected area managers: https://www.ecpgr.cgiar.org/cwr-tool	UOB
		d. CAPFITOGEN Tools web-enabled (on a server platform): A new version of the tools are now installed on a server and website. The process comprised a thorough review of all procedures and the update of functions and R scripts, which resulted in the third version of CAPFITOGEN tools. New tools developed: FIGS_R, Tzones, SelecVIF (SelecVAR?) and Wclim2 (Bfuture?)	UOB
		e. Online interactive CWR population management guidelines	UOB / URJC
D9	Community seedbank management guidelines	Discussion and agreement of guidelines for community genebank management	PSR
D8	LR population management and access guidelines	LR population management and farmer access to LR seed guidelines	UNIPG
D10	Concept for <i>in situ</i> inclusion in EURISCO	Concept for extension of EURISCO to include <i>in situ</i> / on-farm maintained material and less formal <i>ex situ</i> collections and botanical gardens	IPK
D11	Integrated <i>in situ</i> and <i>ex situ</i> conservation guidelines	Integrated approach to <i>in situ</i> and <i>ex situ</i> conservation including results of the workshop, legal instruments, protocols for practical approaches for back-up in <i>ex situ</i> facilities, estimation of implementation costs and application in two countries	WUR

Farmer's Pride Deliverables

Deliverable Nos.	Deliverable Title	Deliverable Content	Lead
D12	Analysis of public will to fund <i>in situ</i> conservation	Socioeconomic analysis of general public's willingness to pay (WTP) for the market and non-market values associated with agrobiodiverse-related goods and services estimated.	IPGRI
D13	Identify <i>in situ</i> areas with useful adaptive traits	Socioeconomic analysis of <i>in situ</i> areas where CWR and LR with useful traits can be found	UNIPG
D14	Analysis of effectiveness of <i>in situ</i> support mechanisms	Socioeconomic analysis of effectiveness of the existing levels of support mechanisms and funding for LR and CWR conservation and use.	IPGRI
D15	Showcase showing improved <i>in situ</i> resource access	Two showcases of how the access to <i>in situ</i> PGR can be increased by using the approaches of the <i>ex situ</i> community, including the web interfaces and protocols required.	WUR
D16	Policy dialogue workshop to enhance <i>in situ</i> maintenance	Policy Dialogue workshop to review how the <i>in situ</i> PGR conservation and use policy context might be improved	IPGRI
D17	Integrated national/European <i>in situ</i> conservation/use network structure	Alternative potential structures for integrated national/European <i>in situ</i> conservation/use network, with implementation suggestions	UOB
D18	LR Network Design	LR Network Design with implementation recommendations	UNIPG
D19	CWR Network Design	Database of selected CWR and locations for corresponding complementary hotspots, as well as locations where CWR <i>ex situ</i> seed accessions could be optimally collected, with <i>in situ</i> networking recommendations	URJC
D21	European <i>in situ</i> conservation network of sites/stakeholders	Establish founding basis of European <i>in situ</i> conservation network of 20 sites and 3,000 stakeholders involved in maximizing PGR <i>in situ</i> conservation and use	UOB
D22	Project workshops	Three project discussion workshops	PLANTLIFE
D26	Annual newsletters for CWR & LR	Annual newsletters for CWR (x3) & LR (x3)	UOB
D27	Publication of case studies, best practice & tool kits	Publication of 10 case studies, best practice & tool kits	UNIPG
D28	Advocacy plans confirmed, milestones met	5 advocacy plans confirmed, milestones met	PLANTLIFE
D29	Dissemination conference	Dissemination conference held	UOB



European Red List of Vascular Plants



Farmer's Pride conference

Farmer's Pride Final dissemination conference – including policy dialogue round table and network launch



The image shows a screenshot of the Farmer's Pride website. At the top, there is a green banner with the text "FARMER'S PRIDE" and "Conserving plant diversity for future generations". Below the banner is a navigation menu with links: Home, Background, Our work, European networks, Conference, Who we are, Resources, and Get involved. The main content area features a light blue box with the text "INTERNATIONAL CONFERENCE ENSURING DIVERSITY FOR FOOD AND AGRICULTURE" and "Plant genetic resources - in nature and on-farm ONLINE 28 JUNE-01 JULY 2021". To the right of this text is a graphic of a green plant growing from a globe. Below the blue box, there is a paragraph of text: "Farmer's Pride, in association with the European Association for Research on Plant Breeding - Genetic Resources Section, and the European Cooperative Programme for Plant Genetic Resources". At the bottom, there are three logos: the Farmer's Pride logo, the EUCARPIA logo, and the ECP/GR logo.

farmerspride/conference/