



Funded by the Horizon 2020  
Framework Programme  
of the European Union

**Project Number:** [774271]

**Project Acronym:** [Farmer's Pride]

**Project title:** [Networking, partnerships and tools to enhance *in situ* conservation of European plant genetic resources]

## **Periodic Technical Report**

### **Part B**

**Period covered by the report:** from [01/05/2019] to [31/07/2021]

**Periodic report:** 2nd

## Contents

Commented [k1]: Update

List of commonly used acronyms .....	3
Beneficiary acronyms.....	4
1.0 Project objectives for the period .....	5
1.1 Work package objectives .....	5
1.2 Work package tasks .....	8
2.0 Work progress and achievements during the period .....	9
2.1 WP1: Networking options.....	9
2.2 WP2: Population management.....	15
2.3 WP3: Enabling conservation and use.....	24
2.4 WP4: Network design and implementation .....	32
2.5 WP5: Dissemination .....	40
2.6 WP6: Project management .....	52
3.0 Impacts, and exploitation and dissemination of results .....	54
4.0 Deviations from Annexes 1 and 2 .....	56
4.1 Tasks.....	56
4.2 Use of resources.....	57

## List of commonly used acronyms

Commented [k2]: To be reviewed

ABS	– Access and benefit-sharing
CC	– Consortium Committee
CWR	– Crop wild relative(s)
CSB	– Community seed bank
DG	– Directorate General
EAB	– External Advisory Board
EC	– European Commission
ECPGR	– European Cooperative Programme for Plant Genetic Resources
EUCARPIA	– European Association for Research on Plant Breeding
FAO	– Food and Agriculture Organization of the United Nations
FPA	– Farmer’s Pride Ambassador
GDPR	– General Data Protection Regulation
GIS	– Geographical Information System
LR	– Landrace(s)
MCPD	– Multi-crop Passport Descriptors
NGO	– Non-governmental organization
PGR	– Plant genetic resources
PGRFA	– Plant genetic resources for food and agriculture
PM	– Project Manager
PMs	– Person-months
SC	– Steering Committee
WP	– Work package

## Beneficiary acronyms

- 1 UOB – University of Birmingham, United Kingdom (Coordinator)
- 2 BIOVER (IPGRI) – The Alliance of Bioversity International and CIAT (formerly Bioversity International)
- 3 UNIPG – University of Perugia, Italy
- 4 NORDGEN – Nordic Genetic Resource Centre
- 5 URJC – Universidad Rey Juan Carlos, Spain
- 6 PSR – Pro Specie Rara, Switzerland
- 7 WUR – Wageningen University and Research, Netherlands
- 8 EUROSITE – Eurosite
- 9 OMKI – Research Institute of Organic Agriculture, Hungary
- 10 IPK – Leibniz Institute of Plant Genetics and Crop Plant Research, Germany
- 11 AARI – Aegean Agricultural Research Institute, Turkey
- 12 LUKE – Natural Resources Institute, Finland
- 13 BPGV (INIAV) – Instituto Nacional de Investigação Agrária e Veterinária, Portugal
- 14 DIMITRA – Hellenic Agricultural Organization – Demeter, Greece
- 15 DSS – Danish Seed Savers, Denmark
- 16 ARCN – Arche Noah, Austria
- 17 UPV – Universitat Politècnica de València, Spain
- 18 PLANTLIFE – Plantlife International
- 19 ESA – European Seed Association

## 1.0 Project objectives for the period

### 1.1 Work package objectives

During months 19–45, progress was made towards achieving the following general<sup>1</sup> and specific<sup>2</sup> work package (WP) objectives.

#### **WP1: Networking options**

##### **General objectives**

- Gather information about current *in situ* landrace (LR) and crop wild relative (CWR) diversity conservation activities (Task 1.2)
- Identify areas where the highest LR density occurs across Europe (Task 1.3)
- Define a LR network model for European and national implementation (Task 1.4)
- Generate a collection of CWR *in situ* management best practices (Task 1.5)

##### **Specific objectives**

- Gather information about current *in situ* CWR and LR diversity (Deliverable 1.2, Milestone 2)
- Collect examples of networks conserving LR diversity (Deliverable D 1.3)
- Identify LR hotspots across Europe (Deliverable 1.4, Milestone 3)
- Publish a proposal of a set of criteria for collaboration platform evaluation (Milestone 4)
- Collect examples of networks conserving CWR (Deliverable 1.5, Milestone 5)

#### **WP2: Population management**

##### **General objectives**

- Prepare and circulate a document where examples of landrace *in situ* management are reported (Task 2.1)
- Convene two seed networking workshops in each of the case study countries, Denmark and Hungary (Task 2.2)
- Develop the CWR population management guidelines (Task 2.3)
- Outline requirements and roles for the development of the informatics tools (Task 2.4)
- Prepare a proposal for data exchange formats for *in situ* CWR and on-farm LR data (Task 2.5)
- Analyse the complementarity between *in situ* and *ex situ* conservation and test a back-up strategy in the Netherlands and Spain (Task 2.6)

---

<sup>1</sup> Objectives are related to the tasks shown in parentheses.

<sup>2</sup> Specific WP objectives are based on the deliverables and milestones due to be delivered/achieved in the period and are therefore not included for all WPs.

### **Specific objectives**

- Produce CWR population management guidelines (Deliverable 2.1, Milestone 8)
- Develop *in situ* conservation information management tools (Deliverable 2.2, Milestone 9)
- Produce community seedbank management guidelines (Deliverable 2.3)
- Develop LR population management and access guidelines (Deliverable 2.4, Milestone 6)
- Carry out meetings of the national coordination platform in the two model countries (Milestone 7)
- Prepare a concept for *in situ* inclusion in EURISCO (Deliverable 2.5, Milestone 10)
- Produce integrated *in situ* and *ex situ* conservation guidelines (Deliverable 2.6, Milestone 11)

### **WP3: Enabling conservation and use**

#### **General objectives**

- Assess existing EU Rural Development Plans (RDPs) and other schemes for incentivizing the conservation and use of LR and CWR diversity, including identification of the payment levels required to cover farmer opportunity costs (Task 3.1)
- Develop and apply a questionnaire aimed at supporting the identification of most needed traits for satisfying future agricultural and market needs (Task 3.2)
- Create an infrastructure to promote and facilitate access to *in situ* conserved diversity (Task 3.3)
- Explore the general public's willingness to pay for conservation based on the market and non-market values they associate with agrobiodiverse-related products (Task 3.4)
- Establish a policy dialogue with key policymakers and high-level stakeholders (Task 3.5)

#### **Specific objectives**

- Analyse the effectiveness of existing support mechanisms and funding for LR and CWR conservation and use (Deliverable 3.1)
- Assess the general public's willingness to pay (WTP) for the market and non-market values associated with agrobiodiverse-related goods and services (Deliverable 3.2)
- Identify *in situ* areas where CWR and LR populations with useful traits can be found (Deliverable 3.3)
- Showcase how access to *in situ* plant genetic resources (PGR) can be increased, including the web interfaces and protocols required (Deliverable 3.4, Milestone 16)
- Develop a Strategic Action Plan (in the form of a policy brief) on PGR *in situ* maintenance (Deliverable 3.5)
- Convene a policy dialogue workshop to review how the *in situ* PGR conservation and use policy context might be improved (Deliverable 3.6, Milestone 12)

#### **WP4: Network design and implementation**

##### **General objectives**

- Continue to develop potential structures for the integration of national and regional PGR conservation strategies for Europe and the establishment of a European network for *in situ* conservation and sustainable use of plant genetic resources (Task 4.1)
- Develop *in situ* CWR and LR conservation strategies for Europe (Tasks 4.2 and 4.3)
- Establish a European *in situ* conservation network of sites and stakeholders (Task 4.4)

##### **Specific objectives**

- Make recommendations for the establishment and implementation of a European network for *in situ* conservation and sustainable use of plant genetic resources (Deliverable 4.1, Milestone 17)
- Design a European LR network (Deliverable 4.2, Milestone 18)
- Design a European CWR network (Deliverable 4.3, Milestones 19 and 20)
- Establish the founding basis of a European *in situ* PGR conservation and sustainable use network (Deliverable 4.4, Milestone 21)

#### **WP5: Dissemination**

##### **General objectives**

- Effectively communicate and disseminate the project outputs (Tasks 5.1 and 5.2)
- Maintain an up to date project website (Task 5.3)
- Promote best practices and improved networking within the European PGR community (T5.4)
- Carry out advocacy activities to improve *in situ* conservation and sustainable use of PGR among target stakeholder groups (Task 5.5)
- Publish project newsletters and other publications (Task 5.6)
- Organize and convene stakeholder workshops 2 and 3 (Task 5.7)
- Stage the final dissemination conference (Task 5.8)

##### **Specific objectives**

- Report on the three stakeholder workshops (Deliverable 5.1, Milestone 27)
- Publish three issues each of *Crop wild relative* and *Landraces* (Deliverable 5.5, Milestone 25)
- Publish a range of case studies, best practises and toolkits (Deliverable 5.6)
- Publish advocacy plans for different stakeholder groups (Deliverable 5.7, Milestone 26)
- Convene and report on the final dissemination conference (Deliverable 5.8, Milestone 28)
- Prepare practice abstracts associated with key project deliverables (Deliverable 5.9)

## **WP6: Project management**

### **General objectives**

- Ensure the effective management of WPs 1–5, including the completion of project milestones, submission of deliverables and management of risks (Task 6.1)
- Undertake efficient overall management of the project and ensure compliance with contractual obligations and European Commission (EC) regulations (Task 6.2)
- Evaluate project progress by convening consortium and technical review meetings, and through project reports and regular online meetings (Task 6.3)
- Promote communications and interaction within and between work packages (Task 6.4)
- Ensure appropriate ethical standards are maintained in relation to the protection of human participants in the project (Task 6.5)

### **Specific objectives**

- Complete and publish the project data management plan (Deliverable 6.3)
- Submit the first periodic report (Deliverable 6.5)
- Report on the second annual consortium and mid-term review meeting (Deliverable 6.6, Milestone 31)
- Report on the third annual consortium and final technical review meeting (Deliverable 6.7, Milestone 32)
- Submit the second periodic and final report (Deliverable 6.8)

## **1.2 Work package tasks**

In order to make progress towards/meet the stated objectives, activities were undertaken related to the following tasks:

- **WP1: Networking options** – 1.2: Knowledge of *in situ* resources/sites; 1.3 LR hotspots identification; 1.4 LR network showcase; 1.5 CWR network showcase
- **WP2: Population management** – 2.1: LR population management; 2.2: Community seedbank (CSB) management; 2.3: CWR population management; 2.4: Informatic tools; 2.5: Facilitating *in situ* conserved diversity use; 2.6: Integrated *in situ* and *ex situ* conservation
- **WP3: Enabling conservation and use** – 3.1: Incentives for conservation/use; 3.2: Identify useful *in situ* traits; 3.3: Enhance use of *in situ* conserved PGR; 3.4: Public willingness to fund PGR maintenance; 3.5: Policy dialogues
- **WP4: Network design and implementation** – 4.1: Integrated network structures; 4.2: LR network design; 4.3: CWR network design; 4.4: Establish European *in situ* conservation network of sites and stakeholders



- **WP5: Dissemination** – 5.1 & 5.2: Communication and media strategy; 5.3: Project website; 5.4: Best practice promotion and dissemination; 5.5: Targeted advocacy; 5.6: Project newsletters and publications; 5.7: Project workshops; 5.8: Dissemination conference
- **WP6: Project management** – 6.1: Work package and risk management; 6.2: Reporting and overall project management; 6.3: Project evaluation; 6.4: Intra-project communication; 6.5: Ethical research

## 2.0 Work progress and achievements during the period

### 2.1 WP1: Networking options (WP leader: UNIPG)

**2.1.2 Task 1.2 Knowledge of in situ resources/sites (Months 1–20)** Task leaders: UNIPG, URJC, UOB. Involved partners: NORDGEN, AARI, LUKE, BGPV, DIMITRA, ARCN, PSR, EUROSITE, UPV + FPAs  
A primary objective of the Farmer’s Pride project was to establish a network for *in situ* conservation and sustainable use of PGR in Europe. Towards this aim, one of the key activities was to increase knowledge about the occurrence of crop landraces maintained *in situ* and the existence of CWR populations in the wild, as well as to gather knowledge about active *in situ* PGR conservation management.

#### Landrace *in situ* resources/sites

Prior to the Farmer’s Pride project, no European inventory of *in situ* maintained landraces existed—only limited and scattered information was available on where these materials are grown, which species they belong to, and where hotspots of cultivated diversity are. In this scenario, and to put in place conservation actions able to efficiently safeguard PGR, it was particularly urgent to identify areas characterized by a high level of landrace diversity—especially those also potentially containing important CWR diversity being included in the Natura 2000 network of protected areas.

To collect information on *in situ* maintained landraces across Europe, UNIPG initially prepared and disseminated an *ad hoc* template for collecting data in an anonymous way in compliance with the General Data Protection Regulation (GDPR). The template was circulated to Farmer’s Pride partners and Ambassadors, and to National Coordinators of the European Cooperative Programme for Plant Genetic Resources (ECPGR), asking for data on known broad sense landraces (true landraces, conservation and amateur varieties, populations and old cultivars) conserved *in situ*. A total of 19,335 georeferenced records (including forage, cereal, pulse, garden crop and fruit tree landraces) were collected from 17 institutions and 14 countries (Deliverable 1.2: landraces<sup>3</sup>). The highest numbers of crop species cultivated as landraces were found in Italy (107), Greece (93) and Portugal (45). The recorded landraces belong to 121 genera (with *Triticum*, *Phaseolus* and *Solanum* being the most represented) and to 190 crop species. Among the crops identified, *T. spelta* (spelt), *P. vulgaris* (common bean), *Malus domestica* (apple) and *S. lycopersicum* (tomato) accounted for the highest number of records. These data, although still partial, constitute the largest ever produced database of *in situ* maintained landraces and the first example of an inventory for an entire region of the world that can serve stakeholders to better plan conservation activities and policies, and as a foundation for future periodic reviews.

<sup>3</sup> [D1.2 in situ PGR in Europe landraces.pdf](#)

In addition to the creation of the European *in situ* landrace inventory, by asking Farmer's Pride partners and Ambassadors, more than 100 detailed case studies of landraces maintained *in situ* were collected from 14 European countries. Analysis of these case studies revealed that landraces are generally grown using modern agricultural equipment and tools, but often under low input or organic conditions, and that farmers (alone or grouped in consortia) are the main actors carrying out seed multiplication, with seed companies only playing a marginal role. The authors found that among other reasons, these materials have been maintained *in situ* because of their resistance/good productivity under harsh climatic and other environmental conditions, traditional heirloom reasons, or organoleptic peculiarities which make them highly valued in local or city markets. This collection of landrace case studies was used to create a best practice online database<sup>4</sup> and to prepare guidelines for landrace *in situ* management and access, which can help new farmers in starting landrace cultivation and farmers maintaining landraces to promote their products<sup>5</sup>.

Finally, UOB obtained data on landraces maintained *ex situ* in European genebanks from IPK which manages EURISCO<sup>6</sup>. Analysis of these data demonstrated that while landraces have been collected from many European countries, some countries known to harbour landrace diversity do not report these records to EURISCO—therefore, the data do not reflect the true landrace diversity across the region.

#### **CWR *in situ* resources/sites**

To obtain an overall picture of the location of areas where CWR occur, a list of priority taxa for conservation action in Europe was elaborated considering the economic importance of the associated crops, the potential use of the CWR for crop improvement, and the threat status of the CWR. The resulting list of priority CWR contains 863 taxa—485 classified at the species level and 378 at the infra-specific level.

GBIF and Genesys databases were consulted to collect occurrence data of the selected CWR. The GBIF database provided 16,534,316 records for 764 taxa globally, whereas the Genesys download resulted in 991,746 accessions for 440 taxa globally. Occurrence data from each source were filtered and cleaned independently using *ad hoc* developed programming scripts developed in R environment to delimit the geographical scope, identify errors, delete low quality and outdated records, eliminate duplicates and select high quality data records. The resulting database contains detailed information on 3,094,231 sites for 616 priority taxa distributed across 43 countries. From this, more than 1.1M records correspond to 397 taxa related to human food crops, almost 2M records of 229 taxa related to forage or fodder crops, and 6568 records to 10 taxa related to both human food and forage or fodder crops. The databases generated in this study (Deliverable 1.2: CWR<sup>7</sup>) are the largest databases of occurrences for the target CWR generated so far for the entire world and for the target area, Europe and Asiatic Turkey.

The application of rigorous selection criteria provided a set of records with high probability of actual presence in the described locations—information that is essential for the establishment a European CWR conservation network. However, analysis of the data indicates a strong bias, which can be

---

<sup>4</sup> [ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database](https://ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database)

<sup>5</sup> [D2.4 In situ landrace propagation management guidelines.pdf](#)

<sup>6</sup> [eurisco.ecpgr.org](https://eurisco.ecpgr.org)

<sup>7</sup> [D1.2 In situ PGR in Europe crop wild relatives.pdf](#)

explained by the lack of chorological studies in some areas and/or digitization of these data and collaboration with the consulted international databases. Because the countries that do not participate in GBIF do not have data repositories with digitized plant occurrence data available, the compilation of additional occurrence records from the less represented areas remains a challenge.

To collect information on examples of CWR *in situ* active conservation, the survey 'In situ conservation actions for crop wild relatives in Europe' was launched using the online tool EUSurvey<sup>8</sup>. Published in nine languages (Croatian, Dutch, English, French, German, Greek, Spanish, Swedish and Turkish), the survey was extensively disseminated for seven months to reach the largest target audience. We received information on 921 populations of 159 taxa from 14 countries, including 829 populations of 65 European priority CWR taxa. Of these cases, the largest group of CWR populations conserved is in Switzerland, with 704 populations belonging to 17 taxa. The implementation context of the conservation is in most cases (82%) the result of a national CWR conservation strategy. Public organizations are most frequently identified as responsible for the active *in situ* conservation actions. Most of these conservation actions (90%) are related to a network for *in situ* conservation, such as Natura 2000, national or local protected area networks, research centres or genebank networks. All the information received from Switzerland portrays a strategy of preserving CWR in farmlands outside protected areas. On the other hand, the rest of the countries mainly conserve them fully or partially inside protected areas. Most active *in situ* conservation is focused on more than one species. The most widespread action carried out for CWR species is 'monitoring and census of the species'. 'Phytosociological monitoring', 'seed collection and storage in a gene bank', 'controlled grazing' and 'limited use of the territory' are the next most common practices.

During the process of disseminating and conducting the survey, we found that although the recipients and respondents commonly lacked awareness about CWR taxa and their value for food security, once they learned more, many were keen to answer the survey. Despite this lack of awareness, we believe that more efforts to actively conserve CWR *in situ* are being carried out than protected area managers and the different administrations dedicated to wildlife conservation are aware of. This is due to the particular status of some CWR taxa (e.g., threatened, rare, or endemic), which means they are already included in species recovery plans and/or protected area management plans.

In conclusion, the information gathered is a compilation of interesting examples of conservation actions and details that contribute valuable information to the establishment of a European network for *in situ* conservation and sustainable use of PGR. Although the large area covered by protected areas ensures the passive conservation of many CWR populations, active *in situ* CWR conservation does not frequently occur. In addition, these actions are rather limited in scope, more oriented to the conservation of the species as such than to the conservation of their genetic diversity.

### **2.1.3 T1.3 LR hotspot identification (Months 18–32) Task leader: UNIPG. Involved partners: UOB, DIMITRA, PSR, LUKE, BPGV**

Data on landraces maintained on-farm collected in Task 1.2 were geographically analysed to identify landraces present in each European biogeographic area and in protected areas, and to identify landrace hotspots (Deliverable 1.4<sup>9</sup>). Using a grid of 625 km<sup>2</sup> cells, we identified 1,261 cells containing landraces ( $\geq 1$  record) encompassing all the 14 countries for which records were available, and

<sup>8</sup> [ec.europa.eu/eusurvey/](https://ec.europa.eu/eusurvey/)

<sup>9</sup> [D1.4 Landrace hotspots identification in Europe.pdf](#)

distributed over seven biogeographical areas: Alpine, Atlantic, Boreal, Continental, Macaronesia, Mediterranean and Steppic. With more than 500 cells characterized by landrace cultivation, the Mediterranean area is the largest biogeographical area, followed by Continental and Boreal. A percentile analysis of distribution of the average number of species cultivated as landraces was carried out that allowed the identification of 100 hotspots of landrace *in situ* diversity. The 100 hotspots are mainly located in Greece (45), Portugal (29), Italy (16) and Austria (8). One hotspot was also observed in United Kingdom and one in Spain. Interestingly, 53 out of the 100 hotspots are part of Natura 2000 protected areas: 31 out of 45 (69%, Greece), 9 out of 16 (56%, Italy), 4 out of 8 (50%, Austria) and 9 out of 29 (31%, Portugal). With a total of 75 diversity hotspots scattered over four countries (Greece, Portugal, Italy and Spain), the Mediterranean biogeographical area is also the richest in terms of the number of hotspots, followed by the Continental and Alpine areas, respectively. Besides the 100 hotspots, additional sites of interest were also identified in the other countries. Being characterized by the cultivation of a relatively high number of landraces of different crop species, these sites also deserve attention.

Knowledge of these landrace diversity hotspots is important for the identification of localities for future conservation efforts, as well as to be included in a European network for *in situ* conservation and sustainable use of plant genetic resources.

#### **2.1.4 T1.4 LR network showcases (Months 24–33) Task leader: PSR, Involved partners: ARCN, ÖMKI, DSS, BIOVER, AARI**

An analysis of four different European *in situ* conservation networks was initially carried out by UNIPG to propose criteria for a collaborative platform (Milestone 4<sup>10</sup>). The network examples reported showed that there are different network models in Europe, especially because of the different legislation or implementation systems of conservation networks existing across the region. In some cases networks are managed by national and/or regional entities, while in other cases they entirely depend on private organizations (e.g., consortia of producers and NGOs). Different networks may also have different goals, but some of these goals are very common. For example: local agro-biodiversity protection and conservation; reduction of the genetic erosion threat of autochthonous genetic resources; enhancement and circulation of information on genetic resources; and support provision to custodians. A list of other European and of non-European networks is also reported in the above-mentioned report (Milestone 4).

During the realization of task 1.4, NGO partners PSR, ARCN, ÖMKI and DSS became aware that many of the issues that had to be developed in this task had already or were on their way to being tackled and described in Task 2.2. As these partners wanted to profit from their manifold experiences within the Farmer's Pride project, they concluded that blocking and promoting factors for the development of community seedbanks (CSBs) in Europe should be compiled and documented instead.

Both external and internal factors that can influence the development of a CSB network were reviewed and analysed (Deliverable 1.3<sup>11</sup>). Promoting and blocking factors were enumerated for different topics, such as organization structure and mission, the governance and funding structure, and mind-set that exists within an organization (internal factors), and legal environment and financing sources, national PGR strategies and policies (involvement in decision-making processes) (external

<sup>10</sup> [MS4 Network efficiency criteria for LR access.pdf](#)

<sup>11</sup> [D1.3 Promoting and blocking factors for CSBs in Europe.pdf](#)

factors). It was agreed that this list of factors should help the members, coordinators, and managers of CSBs as a checklist of issues to be considered or avoided when they develop their own CSB network.

Critically, the analysis showed that often factors other than a lack of financial resources—which is very often seen as the main blocking factor—are important for a healthy development of a CSB. To become aware of internal and external blocking factors and to systematically strengthen promoting factors builds the bases to better overcome external challenges.

During the discussions between the partners, it became clear that adapted and transparent legal environments connected to seeds at national and European levels are key for the healthy and sustainable development of national and international CSB networks. The compilation enumerates in this context the most critical legal issues, like seed legislation, phytosanitary restrictions, and intellectual property rights. Further, all four organizations would be dependent on national and European long-term strategies when it comes to financing systems to support PGR management and the integration of CSBs in national and European programmes, which is not the case at the moment.

**2.1.5 Task 1.5 CWR network showcases (Months 24–33)** Task leader: URJC. Involved partners: UOB, BIOVER, NORDGEN, EUROSITE, AARI, DIMITRA, PLANTLIFE, UNIPG, BPGV

A review and analysis of networks conserving CWR *in situ* was undertaken to identify the attributes that have contributed to their success. The review resulted in 29 CWR genetic reserve network initiatives, nine showcases classified as potential genetic reserve networks, three people and institution networks and 17 networks associated with projects (Milestone 5<sup>12</sup> and Deliverable 1.5<sup>13</sup>). The results show that the typical genetic reserve network is designed following a monographic approach. They were set up during the last decade at a local conservation scale and each genetic reserve is located in an existing protected area by a national agency. The main purpose of the networks is to conserve between one and ten CWR species that are not threatened (at the species level), and they are typically structured as a configuration of several small reserves in both private and public lands, with a total area of less than 200 ha.

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis revealed that the main strengths of the genetic reserve networks are related to the experience gained from the previous years of running them, quite stable financial support in a few cases, guarantees of long-term conservation, continued participation in scientific projects, and being part of an external network with support from partners and collaborators. The weaknesses identified in the CWR genetic reserve networks are commonly related to the lack of human and economic resources and several issues concerning the management plans (e.g. their absence, problems with their implementation or design, and challenges regarding their approval). The main opportunities identified are the locations of reserves in CWR biodiversity hotspots, and strong social engagement. The main threat is the uncertainty about obtaining funds. Other important threats are risk of damage, the uncertainty of land ownership, and the lack of CWR relevance to protected area managers (i.e., the importance of CWR conservation is not being properly recognized). Additionally, a strong will and motivation of the local community is likely to be the main factor of resilience and persistence of CWR genetic reserve conservation networks. Through selected good examples of design and implementation, a record of evidence-based best *in situ* management practice has been generated to develop best practice

---

<sup>12</sup> [Crop wild relative in situ conservation case studies.pdf](#)

<sup>13</sup> [D1.5 CWR network showcases.pdf](#)

indications that will serve as a model for a European network for *in situ* conservation and sustainable use of plant genetic resources, as well as for the CWR stakeholder community in general.

### 2.1.6 WP1: Deviations from Annex I<sup>14</sup>

#### Task 1.2

- Due to the different approaches taken and the amount of information to report, a decision was made to split Deliverable 1.2, 'Knowledge of *in situ* resources/sites' into two separate reports: one relating to landraces and the other to CWR. This allowed better organization and presentation of the results—an added benefit in terms of the outputs of the project.
- Due to issues related to compliance with the GDPR, preparation and implementation of data collection methods on landraces maintained on-farm alternative to those initially planned was necessary. This increased the labour dedicated by UNIPG to this task, delayed the launch of the survey to the end of 2019, and delayed the submission of Deliverable 1.2, 'Knowledge of *in situ* resources/sites: landraces' from 30 June 2019 to 19 June 2020.
- The launch of the survey to record information on landraces maintained on-farm was also delayed due to issues related to compliance with the GDPR. With the preparation and implementation of alternative methods of data collection, the data were collected by the end of 2019. Deliverable 1.2, 'Knowledge of *in situ* resources/sites: landraces', due to be submitted on 30 June 2019, was consequently submitted later than planned on 19 June 2020.
- The closure of the online CWR survey to record information on *in situ* CWR was delayed until 30 June 2019 because some valuable information was still expected from some partners.
- The download of over 16 million CWR occurrence data points, the time-consuming effort to handle them—requiring the development of specific programming scripts and the use of external servers to manage big data—further delayed the achievement of outputs. The data gathering and subsequent management of this database took an enormous amount of time to prepare. As a result of this, the dedication of URJC to this task far exceeded the initial estimates. It was soon realized that the data download could not be performed manually, extracting the information from the global databases species per species. Therefore, the data from the GBIF and Genesys databases were downloaded using specific scripts customized from the RGBIF and genesys R packages from the R statistical environment. The nomenclatural standards of the European CWR priority list, which is based on Euro+Med Plant Base<sup>15</sup>, differs from the taxonomic references used by GBIF and Genesys. Consequently, it took a great effort of nomenclatural work to prepare the searches aiming to obtain all the information available in the databases (more than 2500 synonyms were finally included in the search). Furthermore, the development of the scripts for the filtering of high quality data developed by the team involved a lot of trial and error, until the filtering pipeline was perfected. Additional problems were found at the time of converging the data from the different database sources. They had to be converted to a common ontological framework. Finally, the management of this huge database operating from home computers due to the Covid crisis further complicated the work and increased the time of dedication. For these reasons, the submission of Deliverable 1.2, 'Knowledge of *in situ* resources/sites (CWR)' was delayed from 30 June 2019 to 19 July 2020.

---

<sup>14</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

<sup>15</sup> [emplantbase.org/home.html](http://emplantbase.org/home.html)

### Task 1.3

- Since Deliverable 1.4, 'LR hotspots identification' was based on data collected under Task 1.2, this deliverable was delayed from 30 June 2020 to 12 October 2020. For the same reason the achievement of two milestones was also delayed: Milestone 3, 'Five European LR hotspots identified at least' from 31 January 2020 to 14 April 2020, and Milestone 4, 'Proposal of a set of criteria for collaboration platform evaluation' from 30 June 2019 to 01 April 2020.

### Task 1.4

Deliverable 1.3, 'LR network showcases' was submitted later than planned due to the change of focus of the work following the related work carried under Task 2.2, as reported in section 2.1.4.

## 2.2 WP2: Population management (WP leader: URJC)

**2.2.1 Task 2.1 LR population management (Months 12–32)** Task leader: UNIPG. Involved partners: UOB, PSR, LUKE, BPGV, ARCN, DIMITRA + FPAs

By January 2020, a set of 105 case studies of landraces maintained *in situ* (on-farm) were successfully collected (see Task 1.2). The collection encompasses case studies of 54 species from 14 European countries. The dataset includes open field, garden and tree crops, of which about half are cultivated in marginal areas. Analysis of the information on population management revealed that different practices are applied for the maintenance and propagation of landraces according on their use, type, mating systems and applied propagation strategies. Together with a thorough literature review, these results allowed the identification of key management elements that are applied to landrace seed production and/or propagation. After discussion with related stakeholders (Milestone 6) held during the second stakeholder workshop (see the report of Workshop 2<sup>16</sup>), clear guidelines to improve landrace propagation management were developed, starting from the identified key elements (Deliverable 2.4<sup>17</sup>). The resulting document provides the user community with clear prescriptions to carry out or develop proper multiplication strategies with the aim of maximizing within-landrace diversity, while keeping its identity.

**2.2.2 Task 2.2 Community seedbank (CSB) management (Months 7–30)** Task leader: PSR. Involved partners: BIOVER, UPV, ÖMKI, AARI, BPGV, DSS, ARCN

Following the four CSB workshops organized and executed during the first reporting period in the two countries selected as models for national seed networking (Denmark and Hungary), an additional workshop was convened in Hungary on 23 September 2019, entitled 'Reviving old cultivars – from conservation to plate', which marked the completion of Milestone 7, 'Meetings of the national coordination platforms in the two model countries'. The workshop was attended by 23 participants, most of them members and active volunteers of Magház<sup>18</sup>, but representatives of the permaculture association, community gardens, the national genebank, ESSRG and ÖMKi were also present. The aim of the workshop was to collect the ideas of the participants about different landrace/heritage variety seed and seedling distribution methods (marketing and non-marketing possibilities) to find potential collaborations among the represented stakeholder groups. Different ideas were collected about the most efficient channels to distribute and reintroduce seed from the members and variety maintainers of Magház to the users. After the official programme, members of Magház talked about the

<sup>16</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)

<sup>17</sup> [D2.4 In situ landrace propagation management guidelines.pdf](#)

<sup>18</sup> Magház is the CSB in Hungary that partner ÖMKI worked with during the Farmer's Pride project, since the project participant representing ÖMKI is the Coordinator of Magház.

possibilities of transforming the informal network into a formal organization. Everyone agreed that the team had reached a turning point to become a formal organization. Bese Association (a partner organization that has worked with Magház since 2013) offered to rename themselves as Magház. Organizational development of Magház started in January 2020 with the involvement of an external expert. A task list was compiled, grouped, and responsible persons for each task assigned.

Also during the second reporting period, partners PSR, ARCN, ÖMKI and DSS worked together to develop 'Community seedbank management guidelines' (Deliverable 2.3<sup>19</sup>). The first two chapters of this report describe the evolutionary process of four CSBs (Magház, Danish Seed Savers, Arche Noah and ProSpecieRara) involved in Farmer's Pride project. Many start as loose, decentralized networks where individual farmers, gardeners and researchers keep, propagate and exchange open-pollinated seeds. The report describes the characteristic steps almost every organization runs through during its development. Due to their social, financial and legal environment, CSBs decide if they base their work mostly on volunteers or professionals, on funding coming from public funds or private donors, or if they put more dedication in policy work or practical field work. As soon as CSBs have established their own profile and defined and agreed on their values and strategic targets, they may try to connect with other stakeholders in the field of conservation and sustainable and dynamic use and management of PGR, such as marketing partners or genebanks. Otherwise, they risk staying in their isolated corner and fail to have an impact on a broader part of society that will hopefully support CSBs. By doing so, they might be confronted with new legal obligations like laws on seed marketing or the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which can then have a considerable impact on the daily work of CSBs with regard to exchange or commercialization of non-registered varieties.

The third chapter of the report focuses on how the four showcased NGOs manage their networks and collections and what infrastructure they use to fulfil their tasks. It goes without saying that CSB networks without a physical management centre or seedbank have less infrastructure than those that have centralized their conservation management activities. This does not go in line with the capacities of coordinating the people or organizing the exchange of seed between members because these activities can be coordinated online. Once installed (online seed catalogue, online exchange platform to bring the provider together with the user, etc.), they can be maintained quite easily without basic costs being too high. What is often lacking is quality management of seeds that are exchanged and long-term monitoring of what has been exchanged and between whom (i.e., what kind of users are in the network). A long list of awareness building as well as distributing and marketing activities (best practice examples and links) between different stakeholders show that all of the four partners have a lot of experience in these kinds of activities and have a lot of expertise in this field.

The report also provides a short compilation of the main differences between CSBs and national genebanks. It is meant as a basis to improve collaboration between these two important stakeholders that should know better each other's main competences to profit from the complementarities of the two systems. Together they could cover many demands and challenges that arise in the field of sustainable conservation and management of PGR at national and international levels.

The report concludes with a short view into the future perspectives of the four CSBs. Most of them aim at setting up better quality management and monitoring systems by developing and/or

---

<sup>19</sup> [D2.3 Community seedbank management guidelines.pdf](#)



implementing adapted database systems for their daily seed propagation and organizational business. Another point CSBs want to tackle for the future is to work better with populations, mixtures and heterogeneous material to develop PGR further, with the aim of providing more and better known and better adapted material to 'diversity farmers' working in diverse agroecosystems. In the annex of the report, practical examples of existing databases to manage and develop PGR within CSB systems and networks are presented.

**2.2.3 Task 2.3 CWR population management (Months 6–30) Task leader: URJC. Involved partners: UOB, EUROSITE, AARI, PLANTLIFE, DIMITRA, BIOVER, BPGV, UPV + FPAs**

During Workshop 2 in October 2019<sup>20</sup>, a meeting of the Task 2.3 partners was convened to review the draft CWR population management guidelines and to discuss progress in this task. At this meeting, the partners agreed that when editing the draft guidelines, a special effort would be made to make the text simple and accessible to readers, which would in most cases be technical staff, protected area managers, and farmers. This involves both the editing style as well as the format and layout. An important output of the project is the definition of minimum criteria for the inclusion of CWR genetic reserves in the foreseen European network for *in situ* conservation and sustainable use of plant genetic resources. At the same meeting, it was decided that the CWR population management guidelines should provide advice on how to comply with the elements of the minimum criteria related to CWR genetic reserve management. In this context, during Workshop 2, there was a working group dedicated to CWR population management (WG1A: 'Standards and procedures for CWR sites/populations') with the objective of discussing and agreeing on the above-mentioned criteria and management standards for CWR sites/populations. Seventeen people representing different stakeholders participated in this working group. These two meetings held at Workshop 2 correspond to the achievement of Milestone 8, 'Workshop to discuss a first draft of the guidelines with all the stakeholders of the CWR network' associated with this task.

Following the agreements reached at Workshop 2, the authors of the different chapters worked to complete a second draft of the guidelines, which was finalized in September 2020. At this point, four partners were selected to work as editors and provide uniformity and coordinated editions to the text. The draft was then sent for review to 19 external experts of 13 different countries. The reviews provided by the experts were incorporated in the guidelines along with the editing work performed by the editors. In parallel, a lot of time was invested in the preparation of illustrations, figures and tables, and the design of the layout to improve the readability of the text. The final publication, 'Crop Wild Relative Population Management Guidelines' (Deliverable 2.1<sup>21</sup>) is an exhaustive document of 132 pages that is structured in seven chapters. It provides all the necessary knowledge and resources to effectively manage CWR populations *in situ*, adapt to climate change, and make these valuable resources available to research and breeding communities.

In chapters 1 and 2, the guidelines introduce the subject, including all the elements that one should consider for the design and the implementation of a management plan. In chapters 3 and 4, the guidelines contemplate the different situations in which a CWR genetic reserve can be established and provide specific management tips to consider when drafting a CWR population management plan for a protected area, in public land outside of a protected area, in farmlands, and in other types of private property. Chapter 5 provides a specific framework to tackle the challenge of climate change based on

<sup>20</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)

<sup>21</sup> [Crop Wild Relative Population Management Guidelines.pdf](#)

an adaptive management approach. The essential coordination with CWR *ex situ* conservation activities and use are detailed in chapter 6. These guidelines close with a final chapter dedicated to outline the essence of CWR genetic reserve management. Thus, the concept of minimum standards is presented and applied to i) the design and implementation, and ii) the management of CWR genetic reserves. The guidelines are complemented with a set of appendices that provide a glossary of terms, sample data sheets for target population documentation and threat assessment, and standard descriptors for the documentation of *in situ* CWR conservation.

In an effort to improve the accessibility and the attractiveness of the guidelines, an online version of the CWR Population Management Guidelines was prepared and is published as the 'Web Tool for CWR Population Management'<sup>22</sup> in the CWR Global Portal, which is hosted by partner BIOVER (Biodiversity International), to ensure its longevity. In this format, the contents are provided as a structured set of web pages, where, for each chapter, the information is initially presented in a simplified way and the reader can opt to get more detailed information by clicking on the corresponding links.

**2.2.4 Task 2.4 Informatic tools (Months 10–30)** Task leaders: UOB, UNIPG. Involved partners: BIOVER, URJC, PSR, LUKE, IPK

To support and promote *in situ* conservation and sustainable use of PGR, the Farmer's Pride project collaborators have developed and published several tools and standards for the management of data associated with *in situ* PGR conservation and sustainable use. These practical tools and associated standards are freely available to all stakeholders, including farmers, protected area managers, plant breeders, and researchers. A summary of the tools is given below and more details are published in Deliverable 2.2<sup>23</sup>.

#### **CAPFITOGEN tools for crop wild relative and landrace conservation planning**

[capfitogen.net/](http://capfitogen.net/)

CAPFITOGEN3 is the new iteration of the CAPFITOGEN toolbox, developed to provide support to the global PGR conservation and sustainable use community by providing software tools designed to perform spatial and ecogeographic diversity analyses to facilitate more efficient and effective PGR conservation and sustainable use planning. The new version is composed of 15 tools usable either directly on a server via an online portal, or downloadable and used in local mode on a computer hard drive. In addition to deploying the CAPFITOGEN tools on a server, a new tool for undertaking predictive characterization has been developed, and several other tools in the suite completed, tested and optimized for use on the server.

#### **Concept for an extension of EURISCO for *in situ* crop wild relative and on-farm landrace data**

The European Search Catalogue for Plant Genetic Resources (EURISCO)<sup>24</sup> is currently limited to germplasm accessions maintained *ex situ*—primarily in genebanks. However, to allow access to a greater breadth of genetic diversity and meet users' requirements, it is critical that germplasm is equally accessible whether it is held *ex situ* in a genebank or *in situ*—either on-farm or in nature.

---

<sup>22</sup> [cwrpopulation-toolkit.cropwildrelatives.org/](http://cwrpopulation-toolkit.cropwildrelatives.org/)

<sup>23</sup> [D2.2 In situ conservation information management tools.pdf](#)

<sup>24</sup> [eurisco.ecpgr.org](http://eurisco.ecpgr.org)

Deliverable 2.5<sup>25</sup> constitutes a first proposal for an extension of the EURISCO descriptors to allow *in situ* CWR and on-farm landrace data to be included in EURISCO in the future.

#### ***In situ* crop wild relative population look-up tool**

[ecpgr.cgiar.org/cwr-tool](http://ecpgr.cgiar.org/cwr-tool)

Based on extensive data collated of *in situ* population occurrences of priority CWR taxa in Europe<sup>26</sup> and subsequent analysis of their occurrence in the Natura 2000 network<sup>27</sup>, a tool was developed to promote the active *in situ* conservation of CWR within existing protected areas throughout the region. This searchable database facilitates the identification of which CWR are present in which protected areas, and allows users to search by a species name, a country, a protected area, or habitat type, as well as allowing searches on multiple fields.

#### **Web Tool for CWR Population Management**

[cwrpopulation-toolkit.cropwildrelatives.org/](http://cwrpopulation-toolkit.cropwildrelatives.org/)

As noted in section 2.2.3, these web-enabled guidelines provide protected area managers, conservation practitioners, farmers and any other professionals or volunteers responsible for the conservation of CWR populations with access to a user-friendly platform giving practical step-by-step guidance for the management of CWR populations and the genetic reserves where they are being conserved. The guidelines provide a quick and accessible tour to all the elements that one should consider for the design and implementation of a management plan, including habitat characterization, population threat assessment, management interventions, monitoring schemes, management of information and legislative requirements, among other issues.

#### **Best practice evidence-based database: a tool for promoting landrace conservation *in situ***

[ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database](http://ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database)

This tool is for landrace maintainers or those considering the cultivation of landraces to diversify their crop production system. It provides access to evidence-based information on the benefits, opportunities and best practices of landrace cultivation to help in decision-making and to promote their *in situ* maintenance as a means of conserving and diversifying PGR for food, nutrition and livelihood security. It includes 105 examples of *in situ* management practices and of adding value to landraces of a range of different crops and in different socio-cultural, environmental and economic contexts from 14 European countries. The tool is published in the ECPGR website to ensure its long-term maintenance, and to facilitate future updates.

#### **Descriptors for crop wild relative diversity management**

Previously drafted descriptors for CWR population monitoring, as well as for strategies and action plans, have been reviewed and updated, and are being published in combination with existing descriptor sets and data recording templates for CWR checklists and inventories. Thus, practitioners dealing with all aspects of CWR conservation planning, the development and implementation of national and regional strategies and action plans, including ongoing population monitoring, will have access to a one-stop shop for the management and exchange of the associated data at all levels. The

---

<sup>25</sup> [D2.5 EURISCO in situ extension concept.pdf](#)

<sup>26</sup> [D1.2 In situ PGR in Europe crop wild relatives.pdf](#)

<sup>27</sup> [MS19 Crop Wild Relatives in the Natura 2000 Network.pdf](#)

descriptors will be made available via the CWR Global Portal ([cropwildrelatives.org/](http://cropwildrelatives.org/)) to ensure easy access and long-term availability to user community.

#### **Landrace repatriation tool**

The landrace repatriation tool allows users (e.g., farmers and gardeners) who would like to cultivate crop landraces with a bio-cultural connection to the area in which they are growing their crops, to search for these varieties by entering the crop species and their location, and retrieving a list of qualifying varieties and how to obtain reproductive material from commercial producers or conservation collections. As a proof of concept, a stand-alone Excel-based interactive tool was constructed that allows searches for old Dutch apple varieties based on a location. The landrace repatriation tool will extend this proof of concept to a range of crops and countries in Europe and will be available in the ECPGR website ([ecpgr.cgiar.org/working-groups/on-farm-conservation](http://ecpgr.cgiar.org/working-groups/on-farm-conservation)) to ensure its long-term maintenance and availability, and to facilitate future updates.

#### **2.2.5 Task 2.5 Facilitating in situ conserved diversity use (Months 10–33) Task leader: IPK. Involved partners: URJC, PSR, LUKE, DIMITRA, PLANTLIFE, ESA**

This task aimed to prepare a possible extension of EURISCO<sup>28</sup> for *in situ* conserved PGR diversity. The feedback received from a draft proposal for data exchange formats for *in situ* CWR and on-farm LR data, which was sent to all project partners for review in April 2019, was collated and incorporated in the proposal document. To estimate the effort necessary for a later extension of EURISCO, use-cases/requirements of the users needed to be collected. Thus, a survey was prepared and was sent to the Task 2.5 partners as well as to additional selected partners of the project. On the partners' request, this survey was extended until the end of 2019. Feedback was received from several partners and was used to quantify the effort required. A concept for a possible extension of EURISCO for both *in situ* CWR and on-farm LR data was developed based on the proposed data exchange formats, the collected user requirements, the effort estimation, and the technical and organizational requirements for the data exchange (Deliverable 2.5<sup>29</sup>).

The proposal for the *in situ* CWR data exchange was also forwarded to the Secretariat of the ITPGRFA, which started a project in May 2019 that aims at developing an internationally accepted standard for the exchange of *in situ* CWR data. The Secretariat used the Farmer's Pride format proposal as input in the preparation of the document 'Descriptors for Crop Wild Relatives conserved *in situ* (Alercia et al. 2021<sup>30</sup>).

Based on the above-mentioned concept for the possible expansion of EURISCO, a discussion process was initiated in the responsible EURISCO Advisory Board.

#### **2.2.6 Task 2.6 Integrated in situ and ex situ conservation (Months 4–33) Task leader: WUR. Involved partners: UOB, NORDGEN, URJC, PSR, OMKI, LUKE, BPGV, DSS, ARCN, BIOVER, ESA, UPV**

After the surface scan and the establishment of initial contacts and meetings with the major players in the Netherlands and Spain, as reported in the first periodic report, the activities continued in the current reporting period.

---

<sup>28</sup> [eurisco.ecpgr.org](http://eurisco.ecpgr.org)

<sup>29</sup> [D2.5 EURISCO in situ extension concept.pdf](#)

<sup>30</sup> [fao.org/3/cb3256en/cb3256en.pdf](http://fao.org/3/cb3256en/cb3256en.pdf)

In the Netherlands, getting appointments with the right people in the nature protection organizations Natuur Monumenten and Staats Bosbeheer proved more difficult than expected. Establishing the initial contacts had been relatively easy but getting the attention at the top level of these large organizations appeared another matter. Regarding Natuur Monumenten, it took many phone calls, emails and using personal contacts before an appointment with the Director of Nature Management and the Manager of Nature and Landscapes was arranged. The visit was prepared by sharing a short note about the potential collaboration 'Behoud en toegankelijkheid van Nederlandse wilde verwanten van voedselgewassen' ('Conservation and access of Dutch wild relatives of food crops'), and the meeting took place on 8 January 2020. The Director of Nature Management Tweeted (in Dutch): "Had an interesting conversation with @CGN\_Wageningen, In NL there are 214 wild plant taxa related to agricultural crops. Treasure-trove of genes for future food. We are going to collaborate. @CropWildRelative"). The conversation resulted in the conclusion that Natuur Monumenten is willing to collaborate with regard to the black box *ex situ* backup of CWR germplasm, provided CGN (Centre for Genetic Resources the Netherlands) will do this in the context of another project that is about to be set up, 'Het Levend Archief' ('The Living Archive'), in which CGN will participate. The first collecting took place at three locations (Zuid Beveland, IJsselgebied and Zuid-Limburg) between June and August 2020, resulting in 11 sampled populations, all of different species. The sampled material is being processed and will be stored by CGN. With regard to access to PGR to outside users, there was a positive attitude at Natuur Monumenten, however setting up a protocol was deemed premature. It was decided that as soon as the first request arrives it will be decided how to handle it. Reports of all the meetings were written, shared, and approved by the participants. After the January 8th meeting, it also proved easier to get in contact with Staats Bos Beheer. However, after a first very positive (virtual) meeting with one of the directors, it proved difficult to keep the topic of CWR on the agenda of Staats Bos Beheer, since the positions of the persons that were requested to prepare an advisory note have changed. As a result, the issue has lost momentum and new attempts will be necessary. The conclusion that it can be a difficult topic to get on the agendas of the larger nature protection organizations seems justified.

In Spain, as indicated in the first periodic report, two workshops were held about the coordination and collaboration between *in situ* and *ex situ* conservation activities: one related to CWR and another to landraces. During the current reporting period, the minutes of the workshops were disseminated among the participants and other interested stakeholders that did not have the opportunity to participate. The aim of this action was to maintain a favourable scenario where potential collaborations could arise.

Furthermore, a pilot study involving the collaboration between the Biosphere Reserve 'Sierra del Rincón' and the genebank of the Universidad Politécnica de Madrid (UPM) was carried out, with the participation of URJC as promoting agent. The objective was to put into effect an example of integrated *ex situ-in situ* conservation of CWR. In the Biosphere Reserve of Sierra del Rincón three genetic reserves were established (Figure 1) that jointly contain 15 CWR taxa of the Spanish CWR priority list. The CWR populations in these genetic reserves were demographically characterized and georeferenced. The habitat type, accompanying taxa and potential risks were also registered. Seed accessions from each of the populations were collected and processed to be preserved at the genebank of the UPM. Permissions to collect and conserve the seeds were obtained from the authorities of the Madrid Region. These permissions did not allow the distribution of these seeds to third parties. The collaboration has continued in 2020, adding 15 Spanish CWR priority taxa both for

*in situ* and *ex situ* conservation. A meeting with the authorities of the Madrid Region scheduled for spring 2020, to discuss the possibility of agreements that would allow the distribution of seed accessions to third parties under the procedures of the ITPGRFA was finally turned down by them.

The collaborative programme to manage and promote the established CWR genetic reserves of the Biosphere Reserve of Sierra del Rincón continued in 2021. This season the programme focused on promoting the collaboration with local farmers to conserve additional target CWR populations. As a result, several farmers participated in capacitation workshops on how to conserve *in situ* CWR and three farms pledged to conserve populations of eight additional target CWR. The populations of these CWR were censused and characterized, and seed samples were obtained to be conserved at the UPM genebank. Further details on this initiative promoted by the Farmer's Pride project is available (in Spanish)<sup>31</sup>.

On 21/11/2019 URJC held a meeting with the Head of the Commission for the Spanish National Programme of Plant Genetic Resources of the Ministry of Agriculture and his team to promote CWR conservation actions in other Spanish regions that could follow the pattern of the above-mentioned pilot study. The meeting was very productive and URJC was commissioned by the Ministry of Agriculture to develop a National Strategy for the Conservation and Sustainable Use of Crop Wild Relatives and Wild Food Plants. A multidisciplinary team led by URJC developed the Strategy in the first semester of 2020. That summer, it was brought up to public consultation by the Ministry of Agriculture<sup>32</sup>. Finally, it was approved by the National Commission for PGRFA in March 2021. The Strategy is currently waiting for approval at the highest level by the inter-sectorial Commission on Agriculture to be implemented by the Autonomous Communities.

In addition to these contacts and planned and current collecting activities, the legal aspects were treated in the note 'Templates of Material Transfer Agreements for black-box safety backup in an *ex situ* genebank' that provides issues to consider when backing up *in situ* material in *ex situ* facilities and templates for MoUs (Memorandums of Understanding). The note is included as Appendix 2 to the Guidelines for integrated *in situ* and *ex situ* PGR conservation (Deliverable 2.6<sup>33</sup>).

Milestone 11, 'Workshop with key actors in the field of *in/ex situ* conservation in Europe' was achieved through the online workshops and meetings organized in the Netherlands and in Spain in the current and first reporting periods, as well as through the Working Group 1C 'Germplasm access and benefit sharing procedures' discussions held during Workshop 2 in October 2019<sup>34</sup>.

---

<sup>31</sup> [sierradelrincon.org/parientes-silvestres-comestibles/](http://sierradelrincon.org/parientes-silvestres-comestibles/)

<sup>32</sup> [mapa.gob.es/es/agricultura/participacion-publica/consulta\\_estrategia\\_parientes\\_silvestres.aspx](http://mapa.gob.es/es/agricultura/participacion-publica/consulta_estrategia_parientes_silvestres.aspx)

<sup>33</sup> [D2.6 Guidelines for integrated in situ and ex situ conservation.pdf](#)

<sup>34</sup> [farmerspride/wp-content/uploads/sites/19/2020/05/D5.1\\_Farmers\\_Pride\\_Workshop\\_2\\_Report.pdf](#)



**Figure 1.** Information board of 'Huerta Catalina' CWR genetic reserve in the Biosphere Reserve of Sierra del Rincón, 80 km north of Madrid, Spain. The Farmer's Pride logos are presented at the bottom.

### 2.2.7 WP2: Deviations from Annex I<sup>35</sup>

#### Task 2.1

The submission of Deliverable 2.4 was delayed from 30 June 2020 to 17 September 2020 due to the extensive interactions with the involved partners and the extra time needed for the preparation of a comprehensive document.

#### Task 2.2

- Milestone 7, 'Meetings of the national coordination platform in the two model countries', due to be achieved by 31 January 2020, was achieved early (23 September 2019).
- The submission of Deliverable 2.3, 'Community seedbank management guidelines' was delayed from 30 April 2020 to 8 July 2021. The process of collating the information for and writing this document took longer than anticipated and a draft was ready by the end of October 2020. The final version was delayed due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

#### Task 2.3

- Milestone 8, 'Workshop to discuss a first draft of the guidelines with all the stakeholders of the CWR network', due to be achieved by 31 January 2020, was achieved early (9 October 2019).
- The submission of Deliverable 2.1, 'CWR population management guidelines, was delayed from 30 November 2020 to 28 July 2021. The delay was incurred because the preparation of the chapters of the guidelines by the different partners took greater time than anticipated. The idea of preparing a simple set of guidelines grew into a work that has led to the generation of an exhaustive work that compiles all information available about CWR population management. The leading authors and editors of the guidelines decided to produce a book from this work. Accordingly, the process has followed a rigorous quality check of its contents and layout. This has implied, for instance, the review of the contents by 19 external experts, and intense work from

<sup>35</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

the editors to improve the contents. This work and additional formatting to produce a professional layout, including the creation of images, considerably increased the time dedicated by partner URJC. In addition, URJC provided the main input to the publication of the CWR Population Management Guidelines in the form of a web tool (not originally considered in the project proposal and therefore not included in Annex I, Part A) in order to increase the attractiveness and accessibility of the contents of the Guidelines to the target audience of protected area managers, technical staff and farmers.

#### **Task 2.4**

The submission of Deliverable 2.2 was delayed from 30 April 2021 to 29 July 2021. This was due to additional tools being developed beyond those originally planned, the time constraints of the subcontractors developing the tools, and the reduced staff time available of the task leader and Project Manager (UOB) for preparing, publishing and submitting the deliverable during the nine month no-cost extension.

#### **Task 2.5**

- Milestone 10, 'Availability of the inventory of data to be integrated' was not prepared as originally planned because the steps taken in this direction revealed the lack of information sources that could provide these data. Instead, it was agreed that the main focus would be on the development and refinement of existing data exchange formats.
- The submission of Deliverable 2.5, 'Concept for *in situ* inclusion in EURISCO' was delayed from 31 July 2020 to 10 September 2020 due to more time required for its completion than anticipated.

#### **Task 2.6**

The submission of Deliverable 2.6, 'Integrated *in situ* and *ex situ* conservation guidelines' was delayed from 31 July 2020 to 8 July 2021. A draft was ready by the end of October 2020. However, the final version was delayed due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

### **2.3 WP3: Enabling conservation and use (WP leader: BIOVER)**

#### **2.3.1 Task 3.1: Incentives for conservation/use (Months 4–27) Task leader: BIOVER. Involved partners: AARI, ARCN, DIMITRA, PLANTLIFE, UOB**

The European Union's (EU) Common Agricultural Policy (CAP) is considered to be the critical public policy in terms of both impacts and funds dedicated to the conservation of biodiversity. Its second pillar Rural Development Plans contain policy measures that relate to "environmental, climate and other management commitments", which comprise a wide range of activities that are particularly relevant to the conservation, sustainable use and development of genetic resources.

Under the current CAP, a number of institutional arrangements were identified through a desk review/expert consultation. The Alpine countries (Austria and Switzerland) have large formal annual direct support programmes, while relatively less wealthy but higher diversity countries such as Greece have had more modest and temporary ones. By contrast, Hungary and the UK have no direct support programmes at all. Support payments for wheat landraces, where they exist, were in the range of



€120–€251/ha, although relatively little of the existing support, even in those countries with large programmes, is focussed specifically on wheat landraces (Austria 1.2% and Greece 8.3%).

Results from the farmer survey designed to assess the willingness of wheat farmers to participate in on-farm conservation of wheat landraces, reveal that conservation costs, although exhibiting high heterogeneity, amount to an average cost of between €300–550/ha. Assuming that such costs are also representative of non-wheat landraces, together with a further 20% for monitoring and administration costs, 1000<sup>36</sup> landraces covering a range of crops could be each conserved at five different sites<sup>37</sup> on at least 1 ha at each site (=5 ha/landrace) for a total cost of €22.4m–€41.1m (equivalent to €1.8m–€3.3m p.a.) over 20 years at a 5% discount rate. However, such a strategy might be viewed as overly dependent on relatively few farmers and a more ambitious conservation target might instead take into account not only area and configurations (which support such ecosystem services as resilient landscapes and gene flow/maintenance of the underlying evolutionary processes), but also farmer numbers (which support maintenance of ecosystem services related to traditional knowledge and cultural practices). Ensuring a minimum number of 50 farmers<sup>38</sup> per landrace each with 1 hectare of land (=50 hectares/landrace) would cost ten times as much (€18m–€33m p.a.), but still compare favourably with the general public's demand for such conservation and their willingness to pay for it. It is also well within the planned CAP Rural Development budget<sup>39</sup> for the 2021–2027 period, which amounts to a total of €95.5 billion, although relatively little of this is currently earmarked for landrace/CWR conservation. Estimated on-farm conservation costs (€1.8m–€33m p.a.) are well within the general public's willingness to pay (€80.2m p.a.) (see Deliverable 3.2<sup>40</sup>).

Current support payment levels (€120–€251/ha), where they exist at all, are on average below that stated by farmers as necessary to cover their opportunity costs (€300–€550/ha). Furthermore, given the high heterogeneity in farmers' willingness-to-accept (WTA) compensation for participating in public good conservation activities, exploration of the potential for improved cost-effectiveness to be achieved through the use of conservation tender mechanisms<sup>41</sup> should urgently be explored. Differences between the mean and 25<sup>th</sup> percentile conservation costs suggest that the cost savings could range from 21–60% (by helping to recruit the lowest-cost farmers and using discriminatory pricing) relative to the way direct support payments are currently allocated based on an average uniform payment per conservation unit (such as area or livestock unit).

---

<sup>36</sup> Given only rough estimates of LR numbers and the absence of risk status data for many of them, it is assumed that, even in those countries where a list of threatened species and/or a list of eligible LR/traditional varieties for support is maintained, not all threatened varieties may be listed, leading to an underestimate. Austria estimated the existence of 3000 LR of which 75 (2.5%) are currently receiving support. Switzerland estimated it had similar number of LR, while Hungary reported 4000, the UK 1200–1500 (where the majority are considered to be threatened) and Greece 6000. Thus, 1000 LR would represent ≈5% of the current portfolio, which is significantly more than is currently supported.

<sup>37</sup> Given the absence of widely recognized risk thresholds/conservation targets for LR (unlike the case of animal genetic resources), following Brown and Briggs (1991) in the context of the *in situ* conservation of minimum population sizes of CWR, we propose a conservation strategy based on securing five populations across discrete ecogeographic zones. Reference: Brown, A.H.D. and Briggs, J.D. 1991. Sampling strategies for genetic variation in *ex situ* collections of endangered plant species. In: Falk, D.A. and Holsinger, K.E. (eds.), *Genetics and Conservation of Rare Plants*. Oxford University Press. New York. Pp. 99–119.

<sup>38</sup> Drawing on Drucker and Ramirez (2020, p.7), who model LR conservation costs involving a minimum of 50–100 farmers.

<sup>39</sup> [ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap\\_en#budget](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en#budget)

<sup>40</sup> [D3.2 General public WTP for landrace conservation.pdf](#)

<sup>41</sup> Narloch, U., Drucker, A.G. and Pascual, U. 2011. Payments for agrobiodiversity conservation services (PACS) for sustained on-farm utilization of plant and animal genetic resources. *Ecological Economics* 70(11):1837-1845.

Such a tender mechanism approach, when implemented in conjunction with clear conservation performance targets (such as areas under threatened landrace cultivation, number of farmers involved, spatial configuration, seed access and exchange) as used in payment for ecosystem service (PES)-based Payments for Agrobiodiversity Conservation Schemes (PACS)<sup>42</sup> elsewhere, could also contribute to the new CAP post-2020 proposals, to shift focus from compliance to performance while adhering to the public funding for public goods principle, as well as ensuring a fairer distribution of direct payments.

In particular, the conditionality associated with PACS/PES approaches sits well with the move “from compliance to performance”, while the ability to differentiate payments under a tender mechanism can support a move away from fixed payments/hectare—which is viewed as contributing to the inequitable impact of current CAP support payments. Further consideration of distributional/social-equity issues can also be facilitated by the use of a tender mechanism by favouring the selection of conservation offers that involve poorer farmers (or other vulnerable groups) or younger farmers to support generational succession<sup>43</sup>.

Given that formal support schemes (€200/livestock unit under the new CAP) exist for animal genetic resources, while at best only *ad hoc* support schemes exist for landraces, the EU as a whole, as well as national policymakers, urgently need to explore mechanisms through the CAP (and for non-EU countries, their national legal instruments<sup>44</sup>) to systematically support the on-farm conservation of Europe’s agricultural heritage of landrace/traditional varieties of wheat and other crops.

See Deliverable 3.1<sup>45</sup> for the full report of this task.

As an additional output of this task, a policy brief entitled ‘Getting incentives right? Support mechanisms for effective conservation and use of landraces in Europe and public willingness-to-pay’ will be published on the Farmer’s Pride website and used for future aware-raising among policymakers, farmers and other interested stakeholders.

Commented [DB3]: Update prior to submission of report

Commented [k4R3]: If brief is finished and published in time

### **2.3.2 Task 3.2: Identify useful in situ traits (Months 4–34)** Task leaders: UNIPG, URJC. Involved partners: AARI, BIOVER, ESA, EUROSITE, PLANTLIFE, PSR, UOB, UPV

To determine which crop traits are most needed for satisfying future agricultural and market needs, a questionnaire was prepared using the online tool EuSurvey and open from 03/12/2018 to 03/06/2019. The survey was circulated among farmers, breeders and seed companies. Sixty-four respondents from 24 countries provided information related to their interests, encompassing 61 crops and detailing 1492 demands related to target traits. Tolerance or resistance to biotic stress was the group of traits that was most demanded (23% of answers) followed by tolerance or resistance to abiotic stress (19% of answers).

<sup>42</sup> Drucker, A. and Ramirez, M. 2020. [Payments for Agrobiodiversity Conservation Services](#): An Overview of Latin American experiences, Lessons Learned and Upscaling Challenges. *Land Use Policy*: 99.

<sup>43</sup> Narloch, U., Pascual, U. and Drucker, A.G. 2013. How to achieve fairness in payments for ecosystem services? Insights from agrobiodiversity conservation auctions. *Land Use Policy* 35:107-118.

<sup>44</sup> Such as the 2020 UK [Agriculture Bill](#), which states “The Secretary of State may give financial assistance for or in connection with any one or more of the following purposes:.....(i) conserving plants grown or used in carrying on an agricultural, horticultural or forestry activity, their wild relatives or genetic resources relating to any such plan” [Chapter 21, Part 1 (Financial Assistance), Chapter 1 (New Financial Assistance Powers), Article 1 (Secretary of State’s powers to give financial assistance), Item 1.i]

<sup>45</sup> [D3.1 Analysis of effectiveness of in situ support mechanisms.pdf](#)

Based on the survey results, predictive characterization techniques were used to identify CWR populations with a higher probability of containing the identified desired traits than if randomly selected. Two approaches were used: the environmental filtering method and the calibration method. Both approaches used allowed the identification of PGR that can be targeted in breeding and pre-breeding studies where *ad hoc* trials should be carried out to confirm the presence of useful traits. Targeted CWR populations were those native to Europe, with occurrence records and evaluation data and whose related targeted crops obtained a high number of responses in the survey.

An evidence-based approach was also used to identify landraces with the desired traits. This relied on a collection of 105 landrace case studies where information on the most important agronomic traits, was retrieved from landrace descriptions given by those who cultivate or have deep knowledge of them. For this approach, landraces of both European native and introduced crops were considered.

Populations predictively containing abiotic stress resistance/tolerance traits (i.e. drought tolerance, salinity tolerance or waterlogging tolerance) were found in CWR of wheat (*Aegilops* spp.), lentil (*Lens* spp.) and lupin (*Lupinus* spp.). Populations predictively containing nutritional value traits (i.e. acyanogenic) were found in CWR of white clover (*Trifolium repens*). Abiotic stress resistance/tolerance, biotic stress resistance, and valuable nutritional traits were reported by those who described the landraces for 19, 9 and 15 landraces of different crops respectively.

A detailed report of this work is published as Deliverable 3.3<sup>46</sup>.

**2.3.3 Task 3.3: Enhance use of in situ conserved PGR (Months 4–34)** Task leaders: WUR, ESA  
Involved partners: AARI, LUKE, PSR, OMKI

During the current reporting period, the draft website 'Access to European *in situ* Plant Genetic Resources'<sup>47</sup> was further improved with additional information from actors in the Netherlands. Obtaining additional information from Turkey proved more difficult than it appeared to be initially due to staff changes in the Turkish counterpart.

Working Group 1C, 'Germplasm access and benefit sharing procedures' was convened during Workshop 2 (October 2019) to discuss issues related to providing access to PGR managed *in situ*. A preparatory document was written and distributed amongst the working group's participants. Apart from the chair and rapporteur, 12 people discussed, amongst others, the following points (all in the context of access to *in situ* PGR):

1. How does the issue of benefit-sharing impact access to PGR conserved *in situ* in Europe?
2. How can the obstacles toward access to *in situ* resources be overcome?
3. Can Farmer's Pride set standards for, or even require access to the PGR managed by its partners, or the components in its networks?
4. If standards can be set:
  - Access to who under what conditions?
  - What standards or requirements?
  - How can actors be supported in achieving these standards or requirements?

<sup>46</sup> [D3.3 Identifying in situ areas with useful adaptive traits-1.pdf](#)

<sup>47</sup> [projects.cgn.wur.nl/farmerspride/page8.html](http://projects.cgn.wur.nl/farmerspride/page8.html)

- How can these standards or requirements be enforced, what 'Performance Indicators' can be used, who should collect and check them, what if they are not met, etc.?

A summary of the discussion is available in the Workshop 2 report (Deliverable 5.1<sup>48</sup>).

**2.3.4 Task 3.4 Public willingness to fund PGR maintenance (Months 4–27) Task leader: BIOVER. Involved partners: AARI, ARCN, DIMITRA, OMKI, PLANTLIFE, PSR, UOB**

Agrobiodiversity is associated with a range of important but poorly quantified public good ecosystem services, the conservation of which requires public support. With the objective of determining the general public's willingness-to-pay (WTP) for landrace conservation and to inform decision-making regarding the allocation of public funds to crop diversity conservation, 801 adult resident respondents across five EU countries<sup>49</sup> were interviewed in person using a stated preference choice experiment to elicit the value that the general public places on crop genetic resources conservation, using traditional wheat landraces as a case study. The data were analysed using random parameter logit (RPL) models, which permit the robust analysis of preference heterogeneity across individuals and countries.

Four conservation programme attributes plus programme cost were applied: (i) insuring against the risk of agricultural production loss, (ii) the maintenance of landscape and ecological values, (iii) protection of wheat landrace diversity, and (iv) the maintenance of traditional knowledge and cultural practices (including aspects of food culture). The survey was designed so that each of the four different attributes represents a component of the total economic value (TEV) of the genetic resource, such that the sum of the separate attribute values may be used as an estimate of the TEV of the public good ecosystem services associated with the maintenance of wheat landrace diversity in farmers' fields.

Results reveal strong support for the conservation of wheat landrace diversity, with average WTP amounting to just over €95 (one-off donation) per respondent (see Table 1). In particular, strong preferences were revealed for the landscape and ecological values of wheat conservation, which are associated with the presence of landraces *in situ* through on-farm conservation. We found, however, quite a high degree of heterogeneity between countries, particularly in terms of preferences for avoiding risk and for the number of varieties maintained.

**Table 1:** Mean individual and aggregate WTP for conservation programme attributes

	Pooled sample (household estimates)	Aggregate estimates <sup>50</sup>	Conservative (10%) estimate
Avoid high production risk	€30.94	€3.2 billion	€323 million
Maintain/Improve landscape & ecological values	€34.09	€3.6 billion	€356 million
Support cultural aspects	€3.04	€320 million	€32 million
Maintain 100% of current extant diversity for future generations	€27.30	€2.9 billion	€290 million
<b>Total Economic Value</b>	<b>€95.37</b>	<b>€10 billion</b>	<b>€1 billion</b>

<sup>48</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)

<sup>49</sup> Austria [n=100], Greece [n=200], Hungary [n=200], Switzerland [n=101] and the U.K. [n=200]

<sup>50</sup> Based on an aggregate five-country population estimate for 2019 of approximately 105 million, data from EUROSTAT.

With an average one-time only total WTP per respondent of €95 and a total population of slightly over 100 million across the five countries, we estimate that the general public of these five countries would be willing to pay €10 billion for the conservation of wheat landrace diversity alone. Even assuming that only 10% of those individuals would actually be willing to pay in practice (to counteract any hypothetical bias experienced in our survey), we would still obtain a one-time WTP of €1 billion, equivalent to approximately Euro 80.2m per annum over a 20-year time horizon at a 5% discount rate. These findings demonstrate the significant and frequently ignored social welfare benefits associated with non-market agrobiodiversity-related public good ecosystem services and provide a strong rationale for further government investment in on-farm conservation of landraces in Europe.

Estimated conservation costs (€1.8m–€33m p.a.) are well within the general public's willingness to pay (€80.2m p.a.), resulting in a high benefit–cost ratio (2.4–44.6). Given the public's levels of WTP for wheat landrace conservation, which even at the relatively low levels found in the Alpine countries and the UK is sufficient to fund critical conservation interventions, there is potential to better align agrobiodiversity conservation funding with EU citizens' preferences for the conservation of agricultural diversity.

See Deliverable 3.2<sup>51</sup> for the full report of this task.

As an additional output of this task, a policy brief entitled 'Getting incentives right? Support mechanisms for effective conservation and use of landraces in Europe and public willingness-to-pay' will be published on the Farmer's Pride website and used for future aware-raising among policymakers, farmers and other interested stakeholders.

Commented [DB5]: Update prior to submission of report

Commented [k6R5]: If brief is finished and published in time

### 2.3.5 Task 3.5 Policy dialogues (Months 4–36) Task leader: BIOVER. Involved partners: UOB, ESA, WUR, UNIPG

As reported in the first periodic report, an introductory policy brief was being finalized. The policy brief was published in August 2019 and is available in eight languages<sup>52</sup> (Milestone 12, 'Briefs for policy dialogues'). The brief describes the context and makes a call for action to policymakers and proposes a number of solutions that need to be implemented to address the key problems affecting agricultural plant diversity and the policy actions required to establish and sustain a new network for *in situ* conservation and sustainable use of plant genetic resources in Europe.

Based on the key achievements of the Farmer's Pride project, a second policy brief entitled 'Key achievements of Farmer's Pride: towards a European network for *in situ* conservation and sustainable use of plant genetic resources' was produced (Deliverable 3.5<sup>53</sup>; Milestone 12). It provides a summary of key outcomes and outputs of the project that inform the establishment of a European *in situ* PGR network, including: the exponential increase in knowledge of LR and CWR populations *in situ* generated in the project; methods and guidelines for *in situ* conservation management and complementary conservation *ex situ*; a new paradigm for providing access to PGR conserved *in situ* to plant breeders, farmers and researchers; traits required by farmers and the seed sector for crop improvement now and in the future, and the identification of such traits in *in situ* LR and CWR

<sup>51</sup> [D3.2 General publics WTP for landrace conservation.pdf](#)

<sup>52</sup> [farmerspride/key-documents/policy-documents/](#)

<sup>53</sup> Add url when published

populations; an analysis of the effectiveness of existing support mechanisms for *in situ* conservation management; and the public's WTP for goods and services provided through *in situ* LR conservation.

The organization of a policy roundtable during the final dissemination conference was initiated during the second annual consortium meeting held in October 2019. The structure and content of the policy roundtable was also discussed with members of the policy task force (see Task 5.5) and the Project Coordinator and Project Manager during several online meetings.

The policy roundtable session 'on the establishment of a European network for *in situ* conservation and sustainable use of plant genetic resources' was convened as part of Session 4 of the final dissemination conference on 01 July 2021 (see [farmersprideconference.org/programme/](https://farmersprideconference.org/programme/)) to provide the conference participants with a clear view of prospects for the network in terms of its long-term recognition in policy and legislation, from local to global levels. The session was chaired by Geoffrey Hawtin OBE, Former Director General of Bioversity International and CIAT, and involved panellists from: the Food and Agriculture Organization of the United Nations; Euroseeds; Eurosite – the European Land Conservation Network; the European Environment Agency; the Ministry of Agriculture of the Czech Republic; the Secretariat of the ITPGRFA; and the European Commission, DG Agriculture and Rural Development. The panellists' statements and audience Q&A were centred around four key questions:

1. What next steps are needed to ensure the network is established and provided with a viable long-term governance structure?
2. How do you see the network being integrated into relevant biodiversity, agricultural, environmental and genetic resources policy and legislative frameworks (at European and global levels)?
3. How best could the network be designed to support the European Green Deal, the Second Global Plan of Action on PGRFA, the International Treaty on PGRFA, and the post-2020 global biodiversity framework?
4. What new policies/legislative instruments are needed to support the network and broader PGR conservation and sustainable use in Europe?

Following the statements, the floor was opened for questions, and selected questions were put to panellists by the Chair. A summing up of the session was given by the Chair. The roundtable was followed by breakout group discussions among the conference participants.

Deliverable 3.6<sup>54</sup> is a report of the policy roundtable session and the session recording is available for conference registrants at [farmersprideconference.org/programme/](https://farmersprideconference.org/programme/) (Session 4).

Commented [k7]: Add url when published

Other policy dialogue activities are reported under Task 5.5, 'Targeted advocacy'.

### 2.3.6 WP3: Deviations from Annex I<sup>55</sup>

#### Task 3.1

The submission of Deliverable 3.1, 'Analysis of effectiveness of *in situ* support mechanisms' was delayed from 31 July 2019 to 12 June 2021. This delay was firstly due to the extensive surveys requiring more time than anticipated. A draft was prepared and sent to the Project Manager on 21 October

<sup>54</sup> Add url when published

<sup>55</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

2020—however, the final version was delayed due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

#### **Task 3.2**

The submission of Deliverable 3.3 ‘Identify *in situ* areas with useful adaptive traits’ was delayed from 30 June 2020 to 23 October 2020 because the time required for data collection and analyses, carried out using multiple approaches, was greater than originally planned.

#### **Task 3.3**

The submission of Deliverable 3.4 ‘Two showcases of how the access to *in situ* PGR can be increased by using the approaches of the *ex situ* community, including the web interfaces and protocols required’ was delayed from 31 July 2020 to 8 July 2021. A draft was prepared and sent to the Project Manager on 19 October 2020—however, the final version was delayed due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

#### **Task 3.4**

The submission of Deliverable 3.2 ‘General public’s WTP for landrace conservation’ was delayed from 31 July 2019 to 12 June 2021. This delay was firstly due to the extensive surveys requiring more time than anticipated. A draft was prepared and sent to the Project Manager on 21 October 2020—however, the final version was delayed due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

#### **Task 3.5**

The submission of Deliverable 3.5 ‘Strategic Action Plan for PGR *in situ* maintenance’ was delayed from 31 March 2021 to ~~XX~~ October 2021. This delay was initially due to the complexity of coordinating the inputs from all the involved project partners, and later due to the reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

Commented [k8]:

#### **Task 3.6**

The submission of Deliverable 3.6 ‘Policy dialogue workshop to enhance *in situ* maintenance’ was delayed from 31 July 2021 to ~~XX~~ October 2021. This delay was due to the reduced staff time available of the Project Manager (UOB) for reviewing, editing, formatting and publishing the deliverables.

Commented [k9]:

## 2.4 WP4: Network design and implementation (WP leader: UOB)

**2.4.1 Task 4.1: Integrated network structures (Months 1–18)** Task leader: UOB. Involved partners: BIOVER, UNIPG, UPV, URJC, EUROSITE, OMKI, AARI, BPGV, DIMITRA, ESA, PLANTLIFE + FPAs

Task 4.1 builds on previous work undertaken in the context of the EU-funded PGR Secure project<sup>56</sup> and the development of a concept for *in situ* conservation of CWR in Europe<sup>57</sup>, as well as in the context of ongoing discussions with the Food and Agriculture Organization of the United Nations (FAO) regarding the development of a global network for *in situ* PGR conservation. The long-term vision is a global network of sites/populations which permanently conserves the genetic diversity of CWR and LR. However, the global network will be constructed region by region, with the European region providing the initial testing ground for concepts and practical application that can then be transferred to other regions in due course.

During the current reporting period, and following discussions at Workshop 1<sup>58</sup>, a white paper, ‘Proposal for the establishment of a European network’ was published (Deliverable 4.1<sup>59</sup>), which set out how key complementary CWR and LR landrace populations and sites can be identified and included in the network, how a network governing body could be established, and how the *in situ* conserved resources could be made available and accessible for sustainable use. The paper also elaborates the benefits of the network to its members, local communities and to the European community at large, and argues that for the network to be sustainable, there is a need for an international agency to provide overarching governance support. Following Workshop 2<sup>60</sup>, the white paper was further developed to produce the document, ‘European network for *in situ* conservation and sustainable use of plant genetic resources—in cultivation and in the wild: A proposal’<sup>61</sup>, which was published in eight languages<sup>62</sup> and used in promotional activities in the development of the network (see Task 4.4).

**2.4.2 Task 4.2: LR network design (Months 7–33)** Task leader: UNIPG. Involved partners: PSR, OMKI, LUKE, BPGV + FPAs

Based on 19,335 records of sites where landraces are cultivated, 100 landrace diversity hotspots and other sites of interest were initially identified (see Task 1.3). They were then used as a starting point for interactions with collaborators in the Farmer’s Pride project to provide expert input into the process of identifying potential localities for inclusion in a European network for *in situ* conservation and sustainable use of plant genetic resources. It can be recalled that the initial identification of the hotspots was based on a percentile analysis of distribution of the average number of species per 625 km<sup>2</sup> grid cell. The cells with the highest number of different landrace species cultivated and located in the different ecogeographic regions of Europe were selected. Additionally, to consider the European breadth of diversity, the sites with the highest numbers of species cultivated as landraces for those countries containing none of the identified landrace diversity hotspots were listed. Particular attention was given to sites where landraces are still cultivated and located in protected areas of the Natura

---

<sup>56</sup> [www.pgrsecure.org](http://www.pgrsecure.org)

<sup>57</sup> [Concept for in situ conservation of CWR in Europe.pdf](#)

<sup>58</sup> [Farmers\\_Pride\\_Workshop\\_1\\_Report.pdf](#)

<sup>59</sup> [D4.1\\_Network\\_proposal.pdf](#)

<sup>60</sup> [D5.1\\_Farmers\\_Pride\\_Workshop\\_2\\_Report.pdf](#)

<sup>61</sup> [Farmers\\_Pride\\_Network\\_Concept\\_English.pdf](#)

<sup>62</sup> [farmerspride/network/](http://farmerspride/network/)



2000 network. A series of interactions with collaborators in the Farmer's Pride project<sup>63</sup> were then carried out to choose the best sites among those initially detected. These interactions identified the following numbers of activities/localities of landrace cultivation that are most relevant for initial inclusion in the European network: Austria (8), Croatia (3), Czech Republic (3), Denmark (4), Estonia (3), Finland (5), Germany (5), Greece (45), Italy (16), Portugal (16 + 3 other sites of potential interest), Romania (5), Spain (1 + 5 other sites of potential interest), Switzerland (15), United Kingdom (1 + 5 other sites of potential interest). For a full report, including recommendations on the implementation process, see Deliverable 4.2<sup>64</sup>.

**2.4.3 Task 4.3: CWR network design (Months 7–33)** Task leader: URJC. Involved partners: UOB, BIOVER, NORDGEN, EUROSITE, PLANTLIFE + FPAs

URJC, UOB, BIOVER and BPGV periodically met (Skype meetings) to coordinate and set the standards for the generation of a high quality database of CWR occurrences. As reported for Task 1.2, occurrence data for all target taxa (863) were downloaded via R scripts (rGBIF and genesys R packages) to GBIF and Genesys databases. In addition, synonymies were taken into account and occurrence data for more than 2500 target taxa synonyms were also searched.

Milestone 19<sup>65</sup> was dedicated to the analysis and listing of CWR in European protected areas. Starting from the subset of data corresponding to the European countries that participate in the Natura 2000 network, and gathering the information about the location and borders of the protected areas of the Natura 2000 network, a Geographic Information System (GIS) was established to conduct a gap analysis and assess the potential of the Natura 2000 network to conserve *in situ* populations of the European CWR priority list. This dataset contains over 2.8 million records of 568 different priority CWR. The results show great potential of the Natura 2000 network for the conservation of CWR, with a coverage of populations from 519 priority taxa within just 31% of its protected areas. In addition, 84 priority CWR taxa were identified as characteristic species of 83 priority habitats of the Habitats Directive, and 17 of them were also listed in Annexes II and IV. These findings support the value of using the existing biodiversity conservation infrastructure in Europe for CWR conservation *in situ*.

In an attempt to reduce the bias found in the generated occurrence dataset regarding some countries (especially in eastern Europe) with lower data representation, and the lack of occurrence data of 247 or the target 863 taxa from the European CWR priority list, further efforts were made to improve the database. This involved additional work, searching for specialized CWR databases that could provide further data, asking contacts to search for specific information, conducting single taxon searches in national herbaria and other databases, and updating the download from the GBIF database by searching all target taxa including additional synonyms.

---

<sup>63</sup> Helene Maierhofer, ARCN, Austria; Hrvoje Kutnjak, University of Zagreb, Croatia; Vojtech Holubec, Crop Research Institute, Czech Republic; Gert Poulsen, DSS, Denmark; Külli Annamaa, Crop Research Institute, Estonia; Maarit Heinonen, LUKE, Finland; Imke Thormann, Federal Office for Agriculture and Food, Germany; Parthenopi Ralli, DIMITRA, Greece; Claudio Buscaroli, Centro Ricerche Produzioni Vegetali, Italy; Isabella dalla Ragione, Fondazione Archeologia Arborea, Italy; Ana Barata, BPGV, Portugal; Miguel Pinheiro De Carvalho, Universidade da Madeira, Portugal; Silvia Strajeru, Banca de Resurse Genetice Vegetale Suceava, Romania; José Iriondo, URJC, Spain; Jaime Prohens, UPV, Spain; Jens Weibull, Swedish Board of Agriculture, Sweden; Béla Bartha, PSR, Switzerland; Nigel Maxted, UOB, UK; Shelagh Kell, UOB, UK; and Maria Scholten, Independent Consultant, UK

<sup>64</sup> [D4.2 Landrace network design.pdf](#)

<sup>65</sup> [MS19 Crop Wild Relatives in the Natura 2000 Network.pdf](#)

In the context of Milestone 20 'Areas where to further *ex situ* collecting of CWR identified', an *ex situ* database with information on seed accessions kept in genebanks concerning the taxa included in the European CWR priority list was also developed. The information was obtained mostly from the Genesys database complemented with data from GBIF and other sources of information. The *ex situ* database contains 136,393 accessions for 457 priority taxa.

An Ecogeographic Land Characterization Map (ELC map) was developed for Europe + Asiatic Turkey to classify the territory in 37 ecogeographic categories, based on climatic, edaphic, and geophysical variables. The ecogeographic categories were used as a proxy to estimate the between-population genetic diversity of adaptive value that resides in each target CWR taxon, as a result of the divergent selective pressures operating at the different environments. A total of 6470 so-called 'CWR-Eco units' were obtained by combining the European priority CWR taxa with the ELC categories corresponding to the sites where their populations are found. These 6470 CWR-Eco units constitute the conservation targets for which there are available data in the *in situ* database.

The assessment of candidate locations for the establishment of genetic reserves for the active *in situ* conservation of natural populations was performed at two levels: a basic assessment at the level of the countries that are part of the Natura 2000 network, and a more complete assessment for the whole Europe + Asiatic Turkey territory. The assessment made for the Natura 2000 network countries was an update of the initial study performed in the context of Milestone 19, as described above. As a result of this analysis, it was found that 409,642 occurrence records corresponding to 593 European CWR priority taxa, are located within the Natura 2000 network. In other words, 91% of the European priority CWR included in the *in situ* database are covered by the Natura 2000 network.

A hotspot analysis identified the sites with the highest richness of priority CWR taxa. The assessment performed at the Europe + Asiatic Turkey scale was more detailed and used the 6470 CWR-Eco units as conservation targets. A hotspot analysis performed over a grid of 50x50 km cells identified the cells containing the greatest number of CWR-Eco units. Several hotspot areas with more than 200 different CWR-Eco units were found in most western countries. The complementarity analysis performed using the protected areas registered in the World Database of Protected Areas (WDPA)<sup>66</sup> and those belonging to the Natura 2000 network showed that 825 protected areas provide coverage to 78% of the target conservation units (5046 of 6470 CWR-Eco units). The top 50 protected areas selected through this analysis provide coverage to approximately 50% of the target CWR-Eco units. A second complementarity analysis using a grid of 10x10 km cells to take into account those CWR-Eco units not found in protected areas identified 853 cells that would be needed to include them.

The analyses performed to identify the contents and gaps of *ex situ* collections showed that around 50% of the European CWR priority taxa have at least one seed accession obtained from a natural population from Europe + Asiatic Turkey conserved in a genebank. Furthermore, 1906 of the 6470 CWR-Eco conservation targets (29%) are currently stored in genebanks. The complementarity analysis performed to design an optimized collecting strategy showed that it is necessary to collect in 734 50x50 km cells to fully cover the germplasm corresponding to the missing 4564 CWR-Eco units. Seed collecting in the top 100 50x50 km cells of the ranking would provide around 73% of the targeted germplasm (3350 CWR-Eco units).

---

<sup>66</sup> [protectedplanet.net/en](https://protectedplanet.net/en)

The lack of information about the occurrence of some priority CWR taxa and the biased information with little occurrence data for some countries indicates that there are probably other sites that contain a relevant number of targeted CWR-Eco units and even a number of new priority CWR-Eco units that were not included in this analysis. From the results obtained, it would be advisable to focus on the results of the complementarity analyses with protected areas and with sites outside protected areas, because they provide the most efficient way of maximizing the conservation of CWR diversity with a minimum of sites.

The recommendations for planning a European network of populations and sites for *in situ* CWR conservation derived from this study are: 1) use of CWR-Eco units to target the genetic diversity of European priority CWR; 2) use of existing protected areas for the establishment of genetic reserves; 3) the consideration of the protected areas derived from the complementarity analysis as the best candidate sites for further assessments; 4) the prioritization of the protected areas that occupy the first positions in the complementarity analysis; 5) the on-site verification of the presence of the priority CWR taxa in each of the selected candidate protected areas; and 6) the creation of a European-wide plant survey infrastructure that systematically collates plant biodiversity information homogeneously across the territory to enable, among many other applications, better analyses for the conservation of CWR in Europe.

See Deliverable 4.3<sup>67</sup> for the full report of this task.

Commented [k10]: Add url when published

As complementary actions in the context of this task, URJC assessed the possibility of designing a CWR network based on the identification of phytosociological associations that group several CWR of interest that co-occur in specific habitats. As forage and fodder CWR are particularly well suited for this approach they were used in this pilot study. Results were published in Rubio Teso and Iriondo (2019) *Sustainability* 11:5882; doi:10.3390/su11215882. Additionally, a study was conducted to develop a methodological approach to assess the effects of climate change on the *in situ* conservation of target CWR populations of based on the use of ecogeographic land characterization maps. Results were published in Marinoni et al (2021) *Ecosphere* 12: e03462; doi: 10.1002/ecs2.3462.

#### **2.4.4 Task 4.4: Establish European *in situ* conservation network of sites and stakeholders (Months 19–45) Task leader: UOB. Involved partners: All + FPAs**

The Farmer's Pride project brought together key actors to lay the foundations for lasting *in situ* conservation and sustainable use of PGR in Europe by planting the seed and nurturing the growth of a new regional network of sites, populations, and conservation and use stakeholders, which builds on existing regional, national, and local networks, and relevant initiatives and policies. Deliverable 4.4<sup>68</sup> describes the extensive work undertaken towards establishing the network.

Commented [k11]: Add url when published

In summary, since the establishment of a European network for *in situ* conservation and sustainable use of plant genetic resources has been the main goal of the project, discussions about the concept of the network began at the kick-off consortium meeting in December 2017 and were the major focus of the project's stakeholder workshops<sup>69,70,71</sup>. As already mentioned under the report of Task 4.1,

Commented [k12]: Add url when published

<sup>67</sup> Add url when published

<sup>68</sup> Add url when published

<sup>69</sup> [Farmers Pride Workshop 1 Report.pdf](#)

<sup>70</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)

<sup>71</sup> Add url when published (D5.8, conference report)

following Workshop 1, the white paper ‘Proposal for the establishment of a European network for *in situ* conservation and sustainable use of plant genetic resources’<sup>72</sup> was prepared, and this was further developed to produce the document, ‘European network for *in situ* conservation and sustainable use of plant genetic resources—in cultivation and in the wild: A proposal’<sup>73</sup> after discussions held at Workshop 2, which was published in eight languages<sup>74</sup>.

A vital part of the process of establishing the European *in situ* PGR network is to ensure full stakeholder representation throughout the region and to build a coalition of support for its establishment. The Farmer’s Pride project consortium, along with the Farmer’s Pride Ambassadors and members of the External Advisory Board<sup>75</sup>, was designed to be representative of the full range of stakeholder groups in PGR conservation and sustainable use: farmers and growers, seed networks, genebanks, plant breeders, the private seed sector, protected area managers, and the research community, including representation at national, regional, and global levels. This strong collaborative approach enabled not only the right voices in the process of designing the network concept, but also the advantage of attracting engagement and support via the actors in each collaborator’s professional network. However, to extend the reach of the project even further, two stakeholder surveys were launched to 1) gain a full understanding of and document the range of stakeholders involved or with an interest in *in situ* (including on-farm) conservation and sustainable use of PGR<sup>76</sup>; and 2) to help ensure full stakeholder representation in the European network throughout the region<sup>77</sup>.

The results of stakeholder survey 1 exceeded our expectations in terms of the overall number of responses (1022), the geographic coverage, the breadth of stakeholder organizations represented, and the interests of respondents in the *in situ* conservation and sustainable use of PGR. Fundamentally, more than 56% of respondents are interested in becoming a member of a new European network for *in situ* conservation and sustainable use of PGR. Notably, all countries in the target area were represented in the sample, and critically, representatives of all the anticipated main broadly defined stakeholder groups responded to the survey, including independent farmers, protected area managers, seed companies and policymakers.

Stakeholder survey 2 was launched on 16 June 2020 to gather expressions of interest in joining the European network from farmers, protected area managers, gardeners, seed producers and other land managers—the custodians of crop LRs and CWR populations *in situ*. By 16 September 2021, there were 78 expressions of interest, and these are plotted on an interactive map<sup>78</sup> embedded in a web page dedicated to the European network<sup>79</sup>. The survey will remain open and monitored at minimum until 31 July 2022.

For the network to be successful, support for its full establishment and permanent operation is vital at the national level, since network activities will be channelled through the national PGR programmes. Therefore, in addition to the above activities, letters of support were solicited from the National Coordinators of the ECPGR, as well as from other organizations. The institutes and

---

<sup>72</sup> [D4.1 Network proposal.pdf](#)

<sup>73</sup> [Farmers\\_Pride\\_Network\\_Concept\\_English.pdf](#)

<sup>74</sup> See [farmerspride/network/](#)

<sup>75</sup> [farmerspride/who-we-are/](#)

<sup>76</sup> [D1.1 Identify in situ stakeholders.pdf](#)

<sup>77</sup> [bham.onlinesurveys.ac.uk/farmers-pride-network-expressions-of-interest](#)

<sup>78</sup> <https://tinyurl.com/d34n3dpp>

<sup>79</sup> [farmerspride/network/](#)

organizations that have submitted letters of support for the establishment of the network are also recorded in the afore-mentioned interactive map embedded in the web page dedicated to the European network. This currently includes eight letters of support from ECPGR National Coordinators and eleven from other organizations. The Chairs of the ECPGR *In situ* Conservation of Wild Species in Genetic Reserves and On-Farm Conservation and Management Working Groups—also the Farmer’s Pride Project Coordinator and Work Package 1 Leader, respectively—are continuing to solicit support and to promote the establishment of the network in the context of ECPGR (as the proposed main governing body of the network) beyond the lifetime of the Farmer’s Pride project.

A major milestone in the establishment of the European *in situ* PGR network was the convening of Session 4 of the Farmer’s Pride online final dissemination conference<sup>80</sup> (Task 5.8; Deliverable 5.8<sup>81</sup>), organized in association with the Genetic Resources section of EUCARPIA (the European Association for Research on Plant Breeding) and ECPGR. In this final conference session, the establishment of the network was promoted and debated, including aspects of governance, operation, benefits to stakeholders, and the policy framework within which the network can be rooted and sustained.

Commented [k13]: Add url when published

The session began with a presentation by Professor Nigel Maxted (UOB)—Coordinator of the Farmer’s Pride project and Chair of the ECPGR Wild Species Conservation in Genetic Reserves Working Group—in which he explained the concept of the *in situ* PGR network, the context and rationale for its establishment, and a proposal for network governance. This was followed by audience Q&A and then a presentation by Dr. Ehsan Dulloo (BIOVERSITY) on the establishment of a regional *in situ* CWR conservation network in southern Africa. This was followed by a further audience Q&A session for both presentations.

A critical part of the session was a policy roundtable on the establishment of the European *in situ* PGR network<sup>82</sup>, chaired by Geoffrey Hawtin OBE, Former Director General of Bioversity International and CIAT, and involving panellists from: the Food and Agriculture Organization of the United Nations; Euroseeds; Eurosite – the European Land Conservation Network; the European Environment Agency; the Ministry of Agriculture of the Czech Republic; the Secretariat of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); and the European Commission, DG Agriculture and Rural Development. The panellists’ statements and audience Q&A were centred around four key questions:

Commented [k14]: Add url when published

1. What next steps are needed to ensure the network is established and provided with a viable long-term governance structure?
2. How do you see the network being integrated into relevant biodiversity, agricultural, environmental and genetic resources policy and legislative frameworks (at European and global levels)?
3. How best could the network be designed to support the European Green Deal, the Second Global Plan of Action on PGRFA, the International Treaty on PGRFA, and the post-2020 global biodiversity framework?
4. What new policies/legislative instruments are needed to support the network and broader PGR conservation and sustainable use in Europe?

<sup>80</sup> Recordings of the conference sessions can be viewed online at: [farmersprideconference.org/programme/](https://farmersprideconference.org/programme/)

<sup>81</sup> [Add url when published](#) (D5.8, conference report)

<sup>82</sup> [Add url when published](#) (D3.6, policy roundtable report)

There was resounding support for the establishment of the network from all the panellists, and the key conclusion was that the initiative is so important, the 'community at large' (involving all involved stakeholders) must continue its efforts towards its establishment.

Following the policy roundtable, the final stakeholder workshop was convened in which the conference participants split into breakout rooms to further discuss questions 1 and 2 of the policy roundtable, and a final plenary reporting and discussion session took place. Key conclusions of the stakeholder workshop are summarized in Box 1.

**Box 1. What are the most important/critical next steps for establishing the European *in situ* PGR network?**

***Keeping up the momentum generated by the Farmer's Pride project***

- Keep talking and maintain contact
- Establish an ongoing partnership to prepare a new project proposal

***Continuing collaboration with existing structures***

Continue working with DG Environment, Eurosite—the European Land Conservation Network, and with Natura 2000 site managers at national level to promote the importance of Natura 2000 for PGR conservation (both CWR and landraces)

***Securing funding***

- Obtain seed funding to kick-start the network
- Seek funding at national level and from the EC for the establishment and permanent operation of the network

***Seeking the buy-in of policymakers***

- Identify the specific policy areas and aspects of legislative instruments that the network will address
- Continue to engage national governmental/parliamentary policymakers, including ECPGR National Coordinators
- Continue to engage DG Environment and DG Agriculture and Rural Development

***Developing and promoting the network***

- Clarify the mandate, structure and scope, including the integration at national and European levels
- Identify short-term goals and milestones
- Include all stakeholders and countries in the process
- Link the network to good examples of ongoing local/national/regional initiatives
- Formulate strong incentives for network membership
- Identify a 'network champion'
- Present some 'good' genetic reserve examples
- Start small

***Identifying network governance***

- Continue discussions within ECPGR, especially the Executive Committee
- Develop coordination between existing networks, such as ECPGR, Euroseeds and NGO/community seedbank networks

## 2.4.5 WP4: Deviations from Annex I<sup>83</sup>

### Task 4.1

The submission of Deliverable 4.1, 'Integrated national/European *in situ* conservation/use network structure' was delayed from 30 April 2019 to 21 November 2019. This delay was due to a decision taken to publish and submit the deliverable only after discussions at Workshop 2 in October 2019.

### Task 4.2

The submission of Deliverable 4.2, 'LR Network Design' was delayed from 31 July 2020 to 12 March 2021 due to delays in the completion of Tasks 1.2 and 1.3.

### Task 4.3

- The submission of Deliverable 4.3, 'CWR Network Design' was delayed from 30 April 2021 to XXX 2021, the achievement of Milestone 19, 'CWR in European protected areas analysed and listed' was delayed from 30 April 2019 to 1 July 2020, and the achievement of Milestone 20, 'Areas where to further *ex situ* collecting of CWR identified' was delayed from 31 December 2020 to XXX 2021. These delays were in great part due to the efforts made to improve the bias found in the CWR occurrence database. In spite of the large dataset of CWR occurrence data generated in Task 1.2, it was found that the distribution of the data occurrences was biased by country, with some countries, especially eastern European countries, having less data. At the same time, occurrence records for 247 of the 863 taxa of the European CWR priority list were unobtainable. Thus, a considerable effort was made to improve the occurrence database. This involved additional work, searching for specialized CWR databases that could provide further data, asking contacts to search for particular information, conducting single taxon searches in national herbaria, and updating the downloaded data from the GBIF database by searching all target taxa including additional synonyms. All these actions considerably increased the time dedicated to this task incurred by URJC.
- The delay in achieving Milestone 19 was also motivated by the time-consuming effort of handling millions of data records, taxonomic problems associated with handling the data associated with synonyms that required various repetitions of the filtering processes, the need to develop custom made programming scripts to solve all these issues, and the need to establish agreements with external servers to be able to manage big data.

Commented [k15]: To be added

Commented [k16]: To be added (same date as D4.3)

### Task 4.4

- The achievement of Milestone 18, 'Preliminary list of farmers & gardeners/farmer & gardener associations and NGOs potentially interested in joining the network' was earlier than planned (19 October 2019 instead of 31 January 2020).
- The submission of Deliverable 4.4, 'European *in situ* conservation network of sites/stakeholders' was delayed from 30 June 2021 to XXX 2021 due to the termination of partner PLANTLIFE—responsible for dissemination, including the final formatting and publication of deliverables—and reduced staff time available of the Project Manager (UOB) for preparing, publishing and submitting the deliverable during the nine month no-cost extension.

<sup>83</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

## 2.5 WP5: Dissemination (WP leader: PLANTLIFE until 31 October 2020, UOB from 01 November 2020 – 31 July 2021)

### 2.5.1 Tasks 5.1 and 5.2 Communications and media strategies (Months 1–36) Task leader: PLANTLIFE/UOB. Involved partners: All

The Farmer's Pride project has been a collaboration of 19 partner organizations, 19 Farmer's Pride Ambassadors, and 8 members of the External Advisory Board—together representing the diverse PGR stakeholder community. Each collaborator has built on their existing network structures to multiply the effects of the project's communications activities through each network's own newsletter, social media or other channels. These include national, sub-regional, and pan-European networks.

The communications and media strategy<sup>84</sup> was updated following working group discussions at Workshop 2 in October 2019<sup>85</sup>. Working Group 2C, 'Network communications' analysed the communication requirements to engage network stakeholders and proposed a communications plan to support the establishment and long-term success of the European network for *in situ* conservation and sustainable use of plant genetic resources. The group also identified the challenges and opportunities for communications and the most effective ways of engaging each of the stakeholder groups, as well as the most important key messages for each stakeholder group.

Project communications and dissemination has been underpinned by the website (see Task 5.3), which was redesigned and expanded to better promote project activities and publications. The project factsheet<sup>86</sup>, first policy brief<sup>87</sup> and European *in situ* PGR network proposal<sup>88</sup> were published in the website in several languages (see [farmerspride/key-documents/policy-documents/](https://farmerspride.org/key-documents/policy-documents/) and [farmerspride/network/](https://farmerspride.org/network/)). Project partners distributed these within their countries—for example, to the Swedish Ministry of Environment and Ministry of Innovation and Enterprise, the Autonomous Communities of Spain, the Anniversary Annual Meeting of Eurosite, and the Finnish genetic resources programme. The *Crop wild relative* and *Landraces* newsletters (see [farmerspride/key-documents/newsletters/](https://farmerspride.org/key-documents/newsletters/)) have been promoted, as have project reports and other deliverables (see [farmerspride/key-documents/](https://farmerspride.org/key-documents/)). Regular social media posts using Twitter (@PGRInSitu) and project newsletters using the Mailchimp platform have been successful in driving traffic to the website.

The Farmer's Pride communications tools have created the base upon which the project collaborators have created their own communications, dissemination and advocacy activities—retweeting, forwarding the project newsletters, distributing translated versions of project publications, including articles in their own newsletters, and directing their stakeholders to the Farmer's Pride website through links and dedicated pages on their own websites.

Partners have organized workshops and webinars and made presentations at conferences and other events (Box 2)—some of which are reported at [farmerspride/workshops-and-presentations/](https://farmerspride.org/workshops-and-presentations/). The aims and results of the project have been widely disseminated through published articles in a range of journals (see Task 5.6).

---

<sup>84</sup> [D5.3\\_D5.4 Comms and Media Strategy- Revised.pdf](#)

<sup>85</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)

<sup>86</sup> [Farmers Pride Factsheet English.pdf](#)

<sup>87</sup> [Farmers Pride policy brief English.pdf](#)

<sup>88</sup> [Farmers Pride Network Concept English.pdf](#)



Data on the dissemination and communication activities, and estimated numbers of people reached during the reporting period are shown in Tables 2 and 3.

**Box 2. Examples of presentations on the Farmer's Pride project given at conferences and other stakeholder events**

- **Euroseeds 2020 Virtual Congress, 12 October 2020** – Presentation by Shelagh Kell (UOB), 'Increasing diversity for food and agriculture: the EU Farmers Pride project'. [euroseeds.eu/news/the-euroseeds2020-congress-programme-is-now-available/](https://euroseeds.eu/news/the-euroseeds2020-congress-programme-is-now-available/)
- **Eurosite webinar series, 23 June 2020** – Presentations by Nigel Maxted and Shelagh Kell (UOB) and José Iriondo (URJC), 'Farmer's Pride webinar: Crop wild relative conservation – adding value to Europe's natural sites'. [eurosite.org/events/farmers-pride-webinar-crop-wild-relative-conservation-adding-value-to-europes-nature/](https://eurosite.org/events/farmers-pride-webinar-crop-wild-relative-conservation-adding-value-to-europes-nature/). A webinar Q&A report is available from the web page<sup>89</sup> and a recording is available on Eurosite's Youtube channel<sup>90</sup>. The webinar was attended by approximately 120 people, and the recording has been viewed at least 176 times.
- **Crop Research Institute, Prague, Czech Republic** – Presentations by Vojtech Holubec (FPA) on the establishment of a European network for *in situ* conservation and sustainable use of PGR: 1) 12 March 2020 – an online conference of the National Board for PGR; 2) an online workshop for 60 people, including representatives of the National Board for PGR, crop curators, representatives of two universities, the Central Variety Testing Institute, Czech-Moravian Breeding and Seed Association, and the Ministry of Agriculture.
- **Association of Producers and Traders of the 'Valenciana' Tomato, July 2020** – Presentation by Jaime Prohens (UPV)<sup>91</sup>.
- **Oxford Real Farming Conference, 9 January 2020, 'Consultation: Conserving Crop Landraces and Wild Relatives'** – Organized by PLANTLIFE, with presentations by Nigel Maxted (UOB) and Paul Townson (FPA). [soundcloud.com/user-775591787/orfc20-gr-23-conserving-crop-landraces](https://soundcloud.com/user-775591787/orfc20-gr-23-conserving-crop-landraces)
- **National Office of the Spanish Network of Reserves of the Biosphere, 6 March 2020** – Presentation by José Iriondo (URJC) on *in situ* conservation of CWR and the Farmer's Pride Project.
- **Finnish Landrace Grain Seed Propagation Network video, June 2021** – Presentation by Maarit Heinonen (LUKE), 'Proudly Farming Diversity – What is grain propagation and why is it important?'. [youtube.com/watch?v=Qji\\_KM-7\\_TM](https://youtube.com/watch?v=Qji_KM-7_TM)
- **Eurosite Anniversary Annual Meeting, Monticiano, Italy, 5–7 Nov 2019** – Presentation by Shelagh Kell (UOB), 'Natura 2000 and conservation of plant genetic resources for food and agriculture'. [eurosite.org/wp-content/uploads/AGM-Italy-2019-KELLFarmers-pride-presentation.pdf](https://eurosite.org/wp-content/uploads/AGM-Italy-2019-KELLFarmers-pride-presentation.pdf)
- **The State of the World's Biodiversity for Food and Agriculture, Perugia, Italy, 9 May 2019** – Presentation by Valeria Negri and Lorenzo Raggi (UNIPG) on the Farmer's Pride project.
- **The Third Jack R. Harlan International Symposium, Montpellier, France, 2–7 June 2019** – Presentation by Nigel Maxted (UOB), 'Towards effective networking for European (and global) *in situ* plant agrobiodiversity conservation'.

<sup>89</sup> [Eurosite-Farmers\\_Pride\\_webinar\\_CWR\\_conservation\\_report\\_20200720.pdf](https://eurosite.org/wp-content/uploads/Farmers_Pride_webinar_CWR_conservation_report_20200720.pdf)

<sup>90</sup> [youtube.com/watch?v=jz\\_eb9lloFU](https://youtube.com/watch?v=jz_eb9lloFU)

<sup>91</sup> Press releases: [upv.es/noticias-upv/noticia-12232-iniciativa-del-es.html](https://upv.es/noticias-upv/noticia-12232-iniciativa-del-es.html) [launio.es/post/la-unio-colabora-en-la-creacion-de-la-asociacion-de-productores-y-comercializado-310944](https://launio.es/post/la-unio-colabora-en-la-creacion-de-la-asociacion-de-productores-y-comercializado-310944); [agronewscomunitatvalenciana.com/la-upv-promueve-una-asociacio-de-productors-i-comercialitzadors-de-la-tomata-valenciana](https://agronewscomunitatvalenciana.com/la-upv-promueve-una-asociacio-de-productors-i-comercialitzadors-de-la-tomata-valenciana)

**Table 2.** Dissemination and communications during the reporting period

**Commented [k17]:** Update in line with data in portal

Item	No. of items	Description
Organization of a workshop	16	<ul style="list-style-type: none"> <li>– Farmer’s Pride Workshop 2, October 2019, Greece</li> <li>– Third Farmer’s Pride stakeholder workshop in Session 4 of the final dissemination conference, July 2021</li> <li>– Workshops held in/hosted by various countries, including Finland, Norway, Spain and the UK</li> </ul>
Popularized publication	5	<ul style="list-style-type: none"> <li>– <i>Landraces</i> newsletter Issues 5 and 6</li> <li>– <i>Crop wild relative</i> newsletter Issues 11, 12 and 13</li> </ul>
Flyer	24	<ul style="list-style-type: none"> <li>– General project factsheet in eight languages</li> <li>– Policy brief in eight languages</li> <li>– European network proposal in seven languages</li> <li>– Final dissemination conference flyer</li> </ul>
Social media	373 9 Unknown	<ul style="list-style-type: none"> <li>– Tweets from project Twitter account</li> <li>– Mailchimp project newsletters</li> <li>– Partners’ social media activities</li> </ul>
Website	2 3 1 6	<ul style="list-style-type: none"> <li>– Farmer’s Pride website</li> <li>– WUR website on access to <i>in situ</i> PGR (see Task 3.3)</li> <li>– Pages in the ECPGR website where Farmer’s Pride products are published and activities promoted</li> <li>– CWR Global Portal where the Web Tool for CWR Population Management is published (Task 2.3)</li> <li>– Project collaborators’ websites where Farmer’s Pride activities are promoted</li> </ul>
Participation in a conference	5	Several partners have participated in relevant conferences and some have given oral or poster presentations
Participation in a workshop	9	Several partners have participated in workshops relevant to the project
Participation in an event other than a conference or a workshop	6 open days 2 webinars	<ul style="list-style-type: none"> <li>– Organization and participation at farmers’ open days</li> <li>– Farmer’s Pride webinar hosted by Eurosite, June 2020</li> <li>– Farmer’s Pride webinar hosted by DG Environment, December 2020</li> </ul>
Participation in activities organized jointly with other EU project(s)	6 1 7	<ul style="list-style-type: none"> <li>– BRESOV and G2p-SOL projects, Spain</li> <li>– Dynaversity final conference</li> <li>– GenRes Bridge meetings, workshops and webinars</li> </ul>

**Table 3.** Estimated numbers of people reached through dissemination and communications activities during the reporting period

Sector	No. of people	Primary means of communication
Scientific community	21,000	Conference presentations, workshops, publication of newsletters, reports and papers, and social media
Industry (plant breeding companies and seed sector)	3100	Euroseeds, members of the External Advisory Board and Farmer's Pride Ambassadors
Civil society	815	Workshops, social media, journals, meetings and conferences
General public	2.2 M	Social media and websites
Policymakers	493	National and European meetings, conferences, publications and social media
Media	450	Press releases, placing adverts and articles in media outlets, social media and national activities
Other (e.g. farmers' associations and unions, community seed banks, nature site managers)	3100	Conference presentations, workshops, publication of newsletters, reports and papers, and social media

#### 2.5.2 Task 5.3 Project website (Months 4–36) Task leader: UOB. Involved partner: BIOVER

The Farmer's Pride project website ([farmerspride.eu](http://farmerspride.eu)) was redesigned and the content expanded. Additional pages were created to showcase project activities and to provide access to project publications. The site is organized to maximize engagement from the different stakeholder groups by categorizing content in an accessible format for those with specific interests. This includes case studies to help raise awareness of LR and CWR and their conservation, and the farmers, NGOs, protected area managers and others who are working to preserve them. The aim was to create a sense of a network working together for plant genetic diversity and encourage users to sign up to the project's mailing list. A new page was created dedicated to the development of the European network ([farmerspride/network/](http://farmerspride/network/)) which links to the expression of interest survey<sup>92</sup> (see Task 4.4). As new content and publications have been produced, they have been promoted via the project newsletter (using the Mailchimp platform) and project and partners' social media posts.

A separate website (with a link from [farmerspride/conference/](http://farmerspride/conference/)) was created to publicize and manage the information related to the final dissemination conference ([farmersprideconference.org/](http://farmersprideconference.org/)), and this was extensively altered following the decision made to cancel the conference planned to take place in Portugal and to convene an online conference instead (see Task 5.8).

Both websites will be available for several years beyond the end of the Farmer's Pride project and some content will be migrated to other sites (e.g. [ecogr.cgiar.org/](http://ecogr.cgiar.org/)) to ensure the longevity of the project products.

<sup>92</sup> [farmers-pride-network-expressions-of-interest](http://farmers-pride-network-expressions-of-interest)

Some project partners have added dedicated pages or news items to their organizations' websites and provided links to the Farmer's Pride website<sup>93</sup>.

### **2.5.3 Task 5.4 Best practice promotion and dissemination (Months 13–36) Task leader: UNIPG. Involved partners: PLANTLIFE, PSR, BIOVER + FPAs**

To support and promote *in situ* conservation and sustainable use of PGR, the Farmer's Pride project collaborators have published a large number of case studies and developed best practice PGR *in situ* management guidelines and practical toolkits for the involved actors—including farmers and protected area managers. A summary of the best practice guidelines and case studies is given below and more details are published in Deliverable 5.6<sup>94</sup>. For summary information about the toolkits, see Task 2.4.

A number of events have also taken place with the aim of promoting and disseminating best practices, including open days on 'Diversity use in plant breeding and sustainable agriculture' organized by UNIPG at its experimental fields (Perugia, Italy) in 2019 and 2020 (in 2020 taking advantage of a video conferencing service). Farmers, farmer organizations, breeders, meal and biscuit manufacturers, students and other stakeholders were invited to learn about the breeding programmes on landraces, and in particular about the development of barley, bread and einkorn wheat and legume populations meant to be used in sustainable agriculture and the UNIPG genebank (FAO Code ITA363) activities.

For details of further events, see [farmerspride/on-farm/](#), [farmerspride/in-the-garden/](#), and [farmerspride/seed-networks/](#).

#### ***In situ* landraces: Propagation management and access guidelines**

Based on a wide collection and analysis of diverse (open-field, garden and tree crops) case studies of European *in situ* maintained landraces of different species, together with a review of the existing literature, guidelines to improve landrace propagation management were developed (Deliverable 2.4<sup>95</sup>). For each crop group, these guidelines encompass fundamentals of plant material multiplication, including isolation, selection, circulation/exchange of the material among users, population size, number of users and the extent of the cultivated area. The document provides the user community with clear prescriptions to carry out, or develop, proper multiplication and diffusion strategies with the principal aim of maximizing within-landrace population diversity while keeping its identity. Cases where introduction of landraces into a completely new environment are needed are also considered.

#### **Crop wild relative *in situ* population management guidelines**

These guidelines (Deliverable 2.1<sup>96</sup>) provide protected area managers, conservation practitioners, farmers and any other professionals or volunteers responsible for the conservation of CWR populations with a practical step-by-step guide to the management of CWR populations and the genetic reserves where they are being conserved. The guidelines provide a quick and accessible tour to all the elements that one should consider for the design and the implementation of a management

<sup>93</sup> For example, [adapta-lab.com/en/goals/](#); [euroseeds.eu/news/farmers-pride-project-network-proposal-published/](#); [eurosite.org/eurosite-news/farmers-pride-calls-on-policy-makers/](#); [nordgen.org/projekts/farmers-pride/](#)

<sup>94</sup> [D5.6 Case studies best practices and toolkits for in situ management of PGR.pdf](#)

<sup>95</sup> [D2.4 In situ landrace propagation management guidelines.pdf](#)

<sup>96</sup> [D2.1 CWR population management guidelines.pdf](#)

plan, including habitat characterization, population threat assessment, management interventions, monitoring schemes, management of information and legislative requirements, among other issues.

#### **Crop wild relative network showcases – analysis and best practices**

A review and analysis of networks conserving CWR *in situ* was undertaken to identify the attributes that have contributed to their success. The review resulted in 29 CWR genetic reserve network initiatives, nine showcases classified as potential genetic reserve networks, three people and institution networks and 17 networks associated with projects. The analysis of the information gathered on CWR genetic reserve networks provided a clear description of the typical genetic reserve network, based on a set of descriptors that had previously been set. Subsequently, a SWOT analysis revealed that the main strengths, weaknesses, opportunities and threats of the genetic reserve networks. Through selected good examples of design and implementation, a record of evidence-based best *in situ* management practice has been generated to develop best practice indications that will serve as a model for the European network for *in situ* conservation and sustainable use of plant genetic resources, as well as for the CWR stakeholder community in general. For the full report, see Deliverable 1.5<sup>97</sup>.

In Spain, an opportunity arose to establish three genetic reserves in the Biosphere Reserve of Sierra del Rincón (80 km north of Madrid) for the *in situ* conservation of priority CWR. The initiative started from the Farmer's Pride project after URJC contacted representatives of the Department of Environment of the Autonomous Community of Madrid. Consequently, the Reserve received some logistical and financial support from 2019 to 2021 to set these genetic reserves as a pioneer best practice case for *in situ* conservation of CWR in Spain. The results of these activities are published in the web page of the Biosphere Reserve of Sierra del Rincón<sup>98</sup>.

#### **Landrace *in situ* conservation case studies**

One hundred and five case studies are published in the 'In situ *landraces: best practice evidence-based database*' ([ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database](http://ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database)) (see Task 2.4).

#### **Landraces newsletter**

Other landrace case studies and examples of activities carried out, or in progress, to promote landrace *in situ* conservation, have been published in Issues 5 and 6 of the 'Landraces' newsletters: [farmerspride/key-documents/newsletters/](http://farmerspride/key-documents/newsletters/). Links to these newsletters are also provided in the ECPGR website at: [ecpgr.cgiar.org/working-groups/on-farm-conservation/landraces-newsletter](http://ecpgr.cgiar.org/working-groups/on-farm-conservation/landraces-newsletter) to increase visibility of work carried out by Farmer's Pride and to promote landrace *in situ* conservation activities.

#### **Crop wild relative *in situ* conservation case studies**

An extensive list of experiences related to *in situ* conservation of CWR was published (Milestone 5<sup>99</sup>). It includes 57 initiatives with the names of the networks, the type of network, the countries in which they occur, target CWR taxa and source information, including bibliographic references, contact institutions and/or web links.

---

<sup>97</sup> [D1.5 CWR network showcases.pdf](#)

<sup>98</sup> [sierradelrincon.org/parientes-silvestres-comestibles/](http://sierradelrincon.org/parientes-silvestres-comestibles/)

<sup>99</sup> [Crop wild relative in situ conservation case studies.pdf](#)

### ***Crop wild relative newsletter***

Besides the CWR conservation examples published in the above-mentioned report, other case studies and examples of initiatives related to CWR *in situ* conservation have been published in Issues 11, 12 and 13 of the 'Crop Wild Relative' newsletter: [farmerspride/key-documents/newsletters/](https://farmerspride.org/key-documents/newsletters/)

#### **2.5.4 Task 5.5 Targeted advocacy (Months 13–36) Task leader: BIOVER. Involved partners: PLANTLIFE, PSR, UNIPG**

The aim of this task was to engage with stakeholders to ensure that the project outputs are taken up effectively by them after the project ends. A policy task force was established to identify the key policymakers the project should be engaging with to make the uptake of the outputs a success. However, policymakers are not the only stakeholders to be targeted. Other stakeholders include plant breeding companies, associations and sector representatives, associations of farmers, other growers and their associations, and environment/nature conservation organizations. Advocacy plans targeting these different stakeholders were drafted for discussion at the second annual consortium meeting in October 2019. Based on the feedback, PLANTLIFE and BIOVER produced strategic advocacy plans for the different stakeholder groups (Deliverable 5.7<sup>100</sup>).

The project partners, FPAs and members of the EAB have played a key role in carrying out targeted advocacy across their own networks and during meetings. The policy brief developed in the context of Task 3.5 (available in eight languages – see [farmerspride/key-documents/policy-documents/](https://farmerspride.org/key-documents/policy-documents/)) has been used in this targeted advocacy work. Also, an attractive network proposal document (available in seven languages – see [farmerspride/key-documents/networking-options/](https://farmerspride.org/key-documents/networking-options/) and [farmerspride/network/](https://farmerspride.org/network/)) was prepared to use for consultation with potential stakeholders for joining the European network, but which has also been used for wider advocacy with stakeholders.

Examples of specific advocacy activities:

- Distribution of the project policy brief by project partners to national and European policymakers.
- Distribution of the network proposal to national stakeholder networks to engage them in the development of the European network—for example, the Biosphere Reserve of Sierra del Rincón (Madrid, Spain) and the Hungarian national genebank.
- Presentation of an initiative for CWR conservation in Spain to the Working Group on Plant Conservation of the National Commission for Natural Heritage and Biodiversity of the Spanish Ministry for the Ecological Transition and Demographic Challenge (13 June 2019).
- A seminar/workshop with conservation stakeholders in southern Sweden, 10 September 2019, 'Seminarie- och diskussionsdag kring in situ-bevarande av vilda kulturväxtsläktingar', arranged by Jordbruksverket and NORDGEN.
- Presentation of a project to develop a strategy for CWR conservation in Spain to the Spanish National Programme of Plant Genetic Resources of the Ministry of Agriculture (19 September 2019).
- A presentation entitled 'Community agrobiodiversity management in Europe: The role of community seed banks' at a side event on the importance of sustainable use of PGRFA in Europe at the Eighth Session of the Governing Body of the ITPGRFA, 15 November 2019, FAO, Rome.

---

<sup>100</sup> [D5.7 Advocacy plans.pdf](#)

- The establishment of *in situ* networks in Finland, including the network for Finnish parsonage gardens (06 March 2020)—a local *in situ* network of landraces (including a traditional potato 'Vaaniin Herkkü').
- Consultation with local policymakers, media and the Scottish Crofting Federation in the Outer Hebrides to get their views on the future network.
- Arche Noah held an online meeting with the Austrian Ministry on 24 May 2020.
- Presentation by NORDGEN about CWR at an online meeting with the Swedish Environmental Protection Agency in May 2020, which had a focus on Nordic cooperation.
- Presentation of the National Strategy for the Conservation and Sustainable use of Crop Wild Relatives and Wild Food Plants to the Spanish National Programme of Plant Genetic Resources of the Ministry of Agriculture (12 March 2021).
- Collaboration with the Spanish Ministry of Agriculture for the development of the National Strategy for Conservation and Sustainable Use of Crop Wild Relatives and Wild Food Plants. The draft has been published in the website of the Ministry of Agriculture<sup>101</sup>, which has also published a press release<sup>102</sup>.

**2.5.5 Task 5.6 Project newsletters and publications (Months 12–36) Task leader: UOB. Involved partner: UNIPG**

Issues 5 and 6 of *Landraces* and issues 11, 12 and 13 of *Crop wild relative* were published (see [farmerspride/key-documents/newsletters/](https://farmerspride.org/key-documents/newsletters/)).

Other publications prepared by project partners are listed in the Project Continuous Report via Grant Management Services (GMS) and those published during the current reporting period are summarized below:

- Peer-reviewed publications in the journals *Agroecology and Sustainable Food Systems*, *AoB PLANTS*, *Biodiversity and Conservation*, *Biological Conservation*, *Ecosphere*, *Frontiers in Plant Science*, *Genetic Resources Journal*, *Sustainability* and *Scientific Reports*.
- A special issue of the journal *Sustainability*, 'Genetic Resources for Sustainable Agriculture'<sup>103</sup> was guest edited by Prof. Valeria Negri and Dr. Lorenzo Raggi (UNIPG). The special issue published 23 papers focused on use of PGR promotion and use of PGR in sustainable agriculture; use of PGR in breeding for improved sustainability; PGR genetic diversity characterization and understanding of its evolution; and sustainable conservation of crop wild relatives. The issue includes scientific papers by Farmer's Pride project partners, as listed in the GMS.
- Open data:
  - The *in situ* crop wild relative population look-up tool<sup>104</sup> (see Task 2.4) provides access to 409,642 *in situ* population occurrences of priority CWR taxa in the Natura 2000 network.
  - The best practice evidence-based database: a tool for promoting landrace conservation *in situ*<sup>105</sup> (see Task 2.4) provides access to 105 examples of *in situ* management practices and of adding value to landraces of a range of different crops and in different socio-cultural, environmental and economic contexts from 14 European countries.

<sup>101</sup> <https://t.co/7HLHLEGeX?amp=1>

<sup>102</sup> <http://t.ly/Wp2s>

<sup>103</sup> [mdpi.com/journal/sustainability/special\\_issues/Genetic\\_Sustainable\\_Agriculture](https://mdpi.com/journal/sustainability/special_issues/Genetic_Sustainable_Agriculture)

<sup>104</sup> [ecpgr.cgiar.org/cwr-tool](https://ecpgr.cgiar.org/cwr-tool)

<sup>105</sup> [ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database](https://ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database)

- The inventory of European priority CWR taxa, showing the main crop use categories and related crops is published as an annex to Deliverable 1.2<sup>106</sup> and Milestone 19<sup>107</sup>.
  - As stated in the Data Management Plan<sup>108</sup>, the CWR inventory and associated occurrence dataset will be published in appropriate open data repositories within one year after the end of the project, for use by other practitioners.
  - The database of >19,000 landrace sites in Europe will be published after the publication of the associated paper in a peer-reviewed journal<sup>109</sup>.
  - The database of Italian crop wild relatives and wild harvested plants<sup>110</sup> is available online<sup>111</sup> and will also be published by UNIPG<sup>112</sup> and included in the 'Portal to the Flora of Italy'<sup>113</sup>.
- Other publications include oral presentation and poster abstracts, articles in non-peer-reviewed newsletters and journals, project-related reports and other grey literature.

**2.5.6 Task 5.7 Project workshops (Months 2–36) Task leader: PLANTLIFE/UOB Involved partners: All + FPAs**

Farmer's Pride Workshop 2<sup>114</sup> was held at the Petros M. Nomikos Conference Centre, Thera, Santorini, Greece from 7–10 October 2019. It was attended by 62 participants representing a diverse range of stakeholder groups, including: Farmer's Pride partners, members of the EAB and FPAs; national, regional and international policymakers; members of the ECPGR Wild Species Conservation in Genetic Reserves Working Group; and other invited experts. The workshop aim was to prepare a roadmap (to define objectives, actions, responsibilities and a timeline) to establish the European network during the final year of the project and for its continuity beyond 2020. Working group discussions were held on:

- **Network sites/populations.** Proposed inclusion criteria and management standards were reviewed and discussed; consideration was given to the process of nominating and adopting sites/populations; and procedures for accessing the conserved germplasm and guaranteeing benefit sharing from its use were debated.
- **Network governance, policy and communications.** The governance structure required to establish and maintain the network was discussed, as well as how to embed the network in national, regional and global policy and legal instruments, and how to develop a communications plan to engage stakeholders. The policy environment relevant to support crop landrace growers was discussed, and recommendations for policy change made.
- **Roadmap for establishment of the Network.** A roadmap to establish the European network and plan for its continuity beyond 2020 was developed, in which clear objectives, actions, responsibilities and a timeline were defined.

<sup>106</sup> [D1.2 In situ PGR in Europe crop wild relatives.pdf](#)

<sup>107</sup> [MS19 Crop Wild Relatives in the Natura 2000 Network.pdf](#)

<sup>108</sup> [D6.3 data management plan-1.pdf](#)

<sup>109</sup> Currently under consideration for publication in *Biological Conservation*.

<sup>110</sup> [10.1080/21683565.2021.1917469](#)

<sup>111</sup> [optima-bot.org/index.php/en/projects/8-category-en-gb/217-the-italian-cwr-whp-database](#)

<sup>112</sup> [dsa3.unipg.it/it/terza-missione/conservazione-della-biodiversita/36-terza-missione/458-il-database-dei-progenitori-selvatici-delle-piante-coltivate-e-raccolte-in-natura-presenti-in-italia](#)

<sup>113</sup> [dryades.units.it/floritaly/](#)

<sup>114</sup> [D5.1 Farmers Pride Workshop 2 Report.pdf](#)



The third and final stakeholder workshop was convened as part of Session 4 of the final dissemination conference (see Tasks 4.4 and 5.8).

**2.5.7 Task 5.8 Dissemination conference (Months 34–36) Task leader: PLANTLIFE/UOB.**  
*Involved partners: All +FPAs*

Plans continued during the current reporting period to convene the Farmer's Pride final dissemination conference—in association with the Genetic Resources section of the European Association for Research on Plant Breeding (EUCARPIA) and ECPGR—in Portugal in October 2020, and publicity was prepared and disseminated accordingly. Due to the Covid-19 pandemic, the conference dates were changed to April 2021 and later to June 2021. However, the consortium decided in February 2021 that a face to face conference was not a viable option due to the ongoing national lockdowns and travel restrictions in and outside Europe.

A virtual event (Deliverable 5.8<sup>115</sup>) was therefore organized in four sessions over four days, 28 June – 1 July 2021<sup>116</sup>:

1. Realizing the public and private benefits of *in situ*/on-farm PGR conservation
2. Enhancing the use of PGR conserved *in situ*/on-farm
3. Optimizing *in situ*/on-farm PGR population management
4. Establishing a European network for *in situ* conservation and sustainable use of plant genetic resources

The online sessions were intentionally kept reasonably short (2.5 hours for Sessions 1–3 and 4.5 hours for Session 4, which included the policy roundtable and stakeholder workshop) to maximize participation. They were each convened at 13:00 CEST to allow for participation outside of Europe.

There were 170 registrants for the conference and viewing numbers were: Session 1 – 157; Session 2 – 144; Session 3 – 151; Session 4 – 106.

Presentations were given by keynote speakers Kent Nnadozie, Secretary, FAO ITPGRFA; Stef de Haan, Centro Internacional de la Papa (part of the Consultative Group for International Agricultural Research – CGIAR); Ronnie Vernooij, the Alliance of Bioersivity International and CIAT; and Nigel Maxted (UOB). Each of the session keynotes was followed by presentations comprising a mix of Farmer's Pride partners for the dissemination of the project outputs, and invited external speakers.

The sessions were chaired by Chike Mba, FAO and member of the Farmer's Pride EAB; FPA Susanne Barth from the Irish Agriculture and Food Development Authority; and project partners Anna Palmé (NORDGEN) and Parthenopi Ralli (DIMITRA).

Seven panellists representing FAO; Euroseeds; Eurosite – the European Land Conservation Network; the European Environment Agency; the Ministry of Agriculture of the Czech Republic; the FAO ITPGRFA; and DG Agriculture and Rural Development, participated in the policy roundtable as part of Session 4 (see Task 3.5; Deliverable 3.6<sup>117</sup>).

---

<sup>115</sup> Add url when published (D5.8, conference report)

<sup>116</sup> [farmersprideconference.org/programme/](https://farmersprideconference.org/programme/)

<sup>117</sup> Add url when published

See [farmersprideconference.org/speakers/](https://farmersprideconference.org/speakers/) for the details of all speakers.

The conference proceedings will be published in 2022 by CABI ([cabi.org/](https://cabi.org/)) under the title 'PLANT GENETIC RESOURCES – IN NATURE AND ON-FARM: Ensuring diversity for food and agriculture', both in print version and open access.

The third and final stakeholder workshop was convened as the final part of Session 4, during which the conference participants split into ten breakout rooms to further discuss two of the questions posed to the policy roundtable panellists, and a final plenary reporting and discussion session was convened. Key outcomes of the workshop are summarized in Box 1 (see Task 4.4).

The sessions were recorded and are available at [farmersprideconference.org/programme/](https://farmersprideconference.org/programme/) to registered participants. The intention is to upload the content to the Farmer's Pride Youtube channel and provide open access to the sessions. This is subject to the agreement of all speakers.

#### **2.5.8 WP5: Deviations from Annex I<sup>118</sup>**

- The decision to cancel the face to face final dissemination conference in Portugal due to the Covid-19 pandemic and switch to the organization of a virtual event involved a much greater amount of work due to having to organize a completely new programme and means of delivery in a relatively short space of time, and without partner PLANTLIFE which had been the Task 5.8 leader and WP5 leader prior to the nine month no-cost extension. A professional company had already been contracted to provide logistical support for the event in Portugal, including the build and management of the conference website ([farmersprideconference.org/](https://farmersprideconference.org/)). With technical support from a professional media company, the same contractor was able to provide the logistical support for the organization of the virtual event. However, the Farmer's Pride Project Manager (UOB) assumed overall responsibility and carried out the bulk of the work organizing the conference, preparing the programme and inviting speakers, preparing website and other publicity content, and chairing the conference (in their capacity of Chair of the Genetic Resources section of EUCARPIA). This resulted in significantly more time spent on WP5 than anticipated.
- The opportunities derived from the establishment of three genetic reserves for CWR *in situ* conservation in the Biosphere Reserve of Sierra del Rincón in Madrid and a favourable receptive environment from the Ministry of Agriculture and the Ministry for Ecological Transition in Spain, which led to a series of meetings and the generation of a National Strategy for the Conservation and Sustainable Use of Crop Wild Relatives and Wild Food Plants for Spain, resulted in greater investment of time in WP5 by URJC than initially anticipated.
- Deliverables 5.1, 'Project workshops', 5.5, 'Annual newsletters for CWR & LR' (and associated Milestone 25), 5.6, 'Publication of case studies, best practice & tool kits', 5.7, 'Advocacy plans confirmed, milestones met' (and associated Milestone 26), and 5.8, 'Dissemination conference' were delayed due to staff time constraints—particularly due to the transition into the no-cost nine month extension period, which involved the termination of partner PLANTLIFE (responsible for dissemination, including the final formatting and publication of deliverables), and reduced staff time available of the Project Manager (UOB) for preparing, reviewing, editing, formatting and publishing the deliverables. Despite the delays in submitting Deliverables 5.5 and 5.8, the three workshops and the final dissemination conference (Milestones 27 and 28) were achieved on time.

---

<sup>118</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

- The Covid-19 pandemic has had significant impact on WP5 as communications and dissemination activities by project partners has been limited due to disruption to travel. Nonetheless, online meetings, workshops, conferences and webinars soon became the norm and all project collaborators were actively engaged in a range of such virtual events.

## 2.6 WP6: Project management (WP leader: UOB)

### 2.6.1 Task 6.1 Work package and risk management (Months 1–36) Task leader: UOB. Involved partners: UNIPG, URJC, BIOVER, PLANTLIFE

The Steering Committee (SC) and 'extended SC' (involving both WP and task leaders) has held a number of online meetings via Zoom and MS Teams to discuss coordination within and across WPs and in particular to plan the Workshop 2 programme (see Task 5.7) and final dissemination conference (see Task 5.8). *Ad hoc* bi/trilateral meetings between project partners were also convened on a regular basis. The Consortium Committee (CC) convened at the second and third annual consortium meetings to discuss and review project progress (see Task 6.3).

The state of play regarding critical risks is reported in the Project Continuous Report via GMS. One additional risk was identified during the period related to Task 5.8, Dissemination conference. The risk materialized as reported under Task 5.8 (due to ongoing travel restrictions and uncertainty related to the Covid-19 pandemic, the planned conference in Portugal was cancelled and an online event was organized across four sessions from 28 June – 1 July 2021).

**Commented [k18]:** SK to review after completing Critical Risks in the GMS.

### 2.6.2 Task 6.2 Reporting and overall project management (Months 1–36) Task leader: UOB. Involved partners: All

The Project Manager has been responsible for general day-to-day project coordination and management, including reporting, dealing with policy and legal issues, liaison with partners and associated organizations, general correspondence, organization and facilitation of consortium meetings. During the current reporting period, this included the preparation and coordination of a request for and completion of a contract amendment to extend the project by nine months at no additional cost due to the impacts of the Covid-19 pandemic.

### 2.6.3 Task 6.3 Project evaluation (Months 1–36) Task leader: UOB. Involved partners: All

The mid-term review was carried out without a face to face meeting and the required responses were submitted and amendments made to project deliverables according to the feedback received.

The Farmer's Pride second annual consortium meeting was convened at the Petros M. Nomikos Conference Centre, Thera, Santorini, Greece on 11 October 2019, the day after Workshop 2 which took place in the same venue from 7 to 10 October 2019. The meeting was attended by 30 participants representing the partner institutes (including work package leaders, task leaders and researchers), two members of the EAB (including the EAB Chair), and two representatives of the Farmer's Pride sister project, Dynaversity. It brought the project participants together for the third time since the beginning of the project to discuss progress in work packages 1–5, project management issues, the post-project continuation strategy and coordination with the Dynaversity project. The roadmap for establishment of the European network arising from Workshop 2 was also central to the meeting deliberations. The meeting proceedings are reported in Deliverable 6.6 (Confidential).

The third annual consortium meeting was convened online via Zoom one week after the final dissemination conference, which took place online from 28 June to 01 July 2021. The meeting was attended by 26 participants representing the partner institutes (including work package leaders, task leaders and researchers), and two members of the EAB (including the EAB Chair). The meeting objectives were to address:

1. Outstanding deliverables: current status and completion plans.

2. Use of resources, including partner financial contributions to the conference.
3. Preparation of the third and final report to the Commission.
4. Conference follow-up: overview of registrants, longevity of content etc.
5. Publications: CABI book project, deliverables, other website content and publications.
6. Next steps in the establishment of the European *in situ* PGR network.

The meeting proceedings are reported in Deliverable 6.7 (Confidential).

**2.6.4 Task 6.4 Intra-project communication (Months 1–36)** *Task leader: UOB. Involved partners: All*

The project partners were in regular communication with the Project Manager throughout the reporting period, primarily via email, which enabled the Coordinator (UOB) to have an overall view of the project and how it is progressing. The Project Manager has regularly liaised with the EC Project Officer and Financial Officer on matters related to the Grant Agreement.

A dedicated secure online repository for project documents using UOB's BEAR Datashare platform continued to be used during the reporting period.

**2.6.5 Task 6.5 Ethical research (Months 1–36)** *Task leader: UOB. Involved partners: All*

The project partners have been meticulous in adhering to the project's Ethical Research Plan (Deliverable 6.1 – Confidential). The issue of concern has been related primarily to personal data protection in relation to the GDPR, and all necessary steps have been taken to ensure that the personal data of individuals involved in contributing information for the project tasks (whether through surveys, meetings or workshops), have been managed strictly according to the GDPR and to the particular legal conditions and procedures of the individual partner institutes involved in the collection, management and exchange of such data.

**2.6.6 Coordination with Dynaversity**

The two projects, Farmers' Pride and Dynaversity were selected for funding under the Horizon 2020 Sustainable Food Security call, topic SFS-04-2017 'New partnerships and tools to enhance European capacities for in-situ conservation'. Considering the similarity in goals, activities and expected outcomes, as well as synergies/complementarity in proposed approaches, a coordination clause between the two consortia was included in the DoA Part B to commit both projects to aim at maximizing efficiency and impact to the benefit of the European stakeholder community, by favouring synergies and avoiding overlapping or duplication of activities.

During the current reporting period, the Dynaversity Project Coordinator and Project Manager attended the Farmer's Pride second annual consortium meeting in Santorini, Greece, and while the Farmer's Pride Project Manager had made travel and accommodation arrangements to attend the Dynaversity second annual meeting in Florence, Italy, unfortunately this was cancelled due to illness.

The Farmer's Pride Project Coordinator and Project Manager attended the one day Dynaversity 'final dissemination conference', at which Nigel Maxted (UOB) gave a presentation about the Farmer's Pride project.

The Farmer's Pride Project Manager (and Chair of the Farmer's Pride final dissemination conference) invited one of the Dynaversity partners to give a presentation at the Farmer's Pride final dissemination conference. Unfortunately, due to a lack of communication on the part of the Dynaversity project, the presentation did not go ahead.

### 2.6.7 WP6: Deviations from Annex I<sup>119</sup>

- The submission of Deliverable 6.6, '2nd annual consortium and mid-term review meeting report' was delayed due to due to staff time constraints and the necessity to prioritize activities.
- The submission of the second periodic and final report was delayed due to many partners' staff being out of office for their summer holidays during August, as well as sickness and time constraints of the Project Manager.

## 3.0 Impacts, and exploitation and dissemination of results

Commented [k19]: SK to re-do

There are no changes to the information in section 2.1 of the DoA regarding the expected impacts of the project. The expected impact has become the actual impact associated the actual project deliverables.

**Table 3.1. Farmer's Pride impacts achieved through related deliverables.**

Expected impact	Target	Indicator	Deliverables
<u>Expected Impact 1:</u> "knowledge of the status and characteristics of in situ genetic resources in Europe"	Farmer's Pride identify the breadth and range of <i>in situ</i> (including on-farm and on-garden) conservation sites and stakeholders, and the trait diversity found <i>in situ</i> .	List & analysis of PGR stakeholder, LR/CWR status, characteristics published on project website in database and peer review journal.	1.1, 1.2, 1.4, 1.5, 2.2, 2.3, 3.1, 3.3, 5.1, 5.2, 5.5, 5.8, 5.9,
<u>Expected Impact 2:</u> "durable partnerships between in situ conservation stakeholders and thus to more dynamic transfer of plant material and good practice on conservation and management"	Farmer's Pride built a network of <i>in situ</i> sites/populations and stakeholders involved in PGR conservation and sustainable use through which germplasm will be able to flow from source to end user. The durability of the <i>in situ</i> network structure established is be underpinned by showcases of good practice and illustrated by the mutual benefit derived by diverse stakeholders involvement in the network.	Integrated European/national PGR conservation and use network launched at Dissemination conference. Dynamic transfer of plant material from source to end user demonstrated by published report detailing methodology and increased farmer/breeder uptake. Good practice demonstrated by user references to published management exemplars & use of on-line <i>in situ</i> evidence-database.	1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.5, 5.6, 5.8, 5.9,
<u>Expected Impact 3:</u> "creation of a platform for national and European in-situ conservation strategies"	Farmer's Pride used the blueprint proposed in the ECPGR <i>In Situ</i> <sup>38</sup> and Onfarm <sup>39</sup> Concepts to provide a network structure that fully integrates national and regional in Europe (with even global) <i>in situ</i> PGR conservation and use.	The Integrated European/national PGR conservation and use network launched at the dissemination conference provides a platform for dissemination of <i>in situ</i> conservation strategies. Good practice demonstrated by user references to published management exemplars & use of online <i>in situ</i> management evidence database.	1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.6, 5.8, 5.9,

<sup>119</sup> The reported deviations listed did not impact on the achievement of the tasks or project objectives.

<p><b>Expected Impact 4:</b> “diminishing the divide between <i>in situ</i> and <i>ex situ</i> conservation efforts”</p>	<p><i>Farmer’s Pride</i> enhanced the link between <i>in situ</i> and <i>ex situ</i> conservation to (i) provide a back-up of <i>in situ</i> conserved populations and (ii) facilitate breeder/farmer access to the <i>in situ</i> conserved resource.</p>	<p>The consortium was deliberately composed of individual stakeholders and networks representing farmers, gardeners, breeders, protected area and genebank managers, academics, policy makers, environmentalists and consumers so bridging perceived gaps. Tasks 2.6 and 3.3 will specifically address the <i>in situ/ex situ</i> divide and its resolution, recommendation for bridging actions will be published and implemented. Presence confirmed by inclusion of <i>in situ</i> resources in national and EURISCO germplasm systems.</p>	<p>1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.6, 3.4, 3.5, 5.1, 5.2, 5.5, 5.6, 5.8, 5.9,</p>
<p><b>Expected Impact 5:</b> “increased awareness of the wider public as regards the wealth and importance of genetic resources for agriculture and consumers”</p>	<p><i>Farmer’s Pride</i> collated information on the value and importance of PGR (maintaining the breadth and depth of LR and CWR diversity) as one element of sustaining agriculture production, and so food security and consumer choice for the general public. Diverse printed and digital media were used as awareness raising tools, specifically tailored to meet the knowledge base of policy makers, farmers and consumers.</p>	<p>Education material concerning the wealth and importance of PGR were published and distributed to farmers, gardeners, breeders, protected area and genebank managers, academics, policy makers, environmentalists and consumers, and distributed during training workshops. Increasing numbers of stakeholders using the online <i>in situ</i> evidence-database.</p>	<p>1.2, 1.3, 2.2, 2.5, 3.1, 3.2, 3.6, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9,</p>
<p><b>Expected Impact 6:</b> “increased use of genetic material from <i>in situ</i> sources in breeding activities and in the food chain”</p>	<p><i>Farmer’s Pride</i> addressed the need to link <i>in situ</i> PGR conservation to use by promoting (i) improved farmer / gardener access to PGR diversity, (ii) improved breeder access to <i>in situ</i> PGR diversity, (iii) integrated <i>in situ</i> with <i>ex situ</i> conservation, (iv) product value chain enhancement.</p>	<p>Novel LR grown and maintained by farmers; previously unavailable CWR and LR diversity being requested and used by breeders. Evidence of successful value-chain enhancement published online <i>in situ</i> evidence-base database. Results have been and are being published in scientific papers.</p>	<p>1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.3, 3.4, 3.6, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.6, 5.8, 5.9,</p>
<p><b>Expected Impact 7:</b> “support competitiveness of the farming and breeding sectors, trigger product innovation and foster healthy diets through provision of more diverse food”</p>	<p><i>Farmer’s Pride</i> contributed to farming and breeder competitiveness, fostered healthy diets and encourage food diversity by (i) maximizing PGR held <i>in situ</i>, (ii) helped ensure the seamless flow of PGR from <i>in situ</i> source to farmers and breeders, (iii) providing an evidence-based platform of best practice for food quality and product value enhancement, and (iv) raising awareness among policy makers, farmers and consumers of the value of healthy diets and food diversity.</p>	<p>In the short-term take-up of novel PGR resources will be shown by increased requests for <i>in situ</i> resources via national and EURISCO germplasm systems. While product innovation and fostering of healthy diets can be seen from the exemplar of value chain enhancement demonstrated in 4.1. However, significant evidence of raised competitiveness, product innovation and fostering of healthy diets will be most evident in the longer term, post-<i>Farmer’s Pride</i>. Most clearly demonstrated by the self-sustaining nature of the Integrated European/national PGR conservation and use network established.</p>	<p>1.2, 1.3, 1.4, 1.5, 2.2, 2.4, 2.5, 2.6, 3.1, 3.2, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3, 5.4, 5.6, 5.7, 5.8, 5.9,</p>

The Farmer’s pride consortium are justifiably proud of the impact generated by the project, the extent of impact was obvious in the discussion generated at the final dissemination conference, in the Policy

Roundtable, chaired by Geoffrey Hawtin OBE, panellists from the Food and Agriculture Organization of the United Nations; Euroseeds; Eurosite – the European Land Conservation Network; the European Environment Agency; the Ministry of Agriculture of the Czech Republic; the Secretariat of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture; and the European Commission, DG Agriculture and Rural Development each stressed the significant importance of the project in moving from discussion to the implementation of *in situ* PGR conservation in Europe. Specifically, Dr. Chikelu Mba (CGRFA, FAO) stated “critical steps towards the eventual establishment of a global network for PGRFA, that are best maintained outside of genebanks, have been taken. FAO is keenly interested in the establishment of a European *in situ* PGR network as the lessons learned will be critical assets in fostering the development of the envisaged global network”, while Dr Annette Schneegans (EC DG AGR) concluded “the idea of using the Natura 2000 network for the conservation of both CWR and LR is very interesting, and we should follow up on this” ... “It will be important to maintain the momentum created under the auspices of the Farmer’s Pride project.” So, although the actual formal establishment of the European network for *in situ* conservation and sustainable use of plant genetic resources has yet to be achieved, the groundwork has been completed and formal establishment is expected to be achieved very soon.

Post-dissemination conference a key further step in European network establishment has been taken with the announcement of *in situ* conserved CWR diversity in EURISCO, using the *in situ* population descriptors developed in Farmer’s Pride.

Further, in terms of additional impact one deliverable was deliberately vague in its original formulation, D2.2 Suite of five related *in situ* conservation information management tools, the final tools delivered were

- CAPFITOGEN tools for crop wild relative and landrace conservation planning – [capfitogen.net/](http://capfitogen.net/)
- Concept for an extension of EURISCO for *in situ* crop wild relative and on-farm landrace data – [https://more.bham.ac.uk/farmerspride/wp-content/uploads/sites/19/2021/09/D2.5\\_EURISCO\\_in\\_situ\\_extension\\_concept.pdf](https://more.bham.ac.uk/farmerspride/wp-content/uploads/sites/19/2021/09/D2.5_EURISCO_in_situ_extension_concept.pdf)
- *In situ* crop wild relative population look-up tool – [ecpgr.cgiar.org/cwr-tool](http://ecpgr.cgiar.org/cwr-tool)
- Crop wild relative *in situ* population management guidelines: online toolkit – [cwrpopulation-toolkit.cropwildrelatives.org/](http://cwrpopulation-toolkit.cropwildrelatives.org/)
- Best practice evidence-based database: a tool for promoting landrace conservation *in situ* – [ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database](http://ecpgr.cgiar.org/in-situ-landraces-best-practice-evidence-based-database)
- Landrace repatriation tool – [ecpgr.cgiar.org/working-groups/on-farm-conservation](http://ecpgr.cgiar.org/working-groups/on-farm-conservation)

Each additional tool will further enhance to overall Farmer’s Pride object of improved *in situ* / on-farm conservation and use of European PGR.

## 4.0 Deviations from Annexes 1 and 2

### 4.1 Tasks

There have been no significant deviations from Annex 1—however, the submission of the deliverables and achievement of some milestones was delayed for reasons explained in the WP reports. These delays did not cause any impact on the achievement of the tasks or project objectives. Some delays resulted in a greater impact of the project due to the extensive effort dedicated to their production.



#### **4.2 Project outputs**

The Farmer's Pride consortium has developed and published some additional products that are not included in the Description of Work: the Web Tool for CWR Population Management<sup>120</sup> and an additional policy brief, 'Getting incentives right? Support mechanisms for effective conservation and use of landraces in Europe and public willingness-to-pay'.

#### **4.2 Use of resources**

The person-months (PMs) planned and actual PMs used per WP and per partner for the project duration are shown in Table 4. Estimated eligible costs per partner and actual expenditure for the project duration are shown in Table 5.

---

<sup>120</sup> [cwrpopulation-toolkit.cropwildrelatives.org/](http://cwrpopulation-toolkit.cropwildrelatives.org/)

**Table 4.** PMs planned (grey shaded) and actual (no shading) per WP and per partner (accumulative for the project)<sup>121</sup>. Total PMs for the project are highlighted in green.

Partner	1 UOB	2 BIOVER	3 UNIPG	4 NORDGEN	5 URJC	6 PSR	7 WUR	8 EUROSITE	9 OMIKI	10 IPK	11 AARI	12 LUKE	13 INIAV	14 DIMITRA	15 DSS	16 ARCN	17 UPV	18 PLANTLIFE	19 ESA	WP totals
WP 1	2.40	0.60	20.90	1.20	9.70	1.00	0.10	2.10	1.30	0.20	3.88	7.00	13.00	6.80	0.60	1.50	2.40	0.40	0.20	75.28
	1.72	0.88	20.60	0.90	18.76	1.65	0.17	1.46	1.58	0.20	3.88	7.55	4.11	6.87	0.59	1.14	2.72	0.40	0.20	75.38
WP 2	3.50	1.50	6.50	0.30	14.80	3.60	4.70	2.30	3.60	3.30	0.16	2.30	3.50	5.80	2.20	3.90	0.60	1.90	2.00	66.46
	1.10	2.54	10.78	0.08	17.71	3.65	4.45	2.15	3.49	3.30	0.16	1.78	5.22	5.43	1.54	3.17	0.63	1.90	2.00	71.08
WP3	1.20	4.10	2.80	0.00	8.60	1.00	4.59	0.80	3.30	0.00	1.19	0.10	0.00	5.00	0.00	2.30	1.60	1.80	2.00	40.38
	1.17	7.34	2.29	0.00	7.16	0.89	2.24	0.09	10.81	0.00	1.19	0.25	0.00	5.09	0.00	2.02	1.65	1.80	2.00	45.99
WP4	3.40	2.20	11.10	0.80	7.20	1.00	0.30	2.00	3.60	0.50	0.00	3.20	7.40	1.50	0.30	0.50	1.20	2.10	1.00	49.30
	2.97	1.65	5.75	0.51	12.19	0.45	0.07	1.89	3.21	0.00	0.00	3.41	6.04	1.10	0.10	0.39	1.61	2.10	1.00	44.44
WP 5	6.51	1.60	4.30	0.10	0.60	1.00	0.10	0.40	1.40	0.40	0.25	0.10	1.60	0.40	0.10	0.20	0.20	18.00	0.60	37.86
	17.86	0.77	2.51	0.91	4.11	0.92	0.05	2.20	2.12	0.40	0.25	0.10	4.38	0.70	0.80	0.74	0.82	18.00	0.60	58.24
WP 6	16.33	0.20	0.50	0.20	0.10	0.20	0.10	0.60	0.50	0.20	0.43	0.10	2.60	0.60	0.10	0.80	0.40	1.10	0.30	25.36
	16.76	0.23	0.28	0.25	1.49	0.28	0.05	0.68	0.34	0.10	0.43	0.12	0.68	0.84	0.32	1.45	1.35	1.10	0.30	27.05
Partner totals	33.34	10.20	46.10	2.60	41.00	7.80	9.89	8.20	13.70	4.60	5.91	12.80	28.10	20.10	3.30	9.20	6.40	25.30	6.10	294.64
	41.58	13.41	42.21	2.65	61.42	7.84	7.03	8.47	21.55	4.00	5.91	13.21	20.43	20.03	3.35	8.91	8.78	25.30	6.10	322.18

<sup>121</sup> RP1 PMs for Partner 1, UOB are updated in line with an adjustment for personnel costs made for RP1 in the RP2 financial statement.

Commented [k20]: SK to update

**Table 5.** Estimated eligible costs<sup>122</sup> and actual expenditure per partner for the project duration.

BENEFICIARY	TOTAL ESTIMATED ELIGIBLE COSTS						ACTUAL EXPENDITURE			
	Personnel	Sub-contracting	Other direct costs	Indirect costs	Totals	Max EU contribution	Personnel	Other direct costs	Indirect costs	Requested EU contribution
1 UOB	223,969.16	64,144.00	64,693.00	72,165.54	424,971.70	424,971.70	58,947.03	23,106.83	20,513.47	102,567.33
2 BIOVER	112,440.00	0.00	13,200.00	31,410.00	157,050.00	157,050.00	39,377.66	3,263.76	10,660.36	53,301.78
3 UNIPG	165,963.00	0.00	11,677.00	44,410.00	222,050.00	222,050.00	58,638.00	4,791.51	15,857.38	79,286.89
4 NORDGEN	21,800.00	0.00	2,240.00	6,010.00	30,050.00	30,050.00	5,812.00	2,118.95	1,982.74	9,913.69
5 URJC	155,640.00	0.00	6,000.00	40,410.00	202,050.00	202,050.00	60,074.19	2,681.26	15,688.86	78,444.31
6 PSR	64,740.00	0.00	6,500.00	17,810.00	89,050.00	89,050.00	24,638.00	6,328.15	7,741.54	38,707.69
7 WUR	68,840.00	0.00	1,200.00	17,510.00	87,550.00	87,550.00	16,839.00	308.40	4,286.85	21,434.25
8 EUROSITE	34,640.00	0.00	5,400.00	10,010.00	50,050.00	50,050.00	11,028.29	3,178.24	3,551.63	17,758.16
9 OMKI	35,370.00	0.00	5,870.00	10,310.00	51,550.00	51,550.00	15,847.33	2,831.63	4,669.74	23,348.70
10 IPK	20,840.00	0.00	3,600.00	6,110.00	30,550.00	30,550.00	20,786.82	1,604.78	5,597.90	27,989.50
11 AARI	7,618.67	0.00	8,514.97	4,033.41	20,167.05	20,167.05	7,618.67	7,177.98	3,699.16	18,495.81
12 LUKE	84,890.00	0.00	10,750.00	23,910.00	119,550.00	119,550.00	12,434.54	2,899.60	3,833.54	19,167.68
13 BPGV	46,990.00	0.00	5,850.00	13,210.00	66,050.00	66,050.00	19,126.33	2,811.18	5,484.38	27,421.89
14 DIMITRA	41,214.00	0.00	9,226.00	12,610.00	63,050.00	63,050.00	11,690.00	4,261.74	3,987.94	19,939.68
15 DSS	22,840.00	0.00	3,600.00	6,610.00	33,050.00	33,050.00	12,817.15	2,325.19	3,785.59	18,927.93
16 ARCN	36,740.00	0.00	8,900.00	11,410.00	57,050.00	57,050.00	9,395.54	4,553.84	3,487.35	17,436.73
17 UPV	33,650.00	0.00	1,990.00	8,910.00	44,550.00	44,550.00	29,037.69	1,065.58	7,525.82	37,629.09
18 PLANTLIFE	77,082.00	0.00	94,167.00	42,812.25	214,061.25	214,061.25	21,493.44	30,271.99	12,941.36	64,706.79
19 ESA	28,540.00	0.00	1,500.00	7,510.00	37,550.00	37,550.00	8,889.51	1,642.44	2,632.99	13,164.94
<b>TOTALS</b>	<b>1,283,806.83</b>	<b>64,144.00</b>	<b>264,877.97</b>	<b>387,171.20</b>	<b>2,000,000.00</b>	<b>2,000,000.00</b>	<b>444,491.19</b>	<b>107,223.05</b>	<b>137,928.60</b>	<b>689,642.84</b>

<sup>122</sup> Adjusted according to contract AMD-774271-13.