European Cooperative Programme for Plant Genetic Resources
ECP//GR

In situ Crop Wild Relatives in EURISCO Project Meeting
18–19 June 2024, Sadovo, Bulgaria

Extension of EURISCO for Crop Wild Relatives (CWR) *in situ* data and preparation of pilot countries' data sets: Spain

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POLITÉCNICA

Key deliverables

1. Identify populations from the CWR priority list of the National Strategy for CWR conservation (31/03/2023).

2. Identify key public and private institutions for the organization of a national network of data providers (31/12/2022).

3. Prepare a draft of the national database structure (30/09/2023).

4. Collect and organize available data according to the agreed principles and data exchange format (15/11/2023).

5. Provide the data to EURISCO (15/11/2023).

Project of the Ministry of Agriculture:

- Implementation of the National Strategy for CWR conservation (2023-2026)

1. Identify populations from the CWR priority list of the National Strategy for CWR and WFP conservation

- **521 priority CWR/WFP taxa** from the Spanish National Strategy for the Conservation and Use of Crop Wild Relatives and Wild Food Plants (https://www.mapa.gob.es/images/es/estrategiaconservacionplantassilvestres_tcm30-544584.pdf)

1. Identify populations from the CWR priority list of the National Strategy for CWR conservation

- Taxonomical nomenclature: ‘Standard list’ used by Spanish administration based on Flora Iberica.
- 90% of taxa match with the accepted scientific name of GBIF taxonomic backbone. Direct download from GBIF.
- 10% of taxa are considered ‘synonyms’ by GBIF. Careful download from GBIF using the scientific name of the ‘Standard list’ to avoid errors.
- Taxa with less than 20 records were searched individually in herbaria, bibliographic references, other biodiversity databases to increase the number of occurrences.

1. Identify populations from the CWR* priority list of the National Strategy for CWR conservation

- Downloaded records filtered by quality of geographic coordinates. Delete records:
  - without geographic coordinates
  - with serious geographic coordinate “issues”
  - with poor geographic accuracy (coordinates without decimals of degree)
  - from “iNaturalist”
  - associated to cultivation and/or botanical gardens
  - mismatches between coordinates and country
  - records of country centroids, capitals, equal latitude/longitude, biodiversity institutions and GBIF headquarters, and those falling on the sea.
  - populations with incompatible land uses (water bodies, perpetual ice, urban settings)
- Assignment of same POPID (population identifier) to records with the same coordinates and within a 500m radius buffer.

1. Identify populations from the CWR priority list of the National Strategy for CWR conservation

Final dataset of distribution of priority CWR populations:

- 1,806,712 records including all 521 target species
- 611,612 populations
- Median number of populations per species: 290
- 25% of species have less than 70 populations
- 25% of species have more than 1136 populations

1. Identify populations from the CWR priority list of the National Strategy for CWR conservation

Project of the Ministry of Agriculture (2024):

- Identification and correction of errors in the occurrence database
- Additional records obtained from Spanish genebanks (including those of botanical gardens) and EURISCO

Current dataset of distribution of priority CWR populations:

- 1,820,731 records including all 521 target species
- 620,372 populations

2. Identify key public and private institutions for the organization of a national network of data providers

- Identification of stakeholders for a network of collaborators and data providers:
  - Ministry for Ecological Transition
  - National Parks Autonomous Agency
  - Ministry of Agriculture
  - Wildlife, agriculture and environmental education departments of 17 autonomous communities
  - NGO’s
- Contacts checked by telephone and/or email to confirm willingness to collaborate.

2. Identify key public and private institutions for the organization of a national network of data providers

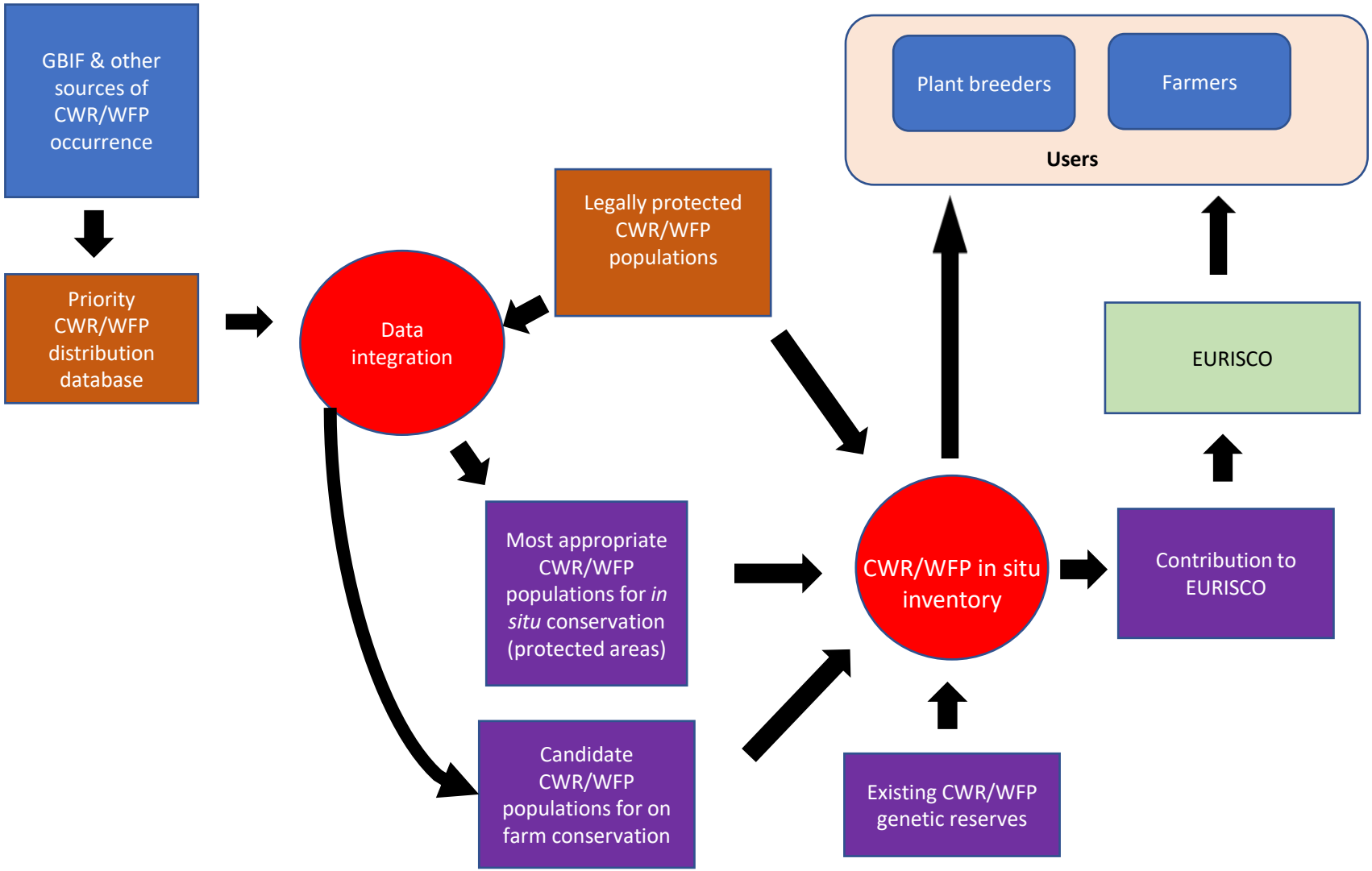
- ECPGR project: 203 contacts. 45% expressed willingness to collaborate.
- Ministry of Agriculture project: 207 contacts
- COUSIN project: using this list in WP1 for engagement of stakeholders in CWR conservation

3. Prepare a draft of the national database structure

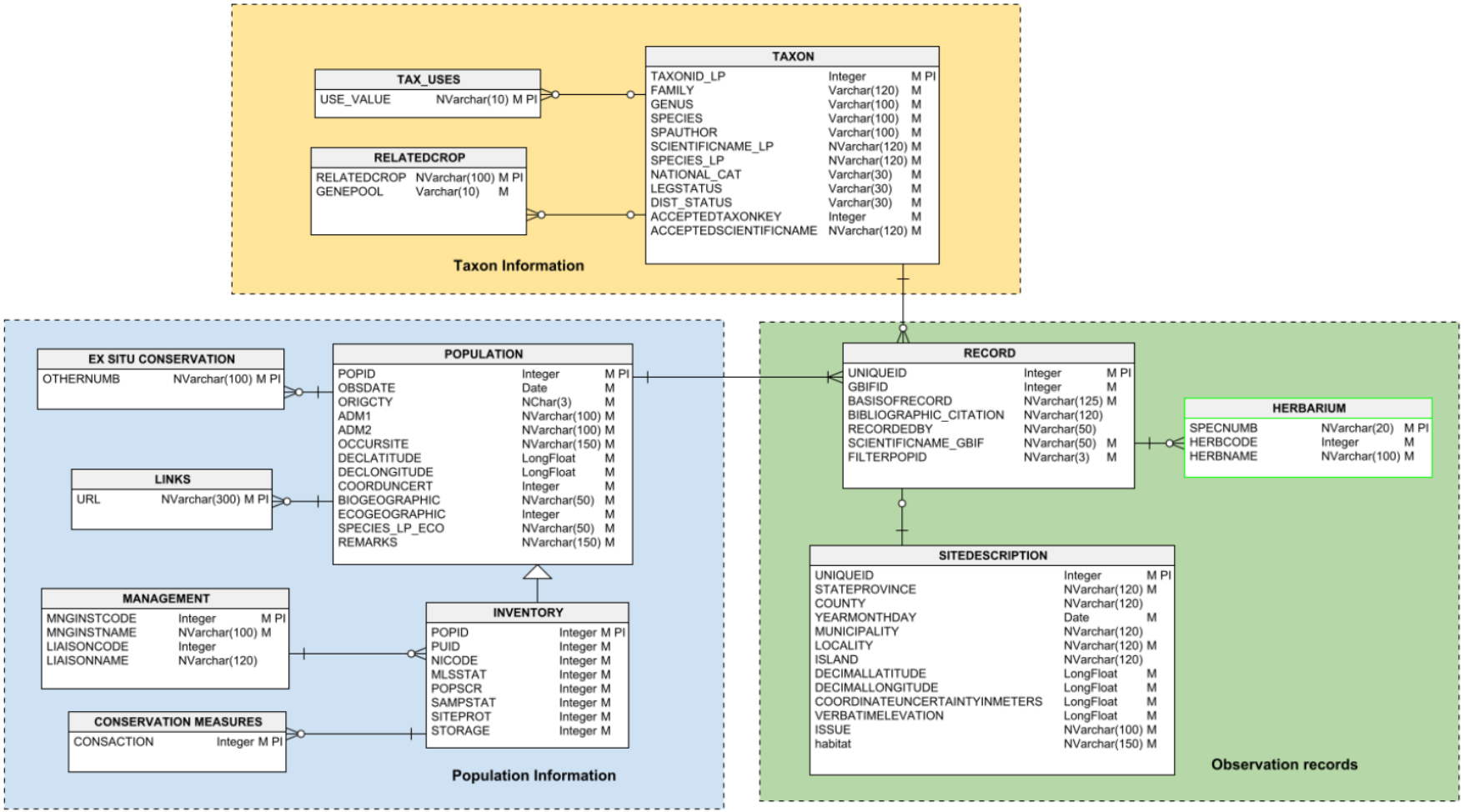
Database that includes both CWR population occurrence and populations selected for *in situ* conservation:

- 69 descriptors
  - 38 of 40 descriptors of Annexes I & II (subtaxon descriptors and REMARKS not included)
  - 31 additional fields (many from GBIF records)

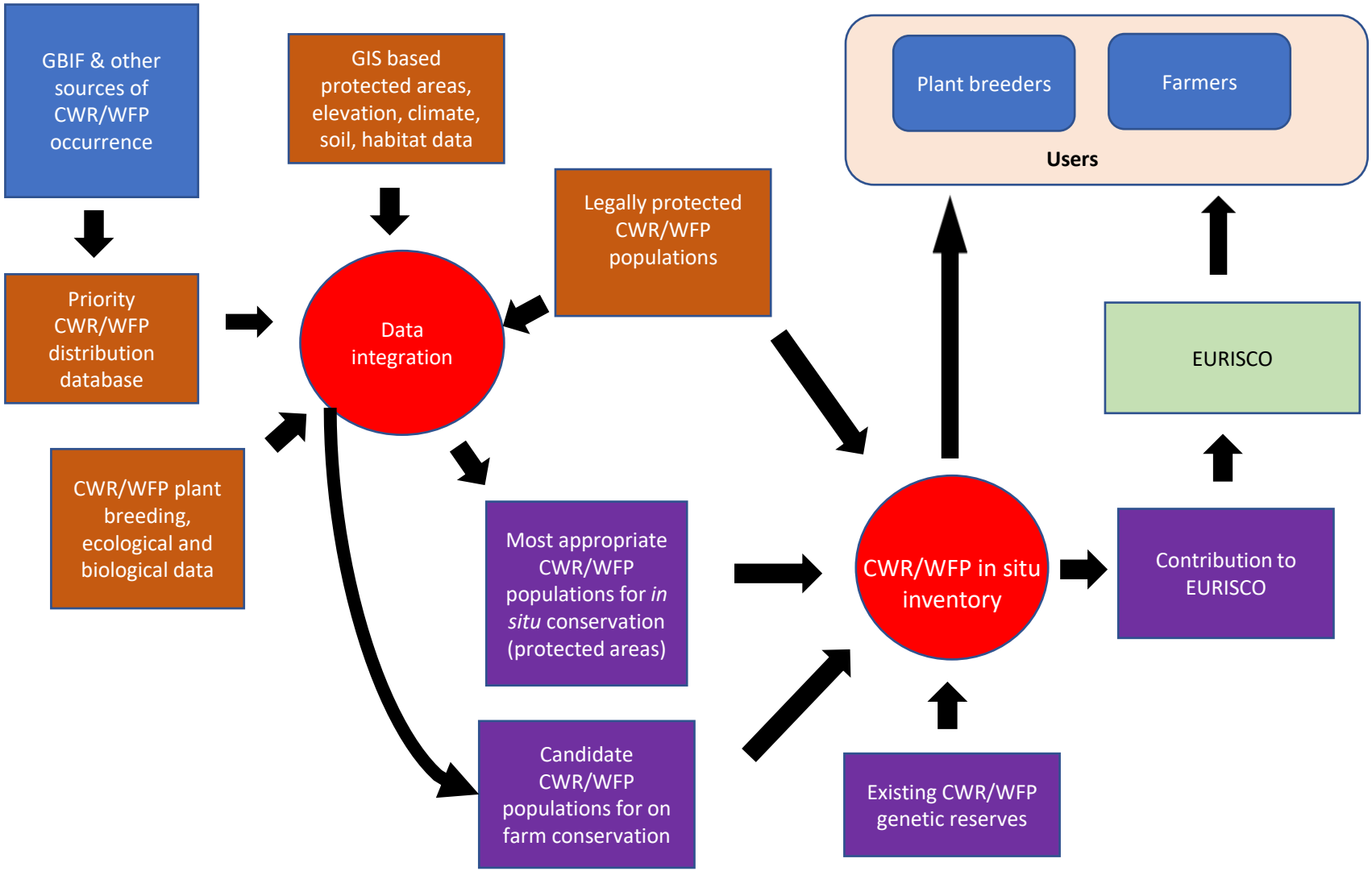
ECPGR project information flow



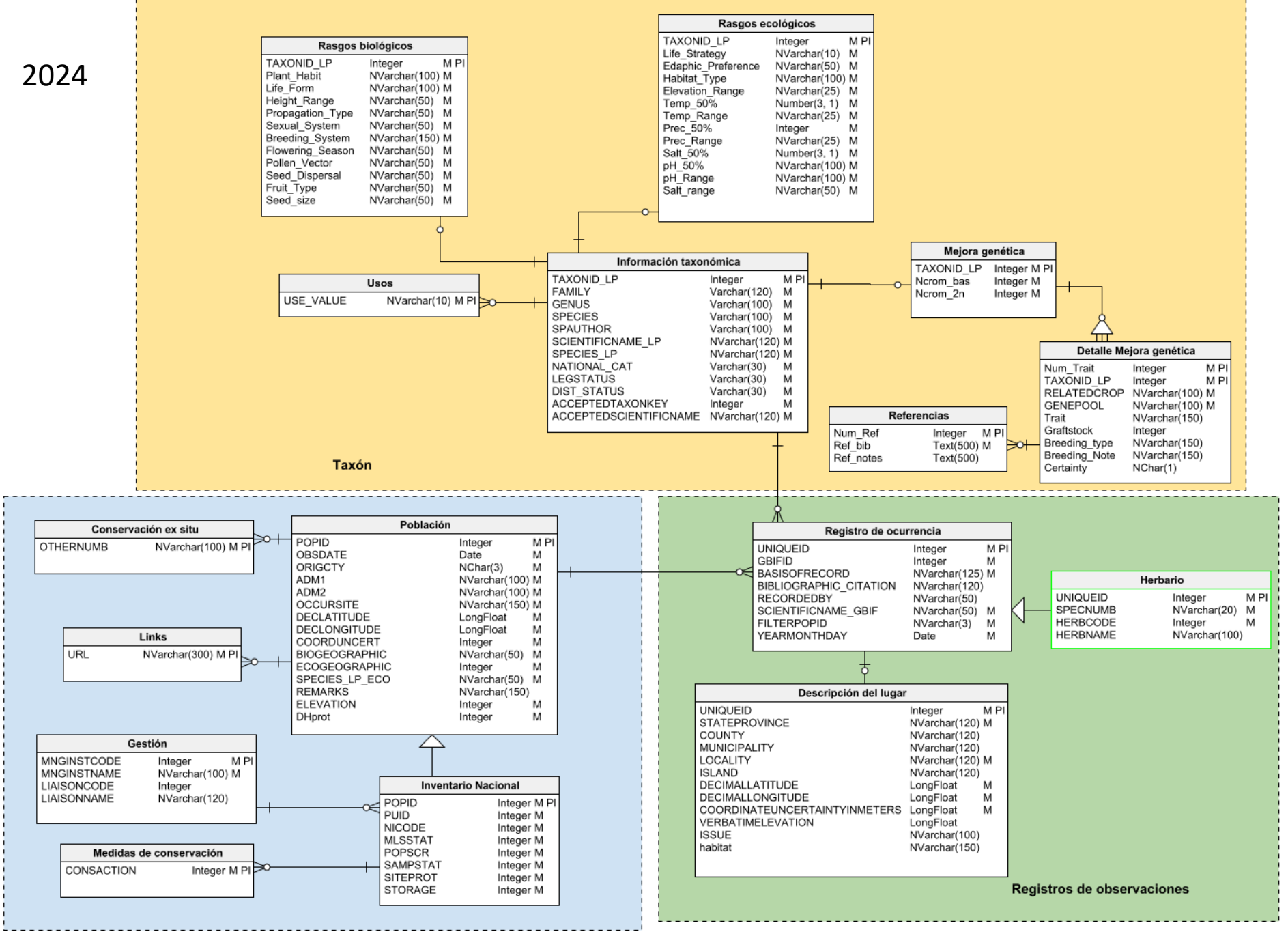
3. Prepare a draft of the national database structure



Information flow (2024)



2024



Estructura de la base de datos

Vertabelo

METADATA DATASET | REGISTERED OCTOBER 10, 2023

Base de datos del Inventario Nacional In Situ de Parientes Silvestres de los Cultivos y Plantas Silvestres de Uso Alimentario

Published by Ministerio de Agricultura, Pesca y Alimentación

Iriondo Alegría J M

DATASET PROJECT DOWNLOAD

El propósito de esta colección es el desarrollo de una base de datos para el Inventario Nacional in situ de Parientes Silvestres de los Cultivos (PSC) y Plantas Silvestres de Uso Alimentario (PSUA) de España, siguiendo los principios FAIR. Esta base de datos debe servir para gestionar la conservación in situ de estos recursos fitogenéticos en España y potenciar su utilización. Igualmente se pretende que, desde esta base de datos, España contribuya con esta información sobre conservación in situ ... More

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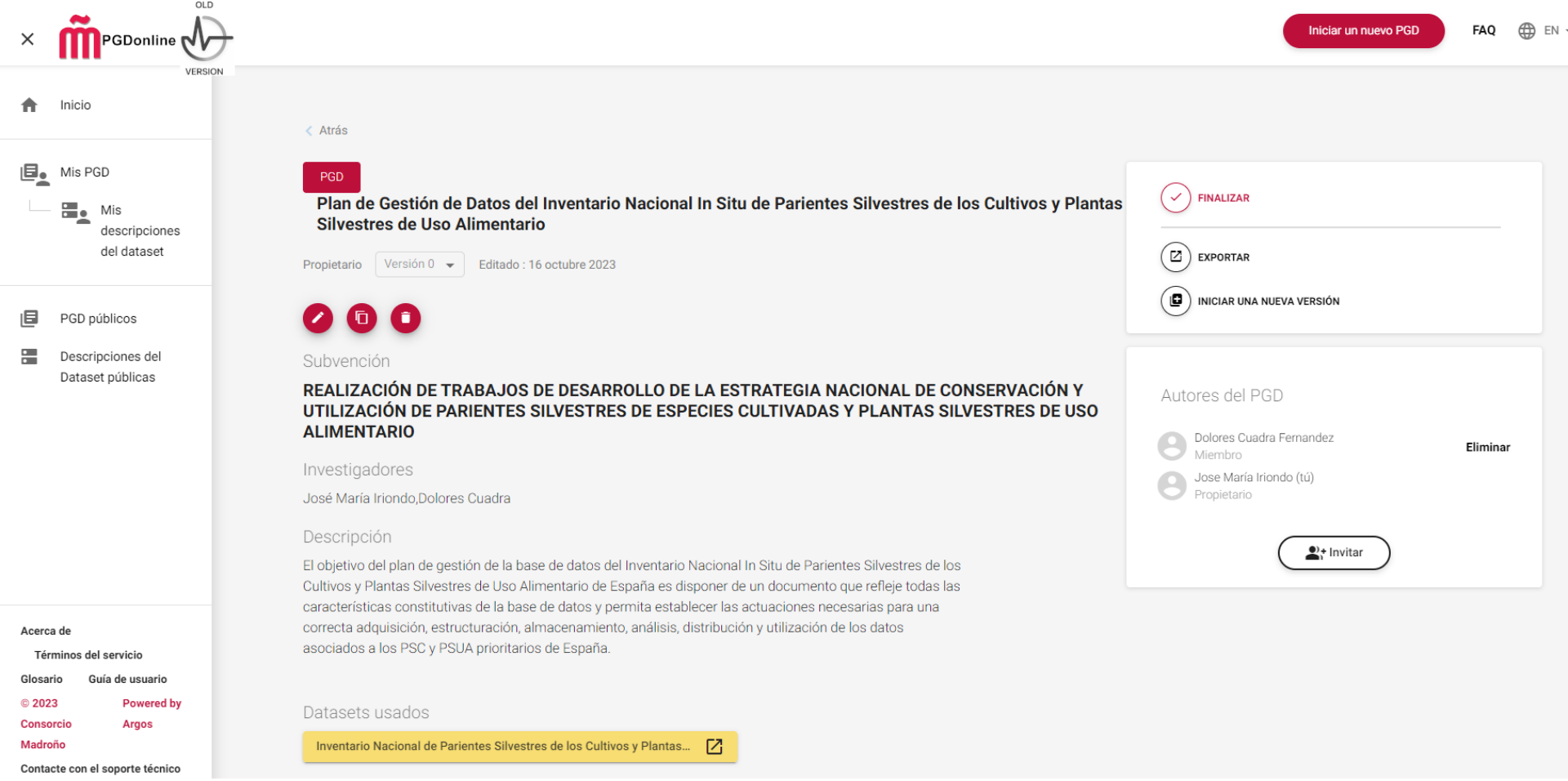
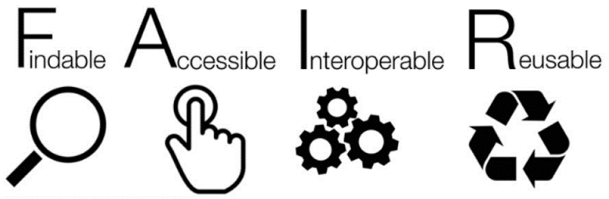
Spanish

Description

El propósito de esta colección es el desarrollo de una base de datos para el Inventario Nacional in situ de Parientes Silvestres de los Cultivos (PSC) y Plantas Silvestres de Uso Alimentario (PSUA) de España, siguiendo los principios FAIR. Esta base de datos debe servir para gestionar la conservación in situ de estos recursos fitogenéticos en España y potenciar su utilización. Igualmente se pretende que, desde esta base de datos, España contribuya con esta información sobre conservación in situ de poblaciones de PSC y PSUA del país, a la base de datos EURISCO que recoge información sobre la conservación de los recursos fitogenéticos en Europa (https://eurisco.ipk-gatersleben.de/apex/f?p=103:1:0) y a la base de datos del Sistema Mundial de Información sobre Recursos Fitogenéticos (GLIS) (https://www.fao.org/plant-treaty/areas-of-work/global-information-system/es/) de la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO).



- FAIR principles:
  - Findable
  - Accesible
  - Interoperable
  - Reusable



3. Prepare a draft of the national database structure

- Testing implementation in MongoDB
  - NoSQL, schemaless (flexible structure), document database
  - Used to build highly scalable internet applications
  - Can work with JSON (text-based data exchange format)

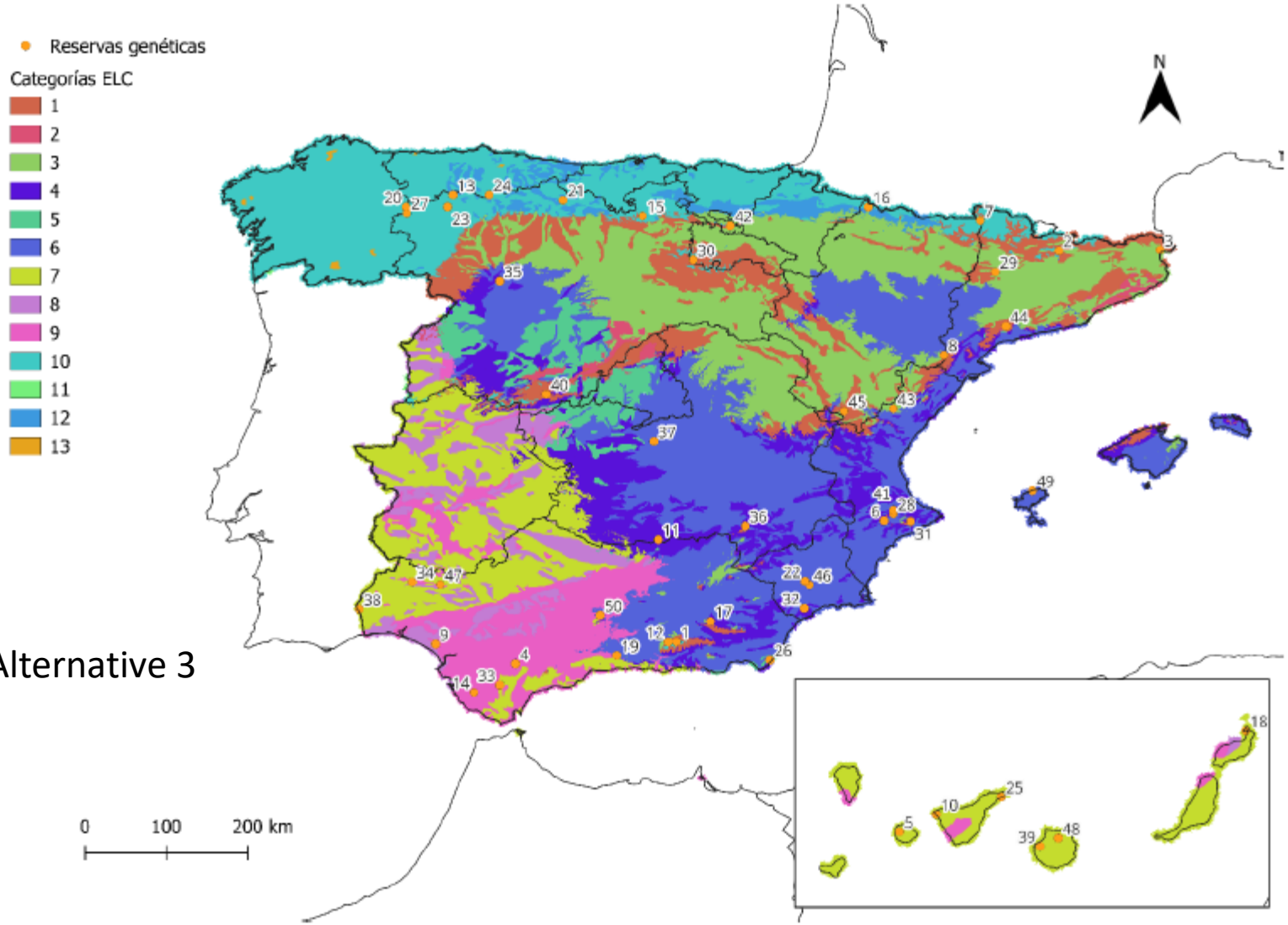
4. Collect and organize available data according to the agreed principles and data exchange format

- Taxon level descriptors completed.
  - Limited data concerning GENEPOOL
    - Harlan & de Wet
    - GRIN- Global
    - Bibliographic searches
- Population-level data:
  - GBIF
  - GIS derived from thematic layers extracted from geographical coordinates

4. Collect and organize available data according to the agreed principles and data exchange format

- National inventory information on existing and potential genetic reserves:
  - Existing CWR/WFP genetic reserves
  - Local initiatives planned or in progress for CWR/WFP conservation with farmers and land owners
  - Candidate populations for *in situ* conservation: GIS and complementarity analyses to select 'most appropriate CWR/WFP populations'.
  - In situ conserved populations of legally protected threatened CWR/WFP
  - Populations of CWR/WFP that are characteristic species of protected habitats of Habitats Directive Annex I

40-50 priority candidate locations



Alternative 3

5. Provide the data to EURISCO

Candidate populations to be uploaded to EURISCO:

- 27 populations (25 spp) in 5 existing genetic reserves
- 2968 populations (471 spp) from current proposal of 50 sites for national network of genetic reserves
- 15877 populations (47 spp), characteristic species of protected habitats of the Habitats Directive Annex I
- 4428 populations (64 spp) corresponding to legally protected species

Sent to EURISCO: 27 pops, 25 spp, 5 genetic reserves

Name of the Genetic Reserve	Species in the reserve	
Granja Prados Montes	*Allium oleraceum* L. *Dianthus armeria* L. *Phleum pratense* L. *Trifolium ochroleucon* Huds.	
Huerta Catalina	*Borago officinalis* L. *Vicia sativa* L.	
La Cerca Redonda	*Daucus carota* L. *Hordeum murinum* L. *Thymus mastichina* (L.) L. *Trifolium pratense* L.	
Rincón Silvestre	*Hypericum perforatum* L. *Papaver rhoeas* L. *Vicia pannonica* Crantz	
Vía Pecuaria Cordel del Salmoral	*Aegilops geniculata* Roth *Daucus carota* L. *Lavandula pedunculata* (Mill.) Cav. *Linum bienne* Miller *Lotus corniculatus* L. *Lupinus angustifolius* L. *Lupinus hispanicus Boiss. & Reut.*	*Ornithopus compressus* L. *Trifolium angustifolium* Huds. *Trifolium arvense* L. *Trifolium campestre* Schreb. *Trifolium cernuum* Brot. *Trifolium glomeratum* L. *Trifolium pratense* L.

Sent to EURISCO: 24 pops, 22 spp, 4 genetic reserves

Name of the Genetic Reserve	Species in the reserve	
Granja Prados Montes	*Allium oleraceum* L. *Dianthus armeria* L. *Phleum pratense* L. *Trifolium ochroleucon* Huds.	
Huerta Catalina	*Borago officinalis* L. *Vicia sativa* L.	
La Cerca Redonda	*Daucus carota* L. *Hordeum murinum* L. *Thymus mastichina* (L.) L. *Trifolium pratense* L.	
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Ministry of Agriculture

- 27 populations in 5 existing genetic reserves

Commission of the National Programme on Plant Genetic Resources (February 2024)

- 2968 populations from current proposal of 50 sites for national network of genetic reserves (not definitive)
- 15877 populations of CWR, characteristic species of A protected habitats of the Habitats Directive

- 4428 populations corresponding to legally protected C species

All need to be approved by the Autonomous Communities where the populations are located