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European plant genetic resources

***In situ* plant genetic resources in Europe:
crop wild relatives**

Citation

Rubio Teso, M.L.¹, Álvarez Muñiz, C.¹, Gaisberger, H.², Kell, S.³, Lara-Romero, C.¹, Magos Brehm, J.⁴, Maxted, N.³ and Iriondo, J.M.¹

¹ Universidad Rey Juan Carlos, Móstoles, Madrid, Spain

² Alliance of Bioversity International and CIAT, Rome, Italy

³ School of Biosciences, University of Birmingham, United Kingdom

⁴ Instituto Nacional de Investigação Agrária e Veterinária, I.P., Braga, Portugal

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Executive Summary

A primary objective of the Farmer's Pride project is to establish a network for *in situ* conservation and sustainable use of plant genetic resources in Europe. To achieve this, we need to increase knowledge about the occurrence of natural populations of crop wild relatives (CWR), as well as the existence of active *in situ* conservation actions. To obtain an overall picture of the location of areas where CWR occur, a list of priority CWR 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 infraspecific 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, whereas the Genesys download resulted in 991,746 accessions for 440 taxa. 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scripts developed in R environment to delimit the geographical scope, identify errors, delete low quality and outdated records, eliminate duplicates and select high quality data records.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, 1,132,409 records correspond to 397 taxa related to human food crops, 1,968,390 records to 229 taxa related to forage and fodder crops, and 6,568 records to 10 taxa related to both human food and forage and fodder crops. The databases generated in this study are the largest databases of occurrences for the target CWR generated so far for the entire world and for Europe and Turkey.

The application of rigorous selection criteria provides a set of records with high probability of actual presence in the described locations. This information is essential for the design of the European CWR network foreseen in the Farmer's Pride project as well as for forthcoming international initiatives on CWR conservation. The analysis of the CWR distribution obtained denotes a bias in the compiled data. This is 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. 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 CWR priority taxa. The largest group of CWR populations conserved is in Switzerland, with 703 populations belonging to 17 taxa. The implementation context of the conservation was, in most cases (82%), the result of a national CWR conservation strategy. Public organizations were most frequently identified as responsible for the active *in situ* conservation actions. Most of these conservation actions (91.9%) are related to a network of *in situ* conservation, such as Natura 2000, national or local protected area networks, research centres or gene bank networks. All the information received from Switzerland portrayed the strategy of preserving CWR in farmlands outside protected areas. On the other hand, the rest of the countries mainly conserved them fully or partially inside protected areas. Most active *in situ* conservation is focused on more than one species. The most widespread action performed for CWR species was ‘monitoring and census of the species’. ‘Phytosociological monitoring’, ‘seed collection and storage in a gene bank’, ‘controlled grazing’ and ‘limited use of the territory’ were 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 the European network for *in situ* conservation and sustainable use of plant genetic resources. Although the large area covered by protected areas ensures the passive conservation of many CWR populations, active *in situ* conservation of CWR 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.

1 Introduction

Crop wild relatives (CWR) are wild plant species related to crops that have evolved under natural conditions and are potential sources of traits for the development of new, improved varieties (Maxted et al., 2006). Because of the broad range of habitats in which CWR occur, and their adaptation to a wide range of local environmental conditions, they are an important reservoir of genetic diversity for crop improvement (e.g., see Vaughan, 1994; Maxted *et al.*, 1997; van de Wouw *et al.*, 2001; Hajjar and Hodgkin, 2007; Heywood *et al.*, 2007; FAO, 2008; Millet, Manisterski and Ben-Yehuda, 2008). This diversity is particularly important because most crop species have experienced a process of genetic diversity loss when bred to meet the uniformity requirements of commercial agriculture (e.g., see Eyre-Walker *et al.*, 1998; Chung and Singh, 2008), which can render them susceptible to pests, diseases and unexpected environmental conditions, and consequent crop losses (e.g., see (FAO, 2010; Fowler and Mooney, 1990; Keneni et al., 2012)). The value of traits derived from CWR has been highlighted by many authors (e.g., Prescott-Allen and Prescott Allen, 1983; Maxted *et al.*, 1997, 2012; Hajjar and Hodgkin, 2007; Hodgkin and Hajjar, 2008; Sonnante and Pignone, 2008; McCouch *et al.*, 2013) and their use for the improvement of crops has made a substantial indirect contribution to the world economy (Tyack and Dempewolf, 2015).

The environmental impacts of climate change are causing and will continue to cause significant challenges for the agricultural and horticultural industries and for food and economic security. The seed industry is therefore in need of diverse and novel sources of genetic diversity to produce crop varieties that can withstand changing environmental conditions (e.g., see FAO, 2008; Lobell *et al.*, 2008; Deryng *et al.*, 2011; Luck *et al.*, 2011), and there is some consensus that CWR will become increasingly important to meet this challenge (FAO, 2011, 2010, 2008; Maxted et al., 2014; Ortiz, 2015). Europe has a wealth of native and endemic diversity of wild species related to crops of regional and global socio-economic importance (Kell et al., 2016). Examples include the native wild relative diversity of oats (*Avena sativa* L.), sugarbeet (*Beta vulgaris* L.), carrots (*Daucus carota* L.), apples (*Malus domestica* Borkh.), annual meadow grass (*Festuca pratensis* Huds.), perennial rye grass (*Lolium perenne* L.) and white clover (*Trifolium repens* L.) (Heywood and Zohary, 1995). Many minor crop species have significant wild relative diversity in the region, including asparagus (*Asparagus officinalis* L.), lettuce (*Lactuca sativa* L.), sage (*Salvia officinalis* L.), raspberries and blackberries (*Rubus* spp.), as well as herbs and aromatic plants such as mints (*Mentha* spp.) and chives (*Allium* spp.) (Maxted et al., 2008). According to Vincent *et al.* (2013), southern Europe is globally significant in terms of its richness of species related to economically important crops. However, no mechanisms currently exist to organize technically coordinated, effective and efficient

in situ conservation actions for CWR across political borders in Europe—therefore, a systematic regional approach to *in situ* CWR genetic diversity conservation is required (Maxted, 2003; Maxted et al., 2015, 2013).

To that aim, gaining knowledge of how many populations of CWR occur in Europe and how these populations are distributed is a fundamental first step. Because Europe has an extensive network of protected areas across its territory, many CWR populations occur within them and are thus under some form of protection. However, in most cases, protected area managers are not aware of the occurrence of CWR in their sites and of their requirements for more active conservation. Therefore, there is no guarantee that these populations are properly conserved and monitored and that their viability is assured. Thus, in addition to information on the occurrence of CWR populations in Europe, it is essential to compile information on active measures in place for CWR conservation.

Thus, the objectives of the current study were to: **1)** gather information on the occurrence of populations of priority CWR in Europe and create a database that will be used for *in situ* and *ex situ* conservation gap analyses, and **2)** create a database of localities where active *in situ* CWR conservation measures are being implemented. In this report we describe the methods and data sources used to reach these objectives, present the results obtained and discuss their implications, including the challenges faced and how we addressed them.

2 Occurrence of priority CWR populations in Europe

The design and establishment of an efficient network for the conservation of plant genetic resources in Europe, in which existing conservation actions and available human and economic resources are efficiently used, must take into account hotspot areas where crop wild relative populations occur, and assess complementary sites that maximize the use of resources. The first step to accomplish this task is to delimit which CWR are most important for Europe and secondly, to extract information on their occurrence distribution from readily available data sources. The election of these sources must consider the dual nature of crop wild relatives, as plants of agronomic interest, but also as wild species. This link to wild and cultivated status of plants makes them the target of different types of conservationists. On the one hand, as wild species, their population occurrence can be gathered in global biodiversity databases. On the other hand, it is possible to find additional populations through germplasm accessions saved in plant genetic resources genebanks.

2.1 Methods

2.1.1 Delimitation of the geographic area and selection of priority CWR taxa

An inventory of priority European CWR was developed, building on previous work by Kell *et al.* (2005, 2012, 2014, 2016) and Bilz *et al.* (2011), and using the methodology of Kell *et al.* (2017) (Appendix A). The geographic scope of the inventory is Europe, as defined by Hollis and Brummit (2001) and EU territories outside of Europe (i.e., Azores, Canary Islands, Cyprus, East Aegean Islands and Madeira), and Asiatic Turkey¹ (Table 1). The inventory includes taxa related to human and animal food crops, and native and introduced taxa—although introduced taxa reported to be invasive in any of the European countries were excluded.

Table 1. The 46 countries included in the study

Country	ISO Alpha-3 Code	Country	ISO Alpha-3 Code
Albania	ALB	Lithuania	LTU
Andorra	AND	Luxembourg	LUX
Austria	AUT	Malta	MLT
Belarus	BLR	Moldova	MDA
Belgium	BEL	Monaco	MCO
Bosnia and Herzegovina	BIH	Montenegro	MNE
Bulgaria	BGR	North Macedonia	MKD
Croatia	HRV	Norway	NOR
Cyprus	CYP	Poland	POL
Czech Republic	CZE	Portugal	PRT
Denmark	DNK	Romania	ROU
Estonia	EST	Russia	RUS
Finland	FIN	San Marino	SMR
France	FRA	Serbia	SRB
Germany	DEU	Slovakia	SVK
Greece	GRC	Slovenia	SVN
Hungary	HUN	Spain	ESP
Iceland	ISL	Sweden	SWE
Ireland	IRL	Switzerland	CHE
Italy	ITA	The Netherlands	NLD
Kosovo	RKS	Turkey	TUR
Latvia	LVA	Ukraine	UKR
Liechtenstein	LIE	United Kingdom	GBR

¹ Part of Turkey falls within Europe and the country is represented in the Farmer's Pride project

2.1.2 Population occurrence data

The two main sources of population occurrence data for the priority CWR taxa consulted were the Global Biodiversity Information Facility (GBIF – gbif.org) and Genesys (genesys-pgr.org/a). GBIF is the largest global repository of wild species occurrences and includes records from many national and international sources. Genesys was also used because it possesses the most complete information on plant genetic resources populations preserved *ex situ* and it is fed by the most important *ex situ* conservation data repositories – such as the European Search Catalogue for Plant Genetic Resources (EURISCO), genebanks of the Consultative Group on International Agricultural Research (CGIAR), national genebanks and botanic gardens. These sources include records of germplasm accessions collected and conserved in genebanks, and those associated with herbarium specimens.

Searches were undertaken for the European priority CWR taxa, including more than 2,500 synonyms. Occurrence data for the entire distribution of the species were downloaded using scripts developed under the R statistical environment (R Core Team, 2013), using ‘rGBIF’ (Chamberlain and Boettiger, 2017) and ‘genesysr’ (Obreza, 2019) packages. To obtain a high quality dataset in preparation for *in situ* and *ex situ* diversity and gap analyses, a set of criteria were developed (Table 2) and the data from each source were filtered and cleaned independently using additional scripts developed in the R environment. Table 3 reports a set of issues provided by GBIF database on certain records that were used to remove low quality records.

Table 2. Filtering and cleaning steps applied to select high quality CWR occurrence data.

Filtering and cleaning steps	GBIF	Genesys
Delete records without coordinates or with zero coordinates		X
Delete records with non-accurate geographic coordinates (less than one decimal digit of a decimal degree)	X	
Delete records coming from the SINGER ¹ database as they are better updated in the Genesys database	X	
Delete records susceptible to be of low quality or not trustable according to the GBIF issues flags (Table 3)	X	
Delete records from less reliable sources (e.g. iNaturalist)	X	
Delete records of cultivated origin or cultivated in botanic gardens	X	X
Select cultivated taxa with only SAMPSTAT ² codes 100, 110 and 120		X
Select non-cultivated taxa with SAMPSTAT ² codes 100, 110, 120, 200 and NA		X
Delete records whose coordinates do not match with the reported country	*	X
Delete records found to be in country centroids, capital cities, botanic gardens, or a GBIF headquarter	X	X
Delete records with coordinates in the sea	X	X

* This filter was performed through the GBIF issues flags (Table 3); ¹ <https://www.gbif.org/dataset/85818aea-f762-11e1-a439-00145eb45e9a>; ² <https://dokumentacja.ihar.edu.pl/wp-content/uploads/2017/05/EURISCO-descriptors.pdf>, 100: wild, 110: natural, 120: semi-natural/wild.

Table 3. GBIF issues selected to remove records of low quality from the downloaded occurrence data.

GBIF Issue	Description
BASIS_OF_RECORD_INVALID	The given basis of record is impossible to interpret or seriously different from the recommended vocabulary
CONTINENT_COUNTRY_MISMATCH	The interpreted continent and country do not match up
COORDINATE_INVALID	Coordinate value given in some form but GBIF is unable to interpret it
COORDINATE_OUT_OF_RANGE	Coordinate has invalid lat/lon values out of their decimal max range
COORDINATE_REPROJECTION_FAILED	The given decimal latitude and longitude could not be re-projected to WGS84 based on the provided datum
COORDINATE_REPROJECTION_SUSPICIOUS	Indicates successful coordinate reprojection according to provided datum, but which results in a datum shift larger than 0.1 decimal degrees
COUNTRY_COORDINATE_MISMATCH	The interpreted occurrence coordinate fall outside of the indicated country
GEODETTIC_DATUM_INVALID	The geodetic datum given could not be interpreted
PRESUMED_SWAPPED_COORDINATE	Latitude and longitude appear to be swapped
TAXON_MATCH_FUZZY	Matching to the taxonomic backbone can only be done using a fuzzy, non-exact match
TAXON_MATCH_HIGHERRANK	Matching to the taxonomic backbone can only be done on a higher rank and not the scientific name
TAXON_MATCH_NONE	Matching to the taxonomic backbone cannot be done because there was no match at all or several matches with too little information to keep them apart (homonyms)
ZERO_COORDINATE	Coordinate is the exact 0/0 coordinate, often indicating a bad null coordinate

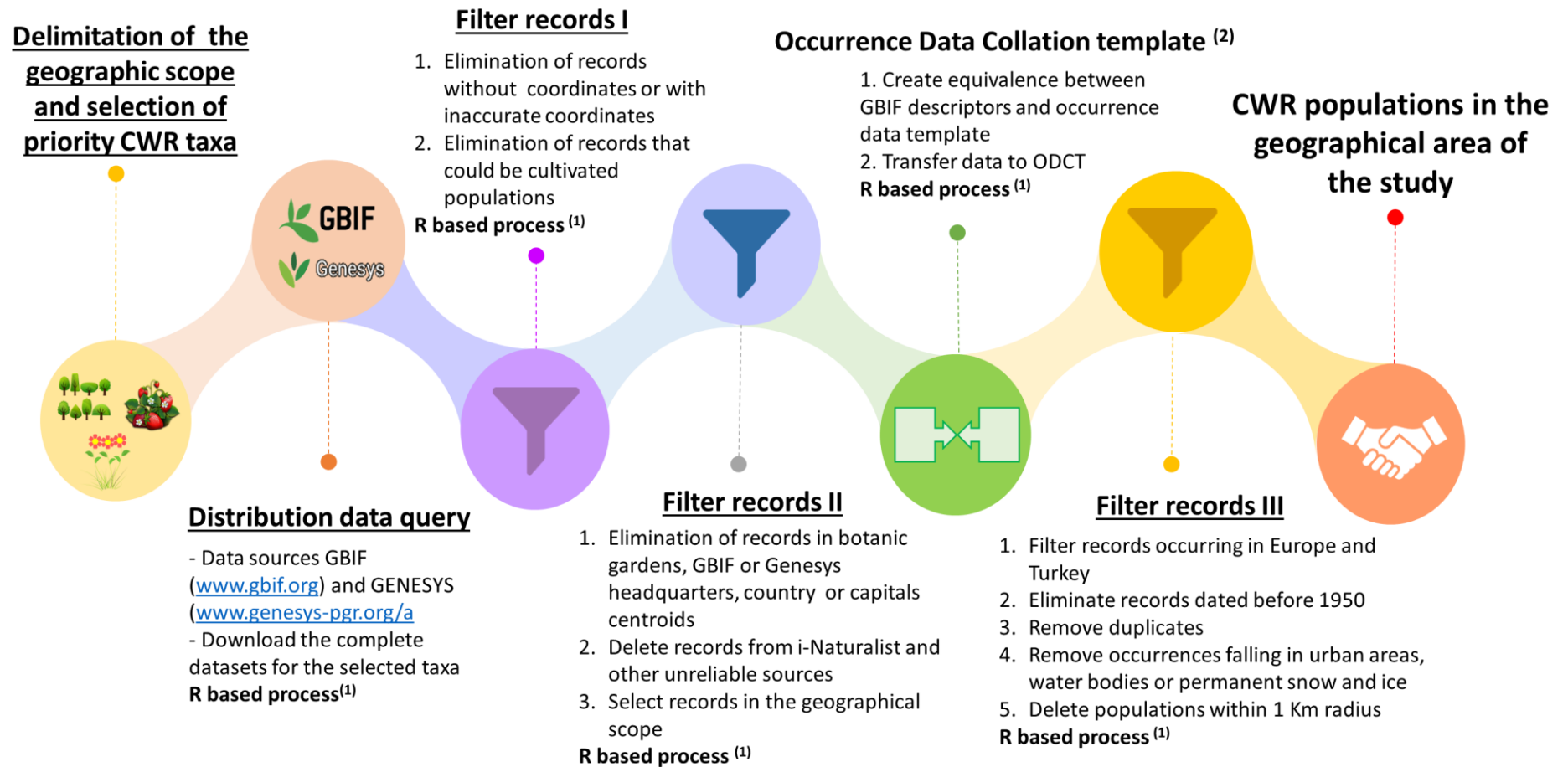
In addition, occurrences of introduced species known to be invasive in any of the European countries were eliminated from the database. Duplicate records were not eliminated at this stage because they can be useful for assessing *ex situ* conservation status. The cleaned data from GBIF and Genesys were then merged into a simplified template based on the Occurrence Data Collation Template (Magos Brehm et al., 2017), after establishing the match between the corresponding fields (Appendix B). These data were then filtered to generate an operative high quality occurrence database of CWR occurrences in the geographic area of the study (see 2.1.1), taking into consideration geographic and temporal criteria.

The filters performed were:

- 1) Select records occurring in in the geographic area of the study
- 2) Delete records dated before 1950
- 3) Remove duplicates, keeping the records that:
 - a) have locality field information
 - b) are most recent
 - c) are most informative (i.e., have information in more data fields)
- 4) Remove occurrences falling in urban areas, water bodies or permanent snow and ice according to ESA CCI Land Cover project (2017)
- 5) Remove records of the same taxa found within a 1 km buffer radius, on the assumption that they are the same population.

A summary of the process that led to the generation of a high quality dataset of *in situ* CWR occurrences is depicted in Figure 1.

The complete process was carried out by designing an R-script with ad hoc developed R functions and the use of the following R packages: ‘CoordinateCleaner’ (Zizka et al., 2019), ‘countrycode’ (Arel-Bundock et al., 2018), ‘data.table’ (Dowle and Srinivasan, 2019), ‘devtools’ (Wickham et al., 2020), ‘dplyr’ (Wickham et al., 2019), ‘magrittr’ (Bache and Wickham, 2016), ‘spocc’ (Chamberlain, 2019), ‘stringr’ (Wickham, 2019), ‘sp’ (Pebesma and Bivand, 2005), ‘ggplot2’ (Wickham, 2016), ‘tidyr’ (Wickham and Henry, 2020), ‘readxl’ (Wickham and Bryan, 2019), ‘rgeos’ (Bivand and Rundel, 2019), ‘maptools’ (Bivand and Lewin-Koh, 2019), ‘rgdal’ (Bivand et al., 2019), ‘rworldmap’ (South, 2011), ‘rworldxtra’ (South, 2012) and ‘raster’ (Hijmans, 2019).



(1) Custom made R scripts using ad hoc created R functions and the following packages: 'rgbif', 'genesys', 'CoordinateCleaner', 'countrycode', 'data.table', 'devtools', 'dplyr', 'magrittr', 'spocc', 'stringr', 'sp', 'ggplot2', 'tidyr', 'readxl', 'rgeos', 'maptools', 'rgdal', 'rworldmap', 'rworldxtra' and 'raster'

(2) Adapted from Magos Brehm J, Kell S, Thormann I, Gaisberger H, Dulloo E and Maxted N 2017. Occurrence data collection template v.3. University of Birmingham and Bioversity International. doi: 10.7910/DVN/5B9IV5

Figure 1. Steps taken to obtain a high quality dataset of occurrences of the priority CWR taxa.

2.2 Results

2.2.1 Inventory of European priority CWR

The inventory of European priority CWR contains 863 taxa – 485 species and 378 subspecific taxa. The taxa belong to 102 genera and are related to 108 human food crops and 102 forage and fodder crops, most of them cereals or legumes, although other important families, such as Rosaceae, Brassicaceae or Solanaceae, are also represented. Almost 90% of the priority taxa are classified according to the Gene Pool concept of Harlan and de Wet (1971), and the rest according to the Taxon Group concept of Maxted *et al.* (2006). Around 32% of the taxa have been assessed at regional level (European) according to the IUCN Red List Categories and Criteria (IUCN, 2001).

2.2.2 Number of CWR localities and their distribution across taxa and the territory

More than 16.5M records of 764 of the target taxa were obtained from GBIF and nearly 1M records of 440 taxa from Genesys. After filtering, the merging of the datasets resulted in more than 14.5M records of 685 taxa covering all their distribution. Of these data, around 25% of the taxa have 50 or fewer localities recorded. The distribution of the number of known localities per taxon is shown in Figure 2.

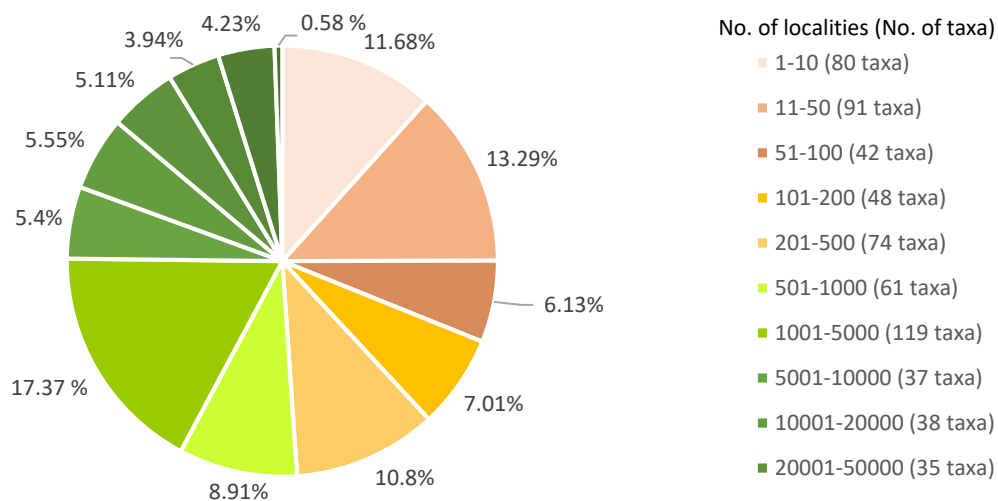


Figure 2. Number of localities worldwide of 685 priority CWR taxa with high quality geographic coordinates obtained from GBIF and Genesys.

The subsequent filtering process to obtain high quality localities recorded from 1950 onwards in the study area resulted in a database containing 3,094,231 localities of 616 priority taxa distributed across 43 countries (Figure 3). Of these, around 41% of the taxa have 50 or fewer occurrences. The distribution of the number of localities per taxon is shown in Figure 4. Twenty-five countries have over 100 priority CWR taxa (Figure 5). The distribution of taxon richness across the study area using a 50x50 km cell resolution is shown in Figure 6. This map shows a clear contrast in taxon richness between the east and west of the territory, which clearly reflects differences between countries in making these data available in global databases, rather than representing a natural trend. Overall, 38 priority CWR taxa have their populations distributed in 30 or more countries in the study area (Tables 4 and 5). *Trifolium pratense* L., *Medicago lupulina* L. and *Daucus carota* L. are the three most widely distributed species, with occurrence records being found in 39 (*T. pratense*) and 38 (*M. lupulina* and *D. carota*) out of the 43 countries.

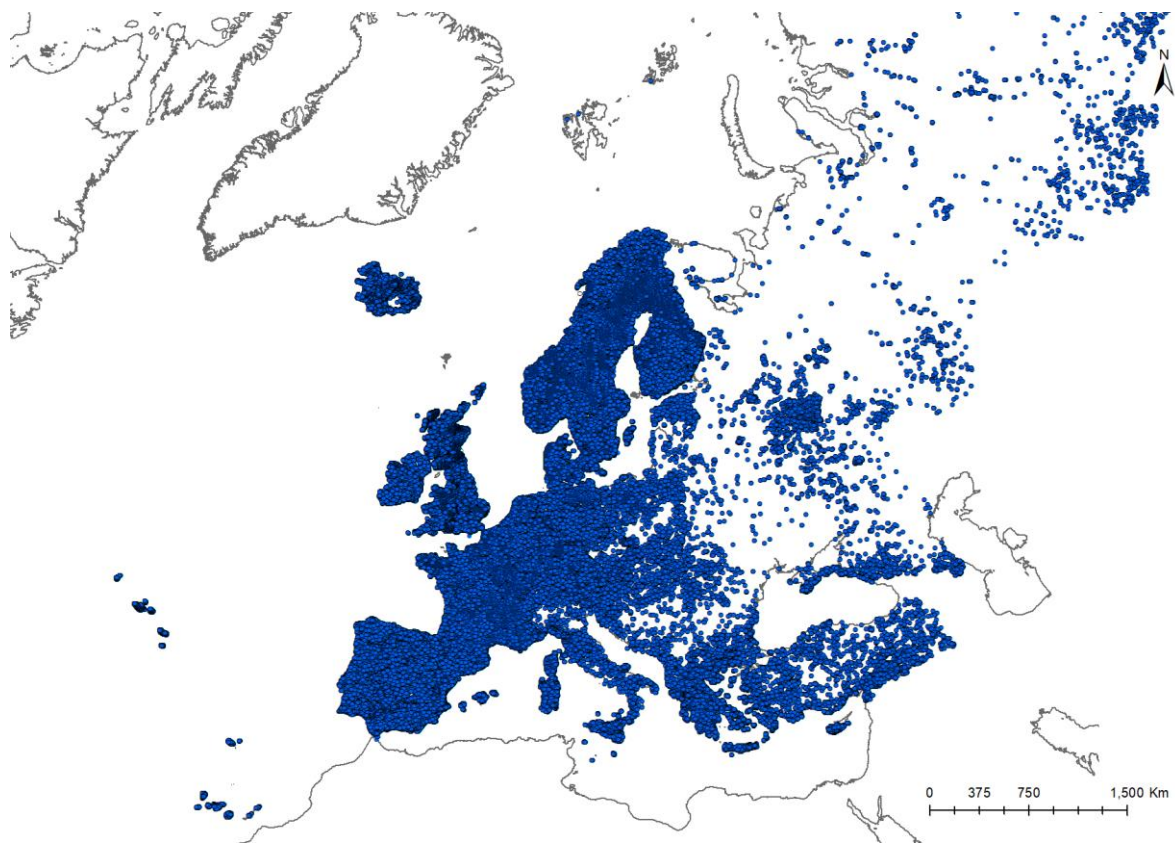


Figure 3. Distribution of 3,094,231 localities of 616 European priority CWR on the study area based on high quality geographic coordinates.

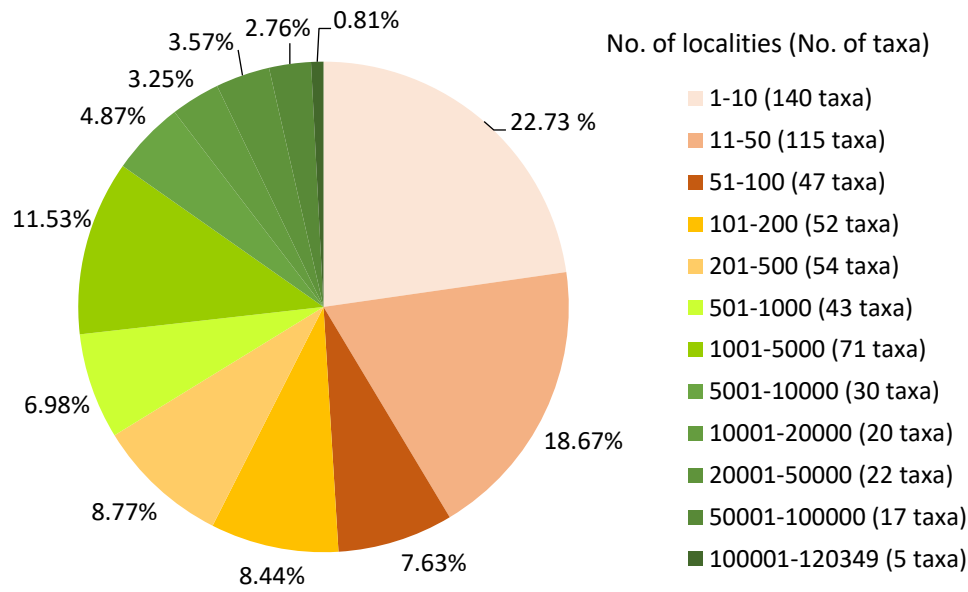


Figure 4. Number of localities in the study area of 616 priority CWR taxa with high quality geographic coordinates obtained from GBIF and Genesys.

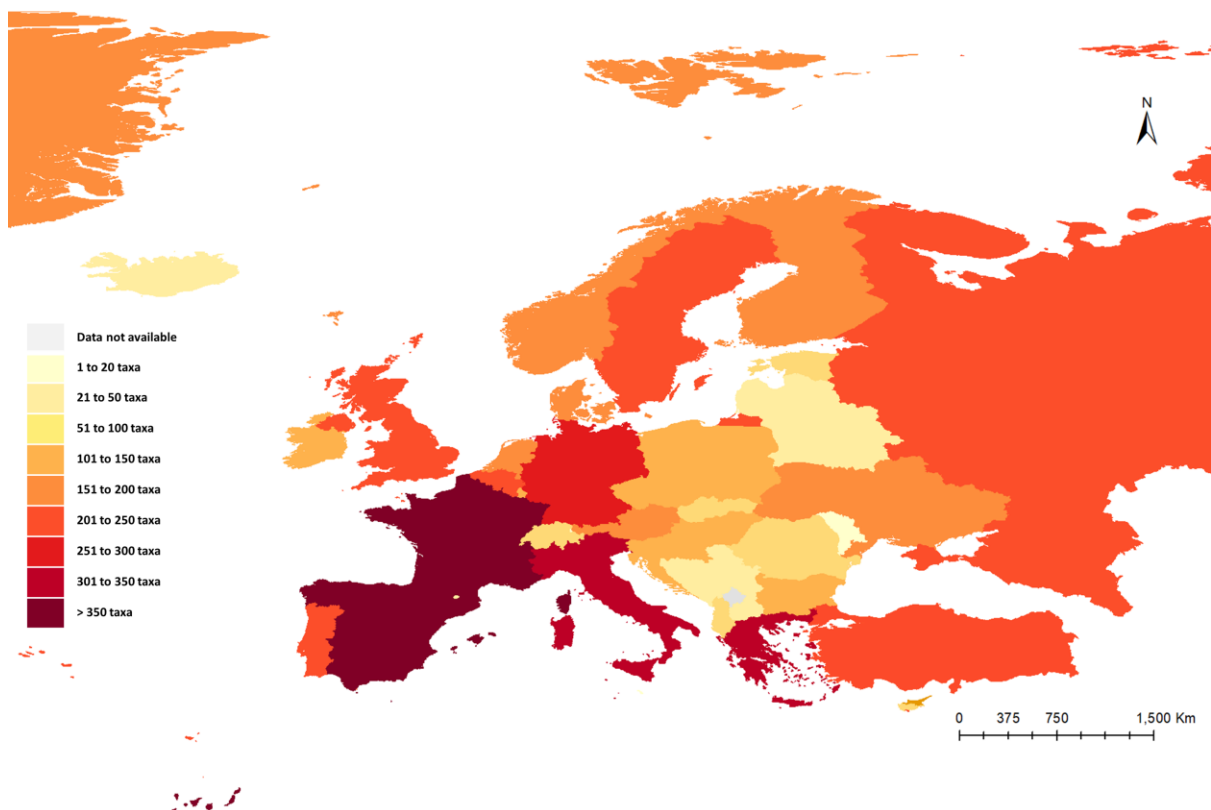


Figure 5. Numbers of European priority CWR taxa with high quality locality records obtained from GBIF and Genesys in each country of the study.

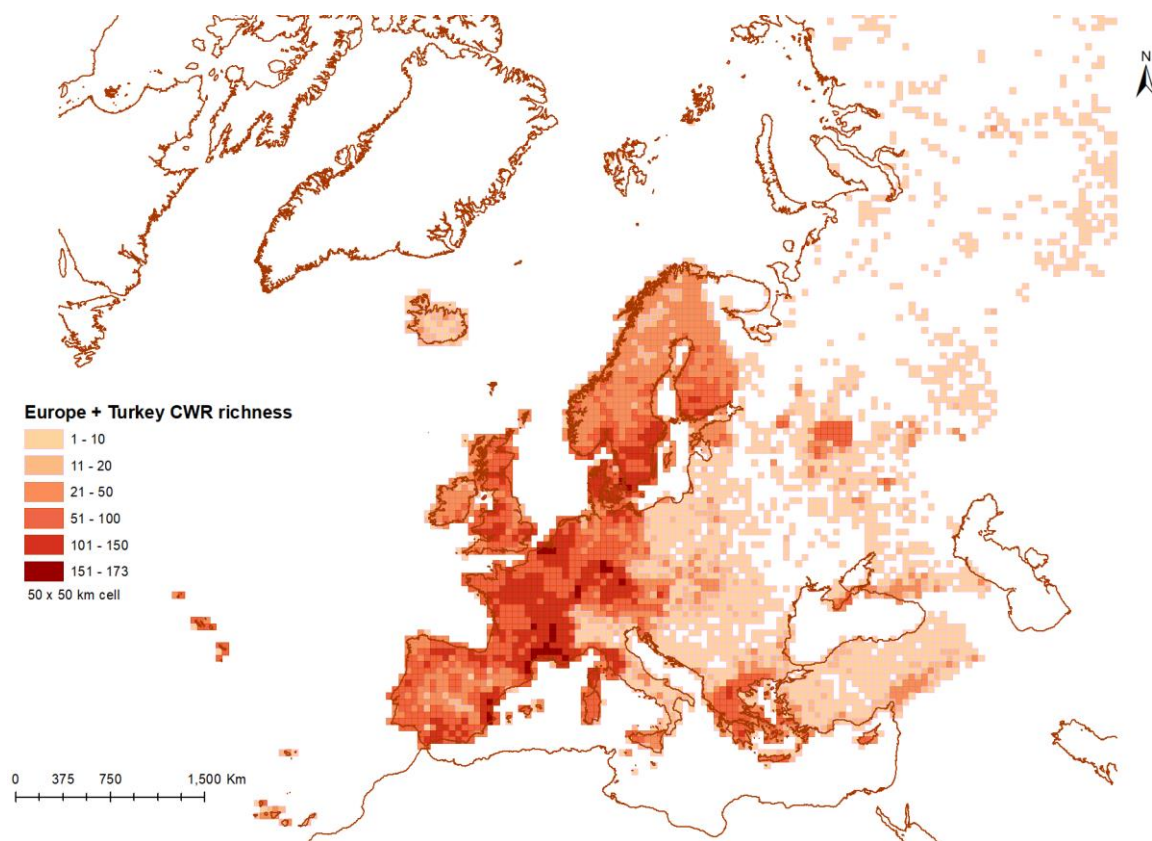


Figure 6. Taxon richness map (50x50 km cells) showing the numbers of European priority CWR taxa in the study area after the filtering process.

2.2.3 Distribution of human and animal food CWR

Regarding the distribution of localities per use of the related crops, we have obtained more than 1.1 M high quality *in situ* occurrence records for 397 European priority CWR taxa related to human food crops. Eleven species have populations in 30 or more countries (Table 4), while 109 human food CWR taxa were found in only one country (Appendix C). From the latter, 72 taxa are known to be distributed in just one country according to Euro+Med PlantBase (www.emplantbase.org/).

Table 4. European priority human food CWR taxa with localities in 30 or more countries (based on high quality geographic coordinates)

Human food priority CWR taxon	Associated crop	Number of countries of occurrence
<i>Daucus carota</i> L.	Carrot	38
<i>Fragaria vesca</i> L.	Strawberry	35
<i>Lactuca serriola</i> L.	Lettuce	33
<i>Cichorium intybus</i> L.	Chicory	32
<i>Corylus avellana</i> L.	Hazelnut	32
<i>Humulus lupulus</i> L.	Hop	31
<i>Rubus idaeus</i> L.	Raspberry	31
<i>Avena fatua</i> L.	Oat	30
<i>Juglans regia</i> L.	Walnut	30
<i>Prunus avium</i> (L.) L.	Cherry	30
<i>Pyrus communis</i> L.	Pear	30

In contrast, we obtained almost 2M high quality *in situ* occurrence records for 229 priority CWR taxa related to forage and fodder crops. Twenty-seven taxa have high quality occurrence records in 30 or more countries (Table 5), while 39 taxa were found in only one country (Appendix D). From the latter, 12 taxa are known to be distributed in just one country according to Euro+Med PlantBase. Finally, we retrieved 6,568 high quality *in situ* occurrence records for 10 taxa that are related to both human and animal food crops.

Table 5. European priority animal food CWR taxa with localities in 30 or more countries (based on high quality geographic coordinates).

Animal food priority CWR taxon	Associated crop	Number of countries of occurrence
<i>Trifolium pratense</i> L.	Red clover	39
<i>Medicago lupulina</i> L.	Trefoil	38
<i>Dactylis glomerata</i> L.	Cocksfoot	37
<i>Festuca rubra</i> L.	Red fescue	36
<i>Lotus corniculatus</i> L.	Birdsfoot trefoil	36
<i>Lolium perenne</i> L.	Perennial ryegrass	35
<i>Medicago sativa</i> L.	Lucerne	35
<i>Melilotus albus</i> Medik.	Honey clover	35
<i>Phleum pratense</i> L.	Timothy	35
<i>Trifolium arvense</i> L.	Harefoot clover	35

<i>Plantago lanceolata</i> L.	Ribwort plantain	34
<i>Trifolium fragiferum</i> L.	Strawberry clover	34
<i>Trifolium repens</i> L.	White clover	34
<i>Vicia sativa</i> L.	Common vetch	34
<i>Agrostis stolonifera</i> L.	Creeping bent	33
<i>Agrostis capillaris</i> L.	Brown top	32
<i>Arrhenatherum elatius</i> (L.) J. Presl & C. Presl	Tall oatgrass	31
<i>Melilotus officinalis</i> (L.) Lam.	Yellow sweet clover	32
<i>Poa pratensis</i> L.	Smooth-stalked meadowgrass	32
<i>Poa trivialis</i> L.	Rough-stalked meadowgrass	32
<i>Securigera varia</i> (L.) Lassen	Crownvetch	32
<i>Phalaroides arundinacea</i> (L.) Rauschert	Reed canary grass	31
<i>Trifolium hybridum</i> L.	Alsike clover	31
<i>Vicia sativa</i> subsp. <i>nigra</i> (L.) Ehrh.	Common vetch	31
<i>Alopecurus pratensis</i> L.	Meadow foxtail	30
<i>Festuca ovina</i> L.	Fine leaved sheep's fescue	30
<i>Medicago falcata</i> L.	Alfalfa	30

2.3 Discussion

The global and regional databases of priority CWR taxa generated in this study are some of the largest generated so far. Although the criteria applied for filtering and cleaning the raw data gathered from GBIF and Genesys have significantly reduced the number of occurrence records, the application of such rigorous criteria results in the selection of records with a high probability of actual presence of the taxa in the described locations. The resulting databases are essential resources for the next steps in the development of a strategy for the conservation of priority European CWR and will be useful for other projects and initiatives dealing with genetic resources conservation (e.g. GenRes Bridge, www.genresbridge.eu/). An important achievement associated with the generation of these databases is the development of a pipeline of scripts based in the R statistical environment (R Core Team, 2013). This automation process of data download and curation enables the periodical updating of the database from GBIF and Genesys, as well as the modification of the selection criteria with minimal effort. Had this process been undertaken

manually, it would have taken an unattainable amount of human resources to deal with data curation and the effort spent would not be usable in a future update of the database.

Notwithstanding this attainment and the large amount of data records obtained, some considerations must be highlighted concerning the resulting information. The distribution of taxon richness depicted in Figures 5 and 6 shows that on top of the natural north–south gradient pattern of taxon richness reflected by other studies (e.g. Medail & Quezel, 1997), there are other factors derived from data sampling and uploading to the GBIF and Genesys databases that generate a mosaic pattern as well as an east–west taxon richness gradient. Thus, the low taxon richness found in Eastern Europe is a bias that is probably due to lack of digitization of chorological data and lack of collaboration with international databases. In some cases, it may also reflect a lower number of botanical and chorological studies in the area. Notably, the low taxon richness indicated by the data for Italy is due to the fact that the country does not participate in the GBIF Network. On the other hand, the systematic 10x10 km floristic inventory and data upload to GBIF performed in Germany or Belgium indicates high taxon richness in these countries. Therefore, overall, there is a bias in the resulting data that is due to whether or not countries participate in the GBIF Network. The composition of European countries that participate in this initiative depicted in www.gbif.org/the-gbif-network (last accessed 05/03/2020) clearly resembles the taxon richness patterns observed in Figures 5 and 6.

Most countries that do not participate in the GBIF Network do not have data repositories with digitized plant occurrence data available. Therefore, the compilation of additional occurrence records from the less represented areas remains a challenge. The only possibility is to sequentially incorporate small datasets obtained from single institutions or individuals, or from national projects. In this sense, we are currently searching for data for the species that have known limited distributions, based on countries of occurrence recorded in the Euro+Med PlantBase and those recorded as threatened or nearly threatened.

3 Existence of active *in situ* conservation actions targeting crop wild relatives

Active *in situ* conservation consists of direct actions on a target species or population, as opposed to passive conservation conferred by the mere presence of a species in a protected area. We include here measures such as demographic monitoring, habitat improvement or herbivory control, among others (N. Maxted et al., 1997), although demographic monitoring is not by itself a conservation measure. Occasionally, passive conservation is wrongly tagged under active conservation. Reports

on achievements made between 2012 and 2014, undertaken to implement the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (GPA) at WIEWS (FAO, 2018) indicated that *in situ* conservation of CWR was receiving increased attention. Within Europe, 2,026 sites were reported to have management plans for CWR and Wild Food Plants (WFP) in 15 countries. Accordingly, FAO (2018) reported that 1,969 species of CWR and WFP were being actively conserved in 10 countries. However, after checking the data with some national stakeholders (i.e., in Spain and Germany), it was observed that these numbers derived from an erroneous perception of the meaning of active *in situ* conservation. In the case of Germany, all the data referred to occurrences of WFP in areas where forest management practices are applied. However, the existence of active forest management practices does not imply that these actions are targeting specific populations or individuals of those WFP species. Although the data reported for Spain did include CWR—56.77% were only CWR, 31.95% were WFP and 11.28% were both—it was also noticed that these data simply reflected CWR and WFP population occurrences that are found within protected areas, with no management plans implemented directly for them. Therefore, just looking at the data in WIEWS, if the background and details are not provided, erroneous conclusions about the implementation of active conservation actions targeting CWR can be drawn. Even if WIEWS data on CWR active *in situ* conservation actions are clearly overstated, they are ranked at the lowest level across all the 18 Priority Activities of the Second GPA. This indicates that greater efforts need to be invested in the active management and conservation of CWR (FAO, 2019).

The majority of CWR species that are actively managed *in situ* are being conserved due to their status as threatened, rare or endemic. Consequently, the main goal of these actions is not to conserve their genetic diversity or, let alone, to preserve certain traits for crop improvement. The objective of this work is to compile current and past examples of active *in situ* conservation of CWR across Europe to get a more accurate perspective of the actions that are being carried out and to obtain baseline information for building a European network for *in situ* conservation of CWR.

3.1.1 Methods

The survey '*In situ* conservation actions for crop wild relatives in Europe' was prepared using the online tool EUSurvey (ec.europa.eu/eusurvey/home/welcome) to collect examples of active *in situ* conservation of CWR. The survey was purposefully disseminated for 7 months (03/12/2018 to 30/06/2019) to reach the largest target audience possible, including stakeholders of the Farmer's Pride project, protected areas managers, environment related public administrations, wildlife networks and ECPGR working group coordinators, among others. The initial survey was written in

English and then translated into eight more languages: Spanish, French, Turkish, German, Dutch, Croatian, Swedish and Greek.

The survey was designed with three main parts: 1) contact data, 2) site description and governance, and 3) type of conservation action (Appendix E). In the first part, the name, affiliation and address were asked, as well as the willingness to be contacted. To help complete the second part, a list of countries was provided, and then the locality and the name of the precise place and the geographic coordinates were requested if known. Related information was requested, frequently providing multiple choice questions to standardise responses and enable quantitative data analysis (Table 6). Additionally, we asked whether the site is recognised by the national government and if it belongs to a recognised network of *in situ* conservation sites.

Table 6. Multiple choice questions presented regarding the site where the *in situ* conservation action is taking/took place.

Requested information	Given options	
Context of implementation	A national CWR conservation strategy Another national policy A subnational policy A research project A private initiative Another type of initiative I don't know	
Type of site	Inside a protected area	Natura 2000 National designated area Informal protected area Other I don't know
	Outside a protected area	Farmland Roadside Natural habitat Corine habitat Other I don't know

The third section of the survey focused on the type of conservation actions and asked whether they followed a single species or multi-species approach. Once again, multiple-choice questions were

provided (Table 7). Additional information requested included who was responsible for the action, the start and end dates, whether the taxon was protected by national legislation and any related bibliographic references.

Table 7. Multiple choice questions regarding the type of conservation action and targeted CWR species.

Requested information	Given options
Type of actions performed	Monitoring and census of the species Seed collection and storage in a gene bank Phytosociological monitoring Selective winter shrub clearing Periodical cleaning of the area removing any waste Controlled grazing Periodical mowing Limited use of the territory Other actions I don't know
Conservation reason	Rarity Endemic Threat Flagship status Associated with rare or threatened habitats I don't know

During the process of dissemination of the survey, in Spain, the public administration was asked to provide a list of the plant species for which they were implementing active *in situ* conservation actions (e.g. species included in the Habitats Directive on which they have to report every six years, and protected species included in the national catalogue for which the administration must establish and implement species recovery plans). By overlapping this list with the national checklist of CWR, the checklist of CWR that were actively conserved was obtained. Finally, this checklist was sent back to the public administrations of the Spanish autonomous regions and they were asked to complete the survey for these CWR species. Farmer's Pride's partners and collaborators were asked to follow the same approach in other countries.

The survey responses provide information on a wide array of plant taxa. For the analysis of the survey, only answers regarding taxa included in the inventory of European priority CWR were considered. Some respondents provided answers to all questions in the survey, while others only answered some. Therefore, the different parts of the survey contain different numbers of answers.

3.1.2 Results

The survey resulted in the collation of information on 921 populations of 159 CWR taxa from 13 countries in Europe (Croatia, Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Spain, Sweden, Switzerland, Turkey and United Kingdom). Of these, 65 taxa (58 species) are in the inventory of priority European CWR, of which 829 populations were reported to be under active *in situ* conservation management. The results related to these taxa and populations are presented below.

3.1.2.1 Site description and governance

The amount and information provided varied greatly among countries. The largest number of CWR populations reported as being conserved *in situ* in one country occur in Switzerland (Table 8). In this sense it should be pointed out that the concept of ‘population’ may vary between survey respondents and that the high number of populations recorded in Switzerland may be somewhat lower if adjacent locations at, for instance 1 km² resolution, are jointly considered as one.

Table 8. Number of priority European CWR taxa and populations reported to be under active *in situ* conservation per country.

Country	Number of CWR taxa	Number of CWR populations
Switzerland	17	704
Ireland	15	15
Spain	10	28
Greece	10	12
Lithuania	9	9
United Kingdom	8	38
Germany	5	17
Czech Republic	3	3
Croatia	3	3

The implementation context of the conservation was, in most cases (82%), the result of a national CWR conservation strategy. However, it should be noted that this high percentage is essentially explained by the 704 populations from Switzerland that belong to this context. Conservation actions, due to the implementation of a research project, was the second most reported context (10%), and to a lesser extent, a subnational policy, a private initiative, another type of initiative and another national policy were reported (Figure 7). In Croatia, Switzerland and Germany most populations are being conserved in the context of the implementation of a national strategy to conserve CWR, whereas, in Lithuania, protection is afforded by the national law on National Plant Genetic

Resources. In Spain, most populations belong to threatened species protected by law. They are preserved by subnational policies because the competences of wildlife conservation are transferred to the different autonomous regions of the country. In Greece and the United Kingdom, target CWR populations are mostly being conserved in the context of a research project. Private initiatives are protecting CWR in Ireland and to a lesser degree in Greece. Public organizations, such as national/provincial departments of agriculture, national/provincial departments of environment or universities, were most frequently identified as responsible for the active *in situ* conservation actions, whereas the less frequent were private organizations (ecological consultants, foundations or environmental organizations). Most of these conservation actions (90%) are related to a network of *in situ* conservation, such as Natura 2000, national or local protected area networks, research centres or genebank networks (Figure 8). Most conservation actions had governmental recognition (93%) (Figure 9). More detailed information is provided in Appendix F.

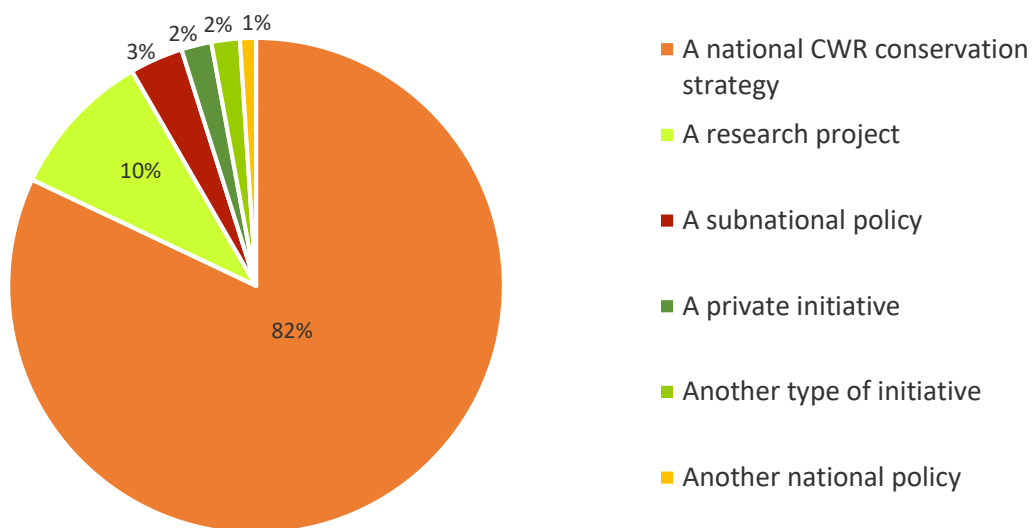


Figure 7. Implementation context of the *in situ* conservation actions for priority European CWR in 13 European countries (n=829 populations).

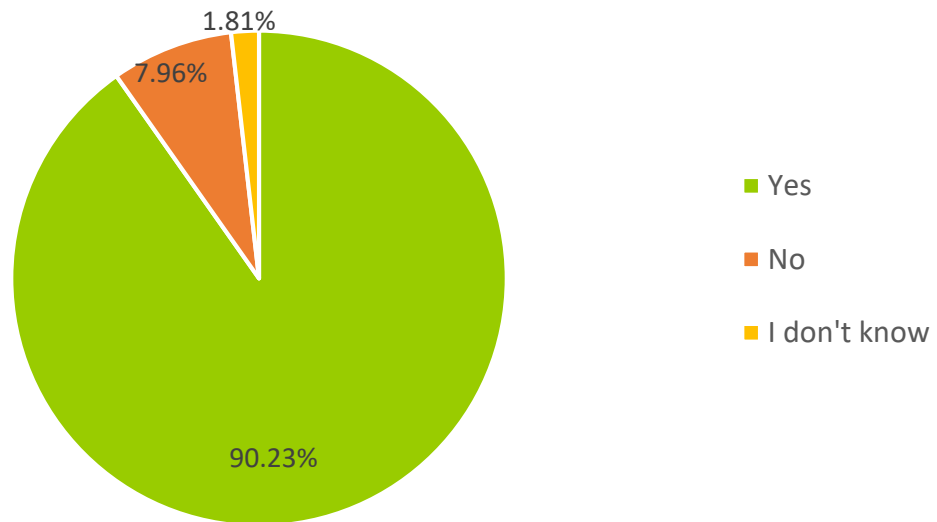


Figure 8. Responses to the question of whether the *in situ* conservation actions for priority European CWR populations are undertaken in a recognised site network in 13 European countries (n=829 populations).

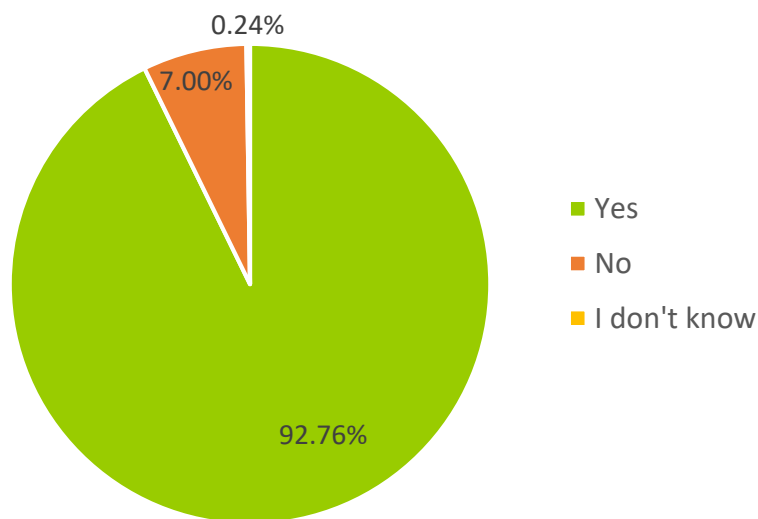


Figure 9. Responses to the question of whether the *in situ* conservation actions for priority European CWR populations are recognised by national government in 13 European countries (n=829 populations).

The protected status of the areas where the active *in situ* conservation actions occur also varies between countries. All the information received from Switzerland portrayed the strategy that the country is following to actively conserve them, which involves preserving them in farmlands outside protected areas. On the other hand, the rest of the countries mainly conserve them fully or partially inside protected areas that belong to the Natura 2000 network or are otherwise designated at the national level (Figure 10).

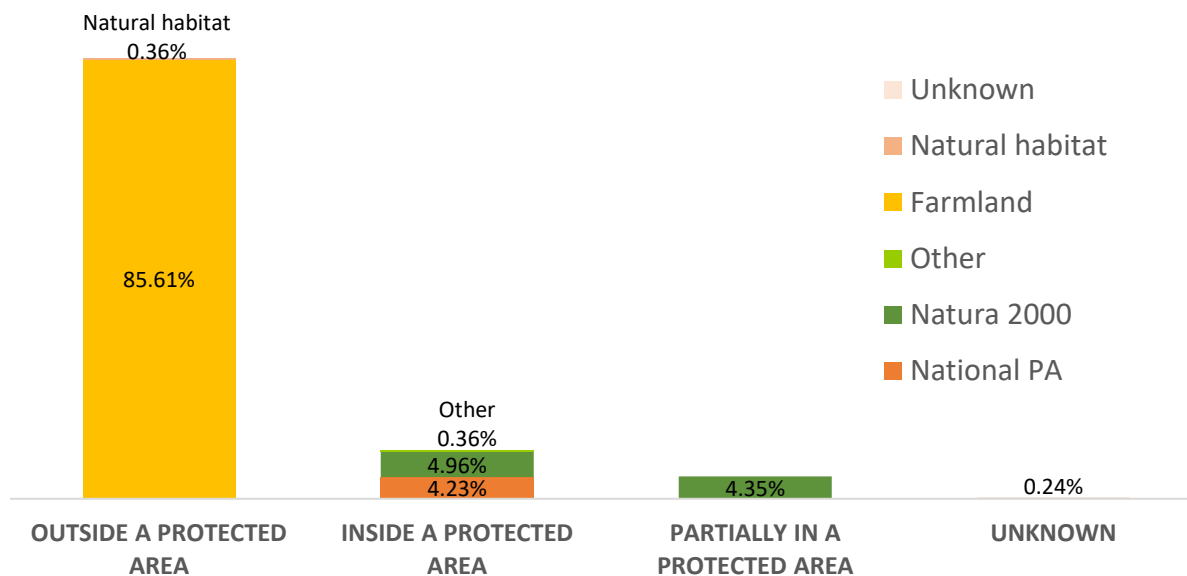


Figure 10. Protection status and habitat type of the sites where active *in situ* conservation actions for European priority CWR are reported to be carried out in 13 European countries (n=829 populations).

3.1.2.2 Type of conservation action

Most reported active *in situ* conservation is focused on more than one species (97.94% of the reported populations belong to this group), whereas focusing on just one species is not common (2.06% of the populations). The most widespread action reported is ‘monitoring and census of the species’. It was carried out in at least one population for all species but one. ‘Phytosociological monitoring’, ‘seed collection and storage in a gene bank’, ‘controlled grazing’ and ‘limited use of the territory’ were the next most common practices (Table 9). More detailed information can be found in Appendix G. Public organizations were most frequently identified as responsible for the conservation action (such as national/provincial departments of agriculture, national/provincial departments of environment or universities), whereas the less frequent were private organizations (ecological consultants, foundations or environmental organizations).

Table 9. Type of active *in situ* conservation actions reported for European priority CWR taxa in 13 European countries.

	Frequency of action per species (%)	Frequency of action per population (%)
Monitoring and census of the species	99.99	98.19
Phytosociological monitoring	73.68	90.95
Seed collection and storage in a gene bank	54.39	7.12
Controlled grazing	50.88	90.59
Limited use of the territory	43.86	87.21
Periodical mowing	40.35	85.52
Low intensity agricultural management	28.07	85.16
Selective winter shrub clearing	15.79	5.07
Periodical cleaning of the area removing any waste	15.79	2.29
Reinforcements and habitat restoration	5.26	1.57
Fenced	1.75	0.12
Morphological and genetic research to identify hybrids or clones	1.75	1.57

The first *in situ* conservation actions reported date from the beginning of the 1990s. From then on, the number of populations actively conserved generally showed an increasing trend. In 2019 a sharp increase was observed due to the implementation of a CWR conservation plan in Switzerland, which encompasses a large number of CWR populations. At the time of the survey, 706 of these populations were reported as still being actively conserved, indicating that 85.16% of the populations are currently being actively conserved *in situ*.

Considering only the cases for which information was provided (n=824 populations), 52.38% belong to a taxon protected by national legislation. The reason for the conservation of these species in Switzerland is because they are under threat or have a flagship status. In the remaining countries (n=120 populations), it was mainly due to their rarity (33%), followed by being associated with rare or threatened habitats (28%), threat status (22%), endemic status (15%) and flagship status (2%) (Figure 11.).

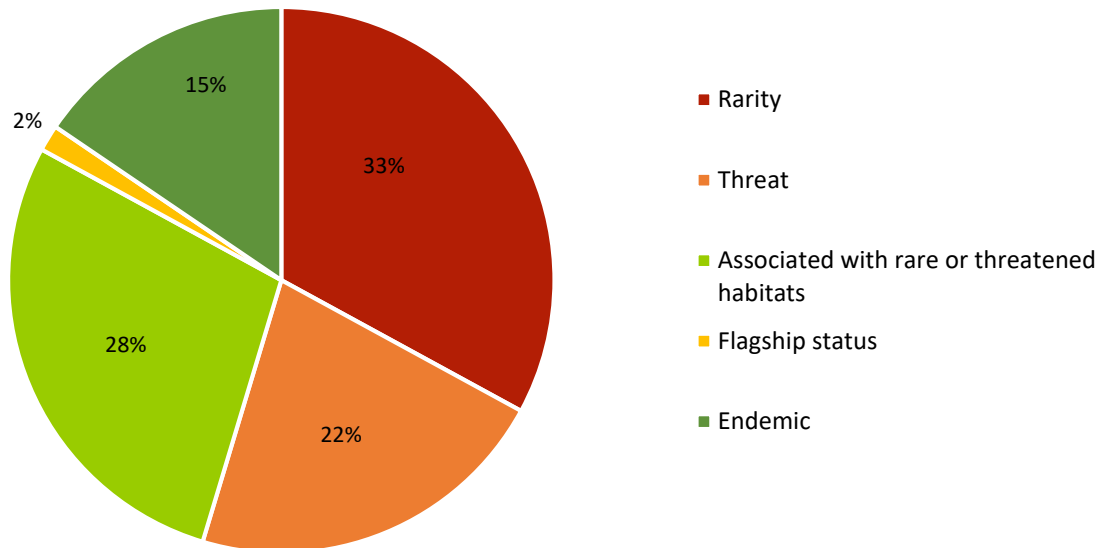


Figure 11. Reasons for the conservation actions implemented on priority European CWR populations (n=120 populations) excluding Swiss populations. All Swiss CWR populations were conserved due to their threat or flagship status.

3.1.3 Discussion

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. The fact that some of the target CWR are being conserved by professionals unaware that the plants they conserve are CWR was a notable impediment when seeking responses to the survey. The study also highlights that European countries currently lack databases where they centralise this type of information, which seriously hampers the collection of data. These impediments have resulted in a picture of active *in situ* conservation of CWR in Europe that is incomplete. Specifically, there are undoubtedly *in situ* conservation actions implemented for CWR species that are included in Annexes II and IV of the Habitats Directive, in appendix 1 of the Bern Convention, or protected by national legislation that we were not able to gather information on through our survey. Furthermore, in several countries of the European Union there is implementation of agri-environmental schemes that may be enabling CWR conservation outside protected areas. Nonetheless, the data that have been gathered marks a significant and important

step and constitutes a relevant compilation of interesting examples of conservation actions and details that contribute very valuable information to the building of a European network for *in situ* conservation of CWR.

There are some features that are widely common to the reported *in situ* conservation actions for European priority CWR—namely, public administrations are mainly responsible for the actions, and most are recognised by national governments and/or are undertaken in populations that are part of a recognised *in situ* conservation network such as Natura 2000. However, the protection status of the area where they occur is heterogeneous: Switzerland clearly presents an approach of conserving CWR in farmlands that radically differs from the rest of the countries where *in situ* conservation actions mostly take place in protected areas. This is probably related to the fact that in Switzerland, all the reported CWR are being conserved because of their useful genetic diversity, thus the management plan is designed for this objective. In this sense, only in Switzerland, Germany and Croatia the active *in situ* actions were reported as part of national strategies for CWR.

In conclusion, although the large area covered by protected areas ensures the passive conservation of many CWR populations known to occur in these localities, the active *in situ* conservation of CWR does not frequently occur. In addition, these *in situ* conservation actions are rather limited in scope and are more oriented to the conservation of species due to their rare, threatened, endemic or flagship status than to the conservation of their genetic diversity and/or conserving useful traits. This means that there is a clear need to invest more effort in promoting the conservation and management of CWR populations *in situ*. Nonetheless, this compilation of *in situ* conservation actions for European priority taxa sets an important baseline to consider in building a European network for *in situ* conservation of CWR.

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5 References

- Arel-Bundock, V., Enevoldsen, N., Yetman, C.J., 2018. countrycode: An R package to convert country names and country codes. *J. Open Source Softw.* 3, 848. doi:<https://doi.org/10.21105/joss.00848>
- Bache, S.M., Wickham, H., 2016. Package ‘magrittr’: A Forward-Pipe Operator for R. <https://cran.r-project.org/web/packages/magrittr/magrittr.pdf>.
- Bilz, M., Kell, S.P., Maxted, N., Lansdown, R. V., 2011. European Red List of Vascular Plants, Publications Office of the European Union. European Commission, Luxembourg. doi:10.2779/8515
- Bivand, R., Keitt, T., Rowlingson, B., 2019. rgdal: Bindings for the “Geospatial” Data Abstraction Library. R package version 1.4-8. <https://cran.r-project.org/package=rgdal>.
- Bivand, R., Lewin-Koh, N., 2019. maptools: Tools for Handling Spatial Objects. R package version 0.9-9. <https://cran.r-project.org/package=maptools>.
- Bivand, R., Rundel, C., 2019. rgeos: Interface to Geometry Engine - Open Source ('GEOS'). R package version 0.5-2. <https://cran.r-project.org/package=rgeos>.
- Chamberlain, S.A., 2019. spocc: Interface to Species Occurrence Data Sources. R package version 1.0.2. <https://cran.r-project.org/package=spocc>.
- Chamberlain, S.A., Boettiger, C., 2017. R Python, and Ruby clients for GBIF species occurrence data. *PeerJ Prepr.* 5, e3304v1. doi:<https://doi.org/10.7287/peerj.preprints.3304v1>
- Chung, G., Singh, R.J., 2008. Broadening the genetic base of soybean: A multidisciplinary approach. *CRC. Crit. Rev. Plant Sci.* 27, 295–341. doi:10.1080/07352680802333904
- Deryng, D., Sacks, W.J., Barford, C.C., Ramankutty, N., 2011. Simulating the effects of climate and agricultural management practices on global crop yield. *Global Biogeochem. Cycles* 25. doi:10.1029/2009gb003765
- Dowle, M., Srinivasan, A., 2019. data.table: Extension of `data.frame`. R package version 1.12.8. <https://cran.r-project.org/package=data.table>.
- ESA CCI Land Cover project, 2017. Land Cover CCI Product User Guide Version 2. Tech. Rep. maps.elie.ucl.ac.be/CCI/viewer/download/ESACCI-LC-Ph2-PUGv2_2.0.pdf.
- Eyre-Walker, A., Gaut, R.L., Hilton, H., Feldman, D.L., Gaut, B.S., 1998. Investigation of the bottleneck leading to the domestication of maize. *Proc. Natl. Acad. Sci. U. S. A.* 95, 4441–4446. doi:10.1073/pnas.95.8.4441
- FAO, 2019. Global Plan of Action for Plant Genetic Resources for Food and Agriculture: Priorities, Implementation and Monitoring. Eleventh Meeting of the Ad Hoc Advisory Committee on the Funding Strategy and Resource Mobilization.
- FAO, F. and A.O. of the U.N., 2018. WIEWS – World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture.
- FAO, F. and A.O. of the U.N., 2011. Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture. Rome, Italy.

FAO, F. and A.O. of the U.N., 2010. The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture. doi:ISBN 978-92-5-106534-1

FAO, F. and A.O. of the U.N., 2008. Climate change and biodiversity for food and agriculture. Technical background document from the expert consultation held on 13 to 14 February 2008, High level conference on food security: the challenge of climate change and bioenergy. Rome, Italy.

Fowler, C., Mooney, P., 1990. The Threatened Gene: Food, Politics, and the Loss of Genetic Diversity. The Lutterworth Press, Cambridge, UK.

Hajjar, R., Hodgkin, T., 2007. The use of wild relatives in crop improvement: A survey of developments over the last 20 years. *Euphytica* 156, 1–13. doi:10.1007/s10681-007-9363-0

Harlan, J.R., de Wet, J.M.J., 1971. Toward a rational classification of cultivated plants. *Taxon* 20, 506–517.

Heywood, V., Casas, A., Ford-Lloyd, B., Kell, S., Maxted, N., 2007. Conservation and sustainable use of crop wild relatives. *Agric. Ecosyst. Environ.* 121, 245–255. doi:10.1016/j.agee.2006.12.014

Heywood, V.H., Zohary, D., 1995. A Catalogue of the Wild Relatives of Cultivated Plants Native to Europe. *Flora Mediterr.* 5, 375–415.

Hijmans, R.J., 2019. raster: Geographic Data Analysis and Modeling. R package version 3.0-7. <https://cran.r-project.org/package=raster>.

Hodgkin, T., Hajjar, R., 2008. Using crop wild relatives for crop improvement: trends and perspectives, in: Maxted, N., Ford-Lloyd, B.V., Kell, S.P., Iriondo, J., Dulloo, E., Turok, J. (Eds.), *Crop Wild Relative Conservation and Use*. CAB International, Wallingford, UK, pp. 535–548.

Hollis, S., Brummitt, R.K., 2001. World Geographical Scheme for Recording Plant Distributions. Plant Taxonomic Database Standards No. 2. 2nd edn. Published for the International Working Group on Taxonomic Databases for Plant Sciences (TDWG).

IUCN, 2001. IUCN Red List Categories and Criteria: Version 3.1. IUCN, Species Survival Commission. Gland, Switzerland and Cambridge, UK.

Kell, S., Ford-Lloyd, B.V., Maxted, N., 2016. Europe's crop wild relative diversity: from conservation planning to conservation action, in: Maxted, N., Ford-Lloyd, B.V., Dulloo, M.E. (Eds.), *Enhancing Crop Gene Pool Use: Capturing Wild Relative and Landrace Diversity for Crop Improvement*. CAB International, Wallingford, UK, pp. 125–136.

Kell, S., Iriondo, J., Magos Brehm, J., Ford-Lloyd, B.V., Harris, C., Al., E., 2014. Europe's Crop Wild Relatives: From Conservation Planning to Conservation Action. Oral communication, international conference, in: 'ENHANCED GENEPOOL UTILIZATION – Capturing Wild Relative and Landrace Diversity for Crop Improvement'. Available at: www.pgrsecure.bham.ac.uk/sites/default/files/documents/public/conference_presentations/Kell_etal.Pdf. NIAB Innovation Farm, Cambridge, UK.

Kell, S.P., Ford-Lloyd, B. V., Brehm, J.M., Iriondo, J.M., Maxted, N., 2017. Broadening the base, narrowing the task: Prioritizing crop wild relative taxa for conservation action. *Crop Sci.* 57, 1042–1058. doi:10.2135/cropsci2016.10.0873

Kell, S.P., Knüpfner, H., Jury, S.L., Maxted, N., Ford-Lloyd, B. V., 2005. Catalogue of crop wild relatives for Europe and the Mediterranean.

Kell, S.P., Maxted, N., Bilz, M., 2012. European crop wild relative threat assessment: knowledge gained and lessons learnt, in: Maxted, N., Dulloo, M.E., Ford-Lloyd, B.V., Frese, L., Iriondo, J.M., Pinheiro de Carvalho, M.A.A. (Eds.), *Agrobiodiversity Conservation: Securing the Diversity of Crop Wild Relatives and Landraces*. CAB International, Wallingford, UK, pp. 218–242.

Keneni, G., Bekele, E., Imtiaz, M., Dagne, K., 2012. Genetic Vulnerability of Modern Crop Cultivars: Causes, Mechanism and Remedies. *Int. J. Plant Res.* 2, 69–79. doi:10.5923/j.plant.20120203.05

Lobell, D.B., Burke, M.B., Tebaldi, C., Mastrandrea, M.D., Falcon, W.P., Naylor, R.L., 2008. Prioritizing climate change adaptation needs for food security in 2030. *Science* (80-.). 319, 607–610. doi:10.1126/science.1152339

Luck, J., Spackman, M., Freeman, A., TreBicki, P., Griffiths, W., Finlay, K., Chakraborty, S., 2011. Climate change and diseases of food crops. *Plant Pathol.* 60, 113–121. doi:10.1111/j.1365-3059.2010.02414.x

Magos Brehm, J., Kell, S., Thormann, I., Gaisberger, H., Dulloo, E., Maxted, N., 2017. Occurrence data collection template v.3. doi:10.7910/DVN/5B9IV5

Maxted, N., 2003. Conserving the genetic resources of crop wild relatives in European protected areas. *Biol. Conserv.* 113, 411–417. doi:10.1016/S0006-3207(03)00123-X

Maxted, N., Avagyan, A., Frese, L., Iriondo, J., Brehm, J.M., Singer, A., Kell, S., 2015. ECPGR Concept for in situ conservation of crop wild relatives in Europe. Wild Species Conservation in Genetic Reserves Working Group. European Cooperative Programme for Plant Genetic Resources. Rome, Italy. Available at: www.ecpgr.cgiar.org/fileadmin/temp.

Maxted, N., Avagyan, A., Frese, L., Kell, S., Brehm, J.M., Singer, A., 2013. Preserving diversity: in situ conservation of crop wild relatives in Europe – the background document. On-farm conservation network, European Cooperative Programme for Plant Genetic Resources. Available at: www.pgrsecure.org/documents/Background_Document.

Maxted, N., Ford-Lloyd, B.V., Hawkes, J.G., 1997. Complementary conservation strategies, in: Maxted, N., Ford-Lloyd, B.V., Hawkes, J.G. (Eds.), *Plant Genetic Conservation: The in Situ Approach*. Springer Science & Business Media, Luxembourg, pp. 15–39.

Maxted, N., Ford-Lloyd, B.V., Kell, S.P., 2008. Crop wild relatives: establishing the context, in: Maxted, N., Ford-Lloyd, B.V., Kell, S.P., Iriondo, J., Dulloo, E., Turok, J. (Eds.), *Crop Wild Relative Conservation and Use*. CAB International, Wallingford, UK, pp. 3–30.

Maxted, N., Ford-Lloyd, B. V., Jury, S., Kell, S., Scholten, M., 2006. Towards a definition of a crop wild relative. *Biodivers. Conserv.* 15, 2673–2685. doi:10.1007/s10531-005-5409-6

Maxted, N., Hawkes, J.G., Guarino, L., M., S., 1997. Towards the selection of data for plant genetic conservation. *Genet. Resour. Crop Evol.* 44, 337–348.

Maxted, N., Kell, S., Ford-Lloyd, B., Dulloo, E., Toledo, Á., 2012. Toward the systematic conservation of global crop wild relative diversity. *Crop Sci.* 52, 774–785. doi:10.2135/cropsci2011.08.0415

Maxted, N., Kell, S., Magos Brehm, J., 2014. Crop wild relatives and climate change, in: Jackson, M., Ford-Lloyd, B., Parry, M. (Eds.), *Plant Genetic Resources and Climate Change*. CAB International, Wallingford, UK, pp. 114–136.

McCouch, S., Baute, G.J., Bradeen, J., Bramel, P., Bretting, P.K., Buckler, E., Burke, J.M., Charest, D., Cloutier, S., Cole, G., Dempewolf, H., Dingkuhn, M., Feuillet, C., Gepts, P., Grattapaglia, D., Guarino, L., Jackson, S., Knapp, S., Langridge, P., Lawton-Rauh, A., Lijua, Q., Lusty, C., Michael, T., Myles, S., Naito, K., Nelson, R.L., Pontarollo, R., Richards, C.M., Rieseberg, L., Ross-Ibarra, J., Rounsley, S., Sackville Hamilton, R., Schurr, U., Stein, N., Tomooka, N., van der Knaap, E., van Tassel, D., Toll, J., Valls, J., Varshney, R.K., Ward, J., Waugh, R., Wenzl, P., Zamir, D., 2013. Feeding the future. *Nature* 499, 23–24.

Medail, F., Quezel, P., 1999. Biodiversity Hotspots in the Mediterranean Basin: Setting Global Conservation Priorities. *Conserv. Biol.* 13, 1510–1513. doi:10.1046/j.1523-1739.1999.98467.x

Millet, E., Manisterski, J., Ben-Yehuda, P., 2008. Exploitation of wild cereals for wheat improvement in the institute for cereal crops improvement, in: Maxted, N., Ford-Lloyd, B.V., Kell, S.P., Iriondo, J., Dulloo, E., Turok, J. (Eds.), *Crop Wild Relative Conservation and Use*. CAB International, Wallingford, UK, pp. 556–565.

Obreza, M., 2019. genesysr: Genesys PGR Client. R package version 1.0.0. <https://cran.r-project.org/package=genesysr>.

Ortiz, R., 2015. The importance of crop wild relatives, diversity, and genetic potential for adaptation to abiotic stress-prone environments, in: Redden, R., Yadav, S.S., Maxted, N., Dulloo, E., Guarino, L., Smith, P. (Eds.), *Crop Wild Relatives and Climate Change*. Wiley-Blackwell, pp. 80–87.

Pebesma, E.J., Bivand, R.S., 2005. Classes and methods for spatial data in R. <https://cran.r-project.org/doc/Rnews/>. R News 5.

Prescott-Allen, R., Prescott Allen, C., 1983. *Genes from the Wild: Using Wild Genetic Resources for Food and Raw Materials*. Earthscan Publications, London, UK.

R Core Team, 2013. R: A language and environment for statistical computing. <https://www.r-project.org/>.

Sonnante, G., Pignone, D., 2008. Using crop wild relatives as sources of useful genes, in: Maxted, N., Ford-Lloyd, B.V., Kell, S.P., Iriondo, J., Dulloo, E., Turok, J. (Eds.), *Crop Wild Relative Conservation and Use*. CAB International, Wallingford, UK, pp. 566–576.

South, A., 2012. rworldxtra: Country boundaries at high resolution. R package version 1.01. <https://cran.r-project.org/package=rworldxtra>.

South, A., 2011. A New R package for Mapping Global Data. *R J.* 3, 35–43.

Tyack, N., Dempewolf, H., 2015. The economics of crop wild relatives under climate change, in: Redden, R., Yadav, S.S., Maxted, N., Dulloo, E., Guarino, L., Smith, P. (Eds.), *Crop Wild Relatives and Climate Change*. Wiley-Blackwell, pp. 281–291.

van de Wouw, M., Enneking, D., Maxted, N., Robertson, L.D., 2001. Vetches (*Vicia L.*), in: Maxted, N.,

Bennett, S.J. (Eds.), Plant Genetic Resources of Legumes in the Mediterranean. Kluwer, Dordrecht, The Netherlands, pp. 132–157. doi:10.1007/978-94-015-9823-1

Vaughan, D.A., 1994. The Wild Relatives of Rice, A genetic Resource Handbook. International Rice Research Institute, Manila, Philippines.

Vincent, H., Wiersema, J., Kell, S., Fielder, H., Dobbie, S., Castañeda-Álvarez, N.P., Guarino, L., Eastwood, R., Lén, B., Maxted, N., 2013. A prioritized crop wild relative inventory to help underpin global food security. *Biol. Conserv.* 167, 265–275. doi:10.1016/j.biocon.2013.08.011

Wickham, H., 2019. stringr: Simple, Consistent Wrappers for Common String Operations. R package version 1.4.0.

Wickham, H., 2016. ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag, New York.

Wickham, H., Bryan, J., 2019. readxl: Read Excel Files. R package version 1.3.1. <https://cran.r-project.org/package=readxl>.

Wickham, H., François, R., Henry, L., Müller, K., 2019. dplyr: A Grammar of Data Manipulation. R package version 0.8.3. <https://cran.r-project.org/package=dplyr>.

Wickham, H., Henry, L., 2020. tidyr: Tidy Messy Data. R package version 1.0.2. <https://cran.r-project.org/package=tidyr>.

Wickham, H., Hester, J., Chang, W., 2020. devtools: Tools to Make Developing R Packages Easier. R package version 2.2.2. <https://cran.r-project.org/package=devtools>.

Zizka, A., Silvestro, D., Andermann, T., Azevedo, J., Duarte Ritter, C., Edler, D., Farooq, H., Herdean, A., Ariza, M., Scharn, R., Svanteson, S., Wengstrom, N., Zizka, V., Antonelli, A., 2019. CoordinateCleaner: standardized cleaning of occurrence records from biological collection databases. *Methods Ecol. Evol.* doi:doi: 10.1111/2041-210X.13152

Appendix A. European priority CWR²

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Aegilops bicornis</i> (Forssk.) Jaub. & Spach	Cereals	Wheat
<i>Aegilops biuncialis</i> subsp. <i>archipelagica</i> (Eig) Raus	Cereals	Wheat
<i>Aegilops biuncialis</i> Vis.	Cereals	Wheat
<i>Aegilops biuncialis</i> Vis. subsp. <i>Biuncialis</i>	Cereals	Wheat
<i>Aegilops caudata</i> L.	Cereals	Wheat
<i>Aegilops caudata</i> L. subsp. <i>Caudate</i>	Cereals	Wheat
<i>Aegilops caudata</i> subsp. <i>polyathera</i> (Boiss.) Zhuk.	Cereals	Wheat
<i>Aegilops columnaris</i> Zhuk.	Cereals	Wheat
<i>Aegilops comosa</i> Sm.	Cereals	Wheat
<i>Aegilops comosa</i> Sm. subsp. <i>Comosa</i>	Cereals	Wheat
<i>Aegilops comosa</i> subsp. <i>heldreichii</i> (Boiss.) Eig	Cereals	Wheat
<i>Aegilops crassa</i> Boiss.	Cereals	Wheat
<i>Aegilops cylindrica</i> Host	Cereals	Wheat
<i>Aegilops geniculata</i> Roth	Cereals	Wheat

² Kell, S. (2020, in prep.). Native and introduced CWR taxa are included because introduced populations can rapidly adapt to local environmental conditions and may harbour important genetic diversity of value for crop improvement.

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Aegilops juvenalis</i> (Thell.) Eig	Cereals	Wheat
<i>Aegilops kotschyi</i> Boiss.	Cereals	Wheat
<i>Aegilops neglecta</i> Bertol.	Cereals	Wheat
<i>Aegilops peregrina</i> (Hack.) Maire & Weiller	Cereals	Wheat
<i>Aegilops peregrina</i> (Hack.) Maire & Weiller subsp. <i>peregrina</i>	Cereals	Wheat
<i>Aegilops peregrina</i> subsp. <i>cylindrostachys</i> (Eig & Feinbrun) Maire & Weiller	Cereals	Wheat
<i>Aegilops speltoides</i> subsp. <i>ligustica</i> (Savign.) Zhuk.	Cereals	Wheat
<i>Aegilops speltoides</i> Tausch	Cereals	Wheat
<i>Aegilops speltoides</i> Tausch subsp. <i>speltoides</i>	Cereals	Wheat
<i>Aegilops tauschii</i> Coss.	Cereals	Wheat
<i>Aegilops tauschii</i> Coss. subsp. <i>tauschii</i>	Cereals	Wheat
<i>Aegilops triuncialis</i> L.	Cereals	Wheat
<i>Aegilops triuncialis</i> L. subsp. <i>triuncialis</i>	Cereals	Wheat
<i>Aegilops triuncialis</i> subsp. <i>persica</i> (Boiss.) Zhuk.	Cereals	Wheat
<i>Aegilops umbellulata</i> Zhuk.	Cereals	Wheat
<i>Aegilops uniaristata</i> Vis.	Cereals	Wheat
<i>Aegilops vavilovii</i> (Zhuk.) Chennav.	Cereals	Wheat
<i>Aegilops ventricosa</i> Tausch	Cereals	Wheat

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Agropyron cimmericum Nevski	Cereals	Wheat
Agropyron cimmericum Nevski	Fodder/forage	Crested wheatgrass
Agropyron cristatum (L.) Gaertn.	Cereals	Wheat
Agropyron cristatum (L.) Gaertn.	Fodder/forage	Crested wheatgrass
Agropyron cristatum (L.) Gaertn. subsp. cristatum	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. brandzae (Panțu & Solacolu) Melderis	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. kazachstanicum Tzvelev	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. pectinatum (M. Bieb.) Tzvelev	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. ponticum (Nevski) Tzvelev	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. puberulum (Steud.) Tzvelev	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. sabulosum Lavrenko	Fodder/forage	Crested wheatgrass
Agropyron cristatum subsp. sclerophyllum Tzvelev	Fodder/forage	Crested wheatgrass
Agropyron dasyanthum Ledeb.	Cereals	Wheat
Agropyron dasyanthum Ledeb.	Fodder/forage	Crested wheatgrass
Agropyron desertorum (Link) Schult.	Cereals	Wheat
Agropyron desertorum (Link) Schult.	Fodder/forage	Crested wheatgrass
Agropyron desertorum (Link) Schult.	Fodder/forage	Desert crested wheatgrass
Agropyron tanaiticum Nevski	Cereals	Wheat

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Agropyron tanaiticum</i> Nevski	Fodder/forage	Crested wheatgrass
<i>Agrostis capillaris</i> L.	Fodder/forage	Brown top
<i>Agrostis capillaris</i> L. subsp. <i>capillaris</i>	Fodder/forage	Brown top
<i>Agrostis capillaris</i> subsp. <i>oreophila</i> (O. Schwarz) Soják	Fodder/forage	Brown top
<i>Agrostis capillaris</i> subsp. <i>repens</i> (Schur) Soják	Fodder/forage	Brown top
<i>Agrostis gigantea</i> Roth	Fodder/forage	Red top
<i>Agrostis gigantea</i> Roth subsp. <i>gigantea</i>	Fodder/forage	Red top
<i>Agrostis gigantea</i> subsp. <i>glaucescens</i> (Widén) Valdés & H. Scholz	Fodder/forage	Red top
<i>Agrostis gigantea</i> subsp. <i>maeotica</i> (Klokov) Tzvelev	Fodder/forage	Red top
<i>Agrostis gigantea</i> subsp. <i>moldavica</i> (Dobrescu & Beldie) Dihoru	Fodder/forage	Red top
<i>Agrostis gigantea</i> subsp. <i>pontica</i> (Grecescu) Dihoru	Fodder/forage	Red top
<i>Agrostis stolonifera</i> L.	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> L. subsp. <i>stolonifera</i>	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> subsp. <i>albida</i> (Trin.) Tzvelev	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> subsp. <i>filifolia</i> (Link) H. Scholz	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> subsp. <i>gaditana</i> (Boiss. & Reut.) Valdés & H. Scholz	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> subsp. <i>maritima</i> (Lam.) Vasc.	Fodder/forage	Creeping bent
<i>Agrostis stolonifera</i> subsp. <i>scabriglumis</i> (Boiss. & Reut.) Maire	Fodder/forage	Creeping bent

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Agrostis stolonifera</i> subsp. <i>straminea</i> (Hartm.) Tzvelev	Fodder/forage	Creeping bent
<i>Allium albiflorum</i> Omelczuk	Vegetables (flavouring)	Alliums
<i>Allium ampeloprasum</i> L.	Vegetables (flavouring)	Garlic
<i>Allium ampeloprasum</i> L.	Vegetables (flavouring/green)	Leek
<i>Allium atroviolaceum</i> Boiss.	Vegetables (flavouring)	Garlic
<i>Allium atroviolaceum</i> Boiss.	Vegetables (flavouring/green)	Leek
<i>Allium bourgeaui</i> Rech. f.	Vegetables (flavouring/green)	Leek
<i>Allium bourgeaui</i> Rech. f. subsp. <i>bourgeaui</i>	Vegetables (flavouring/green)	Leek
<i>Allium bourgeaui</i> subsp. <i>creticum</i> Bothmer	Vegetables (flavouring/green)	Leek
<i>Allium bourgeaui</i> subsp. <i>cycladicum</i> Bothmer	Vegetables (flavouring/green)	Leek
<i>Allium commutatum</i> Guss.	Vegetables (flavouring/green)	Leek
<i>Allium convallarioides</i> Grossh.	Vegetables (flavouring)	Alliums
<i>Allium corsicum</i> Jauzein & al.	Vegetables (flavouring)	Alliums
<i>Allium exaltatum</i> (Meikle) Brullo, Pavone, Salmeri & Venora	Vegetables (flavouring)	Alliums
<i>Allium fistulosum</i> L.	Vegetables (flavouring)	Chinese chives
<i>Allium fistulosum</i> L.	Vegetables (flavouring)	Chives
<i>Allium fistulosum</i> L.	Vegetables (flavouring)	Onion
<i>Allium lojaconoi</i> Brullo, Lanfr. & Pavone	Vegetables (flavouring)	Alliums

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Allium melananthum</i> Coincy	Vegetables (flavouring)	Alliums
<i>Allium pardoii</i> Loscos	Vegetables (flavouring)	Alliums
<i>Allium pervestitum</i> Klokov	Vegetables (flavouring)	Alliums
<i>Allium pyrenaicum</i> Costa & Vayr.	Vegetables (flavouring)	Alliums
<i>Allium sativum</i> L.	Vegetables (flavouring)	Garlic
<i>Allium scabriscapum</i> Boiss.	Vegetables (flavouring)	Chinese chives
<i>Allium schmitzii</i> Cout.	Vegetables (flavouring)	Chinese scallion
<i>Allium schmitzii</i> Cout.	Vegetables (flavouring)	Chives
<i>Allium schoenoprasum</i> L.	Vegetables (flavouring)	Chinese scallion
<i>Allium schoenoprasum</i> L.	Vegetables (flavouring)	Chives
<i>Allium schoenoprasum</i> L.	Vegetables (flavouring)	Welsh onion
<i>Allium schoenoprasum</i> L.	Vegetables (flavouring/green)	Leek
<i>Allium schoenoprasum</i> L. subsp. <i>schoenoprasum</i>	Vegetables (flavouring)	Chives
<i>Allium schoenoprasum</i> subsp. <i>gredense</i> (Rivas Goday) Rivas Mart., Fern. Gonz. & Sánchez Mata	Vegetables (flavouring)	Chives
<i>Allium schoenoprasum</i> subsp. <i>latiorifolium</i> (Pau) Rivas Mart., Fern. Gonz. & Sánchez Mata	Vegetables (flavouring)	Chives
<i>Allium truncatum</i> (Feinbrun) F. Kollmann & D. Zohary	Vegetables (flavouring/green)	Leek
<i>Allium tuberosum</i> Rottler ex Spreng.	Vegetables (flavouring)	Chinese chives
<i>Alopecurus pratensis</i> L.	Fodder/forage	Meadow foxtail

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Alopecurus pratensis</i> L. subsp. <i>pratensis</i>	Fodder/forage	Meadow foxtail
<i>Alopecurus pratensis</i> subsp. <i>alpestris</i> (Wahlenb.) Selander	Fodder/forage	Meadow foxtail
<i>Alopecurus pratensis</i> subsp. <i>laguriformis</i> (Schur) Tzvelev	Fodder/forage	Meadow foxtail
<i>Alopecurus pratensis</i> subsp. <i>pseudonigricans</i> O. Schwarz	Fodder/forage	Meadow foxtail
<i>Amblyopyrum muticum</i> (Boiss.) Eig	Cereals	Wheat
<i>Armoracia rusticana</i> P. Gaertn. , B. Mey. & Scherb.	Vegetables (flavouring)	Horseradish
<i>Armoracia rusticana</i> P. Gaertn. , B. Mey. & Scherb.	Vegetables (green)	Kale
<i>Arrhenatherum elatius</i> (L.) J. Presl & C. Presl	Fodder/forage	Tall oatgrass
<i>Arrhenatherum elatius</i> (L.) J. Presl & C. Presl subsp. <i>elatius</i>	Fodder/forage	Tall oatgrass
<i>Arrhenatherum elatius</i> subsp. <i>baeticum</i> Romero Zarco	Fodder/forage	Tall oatgrass
<i>Arrhenatherum elatius</i> subsp. <i>bulbosum</i> (Willd.) Schübl. & G. Martens	Fodder/forage	Tall oatgrass
<i>Arrhenatherum elatius</i> subsp. <i>nebrodense</i> (Brullo & al.) Giardina & Raimondo	Fodder/forage	Tall oatgrass
<i>Arrhenatherum elatius</i> subsp. <i>sardoum</i> (Em. Schmid) Gamisans	Fodder/forage	Tall oatgrass
<i>Asparagus acutifolius</i> L.	Vegetables (green)	Asparagus
<i>Asparagus albus</i> L.	Vegetables (green)	Asparagus
<i>Asparagus aphyllus</i> L.	Vegetables (green)	Asparagus
<i>Asparagus aphyllus</i> L. subsp. <i>aphyllus</i>	Vegetables (green)	Asparagus
<i>Asparagus aphyllus</i> subsp. <i>orientalis</i> (Baker) P. H. Davis	Vegetables (green)	Asparagus

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Asparagus arborescens</i> Willd. ex Schult. & Schult. f.	Vegetables (green)	Asparagus
<i>Asparagus densiflorus</i> (Kunth) Jessop	Vegetables (green)	Asparagus
<i>Asparagus fallax</i> Svent.	Vegetables (green)	Asparagus
<i>Asparagus horridus</i> L.	Vegetables (green)	Asparagus
<i>Asparagus inderiensis</i> Blume ex Ledeb.	Vegetables (green)	Asparagus
<i>Asparagus maritimus</i> (L.) Mill.	Vegetables (green)	Asparagus
<i>Asparagus nesiotis</i> subsp. <i>purpureiensis</i> Marrero Rodr. & A. Ramos	Vegetables (green)	Asparagus
<i>Asparagus nesiotis</i> Svent.	Vegetables (green)	Asparagus
<i>Asparagus nesiotis</i> Svent. subsp. <i>nesiotis</i>	Vegetables (green)	Asparagus
<i>Asparagus officinalis</i> L.	Vegetables (green)	Asparagus
<i>Asparagus officinalis</i> L. subsp. <i>officinalis</i>	Vegetables (green)	Asparagus
<i>Asparagus officinalis</i> subsp. <i>prostratus</i> (Dumort.) Corb.	Vegetables (green)	Asparagus
<i>Asparagus pastorianus</i> Webb & Berthel.	Vegetables (green)	Asparagus
<i>Asparagus plocamoides</i> Webb ex Svent.	Vegetables (green)	Asparagus
<i>Asparagus pseudoscaber</i> Grecescu	Vegetables (green)	Asparagus
<i>Asparagus tenuifolius</i> Lam.	Vegetables (green)	Asparagus
<i>Asparagus verticillatus</i> L.	Vegetables (green)	Asparagus
<i>Astartoseris triquetra</i> (Labill.) N. Kilian & al.	Vegetables (salad)	Lettuce

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Astragalus arenarius L.	Fodder/forage	Milkvetch
Astragalus cicer L.	Fodder/forage	Chickpea milkvetch
Astragalus pelecinus (L.) Barneby	Fodder/forage	Serradella
Astragalus pelecinus (L.) Barneby subsp. pelecinus	Fodder/forage	Serradella
Atriplex halimus L.	Fodder/forage	Mediterranean saltbush
Avena barbata Link	Cereals	Oat
Avena barbata Link subsp. barbata	Cereals	Oat
Avena barbata subsp. castellana Romero Zarco	Cereals	Oat
Avena barbata subsp. hirtula (Lag.) Tab. Morais	Cereals	Oat
Avena barbata subsp. lusitanica (Tab. Morais) Romero Zarco	Cereals	Oat
Avena barbata subsp. wiestii (Steud.) Mansf.	Cereals	Oat
Avena byzantina K. Koch	Cereals	Oat
Avena clauda Durieu	Cereals	Oat
Avena eriantha Durieu	Cereals	Oat
Avena fatua L.	Cereals	Oat
Avena fatua L. subsp. fatua	Cereals	Oat
Avena fatua subsp. aemulans (Nevski) H. Scholz	Cereals	Oat
Avena fatua subsp. cultiformis Malzev	Cereals	Oat

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Avena fatua</i> subsp. <i>meridionalis</i> Malzev	Cereals	Oat
<i>Avena hybrida</i> Peterm.	Cereals	Oat
<i>Avena insularis</i> Ladiz.	Cereals	Oat
<i>Avena longiglumis</i> Durieu	Cereals	Oat
<i>Avena murphyi</i> Ladiz.	Cereals	Oat
<i>Avena sterilis</i> L.	Cereals	Oat
<i>Avena sterilis</i> L. subsp. <i>sterilis</i>	Cereals	Oat
<i>Avena sterilis</i> subsp. <i>atherantha</i> (C. Presl) H. Scholz	Cereals	Oat
<i>Avena sterilis</i> subsp. <i>ludoviciana</i> (Durieu) Gillet & Magne	Cereals	Oat
<i>Avena sterilis</i> subsp. <i>trichophylla</i> (K. Koch) Malzev	Cereals	Oat
<i>Avena strigosa</i> Schreb.	Cereals	Oat
<i>Barbarea verna</i> (Mill.) Asch.	Vegetables (salad)	American cress/early winter cress
<i>Beta corolliflora</i> Buttler	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Beta lomatogona</i> Fisch. & C. A. Mey.	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Beta macrocarpa</i> Guss.	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Beta macrorhiza</i> Steven	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Beta nana</i> Boiss. & Heldr.	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Beta patula</i> Aiton	Sugar/fodder/vegetables (green)	Sugarbeet

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Beta trigyna Waldst. & Kit.	Sugar/fodder/vegetables (green)	Sugarbeet
Beta vulgaris L.	Fodder/forage	Fodder beet
Beta vulgaris L.	Sugar/fodder/vegetables (green)	Sugarbeet
Beta vulgaris L. subsp. vulgaris	Sugar/fodder/vegetables (green)	Sugarbeet
Beta vulgaris subsp. adanensis Pamuk.	Sugar/fodder/vegetables (green)	Sugarbeet
Beta vulgaris subsp. maritima (L.) Arcang.	Sugar/fodder/vegetables (green)	Sugarbeet
Brassica barrelieri (L.) Janka	Vegetables (root)/fodder	Turnip
Brassica cretica Lam.	Oils/fodder	Rape
Brassica cretica Lam.	Vegetables (green)	Cabbage
Brassica cretica Lam.	Vegetables (root)/fodder	Turnip
Brassica cretica Lam. subsp. cretica	Vegetables (green)	Cabbage
Brassica cretica subsp. aegaea (Heldr. & Halácsy) Snogerup, M. A. Gust. & Bothmer	Vegetables (green)	Cabbage
Brassica cretica subsp. laconica M. A. Gust. & Snogerup	Vegetables (green)	Cabbage
Brassica cretica subsp. nivea (Boiss. & Spruner) M. A. Gust. & Snogerup	Vegetables (green)	Cabbage
Brassica elongata Ehrh.	Oils/fodder	Rape
Brassica elongata Ehrh.	Vegetables (green)	Cabbage
Brassica elongata Ehrh.	Vegetables (root)/fodder	Turnip
Brassica elongata Ehrh.	Vegetables (salad)	Perennial wall rocket

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Brassica elongata</i> Ehrh. subsp. <i>elongata</i>	Vegetables (green)	Cabbage
<i>Brassica elongata</i> subsp. <i>integrifolia</i> (Boiss.) Breistr.	Vegetables (green)	Cabbage
<i>Brassica elongata</i> subsp. <i>pinnatifida</i> (Schmalh.) Greuter & Burdet	Vegetables (green)	Cabbage
<i>Brassica fruticulosa</i> Cirillo	Oils/fodder	Rape
<i>Brassica fruticulosa</i> Cirillo	Spices	Black mustard
<i>Brassica fruticulosa</i> Cirillo	Vegetables (green)	Ethiopian cabbage
<i>Brassica fruticulosa</i> Cirillo	Vegetables (root)/fodder	Turnip
<i>Brassica fruticulosa</i> Cirillo	Vegetables (salad)	Radish
<i>Brassica fruticulosa</i> Cirillo subsp. <i>fruticulosa</i>	Oils/fodder	Rape
<i>Brassica fruticulosa</i> Cirillo subsp. <i>fruticulosa</i>	Vegetables (root)/fodder	Turnip
<i>Brassica fruticulosa</i> subsp. <i>cossoniana</i> (Boiss. & Reut.) Maire	Oils/fodder	Rape
<i>Brassica hilarionis</i> Post	Oils/fodder	Rape
<i>Brassica hilarionis</i> Post	Vegetables (green)	Cabbage
<i>Brassica incana</i> Ten.	Oils/fodder	Rape
<i>Brassica incana</i> Ten.	Vegetables (green)	Cabbage
<i>Brassica incana</i> Ten.	Vegetables (root)/fodder	Turnip
<i>Brassica insularis</i> Moris	Oils/fodder	Rape
<i>Brassica insularis</i> Moris	Vegetables (green)	Cabbage

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Brassica insularis Moris	Vegetables (root)/fodder	Turnip
Brassica macrocarpa Guss.	Vegetables (green)	Cabbage
Brassica macrocarpa Guss.	Vegetables (root)/fodder	Turnip
Brassica maurorum Durieu	Oils/fodder	Rape
Brassica maurorum Durieu	Spices	Black mustard
Brassica maurorum Durieu	Spices/oils/vegetables (green)	Mustard
Brassica maurorum Durieu	Vegetables (green)	Ethiopian cabbage
Brassica maurorum Durieu	Vegetables (root)/fodder	Turnip
Brassica maurorum Durieu	Vegetables (salad)	Radish
Brassica montana Pourr.	Oils/fodder	Rape
Brassica montana Pourr.	Vegetables (green)	Cabbage
Brassica montana Pourr.	Vegetables (root)/fodder	Turnip
Brassica napus L.	Oils/fodder	Rape
Brassica napus L.	Spices	Black mustard
Brassica napus L.	Spices/oils/vegetables (green)	Mustard
Brassica napus L.	Vegetables (green)	Cabbage
Brassica napus L.	Vegetables (green)	Ethiopian cabbage
Brassica napus L.	Vegetables (root)/fodder	Turnip

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Brassica nigra (L.) W. D. J. Koch	Oils/fodder	Rape
Brassica nigra (L.) W. D. J. Koch	Spices	Black mustard
Brassica nigra (L.) W. D. J. Koch	Spices	White mustard
Brassica nigra (L.) W. D. J. Koch	Spices/oils/vegetables (green)	Mustard
Brassica nigra (L.) W. D. J. Koch	Vegetables (green)	Cabbage
Brassica nigra (L.) W. D. J. Koch	Vegetables (green)	Ethiopian cabbage
Brassica nigra (L.) W. D. J. Koch	Vegetables (root)/fodder	Turnip
Brassica nigra (L.) W. D. J. Koch	Vegetables (salad)	Perennial wall rocket
Brassica nigra (L.) W. D. J. Koch	Vegetables (salad)	Radish
Brassica oleracea L.	Oils/fodder	Rape
Brassica oleracea L.	Spices	Black mustard
Brassica oleracea L.	Spices	White mustard
Brassica oleracea L.	Spices/oils/vegetables (green)	Mustard
Brassica oleracea L.	Vegetables (green)	Cabbage
Brassica oleracea L.	Vegetables (green)	Ethiopian cabbage
Brassica oleracea L.	Vegetables (root)/fodder	Turnip
Brassica oleracea L.	Vegetables (salad)	Perennial wall rocket
Brassica oleracea L.	Vegetables (salad)	Radish

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Brassica oleracea L.	Vegetables (salad)	Salad rocket
Brassica oleracea L. subsp. oleracea	Oils/fodder	Rape
Brassica oleracea L. subsp. oleracea	Spices	Black mustard
Brassica oleracea L. subsp. oleracea	Spices	White mustard
Brassica oleracea L. subsp. oleracea	Spices/oils/vegetables (green)	Mustard
Brassica oleracea L. subsp. oleracea	Vegetables (green)	Cabbage
Brassica oleracea L. subsp. oleracea	Vegetables (green)	Ethiopian cabbage
Brassica oleracea L. subsp. oleracea	Vegetables (root)/fodder	Turnip
Brassica oleracea L. subsp. oleracea	Vegetables (salad)	Perennial wall rocket
Brassica oleracea L. subsp. oleracea	Vegetables (salad)	Radish
Brassica oleracea L. subsp. oleracea	Vegetables (salad)	Salad rocket
Brassica oleracea subsp. botrytis (L.) Duchesne	Oils/fodder	Rape
Brassica oleracea subsp. botrytis (L.) Duchesne	Spices	Black mustard
Brassica oleracea subsp. botrytis (L.) Duchesne	Spices	White mustard
Brassica oleracea subsp. botrytis (L.) Duchesne	Spices/oils/vegetables (green)	Mustard
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (green)	Cabbage
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (green)	Ethiopian cabbage
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (root)/fodder	Turnip

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (salad)	Perennial wall rocket
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (salad)	Radish
Brassica oleracea subsp. botrytis (L.) Duchesne	Vegetables (salad)	Salad rocket
Brassica oleracea subsp. capitata (L.) Duchesne	Oils/fodder	Rape
Brassica oleracea subsp. capitata (L.) Duchesne	Spices	Black mustard
Brassica oleracea subsp. capitata (L.) Duchesne	Spices	White mustard
Brassica oleracea subsp. capitata (L.) Duchesne	Spices/oils/vegetables (green)	Mustard
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (green)	Cabbage
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (green)	Ethiopian cabbage
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (root)/fodder	Turnip
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (salad)	Perennial wall rocket
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (salad)	Radish
Brassica oleracea subsp. capitata (L.) Duchesne	Vegetables (salad)	Salad rocket
Brassica oleracea subsp. caulorapa (DC.) Metzg.	Oils/fodder	Rape
Brassica oleracea subsp. caulorapa (DC.) Metzg.	Spices	Black mustard
Brassica oleracea subsp. caulorapa (DC.) Metzg.	Spices	White mustard
Brassica oleracea subsp. caulorapa (DC.) Metzg.	Spices/oils/vegetables (green)	Mustard
Brassica oleracea subsp. caulorapa (DC.) Metzg.	Vegetables (green)	Cabbage

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Brassica oleracea</i> subsp. <i>caulorapa</i> (DC.) Metzg.	Vegetables (green)	Ethiopian cabbage
<i>Brassica oleracea</i> subsp. <i>caulorapa</i> (DC.) Metzg.	Vegetables (root)/fodder	Turnip
<i>Brassica oleracea</i> subsp. <i>caulorapa</i> (DC.) Metzg.	Vegetables (salad)	Perennial wall rocket
<i>Brassica oleracea</i> subsp. <i>caulorapa</i> (DC.) Metzg.	Vegetables (salad)	Radish
<i>Brassica oleracea</i> subsp. <i>caulorapa</i> (DC.) Metzg.	Vegetables (salad)	Salad rocket
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Oils/fodder	Rape
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Spices	Black mustard
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Spices	White mustard
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Spices/oils/vegetables (green)	Mustard
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (green)	Cabbage
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (green)	Ethiopian cabbage
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (root)/fodder	Turnip
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (salad)	Perennial wall rocket
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (salad)	Radish
<i>Brassica oleracea</i> subsp. <i>fruticosa</i> Metzg.	Vegetables (salad)	Salad rocket
<i>Brassica oxyrrhina</i> (Coss.) Willk.	Spices/oils/vegetables (green)	Mustard
<i>Brassica rapa</i> (L.) L.	Oils/fodder	Rape
<i>Brassica rapa</i> (L.) L.	Spices	Black mustard

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Brassica rapa (L.) L.	Spices	White mustard
Brassica rapa (L.) L.	Spices/oils/vegetables (green)	Mustard
Brassica rapa (L.) L.	Vegetables (green)	Cabbage
Brassica rapa (L.) L.	Vegetables (green)	Ethiopian cabbage
Brassica rapa (L.) L.	Vegetables (root)/fodder	Turnip
Brassica rapa (L.) L.	Vegetables (salad)	Perennial wall rocket
Brassica rapa (L.) L.	Vegetables (salad)	Radish
Brassica rapa (L.) L.	Vegetables (salad)	Salad rocket
Brassica rapa L. subsp. rapa	Vegetables (root)/fodder	Turnip
Brassica rapa subsp. campestris (L.) A. R. Clapham	Vegetables (root)/fodder	Turnip
Brassica rapa subsp. chinensis (L.) Hanelt	Vegetables (root)/fodder	Turnip
Brassica rapa subsp. oleifera (DC.) Metzg.	Vegetables (root)/fodder	Turnip
Brassica rapa subsp. pekinensis (Lour.) Hanelt	Vegetables (root)/fodder	Turnip
Brassica repanda subsp. glabrescens (Poldini) Gómez Campo	Oils/fodder	Rape
Brassica repanda subsp. glabrescens (Poldini) Gómez Campo	Vegetables (salad)	Salad rocket
Brassica rupestris Raf.	Vegetables (green)	Cabbage
Brassica tournefortii Gouan	Oils/fodder	Rape
Brassica tournefortii Gouan	Spices	Black mustard

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Brassica tournefortii</i> Gouan	Spices/oils/vegetables (green)	Mustard
<i>Brassica tournefortii</i> Gouan	Vegetables (green)	Cabbage
<i>Brassica tournefortii</i> Gouan	Vegetables (green)	Ethiopian cabbage
<i>Brassica tournefortii</i> Gouan	Vegetables (root)/fodder	Turnip
<i>Brassica tournefortii</i> Gouan	Vegetables (salad)	Radish
<i>Brassica villosa</i> Biv.	Vegetables (green)	Cabbage
<i>Brassica villosa</i> subsp. <i>drepanensis</i> (Caruel) Raimondo & P. Mazzola	Vegetables (green)	Cabbage
<i>Carthamus boissieri</i> Halácsy	Oils	Safflower seed
<i>Carthamus creticus</i> L.	Oils	Safflower seed
<i>Carthamus dentatus</i> (Forssk.) Vahl	Oils	Safflower seed
<i>Carthamus dentatus</i> (Forssk.) Vahl subsp. <i>dentatus</i>	Oils	Safflower seed
<i>Carthamus dentatus</i> subsp. <i>ruber</i> (Link) Hanelt	Oils	Safflower seed
<i>Carthamus glaucus</i> M. Bieb.	Oils	Safflower seed
<i>Carthamus glaucus</i> M. Bieb. subsp. <i>glaucus</i>	Oils	Safflower seed
<i>Carthamus lanatus</i> L.	Oils	Safflower seed
<i>Carthamus leucocaulos</i> Sm.	Oils	Safflower seed
<i>Carthamus persicus</i> Willd.	Oils	Safflower seed
<i>Carthamus tenuis</i> (Boiss. & C. I. Blanche) Bornm.	Oils	Safflower seed

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Carthamus tenuis</i> (Boiss. & C. I. Blanche) Bornm. subsp. <i>tenuis</i>	Oils	Safflower seed
<i>Carthamus tenuis</i> subsp. <i>foliosus</i> Hanelt	Oils	Safflower seed
<i>Carthamus tenuis</i> subsp. <i>gracillimus</i> (Rech. f.) Hanelt	Oils	Safflower seed
<i>Castanea crenata</i> Siebold & Zucc.	Nuts	American chestnut
<i>Castanea crenata</i> Siebold & Zucc.	Nuts	Chestnut
<i>Castanea crenata</i> Siebold & Zucc.	Nuts	Chinese chestnut
<i>Castanea crenata</i> Siebold & Zucc.	Nuts	Japanese chestnut
<i>Castanea sativa</i> Mill.	Nuts	Chestnut
<i>Castanea sativa</i> Mill.	Nuts	Chinese chestnut
<i>Castanea sativa</i> Mill.	Nuts	Japanese chestnut
<i>Chenopodium berlandieri</i> Moq.	Cereals	Quinoa
<i>Chenopodium ficifolium</i> Sm.	Cereals	Quinoa
<i>Chenopodium hircinum</i> Schrad.	Cereals	Quinoa
<i>Chenopodium quinoa</i> Willd.	Cereals	Quinoa
<i>Cicer bijugum</i> Rech. f.	Pulses	Chickpea
<i>Cicer canariense</i> A. Santos & G. P. Lewis	Pulses	Chickpea
<i>Cicer echinospermum</i> P. H. Davis	Pulses	Chickpea
<i>Cicer graecum</i> Boiss.	Pulses	Chickpea

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Cicer pinnatifidum Jaub. & Spach	Pulses	Chickpea
Cicer reticulatum Ladiz.	Pulses	Chickpea
Cichorium calvum Asch.	Vegetables (salad)/forage	Chicory
Cichorium endivia L.	Vegetables (salad)/forage	Chicory
Cichorium intybus L.	Vegetables (salad)/forage	Chicory
Cichorium pumilum Jacq.	Vegetables (salad)/forage	Chicory
Cichorium spinosum L.	Vegetables (salad)/forage	Chicory
Citrullus colocynthis (L.) Schrad.	Fruits	Watermelon
Citrullus lanatus (Thunb.) Matsum. & Nakai	Fruits	Watermelon
Coincya monensis (L.) Greuter & Burdet	Oils/fodder	Rape
Coincya monensis (L.) Greuter & Burdet	Spices	Black mustard
Coincya monensis (L.) Greuter & Burdet	Spices	White mustard
Coincya monensis (L.) Greuter & Burdet	Vegetables (green)	Cabbage
Coincya monensis (L.) Greuter & Burdet	Vegetables (root)/fodder	Turnip
Coincya monensis (L.) Greuter & Burdet subsp. monensis	Spices	Black mustard
Coincya monensis (L.) Greuter & Burdet subsp. monensis	Spices	White mustard
Coincya monensis (L.) Greuter & Burdet subsp. monensis	Vegetables (green)	Cabbage
Coincya monensis (L.) Greuter & Burdet subsp. monensis	Vegetables (root)/fodder	Turnip

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Coincya monensis subsp. cheiranthos (Vill.) Aedo, Leadley & Muñoz Garm	Spices	Black mustard
Coincya monensis subsp. cheiranthos (Vill.) Aedo, Leadley & Muñoz Garm	Spices	White mustard
Coincya monensis subsp. cheiranthos (Vill.) Aedo, Leadley & Muñoz Garm	Vegetables (green)	Cabbage
Coincya monensis subsp. cheiranthos (Vill.) Aedo, Leadley & Muñoz Garm	Vegetables (root)/fodder	Turnip
Coincya monensis subsp. nevadensis (Willk.) Leadlay	Spices	Black mustard
Coincya monensis subsp. nevadensis (Willk.) Leadlay	Spices	White mustard
Coincya monensis subsp. nevadensis (Willk.) Leadlay	Vegetables (green)	Cabbage
Coincya monensis subsp. nevadensis (Willk.) Leadlay	Vegetables (root)/fodder	Turnip
Coincya monensis subsp. orophila (Franco) Aedo, Leadley & Muñoz Garm.	Spices	Black mustard
Coincya monensis subsp. orophila (Franco) Aedo, Leadley & Muñoz Garm.	Spices	White mustard
Coincya monensis subsp. orophila (Franco) Aedo, Leadley & Muñoz Garm.	Vegetables (green)	Cabbage
Coincya monensis subsp. orophila (Franco) Aedo, Leadley & Muñoz Garm.	Vegetables (root)/fodder	Turnip
Coincya monensis subsp. puberula (Pau) Leadlay	Spices	Black mustard
Coincya monensis subsp. puberula (Pau) Leadlay	Spices	White mustard
Coincya monensis subsp. puberula (Pau) Leadlay	Vegetables (green)	Cabbage
Coincya monensis subsp. puberula (Pau) Leadlay	Vegetables (root)/fodder	Turnip
Comarum palustre L.	Fruits	Strawberry
Corylus avellana L.	Nuts	Giant filbert

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Corylus avellana L.	Nuts	Hazelnut
Corylus avellana L.	Nuts	Turkish hazelnut
Corylus colurna L.	Nuts	Giant filbert
Corylus colurna L.	Nuts	Hazelnut
Corylus colurna L.	Nuts	Turkish hazelnut
Corylus maxima Mill.	Nuts	Giant filbert
Crambe arborea H. Christ	Vegetables (green)	Ethiopian cabbage
Crambe aspera M. Bieb.	Vegetables (green)	Ethiopian cabbage
Crambe feuillei A. Santos ex Prina & Mart.-Laborde	Vegetables (green)	Ethiopian cabbage
Crambe filiformis Jacq.	Vegetables (green)	Ethiopian cabbage
Crambe fruticosa L. f.	Vegetables (green)	Ethiopian cabbage
Crambe gomeraea H. Christ	Vegetables (green)	Ethiopian cabbage
Crambe hispanica L.	Vegetables (green)	Ethiopian cabbage
Crambe laevigata DC. ex H. Christ	Vegetables (green)	Ethiopian cabbage
Crambe microcarpa A. Santos	Vegetables (green)	Ethiopian cabbage
Crambe pritzelii Bolle	Vegetables (green)	Ethiopian cabbage
Crambe scaberrima Bramwell	Vegetables (green)	Ethiopian cabbage
Crambe scoparia Svent.	Vegetables (green)	Ethiopian cabbage

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Crambe sventenii</i> B. Pett. ex Bramwell & Sundell	Vegetables (green)	Ethiopian cabbage
<i>Crambe tamadabensis</i> A. Prina & A. Marrero	Vegetables (green)	Ethiopian cabbage
<i>Crambe wildpretii</i> Prina & Bramwell	Vegetables (green)	Ethiopian cabbage
<i>Cucumis dipsaceus</i> Spach	Fruits	Melon
<i>Cucumis dipsaceus</i> Spach	Fruits (savoury)	West Indian gherkin
<i>Cucumis sativus</i> L.	Fruits (savoury)	Cucumber
<i>Cynara algarbiensis</i> Mariz	Vegetables (green)	Artichoke
<i>Cynara auranitica</i> Post	Vegetables (green)	Artichoke
<i>Cynara baetica</i> (Spreng.) Pau	Vegetables (green)	Artichoke
<i>Cynara baetica</i> (Spreng.) Pau subsp. <i>baetica</i>	Vegetables (green)	Artichoke
<i>Cynara cardunculus</i> L.	Vegetables (green)	Artichoke
<i>Cynara cardunculus</i> subsp. <i>flavescens</i> Wiklund	Vegetables (green)	Artichoke
<i>Cynara cardunculus</i> subsp. <i>zingaroensis</i> (Raimondo & Domina) Raimondo & Domina	Vegetables (green)	Artichoke
<i>Cynara humilis</i> L.	Vegetables (green)	Artichoke
<i>Cynara tournefortii</i> Boiss. & Reut.	Vegetables (green)	Artichoke
<i>Cynodon dactylon</i> (L.) Pers.	Fodder/forage	Bermuda grass
<i>Dactylis glomerata</i> L.	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> L. subsp. <i>glomerata</i>	Fodder/forage	Cocksfoot

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Dactylis glomerata</i> subsp. <i>hackelii</i> (Asch. & Graebn.) Cif. & Giacom.	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>hispanica</i> (Roth) Nyman	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>ibizensis</i> Stebbins & D. Zohary	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>izcoi</i> S. Ortíz & Rodr. Oubiña	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>juncinella</i> (Bory) K. Richt.	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>lobata</i> (Drejer) H. Lindb.	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>lusitanica</i> Stebbins & D. Zohary	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>merinoana</i> (Horjales & al.) H. Scholz	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>oceanica</i> G. Guignard	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>reichenbachii</i> (Dalla Torre & Sarnth.) Stebbins & D. Zohary	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>rigida</i> (Boiss. & Heldr.) Hayek	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>slovenica</i> (Domin) Domin	Fodder/forage	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>stebbinsii</i> (Horjales & al.) H. Scholz	Fodder/forage	Cocksfoot
<i>Daucus carota</i> L.	Vegetables (root)	Carrot
<i>Daucus carota</i> L. subsp. <i>carota</i>	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>azoricus</i> Franco	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>cantabricus</i> A. Pujadas	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>commutatus</i> (Paol.) Thell.	Vegetables (root)	Carrot

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Daucus carota</i> subsp. <i>drepanensis</i> (Lojac.) Heywood	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>gadecaei</i> (Rouy & E. G. Camus) Heywood	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>gummifer</i> (Syme) Hook. f.	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>halophilus</i> (Brot.) A. Pujadas	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>hispanicus</i> (Gouan) Thell.	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>hispidus</i> (Ball) Heywood	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>major</i> (Vis.) Arcang.	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>majoricus</i> A. Pujadas	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>maximus</i> (Desf.) Ball	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>rupestris</i> (Guss.) Heywood	Vegetables (root)	Carrot
<i>Daucus carota</i> subsp. <i>sativus</i> (Hoffm.) Arcang.	Vegetables (root)	Carrot
<i>Daucus gracilis</i> Steinh.	Vegetables (root)	Carrot
<i>Daucus sahariensis</i> Murb.	Vegetables (root)	Carrot
<i>Diplotaxis eruroides</i> (L.) DC.	Oils/fodder	Rape
<i>Diplotaxis eruroides</i> (L.) DC.	Spices	Black mustard
<i>Diplotaxis eruroides</i> (L.) DC.	Spices/oils/vegetables (green)	Mustard
<i>Diplotaxis eruroides</i> (L.) DC.	Vegetables (green)	Cabbage
<i>Diplotaxis eruroides</i> (L.) DC.	Vegetables (root)/fodder	Turnip

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Diplotaxis eruroides (L.) DC. subsp. eruroides	Oils/fodder	Rape
Diplotaxis eruroides (L.) DC. subsp. eruroides	Spices	Black mustard
Diplotaxis eruroides (L.) DC. subsp. eruroides	Spices/oils/vegetables (green)	Mustard
Diplotaxis eruroides (L.) DC. subsp. eruroides	Vegetables (green)	Cabbage
Diplotaxis eruroides (L.) DC. subsp. eruroides	Vegetables (root)/fodder	Turnip
Diplotaxis muralis (L.) DC.	Oils/fodder	Rape
Diplotaxis muralis (L.) DC.	Spices/oils/vegetables (green)	Mustard
Diplotaxis muralis (L.) DC.	Vegetables (root)/fodder	Turnip
Diplotaxis siettiana Maire	Oils/fodder	Rape
Diplotaxis siettiana Maire	Spices	Black mustard
Diplotaxis siettiana Maire	Spices/oils/vegetables (green)	Mustard
Diplotaxis siettiana Maire	Vegetables (green)	Cabbage
Diplotaxis siettiana Maire	Vegetables (root)/fodder	Turnip
Diplotaxis siifolia Kunze	Oils/fodder	Rape
Diplotaxis siifolia Kunze	Spices/oils/vegetables (green)	Mustard
Diplotaxis siifolia Kunze	Vegetables (root)/fodder	Turnip
Diplotaxis siifolia Kunze subsp. siifolia	Oils/fodder	Rape
Diplotaxis siifolia Kunze subsp. siifolia	Spices/oils/vegetables (green)	Mustard

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Diplotaxis siifolia</i> Kunze subsp. <i>siifolia</i>	Vegetables (root)/fodder	Turnip
<i>Diplotaxis siifolia</i> subsp. <i>vicentina</i> (Samp.) Mart.-Laborde	Oils/fodder	Rape
<i>Diplotaxis siifolia</i> subsp. <i>vicentina</i> (Samp.) Mart.-Laborde	Spices/oils/vegetables (green)	Mustard
<i>Diplotaxis siifolia</i> subsp. <i>vicentina</i> (Samp.) Mart.-Laborde	Vegetables (root)/fodder	Turnip
<i>Diplotaxis tenuifolia</i> (L.) DC.	Oils/fodder	Rape
<i>Diplotaxis tenuifolia</i> (L.) DC.	Spices	Black mustard
<i>Diplotaxis tenuifolia</i> (L.) DC.	Spices/oils/vegetables (green)	Mustard
<i>Diplotaxis tenuifolia</i> (L.) DC.	Vegetables (green)	Kale
<i>Diplotaxis tenuifolia</i> (L.) DC.	Vegetables (root)/fodder	Turnip
<i>Diplotaxis tenuifolia</i> (L.) DC.	Vegetables (salad)	Perennial wall rocket
<i>Diplotaxis tenuifolia</i> (L.) DC.	Vegetables (salad)	Radish
<i>Diplotaxis tenuifolia</i> (L.) DC.	Vegetables (salad)	Salad rocket
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Cereals	Japanese barnyard millet
<i>Echinochloa crus-galli</i> (L.) P. Beauv. subsp. <i>crus-galli</i>	Cereals	Japanese barnyard millet
<i>Echinochloa crus-galli</i> subsp. <i>hispidula</i> (Retz.) Honda	Cereals	Japanese barnyard millet
<i>Echinochloa crus-galli</i> subsp. <i>spiralis</i> (Vasinger) Tzvelev	Cereals	Japanese barnyard millet
<i>Echinochloa oryzicola</i> (Vasinger) Vasinger	Cereals	Japanese barnyard millet
<i>Eleusine coracana</i> (L.) Gaertn.	Cereals	Finger millet

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Eleusine tristachya</i> (Lam.) Lam.	Cereals	Finger millet
<i>Elymus dahuricus</i> Turcz. ex Griseb.	Cereals	Wheat
<i>Elymus trachycaulus</i> (Link) Shinnars	Cereals	Wheat
<i>Elymus trachycaulus</i> (Link) Shinnars subsp. <i>trachycaulus</i>	Cereals	Wheat
<i>Elymus trachycaulus</i> subsp. <i>novae-angliae</i> (Scribn.) Tzvelev	Cereals	Wheat
<i>Elymus trachycaulus</i> subsp. <i>stefanssonii</i> (Melderis) Á. Löve & D. Löve	Cereals	Wheat
<i>Elytrigia bessarabica</i> (Săvul. & Rayss) Prokudin	Cereals	Wheat
<i>Elytrigia curvifolia</i> (Lange) Holub	Cereals	Wheat
<i>Elytrigia elongata</i> (Host) Nevski	Cereals	Wheat
<i>Elytrigia elongata</i> (Host) Nevski subsp. <i>elongata</i>	Cereals	Wheat
<i>Elytrigia elongata</i> subsp. <i>haifensis</i> (Rech. f.) Valdés & H. Scholz	Cereals	Wheat
<i>Elytrigia elongata</i> subsp. <i>salsa</i> (Melderis) Valdés & H. Scholz	Cereals	Wheat
<i>Elytrigia elongata</i> subsp. <i>turcica</i> (McGuire) Valdés & H. Scholz	Cereals	Wheat
<i>Elytrigia intermedia</i> (Host) Nevski	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> (Host) Nevski	Cereals	Wheat
<i>Elytrigia intermedia</i> (Host) Nevski subsp. <i>intermedia</i>	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> subsp. <i>mucronata</i> (Bercht.) Valdés & H. Scholz	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> subsp. <i>podperae</i> (Nábělek) Á. Löve	Cereals	Intermediate wheatgrass

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Elytrigia intermedia</i> subsp. <i>pouzolzii</i> (Godr.) Á. Löve	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> subsp. <i>pulcherrima</i> (Grossh.) Tzvelev	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> subsp. <i>trichophora</i> (Link) Á. Löve & D. Löve	Cereals	Intermediate wheatgrass
<i>Elytrigia intermedia</i> subsp. <i>varnensis</i> (Velen.) Valdés & H. Scholz	Cereals	Intermediate wheatgrass
<i>Elytrigia juncea</i> (L.) Nevski	Cereals	Wheat
<i>Elytrigia juncea</i> subsp. <i>boreoatlantica</i> (Simonet & Guin.) Hyl.	Cereals	Wheat
<i>Elytrigia obtusiflora</i> (DC.) Tzvelev	Cereals	Wheat
<i>Elytrigia scirpea</i> (C. Presl) Holub	Cereals	Wheat
<i>Eragrostis pilosa</i> (L.) P. Beauv.	Cereals	Teff
<i>Eragrostis tef</i> (Zuccagni) Trotter	Cereals	Teff
<i>Eruca vesicaria</i> (L.) Cav.	Oils/fodder	Rape
<i>Eruca vesicaria</i> (L.) Cav.	Spices/oils/vegetables (green)	Mustard
<i>Eruca vesicaria</i> (L.) Cav.	Vegetables (green)	Cabbage
<i>Eruca vesicaria</i> (L.) Cav.	Vegetables (root)/fodder	Turnip
<i>Eruca vesicaria</i> (L.) Cav.	Vegetables (salad)	Radish
<i>Eruca vesicaria</i> (L.) Cav.	Vegetables (salad)	Salad rocket
<i>Erucastrum canariense</i> Webb & Berthel.	Vegetables (root)/fodder	Turnip
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	Oils/fodder	Rape

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	Spices/oils/vegetables (green)	Mustard
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	Vegetables (green)	Ethiopian cabbage
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	Vegetables (root)/fodder	Turnip
<i>Festuca heterophylla</i> Lam.	Fodder/forage	Shade fescue
<i>Festuca ovina</i> L.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> L. subsp. <i>ovina</i>	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>firmulacea</i> (Markgr.-Dann.) Prob.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>guestfalica</i> (Rchb.) K. Richt.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>hirtula</i> (Travis) M. J. Wilk.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>molineri</i> (Litard.) Foggi & J. Müll.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>ophiolicola</i> (Kerguélen) M. Wilk.	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>ruprechtii</i> (Boiss.) Tzvelev	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca ovina</i> subsp. <i>supina</i> (Schur) Oborný	Fodder/forage	Fine leaved sheep's fescue
<i>Festuca rubra</i> L.	Fodder/forage	Red fescue
<i>Festuca rubra</i> L. subsp. <i>rubra</i>	Fodder/forage	Red fescue
<i>Festuca rubra</i> subsp. <i>juncea</i> (Hack.) K. Richt.	Fodder/forage	Red fescue
<i>Festuca rubra</i> subsp. <i>litoralis</i> (G. Mey.) Auquier	Fodder/forage	Red fescue
<i>Festuca rubra</i> subsp. <i>pruinosa</i> (Hack.) Piper	Fodder/forage	Red fescue

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Festuca rubra subsp. scotica Al-Bermani	Fodder/forage	Red fescue
Festuca rubra subsp. thessalica Markgr.-Dann.	Fodder/forage	Red fescue
Ficus carica L.	Fruits	Fig
Ficus carica subsp. rupestris (Boiss.) Browicz	Fruits	Fig
Fragaria chiloensis (L.) Weston	Fruits	Strawberry
Fragaria moschata Weston	Fruits	Strawberry
Fragaria vesca L.	Fruits	Strawberry
Fragaria virginiana Mill.	Fruits	Strawberry
Fragaria viridis subsp. campestris (Steven) Pawł.	Fruits	Strawberry
Fragaria viridis Weston	Fruits	Strawberry
Fragaria viridis Weston subsp. viridis	Fruits	Strawberry
Galega orientalis Lam.	Fodder/forage	Fodder galega
Hedysarum coronarium L.	Fodder/forage	Sulla
Helianthus annuus L.	Seeds/oils	Sunflower seed
Helianthus debilis Nutt.	Seeds/oils	Sunflower seed
Helianthus decapetalus L.	Seeds/oils	Sunflower seed
Helianthus giganteus L.	Seeds/oils	Sunflower seed
Helianthus pauciflorus Nutt.	Seeds/oils	Sunflower seed

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Crop wild relative	Related crop use category	Related crop common name
Helianthus petiolaris Nutt.	Seeds/oils	Sunflower seed
Helianthus strumosus L.	Seeds/oils	Sunflower seed
Hordeum brevisubulatum (Trin.) Link	Cereals	Barley
Hordeum brevisubulatum (Trin.) Link subsp. brevisubulatum	Cereals	Barley
Hordeum brevisubulatum subsp. nevkianum (Bowden) Tzvelev	Cereals	Barley
Hordeum brevisubulatum subsp. turkestanicum (Nevski) Tzvelev	Cereals	Barley
Hordeum brevisubulatum subsp. violaceum (Boiss. & Hohen.) Tzvelev	Cereals	Barley
Hordeum bulbosum L.	Cereals	Barley
Hordeum bulbosum L. subsp. bulbosum	Cereals	Barley
Hordeum bulbosum subsp. nodosum (L.) B. R. Baum	Cereals	Barley
Hordeum jubatum L.	Cereals	Barley
Hordeum marinum Huds.	Cereals	Wheat
Hordeum vulgare L.	Cereals	Barley
Hordeum vulgare L. subsp. vulgare	Cereals	Barley
Hordeum vulgare subsp. aegiceras (Nees ex Royle) Á. Löve	Cereals	Barley
Hordeum vulgare subsp. agriocrithon (Åberg) Á. Löve & D. Löve	Cereals	Barley
Hordeum vulgare subsp. distichon (L.) Körn.	Cereals	Barley
Hordeum vulgare subsp. spontaneum (K. Koch) Thell.	Cereals	Barley

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Crop wild relative	Related crop use category	Related crop common name
Humulus lupulus L.	Beverages	Hop
Juglans ailantifolia Carrière	Nuts	Black walnut
Juglans ailantifolia Carrière	Nuts	English walnut
Juglans ailantifolia Carrière	Nuts	Japanese walnut
Juglans cinerea L.	Nuts	Japanese walnut
Juglans mandshurica Maxim.	Fruits (savoury)	Butternut
Juglans mandshurica Maxim.	Nuts	English walnut
Juglans mandshurica Maxim.	Nuts	Japanese walnut
Juglans nigra L.	Nuts	Black walnut
Juglans nigra L.	Nuts	English walnut
Juglans nigra L.	Nuts	Japanese walnut
Juglans regia L.	Nuts	Black walnut
Juglans regia L.	Nuts	English walnut
Juglans regia L.	Nuts	Japanese walnut
Lactuca aculeata Boiss. & Kotschy	Vegetables (salad)	Lettuce
Lactuca alpestris (Gand.) Rech. f.	Vegetables (salad)	Lettuce
Lactuca cyprica (Rech. f.) N. Kilian & Greuter	Vegetables (salad)	Lettuce
Lactuca georgica Grossh.	Vegetables (salad)	Lettuce

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Crop wild relative	Related crop use category	Related crop common name
Lactuca saligna L.	Vegetables (salad)	Lettuce
Lactuca scarioloides Boiss.	Vegetables (salad)	Lettuce
Lactuca serriola L.	Vegetables (salad)	Lettuce
Lactuca singularis Wilmott	Vegetables (salad)	Lettuce
Lactuca tetrantha B. L. Burt & P. H. Davis	Vegetables (salad)	Lettuce
Lactuca virosa L.	Vegetables (salad)	Lettuce
Lactuca virosa subsp. livida (Boiss. & Reut.) Ladero & A. Velasco	Vegetables (salad)	Lettuce
Lactuca watsoniana Trel.	Vegetables (salad)	Lettuce
Lathyrus amphicarpos L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus amphicarpos L.	Fodder/forage	Grass pea/common chickling
Lathyrus annuus L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus blepharicarpus Boiss.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus blepharicarpus Boiss.	Fodder/forage	Grass pea/common chickling
Lathyrus cassius Boiss.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus chloranthus Boiss.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus chloranthus Boiss.	Fodder/forage	Grass pea/common chickling
Lathyrus cicera L.	Fodder/forage	Chickling vetch
Lathyrus cicera L.	Fodder/forage	Chickling vetch/flat pod peavine

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Crop wild relative	Related crop use category	Related crop common name
Lathyrus cicera L.	Fodder/forage	Grass pea/common chickling
Lathyrus cirrhosus Ser.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus clymenum L.	Fodder/forage	Cyprus vetch/ochrus chickling
Lathyrus clymenum L.	Pulses	Garden pea
Lathyrus gorgoni Parl.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus gorgoni Parl.	Fodder/forage	Grass pea/common chickling
Lathyrus grandiflorus Sibth. & Sm.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus heterophyllus L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus hierosolymitanus Boiss.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus hierosolymitanus Boiss.	Fodder/forage	Grass pea/common chickling
Lathyrus hirsutus L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus hirsutus L.	Fodder/forage	Grass pea/common chickling
Lathyrus hirsutus L.	Fodder/forage	Hairy vetchling
Lathyrus latifolius L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus latifolius L. var. latifolius	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus ochrus (L.) DC.	Fodder/forage	Cyprus vetch/ochrus chickling
Lathyrus ochrus (L.) DC.	Fodder/forage	Winged vetchling
Lathyrus ochrus (L.) DC.	Pulses	Garden pea

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Crop wild relative	Related crop use category	Related crop common name
Lathyrus odoratus L.	Fodder/forage	Sweet pea
Lathyrus rotundifolius Willd.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus sativus L.	Fodder/forage	Grass pea/common chickling
Lathyrus sativus L.	Pulses	Garden pea
Lathyrus stenophyllus Boiss. & Heldr.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus sylvestris L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus tingitanus L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus tuberosus L.	Fodder/forage	Chickling vetch/flat pod peavine
Lathyrus undulatus Boiss.	Fodder/forage	Chickling vetch/flat pod peavine
Lens culinaris Medik.	Pulses	Lentil
Lens culinaris Medik. subsp. culinaris	Pulses	Lentil
Lens culinaris subsp. odemensis (Ladiz.) M. E. Ferguson & al.	Pulses	Lentil
Lens culinaris subsp. orientalis (Boiss.) Ponert	Pulses	Lentil
Lens ervoides (Brign.) Grande	Pulses	Lentil
Lens lamottei Czefr.	Pulses	Lentil
Lens nigricans (M. Bieb.) Godr.	Pulses	Lentil
Lepidium meyeri subsp. turczaninowii (Lipsky) Schmalh.	Vegetables (salad)	Garden cress
Lepidium sativum L.	Vegetables (salad)	Garden cress

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Crop wild relative	Related crop use category	Related crop common name
Lepidium sativum L. subsp. sativum	Vegetables (salad)	Garden cress
Leymus angustus (Trin.) Pilg.	Cereals	Wheat
Leymus arenarius (L.) Hochst.	Cereals	Wheat
Leymus mollis (Trin.) H. Hara	Cereals	Wheat
Leymus racemosus (Lam.) Tzvelev	Cereals	Wheat
Leymus racemosus (Lam.) Tzvelev subsp. racemosus	Cereals	Wheat
Leymus racemosus subsp. klokovii Tzvelev	Cereals	Wheat
Leymus racemosus subsp. sabulosus (M. Bieb.) Tzvelev	Cereals	Wheat
Linum bienne Mill.	Seeds/oils	Linseed
Linum corymbiferum Desf.	Seeds/oils	Linseed
Linum decumbens Desf.	Seeds/oils	Linseed
Linum hirsutum L.	Seeds/oils	Linseed
Linum hirsutum L. subsp. hirsutum	Seeds/oils	Linseed
Linum hirsutum subsp. anatolicum (Boiss.) Hayek	Seeds/oils	Linseed
Linum hirsutum subsp. bozdaghense Yilmaz & Kaynak	Seeds/oils	Linseed
Linum hirsutum subsp. byzantinum Azn.	Seeds/oils	Linseed
Linum hirsutum subsp. glabrescens (Rochel) Soó	Seeds/oils	Linseed
Linum hirsutum subsp. oreocaricum P. H. Davis	Seeds/oils	Linseed

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Linum hirsutum subsp. platyphyllum (P. H. Davis) Yilmaz & Kaynak	Seeds/oils	Linseed
Linum hirsutum subsp. pseudoanatolicum P. H. Davis	Seeds/oils	Linseed
Linum hirsutum subsp. spathulatum (Halácsy & Bald.) Hayek	Seeds/oils	Linseed
Linum nervosum subsp. jalicola (Juz.) T. V. Egorova	Seeds/oils	Linseed
Linum nervosum Waldst. & Kit.	Seeds/oils	Linseed
Lolium multiflorum Lam.	Fodder/forage	Italian ryegrass
Lolium perenne L.	Fodder/forage	Perennial ryegrass
Lolium perenne L. subsp. perenne	Fodder/forage	Perennial ryegrass
Lolium rigidum Gaudin	Fodder/forage	Annual ryegrass
Lolium rigidum Gaudin subsp. rigidum	Fodder/forage	Annual ryegrass
Lolium rigidum subsp. lepturoides Sennen & Mauricio	Fodder/forage	Annual ryegrass
Lolium temulentum L.	Fodder/forage	Bearded ryegrass
Lotus corniculatus L.	Fodder/forage	Birdsfoot trefoil
Lotus corniculatus subsp. frondosus Freyn	Fodder/forage	Birdsfoot trefoil
Lotus pedunculatus Cav.	Fodder/forage	Greater birdsfoot trefoil
Lotus subbiflorus Lag.	Fodder/forage	Hairy birdsfoot trefoil
Lupinus albus L.	Fodder/forage	Andean lupin
Lupinus albus L.	Fodder/forage	White lupin

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Lupinus albus L. subsp. albus	Fodder/forage	Andean lupin
Lupinus albus L. subsp. albus	Fodder/forage	White lupin
Lupinus albus subsp. graecus (Boiss. & Spruner) Franco & P. Silva	Fodder/forage	Andean lupin
Lupinus albus subsp. graecus (Boiss. & Spruner) Franco & P. Silva	Fodder/forage	White lupin
Lupinus angustifolius L.	Fodder/forage	Blue lupin
Lupinus angustifolius L.	Fodder/forage	Narrow leaved lupin
Lupinus angustifolius L.	Fodder/forage	Yellow lupin
Lupinus angustifolius L. subsp. angustifolius	Fodder/forage	Blue lupin
Lupinus angustifolius L. subsp. angustifolius	Fodder/forage	Yellow lupin
Lupinus angustifolius subsp. reticulatus (Desv.) Arcang.	Fodder/forage	Blue lupin
Lupinus angustifolius subsp. reticulatus (Desv.) Arcang.	Fodder/forage	Yellow lupin
Lupinus cosentinii Guss.	Fodder/forage	Sandplain lupin
Lupinus hispanicus Boiss. & Reut.	Fodder/forage	Blue lupin
Lupinus hispanicus Boiss. & Reut.	Fodder/forage	Yellow lupin
Lupinus hispanicus var. bicolor (Merino) Gladst.	Fodder/forage	Blue lupin
Lupinus luteus L.	Fodder/forage	Blue lupin
Lupinus luteus L.	Fodder/forage	Yellow lupin
Lupinus micranthus Guss.	Fodder/forage	White lupin

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Lupinus pilosus L.	Fodder/forage	Sandplain lupin
Malus crescimannoi Raimondo	Fruits	Apple
Malus pumila Mill.	Fruits	Apple
Malus sylvestris (L.) Mill.	Fruits	Apple
Malus sylvestris (L.) Mill. subsp. sylvestris	Fruits	Apple
Malus sylvestris subsp. orientalis (Uglitzk.) Browicz	Fruits	Apple
Malus sylvestris subsp. praecox (Pall.) Soó	Fruits	Apple
Medicago arborea L.	Fodder/forage	Alfalfa
Medicago arborea L.	Fodder/forage	Tree medic
Medicago cancellata M. Bieb.	Fodder/forage	Alfalfa
Medicago constricta Durieu	Fodder/forage	Barrel medic
Medicago cretacea M. Bieb.	Fodder/forage	Alfalfa
Medicago cretacea M. Bieb.	Fodder/forage	Barrel medic
Medicago doliata Carmign.	Fodder/forage	Barrel medic
Medicago doliata Carmign.	Fodder/forage	Straight-spined medic
Medicago falcata L.	Fodder/forage	Alfalfa
Medicago falcata L.	Fodder/forage	Yellow lucerne
Medicago fischeriana (Ser.) Trautv.	Fodder/forage	Alfalfa

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Medicago fischeriana (Ser.) Trautv.	Fodder/forage	Barrel medic
Medicago glomerata Balb.	Fodder/forage	Alfalfa
Medicago heyneana Greuter	Fodder/forage	Alfalfa
Medicago heyneana Greuter	Fodder/forage	Barrel medic
Medicago hypogaea E. Small	Fodder/forage	Alfalfa
Medicago hypogaea E. Small	Fodder/forage	Barrel medic
Medicago littoralis Loisel.	Fodder/forage	Barrel medic
Medicago littoralis Loisel.	Fodder/forage	Shore medic
Medicago lupulina L.	Fodder/forage	Trefoil
Medicago lupulina var. cupaniana (Guss.) Boiss.	Fodder/forage	Trefoil
Medicago marina L.	Fodder/forage	Alfalfa
Medicago murex Willd.	Fodder/forage	Alfalfa
Medicago murex Willd.	Fodder/forage	Sphere medic
Medicago papillosa Boiss.	Fodder/forage	Alfalfa
Medicago pironae Vis.	Fodder/forage	Alfalfa
Medicago polymorpha L.	Fodder/forage	Bur medic
Medicago prostrata Jacq.	Fodder/forage	Alfalfa
Medicago rigidula (L.) All.	Fodder/forage	Barrel medic

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Medicago rigidula (L.) All.	Fodder/forage	Field medic
Medicago rugosa Desr.	Fodder/forage	Alfalfa
Medicago rugosa Desr.	Fodder/forage	Wrinkled/gama medic
Medicago rupestris M. Bieb.	Fodder/forage	Alfalfa
Medicago sativa L.	Fodder/forage	Lucerne
Medicago sativa L. subsp. sativa	Fodder/forage	Alfalfa
Medicago sativa nothosubsp. varia (Martyn) Arcang.	Fodder/forage	Alfalfa
Medicago sativa nothosubsp. varia (Martyn) Arcang.	Fodder/forage	Sand lucerne
Medicago sativa subsp. microcarpa Urb.	Fodder/forage	Alfalfa
Medicago scutellata (L.) Mill.	Fodder/forage	Barrel medic
Medicago scutellata (L.) Mill.	Fodder/forage	Snail medic
Medicago soleirolii Duby	Fodder/forage	Alfalfa
Medicago strasseri Greuter & al.	Fodder/forage	Alfalfa
Medicago strasseri Greuter & al.	Fodder/forage	Barrel medic
Medicago tornata subsp. helix (Willd.) Ooststr. & Reichg.	Fodder/forage	Barrel medic
Medicago tornata subsp. helix (Willd.) Ooststr. & Reichg.	Fodder/forage	Disc medic
Medicago truncatula Gaertn.	Fodder/forage	Barrel clover
Medicago truncatula Gaertn.	Fodder/forage	Barrel medic

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Medicago turbinata (L.) All.	Fodder/forage	Barrel medic
Melilotus albus Medik.	Fodder/forage	Honey clover
Melilotus officinalis (L.) Lam.	Fodder/forage	Yellow sweet clover
Mentha suaveolens Ehrh.	Herbs	Peppermint
Mentha suaveolens Ehrh. subsp. suaveolens	Herbs	Peppermint
Mentha suaveolens subsp. insularis (Req. ex Gren. & Godr.) Greuter	Herbs	Peppermint
Moricandia arvensis (L.) DC.	Oils/fodder	Rape
Moricandia arvensis (L.) DC.	Spices/oils/vegetables (green)	Mustard
Moricandia arvensis (L.) DC.	Vegetables (green)	Cabbage
Moricandia arvensis (L.) DC.	Vegetables (salad)	Radish
Myrtus communis L.	Fruits	Myrtle berry
Myrtus communis L. subsp. communis	Fruits	Myrtle berry
Myrtus communis subsp. tarentina (L.) Nyman	Fruits	Myrtle berry
Ochlopoa annua (L.) H. Scholz	Fodder/forage	Annual meadowgrass
Ochlopoa annua (L.) H. Scholz subsp. annua	Fodder/forage	Annual meadowgrass
Ochlopoa annua subsp. notabilis (Chrtek & V. Jirásek) H. Scholz & Valdés	Fodder/forage	Annual meadowgrass
Ochlopoa annua subsp. pilantha (Ronniger) H. Scholz & Valdés	Fodder/forage	Annual meadowgrass
Ochlopoa annua subsp. raniglumis (E. Fröhner) H. Scholz & Valdés	Fodder/forage	Annual meadowgrass

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Olea europaea</i> L. subsp. <i>europaea</i>	Fruits/oils	Olive
<i>Olea europaea</i> subsp. <i>cerasiformis</i> G. Kunkel & Sunding	Fruits/oils	Olive
<i>Olea europaea</i> subsp. <i>guanchica</i> P. Vargas & al.	Fruits/oils	Olive
<i>Onobrychis viciifolia</i> Scop.	Fodder/forage	Sainfoin
<i>Ornithopus compressus</i> L.	Fodder/forage	Yellow serradella
<i>Ornithopus sativus</i> Brot.	Fodder/forage	Serradella
<i>Ornithopus sativus</i> subsp. <i>isthmocarpus</i> (Coss.) Dostál	Fodder/forage	Serradella
<i>Oryza rufipogon</i> Griff.	Cereals	Rice
<i>Panicum miliaceum</i> L. subsp. <i>miliaceum</i>	Cereals	Proso millet
<i>Panicum miliaceum</i> subsp. <i>agricolum</i> H. Scholz & Mikoláš	Cereals	Proso millet
<i>Panicum miliaceum</i> subsp. <i>ruderales</i> (Kitag.) Tzvelev	Cereals	Proso millet
<i>Papaver somniferum</i> L.	Oils/spices	Poppy seed
<i>Patellifolia procumbens</i> (C. Sm.) A. J. Scott & al.	Sugar/fodder/vegetables (green)	Sugarbeet
<i>Phalaris aquatica</i> L.	Fodder/forage	Harding grass
<i>Phalaris canariensis</i> L.	Fodder/forage	Canary grass
<i>Phalaroides arundinacea</i> (L.) Rauschert	Fodder/forage	Reed canary grass
<i>Phalaroides arundinacea</i> (L.) Rauschert subsp. <i>arundinacea</i>	Fodder/forage	Reed canary grass
<i>Phalaroides arundinacea</i> subsp. <i>oehlerii</i> (Pilg.) Valdés & H. Scholz	Fodder/forage	Reed canary grass

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Phalaroides arundinacea</i> subsp. <i>rotgesii</i> (Husn.) Valdés & H. Scholz	Fodder/forage	Reed canary grass
<i>Phleum nodosum</i> L.	Fodder/forage	Small timothy
<i>Phleum pratense</i> L.	Fodder/forage	Timothy
<i>Phleum pratense</i> L. subsp. <i>pratense</i>	Fodder/forage	Timothy
<i>Phleum pratense</i> subsp. <i>brachystachyum</i> (Salis) Gamisans	Fodder/forage	Timothy
<i>Phoenix canariensis</i> Chabaud	Fruits/oils	Date
<i>Phoenix dactylifera</i> L.	Fruits/oils	Date
<i>Phoenix theophrasti</i> Greuter	Fruits/oils	Date
<i>Pistacia atlantica</i> Desf.	Nuts	Pistachio
<i>Pistacia atlantica</i> subsp. <i>cypricola</i> H. Lindb.	Nuts	Pistachio
<i>Pistacia atlantica</i> subsp. <i>mutica</i> (Fisch. & C. A. Mey.) Rech. f.	Nuts	Pistachio
<i>Pistacia eurycarpa</i> Yalt.	Nuts	Pistachio
<i>Pistacia khinjuk</i> Stocks	Nuts	Pistachio
<i>Pistacia lentiscus</i> L.	Nuts	Pistachio
<i>Pistacia terebinthus</i> L.	Nuts	Pistachio
<i>Pistacia terebinthus</i> L. subsp. <i>terebinthus</i>	Nuts	Pistachio
<i>Pistacia terebinthus</i> subsp. <i>palaestina</i> (Boiss.) Engl.	Nuts	Pistachio
<i>Pisum fulvum</i> Sm.	Pulses	Garden pea

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Pisum sativum L. subsp. sativum	Pulses	Garden pea
Pisum sativum subsp. elatius (M. Bieb.) Asch. & Graebn.	Pulses	Garden pea
Plantago lanceolata L.	Fodder/forage	Ribwort plantain
Poa alpina L.	Fodder/forage	Alpine bluegrass
Poa alpina L. subsp. Alpina	Fodder/forage	Alpine bluegrass
Poa alpina subsp. brevifolia Gaudin	Fodder/forage	Alpine bluegrass
Poa palustris L.	Fodder/forage	Swamp meadowgrass
Poa palustris L. subsp. palustris	Fodder/forage	Swamp meadowgrass
Poa palustris subsp. volhynensis (Klokov) Tzvelev	Fodder/forage	Swamp meadowgrass
Poa pratensis L.	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis L. subsp. pratensis	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. colpodea (Th. Fr.) Tzvelev	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. dolichophylla (Hack.) Portal	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. irrigata (Lindm.) H. Lindb.	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. jordanii Portal	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. rigens (Hartm.) Tzvelev	Fodder/forage	Smooth-stalked meadowgrass
Poa pratensis subsp. turfosa (Litv.) Vorosch.	Fodder/forage	Smooth-stalked meadowgrass
Poa trivialis L.	Fodder/forage	Rough-stalked meadowgrass

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Poa trivialis L. subsp. trivialis	Fodder/forage	Rough-stalked meadowgrass
Poa trivialis subsp. latifolia (Schur) Portal	Fodder/forage	Rough-stalked meadowgrass
Poa trivialis subsp. semineutra (Willd.) Portal	Fodder/forage	Rough-stalked meadowgrass
Poa trivialis subsp. sylvicola (Guss.) H. Lindb.	Fodder/forage	Rough-stalked meadowgrass
Prunus arabica (Olivier) Meikle	Nuts	Almond
Prunus argentea (Lam.) Rehder	Fruits	Peach
Prunus argentea (Lam.) Rehder	Nuts	Almond
Prunus armeniaca L.	Fruits	Apricot
Prunus armeniaca L.	Fruits	Japanese plum
Prunus armeniaca L.	Fruits	Peach
Prunus armeniaca L.	Fruits	Plum
Prunus avium (L.) L.	Fruits	Sour cherry
Prunus avium (L.) L.	Fruits	Sweet cherry
Prunus brigantina Vill.	Fruits	Apricot
Prunus brigantina Vill.	Fruits	Peach
Prunus brigantina Vill.	Fruits	Plum
Prunus brigantina Vill.	Nuts	Almond
Prunus carduchorum (Bornm.) Meikle	Nuts	Almond

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Prunus cerasifera Ehrh.	Fruits	Apricot
Prunus cerasifera Ehrh.	Fruits	Japanese plum
Prunus cerasifera Ehrh.	Fruits	Myrobalan plum
Prunus cerasifera Ehrh.	Fruits	Peach
Prunus cerasifera Ehrh.	Fruits	Plum
Prunus cerasifera Ehrh.	Nuts	Almond
Prunus discolor (Spach) C. K. Schneid.	Nuts	Almond
Prunus dulcis (Mill.) D. A. Webb	Fruits	Peach
Prunus dulcis (Mill.) D. A. Webb	Nuts	Almond
Prunus fenzliana R. M. Fritsch	Fruits	Peach
Prunus fenzliana R. M. Fritsch	Nuts	Almond
Prunus fruticosa Pall.	Fruits	Sour cherry
Prunus fruticosa Pall.	Fruits	Sweet cherry
Prunus incana (Pall.) Steven	Fruits	Peach
Prunus kotschyi (Spach) Náb.	Nuts	Almond
Prunus lusitanica L.	Fruits	Stonefruits
Prunus lusitanica L. subsp. lusitanica	Fruits	Stonefruits
Prunus lusitanica subsp. azorica (Mouill.) Franco	Fruits	Stonefruits

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Prunus lusitanica</i> subsp. <i>hixa</i> (Willd.) Franco	Fruits	Stonefruits
<i>Prunus lycioides</i> (Spach) C. K. Schneid.	Fruits	Peach
<i>Prunus lycioides</i> (Spach) C. K. Schneid.	Nuts	Almond
<i>Prunus mahaleb</i> L.	Fruits	Sour cherry
<i>Prunus mahaleb</i> L.	Fruits	Sweet cherry
<i>Prunus microcarpa</i> C. A. Mey.	Fruits	Japanese plum
<i>Prunus padus</i> L.	Fruits	Sour cherry
<i>Prunus padus</i> L. subsp. <i>padus</i>	Fruits	Sweet cherry
<i>Prunus padus</i> subsp. <i>borealis</i> (A. Blytt) Nyman	Fruits	Sweet cherry
<i>Prunus persica</i> (L.) Batsch	Fruits	Peach
<i>Prunus persica</i> (L.) Batsch	Nuts	Almond
<i>Prunus prostrata</i> Labill.	Fruits	Myrobalan plum
<i>Prunus prostrata</i> Labill.	Fruits	Plum
<i>Prunus ramburii</i> Boiss.	Fruits	Japanese plum
<i>Prunus spinosa</i> L.	Fruits	Apricot
<i>Prunus spinosa</i> L.	Fruits	Japanese plum
<i>Prunus spinosa</i> L.	Fruits	Peach
<i>Prunus spinosa</i> L.	Fruits	Plum

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Prunus spinosa L. subsp. spinosa	Fruits	Apricot
Prunus spinosa L. subsp. spinosa	Fruits	Japanese plum
Prunus spinosa L. subsp. spinosa	Fruits	Peach
Prunus spinosa L. subsp. spinosa	Fruits	Plum
Prunus spinosa subsp. dasyphylla (Schur) Domin	Fruits	Apricot
Prunus spinosa subsp. dasyphylla (Schur) Domin	Fruits	Japanese plum
Prunus spinosa subsp. dasyphylla (Schur) Domin	Fruits	Peach
Prunus spinosa subsp. dasyphylla (Schur) Domin	Fruits	Plum
Prunus tomentosa Thunb.	Fruits	Japanese plum
Prunus tomentosa Thunb.	Fruits	Myrobalan plum
Prunus tomentosa Thunb.	Fruits	Peach
Prunus tomentosa Thunb.	Fruits	Sweet cherry
Prunus trichamygdalus Hand.-Mazz.	Nuts	Almond
Prunus webbii (Spach) Vierh.	Fruits	Peach
Prunus webbii (Spach) Vierh.	Nuts	Almond
Pyrus bourgaeana Decne.	Fruits	Pear
Pyrus bourgaeana Decne.	Fruits	Ussurian pear
Pyrus communis L.	Fruits	Pear

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Pyrus communis</i> L. subsp. <i>communis</i>	Fruits	Pear
<i>Pyrus communis</i> subsp. <i>caucasica</i> (Fed.) Browicz	Fruits	Pear
<i>Pyrus communis</i> subsp. <i>caucasica</i> (Fed.) Browicz	Fruits	Ussurian pear
<i>Pyrus communis</i> subsp. <i>pyraster</i> (L.) Ehrh.	Fruits	Pear
<i>Pyrus cordata</i> Desv.	Fruits	Pear
<i>Pyrus cordata</i> Desv.	Fruits	Ussurian pear
<i>Pyrus elaeagrifolia</i> Pall.	Fruits	Asian pear/Nashi pear
<i>Pyrus elaeagrifolia</i> Pall.	Fruits	Pear
<i>Pyrus elaeagrifolia</i> Pall.	Fruits	Ussurian pear
<i>Pyrus elaeagrifolia</i> Pall. subsp. <i>elaeagrifolia</i>	Fruits	Pear
<i>Pyrus elaeagrifolia</i> subsp. <i>bulgarica</i> (Kuth. & Sachok.) Valev	Fruits	Pear
<i>Pyrus elaeagrifolia</i> subsp. <i>kotschyana</i> (Decne.) Browicz	Fruits	Pear
<i>Pyrus magyarica</i> Terpó	Fruits	Asian pear/Nashi pear
<i>Pyrus magyarica</i> Terpó	Fruits	Pear
<i>Pyrus nivalis</i> Jacq.	Fruits	Pear
<i>Pyrus salicifolia</i> Pall.	Fruits	Pear
<i>Pyrus salicifolia</i> Pall.	Fruits	Ussurian pear
<i>Pyrus spinosa</i> Forssk.	Fruits	Pear

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Pyrus spinosa</i> Forssk.	Fruits	Ussurian pear
<i>Pyrus syriaca</i> Boiss.	Fruits	Pear
<i>Pyrus syriaca</i> Boiss.	Fruits	Ussurian pear
<i>Raphanus raphanistrum</i> L.	Oils/fodder	Rape
<i>Raphanus raphanistrum</i> L.	Spices/oils/vegetables (green)	Mustard
<i>Raphanus raphanistrum</i> L.	Vegetables (salad)	Radish
<i>Raphanus raphanistrum</i> L. subsp. <i>raphanistrum</i>	Vegetables (salad)	Radish
<i>Raphanus raphanistrum</i> subsp. <i>landra</i> (Moretti ex DC.) Bonnier & Layens	Vegetables (salad)	Radish
<i>Raphanus raphanistrum</i> subsp. <i>rostratus</i> (DC.) Thell.	Vegetables (salad)	Radish
<i>Raphanus sativus</i> L.	Fodder/forage	Fodder radish
<i>Raphanus sativus</i> L.	Vegetables (salad)	Radish
<i>Ribes aureum</i> Pursh	Fruits	Blackcurrant
<i>Ribes aureum</i> Pursh	Fruits	Gooseberry
<i>Ribes divaricatum</i> Douglas	Fruits	Blackcurrant
<i>Ribes divaricatum</i> Douglas	Fruits	Gooseberry
<i>Ribes multiflorum</i> Roem. & Schult.	Fruits	Blackcurrant
<i>Ribes multiflorum</i> Roem. & Schult.	Fruits	Redcurrant
<i>Ribes multiflorum</i> Roem. & Schult. subsp. <i>multiflorum</i>	Fruits	Redcurrant

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Ribes multiflorum subsp. sandalioticum Arrigoni	Fruits	Redcurrant
Ribes nigrum L.	Fruits	Blackcurrant
Ribes nigrum L.	Fruits	Gooseberry
Ribes petraeum Wulfen	Fruits	Blackcurrant
Ribes petraeum Wulfen	Fruits	Redcurrant
Ribes rubrum L.	Fruits	Blackcurrant
Ribes rubrum L.	Fruits	Redcurrant
Ribes sanguineum Pursh	Fruits	Blackcurrant
Ribes spicatum E. Robson	Fruits	Redcurrant
Ribes spicatum E. Robson subsp. spicatum	Fruits	Redcurrant
Ribes spicatum subsp. hispidulum (Jancz.) Hämet-Ahti	Fruits	Redcurrant
Ribes spicatum subsp. lapponicum Hyl.	Fruits	Redcurrant
Ribes uva-crispa L.	Fruits	Blackcurrant
Ribes uva-crispa L.	Fruits	Gooseberry
Rorippa prolifera (Heuff.) Neilr.	Vegetables (salad)	Variableleaf yellowcress
Rorippa valdes-bermejoi (Castrov.) Mart.-Laborde & Castrov.	Vegetables (salad)	Variableleaf yellowcress
Rubus cockburnianus Hemsl.	Fruits	Raspberry
Rubus idaeus L.	Fruits	Raspberry

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Rubus idaeus L. subsp. idaeus	Fruits	Raspberry
Rubus idaeus subsp. melanolasius Focke	Fruits	Raspberry
Rubus illecebrosus Focke	Fruits	Raspberry
Rubus occidentalis L.	Fruits	Raspberry
Rubus odoratus L.	Fruits	Raspberry
Rubus phoenicolasius Maxim.	Fruits	Raspberry
Rubus saxatilis L.	Fruits	Raspberry
Rubus spectabilis Pursh	Fruits	Raspberry
Saccharum spontaneum L.	Sugar	Sugarcane
Saccharum spontaneum subsp. aegyptiacum (Willd.) Hack.	Sugar	Sugarcane
Salsola vermiculata L.	Fodder/forage	Mediterranean saltwort
Schedonorus arundinaceus (Schreb.) Dumont subsp. arundinaceus	Fodder/forage	Tall fescue
Schedonorus arundinaceus (Schreb.) Dumort.	Fodder/forage	Tall fescue
Schedonorus arundinaceus subsp. atlantigenus (St.-Yves) H. Scholz	Fodder/forage	Tall fescue
Schedonorus arundinaceus subsp. cirtensis (St.-Yves) H. Scholz & Valdés	Fodder/forage	Tall fescue
Schedonorus arundinaceus subsp. corsicus (Hack.) Foggi & Signorini	Fodder/forage	Tall fescue
Schedonorus arundinaceus subsp. fenas (Lag.) H. Scholz	Fodder/forage	Tall fescue
Schedonorus arundinaceus subsp. mediterraneus (Hack.) H. Scholz & Valdés	Fodder/forage	Tall fescue

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Schedonorus arundinaceus subsp. orientalis (Hack.) H. Scholz & Valdés	Fodder/forage	Tall fescue
Schedonorus giganteus (L.) Holub	Fodder/forage	Giant fescue
Schedonorus pratensis (Huds.) P. Beauv.	Fodder/forage	Meadow fescue
Schedonorus pratensis (Huds.) P. Beauv. subsp. pratensis	Fodder/forage	Meadow fescue
Schedonorus pratensis subsp. apenninus (De Not.) H. Scholz & Valdés	Fodder/forage	Meadow fescue
Secale cereale L.	Cereals	Wheat
Secale cereale L. subsp. cereale	Cereals	Rye
Secale cereale subsp. ancestrale Zhuk.	Cereals	Rye
Secale strictum (C. Presl) C. Presl	Cereals	Rye
Secale strictum (C. Presl) C. Presl subsp. strictum	Cereals	Rye
Secale strictum subsp. anatolicum (Boiss.) Hammer	Cereals	Rye
Secale strictum subsp. balcanum (Ganchev) Valdés & H. Scholz	Cereals	Rye
Secale strictum subsp. ciliatoglume (Boiss.) Hammer	Cereals	Rye
Secale sylvestre Host	Cereals	Rye
Secale vavilovii Grossh.	Cereals	Rye
Securigera varia (L.) Lassen	Fodder/forage	Crownvetch
Setaria italica (L.) P. Beauv.	Cereals	Foxtail millet
Setaria italica (L.) P. Beauv. subsp. italica	Cereals	Foxtail millet

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Setaria italica</i> subsp. <i>moharia</i> (Alef.) R. A. W. Herrm.	Cereals	Foxtail millet
<i>Setaria italica</i> subsp. <i>pycnocoma</i> (Steud.) De Wet	Cereals	Foxtail millet
<i>Sinapidendron angustifolium</i> (DC.) Lowe	Vegetables (green)	Brassicas
<i>Sinapidendron frutescens</i> (Sol.) Lowe var. <i>frutescens</i>	Vegetables (green)	Brassicas
<i>Sinapidendron frutescens</i> Lowe	Vegetables (green)	Brassicas
<i>Sinapidendron frutescens</i> subsp. <i>succulentum</i> (Lowe) Rustan	Vegetables (green)	Brassicas
<i>Sinapidendron gymnocalyx</i> (Lowe) Rustan	Vegetables (green)	Brassicas
<i>Sinapidendron rupestre</i> Lowe	Vegetables (green)	Brassicas
<i>Sinapidendron sempervivifolium</i> Menezes	Vegetables (green)	Brassicas
<i>Sinapis alba</i> L.	Oils/fodder	Rape
<i>Sinapis alba</i> L.	Spices	Black mustard
<i>Sinapis alba</i> L.	Spices/oils/vegetables (green)	Mustard
<i>Sinapis alba</i> L.	Vegetables (green)	Ethiopian cabbage
<i>Sinapis alba</i> L.	Vegetables (green)	Kale
<i>Sinapis alba</i> L.	Vegetables (root)/fodder	Turnip
<i>Sinapis alba</i> L.	Vegetables (salad)	Radish
<i>Sinapis alba</i> L. subsp. <i>alba</i>	Oils/fodder	Rape
<i>Sinapis alba</i> L. subsp. <i>alba</i>	Spices	Black mustard

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Sinapis alba L. subsp. alba	Spices	White mustard
Sinapis alba L. subsp. alba	Spices/oils/vegetables (green)	Mustard
Sinapis alba L. subsp. alba	Vegetables (green)	Ethiopian cabbage
Sinapis alba L. subsp. alba	Vegetables (green)	Kale
Sinapis alba L. subsp. alba	Vegetables (root)/fodder	Turnip
Sinapis alba L. subsp. alba	Vegetables (salad)	Radish
Sinapis alba subsp. dissecta (Lag.) Simonk.	Oils/fodder	Rape
Sinapis alba subsp. dissecta (Lag.) Simonk.	Spices	Black mustard
Sinapis alba subsp. dissecta (Lag.) Simonk.	Spices	White mustard
Sinapis alba subsp. dissecta (Lag.) Simonk.	Spices/oils/vegetables (green)	Mustard
Sinapis alba subsp. dissecta (Lag.) Simonk.	Vegetables (green)	Ethiopian cabbage
Sinapis alba subsp. dissecta (Lag.) Simonk.	Vegetables (green)	Kale
Sinapis alba subsp. dissecta (Lag.) Simonk.	Vegetables (root)/fodder	Turnip
Sinapis alba subsp. dissecta (Lag.) Simonk.	Vegetables (salad)	Radish
Sinapis alba subsp. mairei (H. Lindb.) Maire	Oils/fodder	Rape
Sinapis alba subsp. mairei (H. Lindb.) Maire	Spices	Black mustard
Sinapis alba subsp. mairei (H. Lindb.) Maire	Spices	White mustard
Sinapis alba subsp. mairei (H. Lindb.) Maire	Spices/oils/vegetables (green)	Mustard

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Sinapis alba subsp. mairei (H. Lindb.) Maire	Vegetables (green)	Ethiopian cabbage
Sinapis alba subsp. mairei (H. Lindb.) Maire	Vegetables (green)	Kale
Sinapis alba subsp. mairei (H. Lindb.) Maire	Vegetables (root)/fodder	Turnip
Sinapis alba subsp. mairei (H. Lindb.) Maire	Vegetables (salad)	Radish
Sinapis arvensis L.	Oils/fodder	Rape
Sinapis arvensis L.	Spices	Black mustard
Sinapis arvensis L.	Spices/oils/vegetables (green)	Mustard
Sinapis arvensis L.	Vegetables (green)	Ethiopian cabbage
Sinapis arvensis L.	Vegetables (green)	Kale
Sinapis arvensis L.	Vegetables (root)/fodder	Turnip
Sinapis arvensis L.	Vegetables (salad)	Radish
Sinapis arvensis L. subsp. arvensis	Oils/fodder	Rape
Sinapis arvensis L. subsp. arvensis	Spices	Black mustard
Sinapis arvensis L. subsp. arvensis	Spices/oils/vegetables (green)	Mustard
Sinapis arvensis L. subsp. arvensis	Vegetables (green)	Ethiopian cabbage
Sinapis arvensis L. subsp. arvensis	Vegetables (green)	Kale
Sinapis arvensis L. subsp. arvensis	Vegetables (root)/fodder	Turnip
Sinapis arvensis L. subsp. arvensis	Vegetables (salad)	Radish

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Oils/fodder	Rape
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Spices	Black mustard
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Spices/oils/vegetables (green)	Mustard
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Vegetables (green)	Ethiopian cabbage
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Vegetables (green)	Kale
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Vegetables (root)/fodder	Turnip
<i>Sinapis arvensis</i> var. <i>orientalis</i> (L.) W. D. J. Koch & Ziz	Vegetables (salad)	Radish
<i>Sinapis flexuosa</i> Poir.	Spices	White mustard
<i>Solanum lidii</i> Sunding	Fruits (savoury)	Eggplant
<i>Solanum linnaeanum</i> Hepper & P.-M. L. Jaeger	Fruits (savoury)	Eggplant
<i>Solanum marginatum</i> L. f.	Fruits (savoury)	Eggplant
<i>Solanum sisymbriifolium</i> Lam.	Fruits (savoury)	Eggplant
<i>Solanum torvum</i> Sw.	Fruits (savoury)	Eggplant
<i>Sorghum bicolor</i> (L.) Moench	Cereals	Sorghum
<i>Sorghum halepense</i> (L.) Pers.	Cereals	Sorghum
<i>Trifolium alexandrinum</i> L.	Fodder/forage	Berseem/Egyptian clover
<i>Trifolium alpestre</i> L.	Fodder/forage	Owlhead clover
<i>Trifolium alpestre</i> L. var. <i>alpestre</i>	Fodder/forage	Owlhead clover

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Trifolium alpestre</i> var. <i>durmitoreum</i> Rohlena	Fodder/forage	Owlhead clover
<i>Trifolium ambiguum</i> M. Bieb.	Fodder/forage	Caucasian clover
<i>Trifolium angustifolium</i> L.	Fodder/forage	Narrow clover
<i>Trifolium argutum</i> Banks & Sol.	Fodder/forage	Clover (berseem, red, subterranean, white)
<i>Trifolium arvense</i> L.	Fodder/forage	Harefoot clover
<i>Trifolium fragiferum</i> L.	Fodder/forage	Strawberry clover
<i>Trifolium fragiferum</i> L. subsp. <i>fragiferum</i>	Fodder/forage	Strawberry clover
<i>Trifolium fragiferum</i> subsp. <i>bonannii</i> (C. Presl) Soják	Fodder/forage	Strawberry clover
<i>Trifolium hirtum</i> All.	Fodder/forage	Rose clover
<i>Trifolium hybridum</i> L.	Fodder/forage	Alsike clover
<i>Trifolium hybridum</i> L. subsp. <i>hybridum</i>	Fodder/forage	Alsike clover
<i>Trifolium hybridum</i> subsp. <i>anatolicum</i> (Boiss.) M. Hossain	Fodder/forage	Alsike clover
<i>Trifolium hybridum</i> subsp. <i>elegans</i> (Savi) Asch. & Graebn.	Fodder/forage	Alsike clover
<i>Trifolium incarnatum</i> L.	Fodder/forage	Crimson clover
<i>Trifolium incarnatum</i> L. subsp. <i>incarnatum</i>	Fodder/forage	Crimson clover
<i>Trifolium incarnatum</i> subsp. <i>molinerii</i> (Hornem.) Syme	Fodder/forage	Crimson clover
<i>Trifolium isthmocarpum</i> Brot.	Fodder/forage	Moroccan clover
<i>Trifolium isthmocarpum</i> Brot. subsp. <i>isthmocarpum</i>	Fodder/forage	Moroccan clover

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Trifolium isthmocarpum</i> subsp. <i>jaminianum</i> (Boiss.) Murb.	Fodder/forage	Moroccan clover
<i>Trifolium michelianum</i> Savi	Fodder/forage	Balansa clover
<i>Trifolium michelianum</i> Savi var. <i>michelianum</i>	Fodder/forage	Balansa clover
<i>Trifolium michelianum</i> var. <i>balansae</i> (Boiss.) Azn.	Fodder/forage	Balansa clover
<i>Trifolium pratense</i> L.	Fodder/forage	Red clover
<i>Trifolium pratense</i> L. var. <i>pratense</i>	Fodder/forage	Red clover
<i>Trifolium pratense</i> var. <i>americanum</i> Harz	Fodder/forage	Red clover
<i>Trifolium pratense</i> var. <i>frigidum</i> Gaudin	Fodder/forage	Red clover
<i>Trifolium pratense</i> var. <i>maritimum</i> Zabel	Fodder/forage	Red clover
<i>Trifolium pratense</i> var. <i>sativum</i> Schreb.	Fodder/forage	Red clover
<i>Trifolium repens</i> L.	Fodder/forage	White clover
<i>Trifolium repens</i> L. var. <i>repens</i>	Fodder/forage	White clover
<i>Trifolium repens</i> subsp. <i>prostratum</i> Nyman	Fodder/forage	White clover
<i>Trifolium repens</i> var. <i>biasoletii</i> (Steud. & Hochst.) Asch. & Graebn.	Fodder/forage	White clover
<i>Trifolium repens</i> var. <i>macrorrhizum</i> Boiss.	Fodder/forage	White clover
<i>Trifolium repens</i> var. <i>nevadense</i> (Boiss.) C. Vicioso	Fodder/forage	White clover
<i>Trifolium repens</i> var. <i>ochranthum</i> K. Malý	Fodder/forage	White clover
<i>Trifolium repens</i> var. <i>orbelicum</i> (Velen.) R. M. Fritsch	Fodder/forage	White clover

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Trifolium repens</i> var. <i>orphanideum</i> (Boiss.) Boiss.	Fodder/forage	White clover
<i>Trifolium resupinatum</i> L.	Fodder/forage	Persian clover
<i>Trifolium resupinatum</i> L. var. <i>resupinatum</i>	Fodder/forage	Persian clover
<i>Trifolium resupinatum</i> var. <i>majus</i> Boiss.	Fodder/forage	Persian clover
<i>Trifolium squarrosum</i> L.	Fodder/forage	Squarrose clover
<i>Trifolium subterraneum</i> L.	Fodder/forage	Subterranean clover
<i>Trifolium subterraneum</i> subsp. <i>oxaloides</i> Nyman	Fodder/forage	Subterranean clover
<i>Trifolium subterraneum</i> subsp. <i>yanninicum</i> Katzn. & F. H. W. Morley	Fodder/forage	Subterranean clover
<i>Trifolium vesiculosum</i> Savi	Fodder/forage	Arrowleaf clover
<i>Trigonella foenum-graecum</i> L.	Fodder/forage	Fenugreek
<i>Trisetum flavescens</i> (L.) P. Beauv.	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> (L.) P. Beauv. subsp. <i>flavescens</i>	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>baregense</i> (Laffitte & Miégev.) O. Bolòs & al.	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>corsicum</i> (Rouy) Cif. & Giacom.	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>purpurascens</i> (DC.) Arcang.	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>serbicum</i> (Velen.) Hayek	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>splendens</i> (C. Presl) Arcang.	Fodder/forage	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>tenue</i> (Formánek) Strid	Fodder/forage	Golden oatgrass

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Triticum monococcum L.	Cereals	Wheat
Triticum monococcum L. subsp. monococcum	Cereals	Einkorn wheat
Triticum monococcum subsp. aegilopoides (Link) Thell.	Cereals	Wheat
Triticum monococcum subsp. sinskajae (A. A. Filatenko & U. K. Kurkiew) Valdés & H. Scholz	Cereals	Wheat
Triticum timopheevii (Zhuk.) Zhuk.	Cereals	Wheat
Triticum timopheevii (Zhuk.) Zhuk. subsp. timopheevii	Cereals	Timopheev's wheat
Triticum timopheevii subsp. armeniacum (Jakubz.) Mackey	Cereals	Wheat
Triticum turgidum L.	Cereals	Wheat
Triticum turgidum L. subsp. turgidum	Cereals	Poulard wheat
Triticum turgidum subsp. asiaticum (Vavilov) H. Scholz	Cereals	Wheat
Triticum turgidum subsp. carthlicum (Nevski) Á. Löve & D. Löve	Cereals	Persian wheat
Triticum turgidum subsp. dicoccoides (Asch. & Graebn.) Thell.	Cereals	Wheat
Triticum turgidum subsp. dicoccon (Schränk) Thell.	Cereals	Emmer wheat
Triticum turgidum subsp. durum (Desf.) Husn.	Cereals	Durum wheat
Triticum turgidum subsp. polonicum (L.) Thell.	Cereals	Polish wheat
Triticum turgidum subsp. subspontaneum (Tzvelev) Valdés & H. Scholz	Cereals	Wheat
Triticum turgidum subsp. volgense (Flaksb.) Á Löve & D. Löve	Cereals	Wheat
Vaccinium corymbosum L.	Fruits	Blueberry, highbush

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Vaccinium corymbosum L.	Fruits	Blueberry, lowbush
Vaccinium corymbosum L.	Fruits	Blueberry, rabbiteye
Vaccinium macrocarpon Aiton	Fruits	Cranberry
Vaccinium oxycoccos L.	Fruits	Cranberry
Vicia anatolica Turrill	Fodder/forage	Hungarian vetch
Vicia articulata Hornem.	Fodder/forage	Bitter vetch
Vicia articulata Hornem.	Fodder/forage	One-flowered vetch
Vicia barbazitae Ten. & Guss.	Fodder/forage	Common vetch
Vicia benghalensis L.	Fodder/forage	Purple vetch
Vicia bithynica (L.) L.	Pulses	Faba bean
Vicia capreolata Lowe	Fodder/forage	Bitter vetch
Vicia capreolata Lowe	Fodder/forage	Common vetch
Vicia capreolata Lowe	Fodder/forage	Hungarian vetch
Vicia capreolata Lowe	Fodder/forage	One-flowered vetch
Vicia capreolata Lowe	Pulses	Faba bean
Vicia capreolata Lowe	Pulses	Narbon bean
Vicia ciliatula Lipsky	Fodder/forage	Hungarian vetch
Vicia costae A. Hansen	Fodder/forage	Bitter vetch

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Vicia costae A. Hansen	Fodder/forage	Common vetch
Vicia costae A. Hansen	Fodder/forage	Hungarian vetch
Vicia costae A. Hansen	Fodder/forage	One-flowered vetch
Vicia costae A. Hansen	Pulses	Faba bean
Vicia costae A. Hansen	Pulses	Narbon bean
Vicia cuspidata Boiss.	Pulses	Faba bean
Vicia eristalioides Maxted	Pulses	Narbon bean
Vicia ervilia (L.) Willd.	Fodder/forage	Bitter vetch
Vicia ervilia (L.) Willd.	Fodder/forage	One-flowered vetch
Vicia ferreirensis Goyder	Fodder/forage	Bitter vetch
Vicia ferreirensis Goyder	Fodder/forage	Common vetch
Vicia ferreirensis Goyder	Fodder/forage	Hungarian vetch
Vicia ferreirensis Goyder	Fodder/forage	One-flowered vetch
Vicia ferreirensis Goyder	Pulses	Faba bean
Vicia ferreirensis Goyder	Pulses	Narbon bean
Vicia grandiflora Scop.	Fodder/forage	Common vetch
Vicia grandiflora Scop. var. grandiflora	Fodder/forage	Common vetch
Vicia hirsuta (L.) Gray	Fodder/forage	One-flowered vetch

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Vicia hybrida L.	Fodder/forage	Hungarian vetch
Vicia hyrcanica Fisch. & C. A. Mey.	Fodder/forage	Hungarian vetch
Vicia johannis Tamamsch.	Pulses	Faba bean
Vicia johannis Tamamsch.	Pulses	Narbon bean
Vicia johannis Tamamsch. var. johannis	Pulses	Faba bean
Vicia johannis Tamamsch. var. johannis	Pulses	Narbon bean
Vicia johannis var. procumbens H. I. Schafer	Pulses	Faba bean
Vicia johannis var. procumbens H. I. Schafer	Pulses	Narbon bean
Vicia lathyroides L.	Pulses	Faba bean
Vicia lutea L.	Fodder/forage	Hungarian vetch
Vicia lutea L. subsp. lutea	Fodder/forage	Hungarian vetch
Vicia lutea subsp. vestita (Boiss.) Rouy	Fodder/forage	Hungarian vetch
Vicia melanops Sibth. & Sm.	Fodder/forage	Hungarian vetch
Vicia melanops Sibth. & Sm. var. melanops	Fodder/forage	Hungarian vetch
Vicia mollis Boiss. & Hausskn.	Fodder/forage	Hungarian vetch
Vicia narbonensis L.	Pulses	Faba bean
Vicia narbonensis L.	Pulses	Narbon bean
Vicia narbonensis L. var. narbonensis	Pulses	Narbon bean

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
<i>Vicia narbonensis</i> var. <i>affinis</i> Asch. & Schweinf.	Pulses	Narbon bean
<i>Vicia narbonensis</i> var. <i>salmonea</i> (Mouterde) H. I. Schafer	Pulses	Narbon bean
<i>Vicia pannonica</i> Crantz	Fodder/forage	Hungarian vetch
<i>Vicia pannonica</i> Crantz subsp. <i>pannonica</i>	Fodder/forage	Hungarian vetch
<i>Vicia pannonica</i> subsp. <i>striata</i> (M. Bieb.) Nyman	Fodder/forage	Hungarian vetch
<i>Vicia pectinata</i> Lowe	Fodder/forage	Common vetch
<i>Vicia pyrenaica</i> Pourr.	Fodder/forage	Common vetch
<i>Vicia sativa</i> L.	Fodder/forage	Common vetch
<i>Vicia sativa</i> L. subsp. <i>sativa</i>	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>amphicarpa</i> (Dorthes) Asch.	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>cordata</i> (Hoppe) Batt.	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>devia</i> J. G. Costa	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>incisa</i> (M. Bieb.) Arcang.	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>macrocarpa</i> (Moris) Arcang.	Fodder/forage	Common vetch
<i>Vicia sativa</i> subsp. <i>nigra</i> (L.) Ehrh.	Fodder/forage	Common vetch
<i>Vicia sativa</i> var. <i>platysperma</i> Barulina	Fodder/forage	Common vetch
<i>Vicia serratifolia</i> Jacq.	Pulses	Faba bean
<i>Vicia serratifolia</i> Jacq.	Pulses	Narbon bean

European priority CWR taxa, showing the main crop use categories and related crops

Crop wild relative	Related crop use category	Related crop common name
Vicia villosa Roth	Fodder/forage	Hairy vetch
Vicia villosa Roth subsp. villosa	Fodder/forage	Hairy vetch
Vicia villosa subsp. ambigua (Guss.) Kerguélen	Fodder/forage	Hairy vetch
Vicia villosa subsp. eriocarpa (Hauskn.) P. W. Ball	Fodder/forage	Hairy vetch
Vicia villosa subsp. microphylla (d'Urv.) P. W. Ball	Fodder/forage	Hairy vetch
Vicia villosa subsp. varia (Host) Corb.	Fodder/forage	Hairy vetch
Vitis acerifolia Raf.	Beverages	Wine grape
Vitis amurensis Rupr.	Beverages	Amur grape
Vitis amurensis Rupr.	Beverages	Wine grape
Vitis labrusca L.	Beverages	Wine grape
Vitis riparia Michx.	Beverages	Wine grape
Vitis rupestris Scheele	Beverages	Wine grape
Vitis vinifera L.	Beverages	Muscadine grape
Vitis vinifera L.	Beverages	Wine grape
Vitis vulpina L.	Beverages	Wine grape

Appendix B: Equivalences between Occurrence Data Collation Template and GBIF and GENESYS descriptors.

ODC_Template	GBIF_codes	GENESYS_codes	Comments
UniqID	No matching	No matching	Not included in original ODCT. Created to be used in data analysis.
ID	gbifID	id	
TAXONID	acceptedTaxonKey	taxonomy.taxSpecies	
Original_name	acceptedScientificName	taxonomy.taxonName	Not included in original ODCT. Created to keep accepted scientific name by GBIF or Genesys databases
TYPE	No matching	No matching	
TYPESOURCE	No matching	No matching	
DATAOL_SOURCE	No matching	No matching	Not included in original ODCT. Created to keep clear data source.
CITATION	No matching	No matching	
FILENAME	No matching	No matching	Not included in original ODCT. Name of the initial database with occurrence data.
INSTNAME	institutionCode	institute.fullName	In GBIF sometimes this field has the institution code instead of the name
INSTCODE	institutionID	institute.Code	
STORAGE	No matching	storage1	
IDSOURCE	recordNumber	accessionNumber	
ACCENUMB	recordNumber	accessionNumber	
DONORNAME	No matching	donorName	
DONORCODE	No matching	donorCode	
DONORNUMB	No matching	donorNumb	
DUPLPOPULATION	No matching	duplPopulation1	
RIdentifier	No matching	No matching	Not included in original ODCT. Unique identifier of the European priority CWR list
FullAcceptedName	No matching	No matching	Not included in original ODCT. Accepted name used in Farmer's Pride project according to EURO+MED PlantBase
FAMILY	No matching	No matching	Not included in original ODCT. Created to have the information about "Family" according to Euro+Med PlantBase.
GENUS	Genus	taxonomy.genus	
SPECIES	specificEpithet	taxonomy.species	
SPAUTHOR	No matching	taxonomy.spAuthor	

ODC_Template	GBIF_codes	GENESYS_codes	Comments
RANK1	taxonRank	No matching	
SUBTAXA	infraspecificEpithet	taxonomy.subtaxa	
SUBTAUTHOR	No matching	taxonomy.subtAuthor	
TAXON	No matching	No matching	
DETBY	recordedBy	No matching	
COLLECTOR	No matching	coll.collName1	
COLLNUMB	catalogNumber	coll.collNumb	
COLLDATE	No matching	coll.collDate	GBIF Original correspondence was "eventDate" but this field has different types of date formats and was very incomplete. COLLDATE is filled joining 'year', 'month', 'day'.
COLLDD	Day	No matching	
COLLMM	Month	No matching	
COLLYY	Year	No matching	
NAMECTY	Country	No matching	In Genesys it can be completed by translating origCty into the given country
ORIGCTY	No matching	origCty	GBIF has an ISO2 "countryCode", which was translated into ISO3 code
ADM1	stateProvince	No matching	
ADM2	stateProvince	No matching	
ADM3	County	No matching	
ADM4	Municipality	coll.collPopulation	
COLLPOPULATION	Locality	coll.collSite	
GEOREFMETH	No matching	geo.method	
COORD_SOURCE	georeferenceRemarks	No matching	
DECLATITUDE	Latitude	geo.latitude	In GBIF, when no information is available, it can be sometimes be found in "decimalLatitude"
DECLONGITUDE	Longitude	geo.longitude	In GBIF, when no information is available, it can be sometimes found in "decimalLongitude"
COORDDATUM	geodeticDatum	geo.datum	
COORDUNCERT	coordinateUncertaintyInMeters	geo.uncertainty	
ELEVATION	Elevation	geo.elevation	

ODC_Template	GBIF_codes	GENESYS_codes	Comments
SAMPSTAT	No matching	sampStat	
final_cult_stat	No matching	No matching	
HABITAT_TXT	Habitat	No matching	
COLL SRC	No matching	coll.collSrc	
REMARKS	occurrenceRemarks	remarks1.remark	occurrenceRemarks: this field is to provide more information not given in previous fields
NOTES	eventRemarks	No matching	eventRemarks: this field is to provide more information not given in previous fields
COMMENTS	organismRemarks	No matching	organismRemarks : this field is to provide more information not given in previous fields
ISSUES	Issue	No matching	

Appendix C: Priority human food related taxa that have high quality *in situ* records in only one country.

Taxa	Related crop
<i>Aegilops comosa</i> Sm. subsp. <i>Comosa</i> <i>Aegilops comosa</i> subsp. <i>heldreichii</i> (Boiss.) Eig <i>Aegilops crassa</i> Boiss.ϕ <i>Aegilops juvenalis</i> (Thell.) Eig ϕ <i>Aegilops speltoides</i> Tauch. subsp. <i>speltoides</i> . * <i>Agropyron dasyanthum</i> Ledeb. * <i>Agropyron tanaiticum</i> Nevski	Wheat
<i>Allium albiflorum</i> Omelczuk	Alliums
<i>Allium bourgeau</i> Rech. f. <i>Allium bourgeau</i> subsp. <i>creticum</i> Bothmer ϕ <i>Allium bourgeau</i> subsp. <i>cycladicum</i> Bothmer	Leek
<i>Allium corsicum</i> Jauzein & al. ϕ <i>Allium melananthum</i> Coincy ϕ <i>Allium pyrenaicum</i> Costa & Vayr. ϕ	Alliums
<i>Amblyopyrum muticum</i> (Boiss.) Eig	Wheat
<i>Asparagus arborescens</i> Willd. ex Schult. & Schult. f. ϕ <i>Asparagus fallax</i> Svent. ϕ <i>Asparagus nesiotis</i> subsp. <i>purpureiensis</i> Marrero Rodr. & A. Ramos ϕ <i>Asparagus pastorianus</i> Webb & Berthel. ϕ <i>Asparagus plocamoides</i> Webb ex Svent. ϕ	Asparagus
<i>Avena barbata</i> subsp. <i>hirtula</i> (Lag.) Tab. Morais ϕ <i>Avena murphyi</i> Ladiz. ϕ	Oat
<i>Beta lomatogona</i> Fisch. & C. A. Mey. ϕ <i>Beta nana</i> Boiss. & Heldr. ϕ <i>Beta patula</i> Aiton ϕ <i>Beta vulgaris</i> subsp. <i>adanensis</i> Pamuk.	Sugarbeet
<i>Brassica cretica</i> Lam. subsp. <i>cretica</i> ϕ <i>Brassica cretica</i> subsp. <i>aegaea</i> (Heldr. & Halácsy) Snogerup, M. A. Gust. & Bothmer <i>Brassica cretica</i> subsp. <i>laconica</i> M. A. Gust. & Snogerup ϕ	Cabbage
<i>Brassica fruticulosa</i> subsp. <i>cossoniana</i> (Boiss. & Reut.) Maire ϕ	Rape
<i>Brassica incana</i> Ten.	Cabbage, Rape, Turnip
<i>Brassica macrocarpa</i> Guss. ϕ	Cabbage, Turnip
<i>Brassica maurorum</i> Durieu ϕ	Black mustard, Ethiopian cabbage, Mustard, Rape, Radish, Turnip
<i>Brassica rapa</i> subsp. <i>chinensis</i> (L.) Hanelt	Turnip
<i>Brassica rupestris</i> Raf.	Cabbage
<i>Brassica villosa</i> Biv. ϕ <i>Brassica villosa</i> subsp. <i>drepanensis</i> (Caruel) Raimondo & P. Mazzola ϕ	Cabbage
<i>Carthamus dentatus</i> (Forssk.) Vahl subsp. <i>Dentatus</i> <i>Carthamus dentatus</i> subsp. <i>ruber</i> (Link) Hanelt	Safflower seed

Taxa	Related crop
<i>Carthamus leucocaulos</i> Sm. <i>Carthamus tenuis</i> subsp. <i>gracillimus</i> (Rech. f.) Hanelt φ	
<i>Cicer bijugum</i> Rech. f. φ <i>Cicer canariense</i> A. Santos & G. P. Lewis φ <i>Cicer echinospermum</i> P. H. Davis φ <i>Cicer graecum</i> Boiss. φ <i>Cicer reticulatum</i> Ladiz. φ	Chickpea
<i>Coincya monensis</i> subsp. <i>nevadensis</i> (Willk.) Leadlay φ <i>Coincya monensis</i> subsp. <i>orophila</i> (Franco) Aedo, Leadlay & Muñoz Garm.	Black mustard, Cabbage, White mustard, Turnip
<i>Crambe arborea</i> H. Christ φ <i>Crambe aspera</i> M. Bieb. <i>Crambe fruticosa</i> L. f. φ <i>Crambe laevigata</i> DC. ex H. Christ φ <i>Crambe scoparia</i> Svent. φ <i>Crambe tamadabensis</i> A. Prina & A. Marrero φ <i>Crambe wildpretii</i> Prina & Bramwell φ	Ethiopian cabbage
<i>Cynara baetica</i> (Spreng.) Pau φ <i>Cynara baetica</i> (Spreng.) Pau subsp. <i>baetica</i> φ	Artichoke
<i>Daucus carota</i> subsp. <i>cantabricus</i> A. Pujadas φ <i>Daucus carota</i> subsp. <i>gadecaei</i> (Rouy & E. G. Camus) Heywood φ <i>Daucus carota</i> subsp. <i>halophilus</i> (Brot.) A. Pujadas φ <i>Daucus carota</i> subsp. <i>majoricus</i> A. Pujadas φ	Carrot
<i>Diplotaxis siettiana</i> Maire φ	Black mustard, Cabbage, Mustard, Rape, Turnip
<i>Diplotaxis siifolia</i> Kunze <i>Diplotaxis siifolia</i> Kunze subsp. <i>siifolia</i>	Mustard, Rape, Turnip
<i>Elymus dahuricus</i> Turcz. ex Griseb. <i>Elytrigia curvifolia</i> (Lange) Holub φ <i>Elytrigia juncea</i> (L.) Nevski	Wheat
<i>Erucastrum canariense</i> Webb & Berthel. φ	Turnip
<i>Ficus carica</i> L. <i>Ficus carica</i> subsp. <i>rupestris</i> (Boiss.) Browicz φ	Fig
<i>Hordeum bulbosum</i> L. subsp. <i>Bulbosum</i>	Barley
<i>Lactuca aculeata</i> Boiss. & Kotschy φ <i>Lactuca alpestris</i> (Gand.) Rech. f. φ <i>Lactuca georgica</i> Grossh. φ <i>Lactuca singularis</i> Wilmott φ <i>Lactuca virosa</i> subsp. <i>livida</i> (Boiss. & Reut.) Ladero & A. Velasco φ <i>Lactuca watsoniana</i> Trel. φ	Lettuce
<i>Leymus angustus</i> (Trin.) Pilg. φ	Wheat
<i>Malus crescimannoi</i> Raimondo φ	Apple
<i>Olea europaea</i> subsp. <i>cerasiformis</i> G. Kunkel & Sunding φ	Olive
<i>Patellifolia procumbens</i> (C. Sm.) A. J. Scott & al.	Sugarbeet
<i>Phoenix theophrasti</i> Greuter	Date

Taxa	Related crop
<i>Pistacia eurycarpa</i> Yalt. φ	Pistachio
<i>Prunus arabica</i> (Olivier) Meikle φ	Almond
<i>Prunus brigantina</i> Vill.	Almond, Apricot, Peach, Plum
<i>Prunus microcarpa</i> C. A. Mey. φ	Japanese plum
<i>Prunus ramburii</i> Boiss. φ	
<i>Prunus tomentosa</i> Thunb. φ	Japanese plum, Myrobalan plum, Peach, Sweet cherry
<i>Pyrus elaeagrifolia</i> Pall.	Asian pear, Nashi pear, Pear
<i>Pyrus elaeagrifolia</i> subsp. <i>bulgarica</i> (Kuth. & Sachok.) Valev	Pear
<i>Pyrus syriaca</i> Boiss.	Ussurian pear, Pear
<i>Ribes multiflorum</i> Roem. & Schult.	Blackcurrant, Redcurrant
<i>Ribes multiflorum</i> Roem. & Schult. subsp. <i>Multiflorum</i>	Redcurrant
<i>Ribes multiflorum</i> subsp. <i>sandalioticum</i> Arrigoni φ	
<i>Rorippa valdes-bermejoi</i> (Castrov.) Mart.-Laborde & Castrov. φ	Variable leaf yellowcress
<i>Saccharum spontaneum</i> L.	Sugarcane
<i>Secale vavilovii</i> Grossh. φ	Rye
<i>Sinapidendron angustifolium</i> (DC.) Lowe φ	Brassicas
<i>Sinapidendron frutescens</i> Lowe φ	
<i>Sinapis flexuosa</i> Poir. φ	White mustard
<i>Solanum lidii</i> Sunding φ	Eggplant
<i>Solanum marginatum</i> L. f.	
<i>Triticum turgidum</i> subsp. <i>dicoccoides</i> (Asch. & Graebn.) Thell. φ	Wheat
<i>Vicia eristalioides</i> Maxted φ	Narbon bean
* <i>Vicia ferreirensis</i> Goyder φ	Faba bean
<i>Vicia johannis</i> Tamamsch. var. <i>johannis</i> φ	Faba bean, Narbon bean
<i>Vicia narbonensis</i> L. var. <i>affinis</i> Asch. & Schweinf.	Narbon bean
<i>Vicia narbonensis</i> L. var. <i>Narbonensis</i>	
<i>Vitis amurensis</i> Rupr. φ	Amur grape, Wine grape

* Taxa that are also related to forage & fodder crops; φTaxa that only occur in one country according to Euro+Med PlantBase (<https://www.emplantbase.org/home.html>)

Appendix D: Priority fodder and forage related taxa with high quality *in situ* records in only one country.

Taxa	Related crop
<i>Agropyron cristatum</i> (L.) Gaertn. subsp. <i>cristatum</i> φ	Crested wheatgrass
* <i>Agropyron dasyanthum</i> Ledeb.	
* <i>Agropyron tanaiticum</i> Nevski	
<i>Alopecurus pratensis</i> subsp. <i>laguriformis</i> (Schur) Tzvelev	Meadow foxtail
<i>Dactylis glomerata</i> subsp. <i>juncinella</i> (Bory) K. Richt. φ	Cocksfoot
<i>Dactylis glomerata</i> subsp. <i>merinoana</i> (Horjales & al.) H. Scholz φ	
<i>Dactylis glomerata</i> subsp. <i>oceanica</i> G. Guignard φ	
<i>Dactylis glomerata</i> subsp. <i>rigida</i> (Boiss. & Heldr.) Hayek φ	
<i>Festuca rubra</i> subsp. <i>litoralis</i> (G. Mey.) Auquier	Red fescue
<i>Lathyrus chloranthus</i> Boiss. φ	Chickling vetch/flat pod peavine
<i>Lathyrus stenophyllus</i> Boiss. & Heldr. φ	
<i>Medicago cancellata</i> M. Bieb. φ	Alfalfa
<i>Medicago fischeriana</i> (Ser.) Trautv.	
<i>Medicago heyniana</i> Greuter	Alfalfa, Barrel medic
<i>Medicago hypogaea</i> E. Small	
<i>Medicago papillosa</i> Boiss. φ	
<i>Medicago pironae</i> Vis.	Alfalfa
<i>Medicago sativa</i> subsp. <i>microcarpa</i> Urb.	
<i>Medicago strasseri</i> Greuter & al. φ	
<i>Schedonorus arundinaceus</i> subsp. <i>fenas</i> (Lag.) H. Scholz	Tall fescue
<i>Trifolium alpestre</i> L. var. <i>alpestre</i>	Owlhead clover
<i>Trifolium isthmocarpum</i> Brot. subsp. <i>Isthmocarpum</i>	Moroccan clover
<i>Trifolium isthmocarpum</i> subsp. <i>jaminianum</i> (Boiss.) Murb.	
<i>Trifolium michelianum</i> var. <i>balansae</i> (Boiss.) Azn.	Balansa clover
<i>Trifolium pratense</i> var. <i>frigidum</i> Gaudin	Red clover
<i>Trifolium repens</i> var. <i>orbelicum</i> (Velen.) R. M. Fritsch	White clover
<i>Trisetum flavescens</i> subsp. <i>splendens</i> (C. Presl) Arcang.	Golden oatgrass
<i>Trisetum flavescens</i> subsp. <i>tenue</i> (Formánek) Strid	
* <i>Vicia ferreirensis</i> Goyder φ	Bitter vetch, Common vetch, Hungarian vetch, One-flowered vetch
<i>Vicia mollis</i> Boiss. & Hausskn. φ	Hungarian vetch

*Taxa that are also related to human food crops; φTaxa that only occur in one country according to Euro+Med PlantBase (<https://www.emplantbase.org/home.html>)

Appendix E: *In situ* conservation actions for crop wild relatives in Europe. A survey of the Farmer's Pride project.

In situ conservation actions for crop wild relatives in Europe. A survey of the Farmer's Pride project.

Fields marked with * are mandatory.



Information about the Farmer's Pride project

Funded by the European Union, the Farmer's Pride project is responding to a call for action to enhance and strengthen *in situ* conservation and sustainable use of plant genetic resources (PGR) in Europe [1]. The focus of the project is on conserving the diversity that exists in both wild and cultivated populations of species important for food, nutrition and economic security in the region [2].

The European Network for *In Situ* Conservation and Sustainable Use of Plant Genetic Resources will comprise a network of both stakeholders and sites across Europe. It will establish a mechanism for coordinated action on PGR conservation *in situ* in the region, with a view to ensuring that the diversity needed for continual crop enhancement and adaptation is available for future use.

This consultation aims to gather information on current or past *in situ* conservation actions having as target crop wild relatives [3]. We are interested in active conservation (involving direct actions on the target species, such as monitoring, habitat improvement, herbivory control, etc.) as opposed to the passive conservation conferred by the mere presence of the species in a protected area. If you have any knowledge on conservation actions in your region preserving crop wild relatives, we would like to hear from you.

Please feel free to distribute the link to this survey among potential respondents in your network.

For further information on the project, please visit www.farmerspride.eu.

[1] In wild species *in situ* conservation involves the management of populations in their natural habitats (which may be in wild, semi-natural, managed, or abandoned habitats). In the case of crops it involves their management in the locations where they are cultivated (which may be in farms, smallholdings, home gardens, and allotments).

[2] Species known as crop wild relatives (CWR – wild species related to crops which contain important diversity for crop enhancement) and landraces (LR – diverse, locally adapted crop populations which not only contain diversity for crop enhancement, but are also important for local food and economic security. They are also known as “farmer varieties”).

[3] A wide definition of crop wild relative includes all species that belong to a genus that contains a relevant crop. For instance, *Raphanus raphanistrum* L. is a crop wild relative of radish (*Raphanus sativus* L.).

Survey description

The aim of this survey is to **collect information on current or past *in situ* conservation actions in Europe related to crop wild relatives**. This information will be used to get a general perspective of existing *in situ* CWR conservation actions and to develop a CWR network showcase that illustrates best practices and examples for CWR conservation in Europe.

The survey is structured in three sections in which you will be asked about:

- 1) Your contact information and area of work.
- 2) Description of the site where the *in situ* conservation action is taking/took place.
- 3) Type of conservation action and targeted CWR species.

Completing the survey takes about 10-15 minutes.

Please note that:

- Questions flagged with asterisks (*) are mandatory.
- At any point in the survey you may go back to the previous question if you wish to change an answer. This action will overwrite the previously given answer.
- For questions or inquiries please contact José M. Iriando jose.iriando@urjc.es

In order to carry out the research described in this survey, we will need to collect information about you, and some of this information may be your personal data (if you voluntarily provide it). Under data protection law, we have to provide you with very specific information about what we do with your data and about your rights. We have set out below the key information you need to know about how we will use your personal data.

*By completing this survey you are consenting to the Farmer’s Pride project storing the information you provide and which will only be accessed by authorized personnel working in the project. In agreement with Regulation (EU)

2016/679 we will not make your contact details available in the public domain or pass them on to any third parties. You can exercise your rights of access, rectification, cancellation, opposition, treatment limitation, portability, deletion/ forgetting and others recognized in the European Regulation 2916/679, of April 27, general Data Protection. The information you contribute to this survey will not be used for any other purpose than for the establishment of the European Network for In Situ Conservation of Plant Genetic Resources, and for reporting on its establishment. The responsible for the data processing is José María Iriondo Alegría (Universidad Rey Juan Carlos, Tulipán s/n, 28933 Móstoles, Spain). A synthesis of the results will be published in a publicly available document on the Farmer's Pride project website (www.farmerspride.eu) and may also be published in other forms, such as in a journal article. Any such publications arising from this survey will contain no identifying information that could associate it with you or the organization you represent. Your data will be retained for 10 years after the publication of the research outcomes. This privacy notice is effective from September 9th of 2018, and is reviewed when necessary. Any changes will be published here. The web page <https://www.urjc.es/proteccion-de-datos> sets out much of this information, including how to ask any questions you may have about how your personal data is used, exercise any of your rights or complain about the way your data is being handled.

This survey is generated for the Farmer's Pride project funded by the Horizon 2020 Framework Programme of the European Union – Coordination and Support Actions (CSA). Grant Agreement: 774271. This survey has been developed in relation to task 1.2 of the project: Enhancing knowledge of LR/CWR *in situ* resources.

1) Contact data

These data will only be used for internal project records and to contact you in case any clarification is needed. Personal data will be used according to Regulation EU 2016/679.

1.1 Name

First name.

Ex: María

1.2 Surname

Family name.

Ex: García

1.3 Affiliation

Please give the name of the organization to which you are related.

1.4 Address

Please provide full details of the address of your organization, including city and country.

Ex: Calle Tulipán, s/n. 28933 Móstoles (Madrid). Spain.

*** 1.5 Do you allow us to contact you in case we need any clarification?**

In case you answer 'YES', please make sure you complete question 1.6. Thank you.

- Yes
- No

1.6 Contact

Please provide a means of contact (preferably your work email account).

In case you prefer to provide a telephone number, please follow this format: Country code (i.e. +39), national destination code (i.e. 075), subscriber number 123456. Format +39075123456

2) Site description and governance

*** 2.1 Country where the conservation action is/was carried out**

- Afghanistan
- Albania
- Algeria
- Andorra
- Angola
- Antigua and Barbuda
- Argentina
- Armenia
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bhutan
- Bolivia
- Bosnia and Herzegovina
- Botswana
- Brazil
- Brunei Darussalam
- Bulgaria
- Burkina Faso
- Burundi
- Côte D'Ivoire
- Cabo Verde
- Cambodia

- Cameroon
- Canada
- Central African Republic
- Chad
- Chile
- China
- Colombia
- Comoros
- Congo
- Costa Rica
- Croatia
- Cuba
- Cyprus
- Czech Republic
- Democratic Republic of the Congo
- Denmark
- Djibouti
- Dominica
- Dominican Republic
- Ecuador
- Egypt
- El Salvador
- Equatorial Guinea
- Eritrea
- Estonia
- Ethiopia
- Fiji
- Finland
- France
- Gabon
- Gambia
- Georgia
- Germany
- Ghana
- Greece
- Grenada
- Guatemala
- Guinea
- Guinea Bissau
- Guyana
- Haiti
- Honduras
- Hungary
- Iceland
- India
- Indonesia

- Iran
- Iraq
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Lebanon
- Lesotho
- Liberia
- Libya
- Liechtenstein
- Lithuania
- Luxembourg
- Madagascar
- Malawi
- Malaysia
- Maldives
- Mali
- Malta
- Marshall Islands
- Mauritania
- Mauritius
- Mexico
- Micronesia
- Monaco
- Mongolia
- Montenegro
- Morocco
- Mozambique
- Myanmar
- Namibia
- Nauru
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Niger

- Nigeria
- North Korea
- Norway
- Oman
- Pakistan
- Palau
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Qatar
- Republic of Moldova
- Romania
- Russian Federation
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- San Marino
- Sao Tome and Principe
- Saudi Arabia
- Senegal
- Serbia
- Seychelles
- Sierra Leone
- Singapore
- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syrian Arab Republic
- Tajikistan

-
- Tanzania
 - Thailand
 - The former Yugoslav Republic of Macedonia
 - Timor-Leste
 - Togo
 - Tonga
 - Trinidad and Tobago
 - Tunisia
 - Turkey
 - Turkmenistan
 - Tuvalu
 - Uganda
 - Ukraine
 - United Arab Emirates
 - United Kingdom
 - United States of America
 - Uruguay
 - Uzbekistan
 - Vanuatu
 - Venezuela
 - Viet Nam
 - Yemen
 - Zambia
 - Zimbabwe

2.2 Subnational administrative unit

Please specify the name of the subnational area (state, lander, county, province, area, etc.) in which the conservation action is taking /took place.

Ex. Andalucía autonomous community; Huelva province.

*2.3 Locality

Municipality (nearest city, town, village).

Ex. Matalascañas.

*2.4 Name of the site where the conservation action is applied

Ex. Smith's Farm, Tamar Valley.

If you don't know the name please write 'UNKNOWN'. If the site has no official name please write 'NO NAME'.

2.5 Geographical coordinates of the site

Providing this information is OPTIONAL. However, this piece of information will enable us to precisely locate where the *in situ* conservation action occurred or is occurring.

Longitude and latitude in decimal degrees with WGS84 datum are preferred (e.g., Lat. 40.473759 Long -3.864055).

If you are giving coordinates for a polygon, please give as many corners (lat/long format) as needed to define the polygon.
If you are not sure about the coordinates, you can obtain them from Google Earth or similar applications.

2.6 Type of coordinates

Please provide the type of coordinates used.

- Decimal degrees
- Degrees, minutes, seconds
- UTM
- MGRS
- Other*

* 2.6.1 Other type: please specify

2.7 Datum

Geodetic datum of reference for the coordinates.

Ex. WGS1984, ED50, etc.

* 2.8 The *in situ* conservation action has been implemented in the context of:

You may select more than one option.

- A national CWR conservation strategy
- Another national policy (please specify)
- A subnational policy
- A research project
- A private initiative
- Another type of initiative (please specify)
- I don't know

2.8.1 If you have answered 'Another national policy' in question 2.8, please provide details on the implementation of the conservation action.

2.8.2 If you have answered 'Another type of initiative' in question 2.8, please provide details on the implementation of the conservation action.

•2.9 Is the *in situ* conservation site formally recognized by the appropriate government agency?

- Yes
- No
- I don't know

2.9.1 What is the name of the appropriate government agency?

•2.10 Does the *in situ* conservation site form part of a network of *in situ* conservation sites?

- Yes
- No
- I don't know

2.10.1 What is the network's name?

•2.11 Is the conservation action implemented inside a protected area?

You can choose "Partially" if the conservation action is taking place in a site which is not entirely covered by the protected area.

- Yes
- No
- Partially
- I don't know

2.11.1 What kind of protected area?

You may choose more than one option.

- Natura 2000
- National designated area
- Informal protected area
- Other (please specify)
- I don't know

2.11.1.1 Other type of protected area

Ex: Emerald network.

2.11.2 Name of the protected area

2.11.3 Name of the institution responsible for managing the protected area

2.11.4. Please specify the type of site if the conservation action is outside a protected area:

You may choose more than one option.

- Farmland
- Roadside
- Natural habitat
- Corine habitat
- Other (please specify)
- Don't know

2.11.4.1 Other type of site outside a protected area

3) Type of conservation action

3.1 Name of the conservation action given by the institution or the project

Ex: "Microrreserva de los Saladares de Huerta de Valdecarábanos"

3.2 Please specify if the conservation activity is focused on a single species or follows a multi-species approach

- Single species
- Multi-species
- I don't know

*3.2.1 Name of the target CWR taxon

Scientific name is preferred, however common name is also accepted. You can provide both separated by semi-colons.

Ex: *Lupinus angustifolius* L.; Narrow-leaved lupin.

3.2.2 Please list all CWR taxa covered by the *in situ* conservation action

Please name all CWR included in the conservation action.

Scientific name is preferred, however common name is also accepted. You can provide both separated by semi-colons.

Please use one row per species.

Ex: *Lupinus angustifolius* L.; Narrow-leaved lupin.

***3.3 Which kind of actions are performed in this site?**

You may select more than one option.

- Monitoring and census of the species
- Seed collection and storage in a gene bank
- Phytosociological monitoring [1]
- Selective winter shrub clearing
- Periodical cleaning of the area removing any waste
- Controlled grazing
- Periodical mowing
- Limited use of the territory
- Other actions (please specify)
- I don't know

[1] Phytosociological monitoring involves inventoring all plant species growing together with the target taxon.

***3.3.1 Please specify which other ongoing actions are performed in this site**

***3.4 Who is responsible for the *in situ* conservation action?**

Please provide the name of the institution, organization, association, private initiative (etc) in charge of implementing this conservation action.

3.5 When did the conservation action start?

Please, provide the date in the format DD/MM/YYYY.

If you are not sure or you do not know it, please write 'UNSURE'.

3.6 When does/did the conservation action finish?

Please, provide the date in the format DD/MM/YYYY.

If the conservation action is still active, write ACTIVE. If the conservation action duration is permanent, write PERMANENT.

If you are not sure or you do not know it, please write 'UNSURE'.

3.7 Bibliographic reference(s) or legislation related to the conservation actions

Provide any bibliographic references related to the conservation action or the name of the law or decree promoting the conservation action.

If available, please provide the url or doi directing to the reference. Thank you.

Ex: ORDRE de 30 de gener de 2007, de la Conselleria de Territori i Habitatge, per la qual es declara una microreserva vegetal a la província de València. [2007/1537] (DOGV núm. 5451 de 15.02.2007); http://www.dogv.gva.es/portal/ficha_disposicion.jsp?L=0&sig=2144%2F2007

• 3.8 Is the target taxon protected by national legislation?

- Yes
- No
- I don't know

3.8.1 If you answered 'YES', please provide the bibliographic reference

3.9 Why is this species being conserved?

You may choose more than one option.

- Rarity
- Endemic
- Threat
- Flagship status
- Associated with rare or threatened habitats
- I don't know

3.10 Please provide any other information or comments you think may be useful for the conservation of the species or the understanding of the conservation action

Thank you for completing the survey.
The information you provide will help us building a
European Network for Conservation and Sustainable Use
of Plant Genetic Resources.

Appendix F: Sites and governance for *in situ* conserved populations gathered through the online survey.

Country	Locations	Context of implementation		Governmental recognition		Belong to a network		CWR spp.		Number of populations
Greece	Mesti, Prespa, Litochoro, Chania, Kilkis	Research project	75%	Yes	85.3%	Yes	75%	<i>Aegilops speltoides</i>	1	12
		Subnational policy	6.7%					<i>Avena sterilis</i>	1	
								<i>Beta nana</i>	1	
								<i>Dactylis glomerata</i>	1	
								<i>Lactuca serriola</i>	1	
		Private initiative	8.3%	No	16.7%	No	25%	<i>Lolium rigidum</i>	1	
								<i>Phoenix theophrasti</i>	2	
								<i>Pistacia lentiscus</i>	1	
								<i>Prunus webbii</i>	1	
								<i>Triticum onococcum</i>	2	
Czech Republic	Karlovy Vary	NGO's activities	100%	No	100%	Yes	100%	<i>Malus pumila</i>	1	3
								<i>Prunus avium</i>	1	
								<i>Pyrus communis</i>	1	
Croatia	Osijek, Zagreb	National CWR conservation strategy	50%	Yes	100%	Yes	100%	<i>Hordeum vulgare</i>	1	3
		Research project	50%					<i>Medicago sativa</i>	1	
								<i>Vitis vinifera</i>	1	
Germany	Bavaria, Dippoldiswalde, Saxony, Baden-Württemberg	Research project	88.2%	Yes	5.9%	Yes	18.8%	<i>Lathyrus hirsutus</i>	1	17
								<i>Lathyrus tuberosus</i>	1	
		National CWR conservation strategy	11.8%	No	94.1%	No	81.2%	<i>Malus sylvestris</i>	8	
								<i>Pyrus communis</i>	6	
						<i>Vitis vinifera</i>	1			

Ireland	Wexford	Private initiative	100%	Yes	100%	Yes	100%	<i>Agrostis capillaris</i>	1	15
								<i>Alopecurus pratensis</i>	1	
								<i>Arrhenatherum elatius</i>	1	
								<i>Dactylis glomerata</i>	1	
								<i>Daucus carota</i>	1	
								<i>Festuca rubra</i>	1	
								<i>Lolium perenne</i>	1	
								<i>Lotus corniculatus</i>	1	
								<i>Lotus pedunculatus</i>	1	
								<i>Ochlopoa annua</i>	1	
								<i>Phleum pratense</i>	1	
								<i>Poa pratensis</i>	1	
								<i>Trifolium arvense</i>	1	
								<i>Trifolium pratense</i>	1	
<i>Trifolium repens</i>	1									
Lithuania	Pagėgiai	Law on National Plant Genetic Resources	100%	Yes	100%	Yes	100%	<i>Arrhenatherum elatius</i>	1	9
								<i>Asparagus officinalis</i>	1	
								<i>Dactylis glomerata</i>	1	
								<i>Fragaria viridis</i>	1	
								<i>Lotus corniculatus</i>	1	
								<i>Medicago falcata</i>	1	
								<i>Melilotus albus</i>	1	
								<i>Phalaris arundinacea</i>	1	
<i>Poa trivialis</i>	1									
Spain	Guadajira, Cáceres, Tenerife, Árava, Fuerteventura, La Gomera, Baztan, Lanzarote, Bizkaia, La Graciosa, Gran Canaria, Gipuzkoua	A research project	29.6%	Yes	100%	Yes	15%	<i>Allium sativum</i>	1	28
		A subnational policy	70.4%					<i>Asparagus fallax</i>	2	
								<i>Asparagus nesiotis</i>	3	
								<i>Cicer canariense</i>	4	
								<i>Festuca ovina</i>	9	
						<i>Medicago arborea</i>	1			
		No	85%			<i>Medigaco marina</i>	1			
						<i>Prunus lusitanica</i>	5			
						<i>Prunus padus</i>	1			
						<i>Solanum lidii</i>	1			

Switzerland	Chur	A national CWR conservation strategy	100%	Yes	100%	Yes	100%	<i>Agrostis gigantea</i>	1	704
								<i>Alopecurus pratensis</i>	30	
								<i>Arrhenatherum elatius</i>	23	
								<i>Dactylis glomerata</i>	86	
								<i>Festuca rubra</i>	40	
								<i>Lolium multiflorum</i>	5	
								<i>Lolium perenne</i>	52	
								<i>Lotus corniculatus</i>	11	
								<i>Medicago sativa</i>	6	
								<i>Onobrychis viciifolia</i>	2	
								<i>Phleum pratense</i>	14	
								<i>Poa pratensis</i>	57	
								<i>Schedonorus arundinaceus</i>	11	
								<i>Schedonorus pratensis</i>	113	
<i>Trifolium pratense</i>	84									
<i>Trifolium repens</i>	87									
<i>Trisetum flavescens</i>	82									
United Kingdom	The Lizard, Dundee, Cambridge	A research project	99%	Yes	2%	No	100%	<i>Allium schoenoprasum</i>	7	38
								<i>Asparagus officinalis</i>	1	
								<i>Beta vulgaris</i>	7	
								<i>Daucus carota</i>	7	
		A private initiative	1%	No	98%			<i>Hordeum vulgare</i>	1	
								<i>Onobrychis viciifolia</i>	1	
								<i>Raphanus raphanistrum</i>	7	
								<i>Trifolium repens</i>	7	
TOTAL				Yes	93%	Yes	91.9%		58 spp.	829 populations
				No	7%	No	8.1%			

Appendix G: Active *in situ* conservation actions and monitoring surveys applied to target CWR taxa.

CWR spp.	Number of populations	Monitoring and census of the species	Phytosociological monitoring	Seed collection and storage	Controlled grazing	Limited use of the territory	Periodical mowing	Low intensity agriculture	Periodical cleaning	Selective winter shrub clearing	Reinforcements and habitat restoration	Fenced	Genetic research to identify hybrids or clones
<i>Aegilops speltoides</i>	1	x	x	x									
<i>Agrostis capillaris</i>	1	x											
<i>Agrostis gigantea</i>	1	x	x		x	X	x	x					
<i>Allium sativum</i>	1	x		x	x	X	x						
<i>Allium schoenoprasum</i>	7	x			x					x			
<i>Alopecurus pratensis</i>	31	x	x		x	X	x	x					
<i>Arrhenatherum elatius</i>	25	x	x	x	x	X	x	x					
<i>Asparagus fallax</i>	2	x	x										
<i>Asparagus nesiotes</i>	3	x	x										
<i>Asparagus officinalis</i>	2	x	x	x	x								
<i>Avena sterilis</i>	1	x	x		x	X	x						
<i>Beta nana</i>	1	x	x	x									
<i>Beta vulgaris</i>	7	x			x					x			
<i>Cicer canariense</i>	4	x	x										
<i>Dactylis glomerata</i>	89	x	x	x	x	X	x	x					
<i>Daucus carota</i>	8	x			x					x			
<i>Festuca ovina</i>	9	x	x	x		X	x		x				
<i>Festuca rubra</i>	41	x	x		x	X	x	x					
<i>Fragaria viridis</i>	1	x	x	x									
<i>Hordeum vulgare</i>	2			x									
<i>Lactuca serriola</i>	1	x	x		x	X	x						
<i>Lathyrus hirsutus</i>	1	x						x					
<i>Lathyrus tuberosus</i>	1	x						x					
<i>Lolium multiflorum</i>	5	x											
<i>Lolium perenne</i>	53	x	x	x	x	X	x	x		x			
<i>Lolium rigidum</i>	1	x	x	x									
<i>Lotus corniculatus</i>	13	x	x	x	x	X	x	x		x			
<i>Lotus pedunculatus</i>	1	x	x	x	x					x			
<i>Malus pumila</i>	1	x		x					x				
<i>Malus sylvestris</i>	8	x		x					x				x
<i>Medicago arborea</i>	1	x	x		x	X	x						
<i>Medicago falcata</i>	1	x	x	x									
<i>Medicago sativa</i>	7	x	x	x	x	X	x	x					
<i>Medicago marina</i>	1	x	x	x		X			x		X		
<i>Melilotus albus</i>	1	x	x	x									
<i>Ochlopoa annua</i>	1	x											

<i>Onobrychis viciifolia</i>	3	x	x	x	x	X	x	x					
<i>Phalaris arundinacea</i>	1	x	x	x									
<i>Phleum pratense</i>	15	x	x		x	X	x	x					
<i>Phoenix theophrasti</i>	1	x	x	x									
<i>Pistacia lentiscus</i>	1	x	x	x									
<i>Poa pratensis</i>	58	x	x		x	X	x	x					
<i>Poa trivialis</i>	1	x	x	x									
<i>Prunus avium</i>	1	x		x					x				
<i>Prunus lusitanica</i>	5	x	x	x	x	X			x		X	x	
<i>Prunus padus</i>	1	x	x	x		X			x		X		
<i>Prunus webbii</i>	1	x	x		x	X	x						
<i>Pyrus communis</i>	8	x		x					x				
<i>Raphanus raphanistrum</i>	7	x			x					X			
<i>Schedonorus arundinaceus</i>	11	x	x		x	X	x						
<i>Schedonorus pratensis</i>	113	x	x		x	X	x						
<i>Solanum lidii</i>	1	x	x										
<i>Trifolium arvense</i>	1	x	x	x	x					X			
<i>Trifolium pratense</i>	85	x	x		x	X	x	x					
<i>Trifolium repens</i>	95	x	x		x	X	x	x		X			
<i>Trisetum flavescens</i>	82	x	x		x	X	x	x					
<i>Triticum monococcum</i>	2	X		x									
<i>Vitis vinifera</i>	2	X	x	x			x		x				
TOTAL	829	57	42	31	29	25	23	16	9	9	3	1	1