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AUTHOR OF THE REPORT	Șandru Dan
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TYPE OF REPORT	Extension of EURISCO for Crop Wild Relatives (CWR) in situ data and preparation. First report
ABSTRACT (Maximum 200 words)	<p>This technical report covers the activities carried out during the period April 1, 2024 – December 31, 2024.</p> <p>The main achievements of this period include:</p> <ul style="list-style-type: none"> (i) the criteria and method for prioritizing CWR were discussed; (ii) the national CWR checklist was prepared applying the information related to the prioritization criteria; (iii) preliminary lists of priority CWR were obtained for two protected areas (Slatioara Secular Forest and Rodnei Mountains National Park). Within these, 6 hotspots of priority CWR occurrences were identified.
KEYWORDS	<p>Country/Region: Romania/Europe.</p> <p>Crop(s): Crop wild relatives for food and agriculture.</p> <p>Subject: Preparation of in situ CWR datasets for inclusion in EURISCO.</p>

CWR in EURISCO

Technical Report

For the period April 1, 2024 – December 31, 2024

Based on the Principles for the Inclusion of CWR Data in EURISCO (van Hintum and Iriondo, 2022) the following activities were implemented during the third stage of the Project:

1. Identification of priority taxa and populations

The process involves four stages (two for compiling information and two for setting priorities) thus generating four distinct lists: (1) Basic list of cultivated species genera, (2) List of selected cultivated species, (3) Checklist of cultivated species of crop wild relatives for Romania (4) Checklist of crop wild relatives of priority for Romania.

The first step in generating the CWR national checklist was to identify cultivated species that contribute to global food security and are of economic importance, thus obtaining the list of genera that include species cultivated in Romania. This was done in two stages: (a) compilation of the

basic list of cultivated species genera and associated information and (b) selection of cultivated species genera in Romania. The cultivated species considered were classified into 4 use categories: (1) food, (2) fodder, (3) ornamental and (4) industrial and other uses.

The classification of species according to their usefulness was carried out in accordance with Appendix 1 of the International Treaty on Plant Genetic Resources for Food and Agriculture (FAO 2010) and in the Official Catalog of Cultivated Plant Varieties in Romania (of which more information on production and cultivated area for each species).

To verify the economic importance of other species, compared to those already included, were used as sources of documentation: Union by the International Union for the Protection of New Varieties of Plants (UPOV 2011) and the Germplasm Resources Information Network database of the United States Department of Agriculture (GRIN-USDA 2017) and for ornamental it was used The Community Plant Variety Office (CPVO) (Kwakkenbos pers. comm. 2004). The UPOV database was also used to collect data on the number of species, infraspecific taxa and / or hybrids associated with a particular crop, specialized publications, plant breeding trends, and other inventories were verified. national CWR. Thus, the database was compiled with the genera corresponding to these cultivated species and with the information adjacent to them.

2. Selection list of cultivated species genera

Following the in-depth analysis of all data, a list of genera was selected based on the following criteria: a) the selected genus must contain at least one species native to Romania;

b) the genus must meet at least one of the following conditions: - it contributes to overall food security (found in Annex 1. of the ITPGRFA), - it includes at least one crop species which has at least one variety registered during the 1980s- 2023 in the Official Catalog of cultivated plant varieties in Romania, to highlight the economic importance for the country (Romania).

The resulting list of genera including crop species was evaluated by experts from agricultural institutions who validated all selected genera as well as by consulting databases:

- Global Biodiversity Information Facility, GBIF (www.gbif.net);
- The Mansfeld's World Database of Agriculture and Horticultural Crops (www.mansfeld.ipkgatersleben.de).

3. Romanian checklist of crop of wild relatives

The initial list of CWR in Romania was developed, in the first stage, by selecting geographic criteria (Romania) from the Catalog of crop wild relatives for Europe and the Mediterranean developed by PGR Forum (Kell et al., 2005).

For the identification of plant species from the spontaneous flora of Romania, reference sources were consulted, such as:

- regarding the name of the taxa, it was taken over, in the case of the species from Romanian flora (Ciocârlan, 2000), Atlas of Romanian flora (Mohan and Ardelean, 2011) and Flora RSR, vol. I-XIII, for hybrids and infrataxons;

- Flora Europaea (<http://rbgweb2.rbge.org.uk/FE/fe.html>) and Euro + Med PlantBase (2005) were also consulted to establish the taxonomic rank and synonyms of the taxa (<http://www.euromed.org.uk>);

- the flora lists that can be found in all the management plans of the protected areas (435 sites of community importance, Natura 2000 sites etc);

To make a priority list, the following criteria used proposed by Brehm et al., (2010):

1. Native status. This national inventory gives a higher priority to native species in Romania but Non-native species were also included in this list, this decision being based on the importance

of these species in the development of the national economy, by increasing the diversity and availability of genetic resources for food and agriculture.

2. Economic value. The main use of CWR is to improve the genetic quality of existing crop plants and / or varieties or can be used in the creation of new varieties.

3. Ethnobotanical value. Assessment of local knowledge on species uses, thus giving priority to species that are of high importance to local communities.

4. Global distribution. The priority is inversely proportional to the distribution, so species that have a low distribution (national or regional) have high priority over species that have a global distribution.

5. National distribution. A species that occurs in several areas has been considered rarer compared to a species that occurs throughout the country, so the former will be a priority for active collection and conservation.

6. In situ and ex-situ conservation status. If there are species that do not have sufficient genetic diversity conserved in both conservation systems, then these species are a priority for active collection and conservation.

7. Legislation. If a species is protected by law then it is a priority for conservation because national governments are responsible for their protection.

8. Threat assessment. The status of a species in accordance with the IUCN Red List is probably the most widely used criterion for determining conservation priority. Thus endangered, threatened species are a priority for active conservation and collection.

Considering these criteria for prioritizing, 221 priority CWR taxa for Romania have been selected.

Development of a first version of the national CWR checklist in which the prioritization of CWR in Romania for active conservation takes into account the following:

- Native taxa to the geographical unit under consideration (native status);
- Wild relatives related to food, medicinal, aromatic, fodder, industrial and related species of national socio-economic value (economic category of related cultivated species);
- Taxa belonging to GP1B and GP2 or TG1B and TG2, or from GP3 or TG3 and TG4 that have already been used as gene donors or have shown promise for crop improvement (potential use in crop improvement);
- Endemic to Romania or the two protected areas (endemic status).

During the period April 1, 2024 – December 31, 2024, based on the Principles for the Inclusion of CWR Data in EURISCO (van Hintum and Iriondo, 2022), the CWR National Inventory was developed, and two protected areas were identified (Slatioara Secular Forest and Rodna Mountains National Park) in which CWR present high diversity and abundance.

The process of inventorying CWR populations in the identified protected areas started by collecting and analyzing available taxonomic descriptors. Data were obtained through literature reviews and direct collaboration with local administrators (custodians) of the protected areas, who provided detailed information about the species selected for the study, as well as using web databases and literature. Additional population selection criteria, in addition to those included in the document "Principals for the inclusion of CWR data in EURISCO", included the geographical representation of the taxon and the selection of populations from different edaphoclimatic zones in the two protected areas.

A comprehensive database for National Inventory of Crop Wild Relatives (CWR-NI) was developed using Microsoft Excel, incorporating taxonomic and population-level descriptors as specified in Annex 1 of the Principles for the Inclusion of CWR Data in EURISCO document by van Hintum and Iriondo (2022). The primary objective is to prepare the database for seamless

integration into the EURISCO platform. This involves transforming the current database structure to align with EURISCO's existing format, which includes generating persistent unique identifiers, standardizing institute liaison codes, and ensuring the database meets all necessary upload requirements.

The data are ready to be uploaded and as soon as the upload mechanism is ready.

Next steps

Identify CWR populations in other Romanian protected area which have:

- High genetic diversity,
- Unique genetic characteristics,
- Potential conservation significance,
- Representation of different ecological niches.

In Situ Conservation Inventory

- Create a comprehensive inventory of priority CWR populations,
- Selected populations will be designated for active in situ conservation,
- Develop detailed documentation for each prioritized population.

Conclusion.

To identify potential additional CWR populations, data were collected in June and July 2024. 3 potential genetic reserve areas were identified (Plaiul Todirescu, Pietrosu Mare, Bila-Lala) in which 21 CWR species belonging to 5 botanical families (Rosaceae, Gramineae, Fabaceae, Amaryllidaceae, Asteraceae) were recorded, listed in the table below.

GENUS	SPECIES	SPAUTHOR	COLLSITE
<i>Trifolium</i>	<i>pratense</i>	L.	Plaiul Todirescu
<i>Trifolium</i>	<i>montanum</i>	L.	Plaiul Todirescu
<i>Trifolium</i>	<i>medium</i>	L.	Plaiul Todirescu
<i>Festuca</i>	<i>pratensis</i>	Huds.	Plaiul Todirescu
<i>Festuca</i>	<i>pratensis</i>	Huds.	Plaiul Todirescu
<i>Dactylis</i>	<i>glomerata</i>	L.	Plaiul Todirescu
<i>Lotus</i>	<i>corniculatus</i>	L.	Plaiul Todirescu
<i>Phleum</i>	<i>pratense</i>	L.	Plaiul Todirescu
<i>Trifolium</i>	<i>arvense</i>	L.	Plaiul Todirescu
<i>Melilotus</i>	<i>officinalis</i>	(L.) Pallas	Plaiul Todirescu
<i>Allium</i>	<i>schoenoprasum</i>	L.	Plaiul Todirescu
<i>Lathyrus</i>	<i>sylvestris</i>	L.	Plaiul Todirescu
<i>Medicago</i>	<i>lupulina</i>	L.	Plaiul Todirescu
<i>Festuca</i>	<i>rubra</i>	L.	Plaiul Todirescu
<i>Poa</i>	<i>pratensis</i>	L.	Plaiul Todirescu
<i>Poa</i>	<i>nemoralis</i>	L.	Plaiul Todirescu
<i>Cichorium</i>	<i>intybus</i>	L.	Plaiul Todirescu
<i>Rubus</i>	<i>caesius</i>	L.	Plaiul Todirescu
<i>Poa</i>	<i>annua</i>	L.	Plaiul Todirescu
<i>Lolium</i>	<i>perenne</i>	L.	Plaiul Todirescu
<i>Vicia</i>	<i>sepium</i>	L.	Plaiul Todirescu
<i>Lactuca</i>	<i>serriola</i>	L.	Plaiul Todirescu

<i>Allium</i>	<i>schoenoprasum</i>	L.	Plaiul Todirescu
<i>Trifolium</i>	<i>pratense</i>	L.	Pietrosu Mare
<i>Trifolium</i>	<i>montanum</i>	L.	Pietrosu Mare
<i>Trifolium</i>	<i>medium</i>	L.	Pietrosu Mare
<i>Festuca</i>	<i>pratensis</i>	Huds.	Pietrosu Mare
<i>Festuca</i>	<i>pratensis</i>	Huds.	Pietrosu Mare
<i>Dactylis</i>	<i>glomerata</i>	L.	Pietrosu Mare
<i>Lotus</i>	<i>corniculatus</i>	L.	Pietrosu Mare
<i>Phleum</i>	<i>pratense</i>	L.	Pietrosu Mare
<i>Trifolium</i>	<i>arvense</i>	L.	Pietrosu Mare
<i>Melilotus</i>	<i>officinalis</i>	(L.) Pallas	Pietrosu Mare
<i>Allium</i>	<i>schoenoprasum</i>	L.	Pietrosu Mare
<i>Lathyrus</i>	<i>sylvestris</i>	L.	Pietrosu Mare
<i>Medicago</i>	<i>lupulina</i>	L.	Pietrosu Mare
<i>Festuca</i>	<i>rubra</i>	L.	Pietrosu Mare
<i>Poa</i>	<i>pratensis</i>	L.	Pietrosu Mare
<i>Poa</i>	<i>nemoralis</i>	L.	Pietrosu Mare
<i>Cichorium</i>	<i>intybus</i>	L.	Pietrosu Mare
<i>Rubus</i>	<i>caesius</i>	L.	Pietrosu Mare
<i>Poa</i>	<i>annua</i>	L.	Pietrosu Mare
<i>Lolium</i>	<i>perenne</i>	L.	Pietrosu Mare
<i>Vicia</i>	<i>sepium</i>	L.	Pietrosu Mare
<i>Lactuca</i>	<i>serriola</i>	L.	Pietrosu Mare
<i>Trifolium</i>	<i>pratense</i>	L.	Bila-Lala
<i>Trifolium</i>	<i>montanum</i>	L.	Bila-Lala
<i>Trifolium</i>	<i>medium</i>	L.	Bila-Lala
<i>Festuca</i>	<i>pratensis</i>	Huds.	Bila-Lala
<i>Festuca</i>	<i>pratensis</i>	Huds.	Bila-Lala
<i>Dactylis</i>	<i>glomerata</i>	L.	Bila-Lala
<i>Lotus</i>	<i>corniculatus</i>	L.	Bila-Lala
<i>Phleum</i>	<i>pratense</i>	L.	Bila-Lala
<i>Trifolium</i>	<i>arvense</i>	L.	Bila-Lala
<i>Melilotus</i>	<i>officinalis</i>	(L.) Pallas	Bila-Lala
<i>Allium</i>	<i>schoenoprasum</i>	L.	Bila-Lala
<i>Lathyrus</i>	<i>sylvestris</i>	L.	Bila-Lala
<i>Medicago</i>	<i>lupulina</i>	L.	Bila-Lala
<i>Festuca</i>	<i>rubra</i>	L.	Bila-Lala
<i>Poa</i>	<i>pratensis</i>	L.	Bila-Lala
<i>Poa</i>	<i>nemoralis</i>	L.	Bila-Lala
<i>Cichorium</i>	<i>intybus</i>	L.	Bila-Lala
<i>Rubus</i>	<i>caesius</i>	L.	Bila-Lala

<i>Poa</i>	<i>annua</i>	L.	Bila-Lala
<i>Lolium</i>	<i>perenne</i>	L.	Bila-Lala
<i>Vicia</i>	<i>sepium</i>	L.	Bila-Lala
<i>Lactuca</i>	<i>serriola</i>	L.	Bila-Lala

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