

Technical report

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TYPE OF REPORT	Interim report (January – July 2023)
ABSTRACT (Maximum 200 words)	<p>During the first half of 2023, the first steps towards the preparation of the <i>In situ</i> CWR National Inventory for Portugal were carried out: (i) a national Task Force was formed to contribute to and supervise the preparation of the national inventory, (ii) a second iteration of the national CWR checklist was prepared for the three Portuguese geographic units (Azores archipelago, Madeira archipelago, and mainland Portugal), (iii) the prioritization criteria and method were discussed, (iv) the national CWR checklist was annotated with the information related to the prioritization criteria, (v) preliminary priority CWR lists were obtained for each geographic unit but these are still to be discussed amongst the members of the Task Force, and (vi) sources of occurrence data were identified for subsequent diversity analyses to identify populations for active <i>in situ</i> conservation.</p>
Keywords	<p>Country: Portugal Crop(s): Crop wild relatives Subject: <i>In situ</i> CWR National Inventory for Portugal</p>

During the first half of 2023, efforts were made to continue developing the *In Situ* CWR National Inventory, in Portugal. The methodology used for this purpose was adapted from Magos Brehm et al. (2017) which, in summary, mainly entails:

- Developing a national CWR checklist;
- Prioritizing the CWR checklist for conservation action;
- Diversity analyses to identify sites for the *in situ* conservation of priority CWR.

This methodology will be applied independently to the three geographic units of the Portuguese territory (Azores archipelago, Madeira archipelago, and mainland).

1. Establishment of a national Task Force for developing the *In Situ* CWR National Inventory

A Task Force including experts from the three geographic units of the Portuguese territory was formed with the aim of providing taxonomic expertise and supervising the development of the CWR checklist, priority list of CWR for conservation and identifying sites for active *in situ* conservation. The Task Force includes members of the Instituto Nacional de Investigação Agrária Veterinária, I.P. (INIAV) (2), Universidade de Lisboa (UL) (2), Universidade da Madeira (UMA) (2), Universidade dos Açores (UAC) (2), and the Instituto da Conservação da Natureza e das Florestas (ICNF) (1), covering the plant genetic resources community, academia and the biodiversity *in situ* conservation. The members of the Task Force were so far involved in establishing the scope of the national CWR checklist and its validation, as well as identifying the prioritization criteria and method. For this purpose, two background documents about the various options for preparing the CWR checklist and their prioritization were prepared, circulated and feedback was requested.

2. Development of an updated version of the national CWR checklist

Magos Brehm et al. (2008, 2010) prepared a Portuguese CWR checklist and list of priority CWR for conservation. However, that study did not consider the Azores and Madeira archipelagos and there was no floristic checklist of the three Portuguese geographic units at the time that study was carried out. Additionally, since that study resulted purely from an academic exercise, we felt the need to involve national experts in every step of conservation planning so that conservation of CWR would be taken forward more effectively.

The second version of the national CWR checklist was therefore obtained by matching the digital version of the *Checklist da Flora de Portugal (Continental, Açores e Madeira)* (Menezes de Sequeira 2015) (complemented with *Flora-On* (<https://flora-on.pt/>) and the *Portal da Biodiversidade dos Açores* (<https://azoresbioportal.uac.pt/pt/>) with the crop genera lists compiled by Kell (unpublished) which includes aromatic and medicinal, forestry, ornamental, major and minor food crop genera and the Annex 1 taxa of the International treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The checklist was compiled using the *Checklist and Inventory Data Template* (Thormann et al. 2017).

Invasive species were identified and highlighted in the checklist, as well as those species which are only cultivated, only exist in the wild and those which are both cultivated and in the wild in each of the geographic units. Sources of information regarding the invasive status of the species include: the citizen-science website www.invasoras.pt, the Annex II of the Decreto-Lei n.º 92/2019 (<https://dre.pt/home/-/dre/123025739/details/maximized>), the *Lista de Espécies Exóticas Invasoras que Suscitam Preocupação na União* (<https://www.icnf.pt/api/file/doc/12914868383491bc>), the publication by Almeida (2012) specifically for mainland Portugal, the Annex IX of the Decreto Legislativo Regional n.º 15/2012/A for the Azores (<https://dre.pt/application/conteudo/553893>), and the list of invasive species made available by the Secretaria Regional de Ambiente, Recursos Naturais

e Alterações Climáticas of the Governo Regional da Região Autónoma da Madeira (<https://ifcn.madeira.gov.pt/biodiversidade/projetos/controlo-de-plantas-invasoras.html#principais%20esp%C3%A9cies>).

The national checklist of CWR includes a total of 2993 taxa in all three Portuguese geographic units, out of which 456 taxa are related to food, forage and agricultural crops (163 in the Azores, 177 in Madeira, and 360 in mainland Portugal).

3. Prioritizing Portuguese CWR for active conservation

The Task Force identified as priorities the following CWR:

- Native taxa to the geographic unit in consideration (native status);
- Wild relatives related to food and beverage crops OR related to crops with national socio-economic value (economic category of the related crop);
- Taxa belonging to GP1B and GP2 or TG1B and TG2, or in 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);
- Endemics to the geographic unit (endemic status).

The national CWR checklist was therefore annotated with the information related to the criteria above. Sources of information for each criterion included those in Table 1. Preliminary priority CWR lists in each geographic unit were identified but are still subject to discussion amongst the members of the Task Force.

Table 1 Sources of information for each prioritization criterion.

PRIORITIZATION CRITERIA	SOURCES OF INFORMATION
Native status	Menezes de Sequeira (2015)
Economic category of the related crop	Kell (unpublished), which includes the following sources: Groombridge and Jenkins (2002), Annex I of the International Treaty on Plant Genetic Resources for Food and Agriculture (FAO, 2001), the FAO statistics (FAOSTAT, https://www.fao.org/faostat/en/#home) on agricultural production value and energy supply derived from crops consumed
Potential use in crop improvement	USDA, Agricultural Research Service, National Plant Germplasm System (2023) and Vincent et al. (2013)
Endemic status	Menezes de Sequeira (2015)

4. Next steps

The next steps include the collation of occurrence data for each priority CWR in each Portuguese geographic unit. These data will subsequently be analysed to identify priority populations to be actively conserved *in situ*. These populations will then form the *In Situ* CWR Inventory for Portugal and enter the EURISCO database. In the meantime, sources of occurrence data have already been identified (Table 2).

Table 2 Sources of occurrence data for priority CWR.

GEOGRAPHIC UNIT	SOURCES OF OCCURRENCE DATA	
Azores archipelago	<i>Portal da Biodiversidade dos Açores</i> https://azoresbioportal.uac.pt/pt/	<ul style="list-style-type: none"> • Global Biodiversity Information Facility (https://www.gbif.org/) • Botanical Information and Ecology Network (https://bien.nceas.ucsb.edu/bien/) • Genesys PGR (https://www.genesys-pgr.org/) • Flora-On (https://flora-on.pt/) • Banco Português de Germoplasma Vegetal – GRIN-Global (http://bpgv.inia.v.pt/gringlobal/)
Madeira archipelago	ISOplexis – GRIN-Global (https://isoplexis.uma.pt/gringlobal/search.aspx)	
Mainland Portugal		

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