Conserving
plant diversity
for future generations

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Plant genetic resources in the Euro-Mediterranean region

Building a new collaborative conservation network

S. Kell, N. Maxted, J. Magos Brehm

2nd Mediterranean Plant Conservation Week

Conservation of Mediterranean Plant Diversity: Complementary Approaches and New Perspectives

University of Malta, La Valletta, 12–16 November 2018

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Plant genetic resources for food and agriculture

"Any genetic material of plant origin of actual or potential value for food and agriculture"
(FAO ITPGRFA 2001)

- Cultivated varieties of plant species
  [landraces/farmers' varieties
  and modern cultivars]
- Wild plant species with potential as trait donors to crops
  [crop wild relatives – CWR]
- Wild-harvested species used for human and animal food
- Plant breeders' material
  [advanced lines, élite varieties and DNA]

Plant genetic resources for food and agriculture

"PGRFA are the biological basis of world food security and, directly or indirectly, support the livelihoods of every person on earth"
(FAO CGRFA, 1996)

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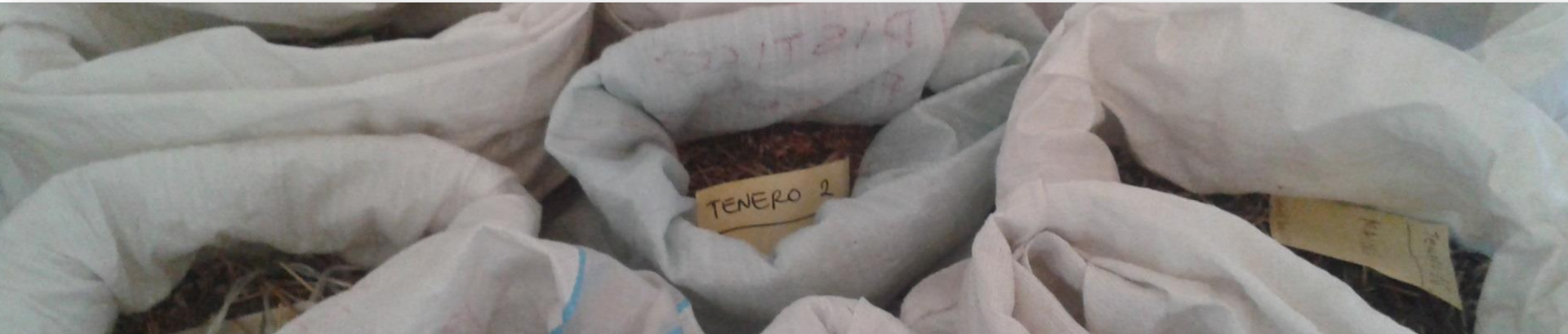
PGRFA – diversity for food and economic security

Imperative for greater use of both within and between species diversity in farming systems to provide sufficient options for the adaptation of crops as an insurance against climate variability

(IPCC, 2014)

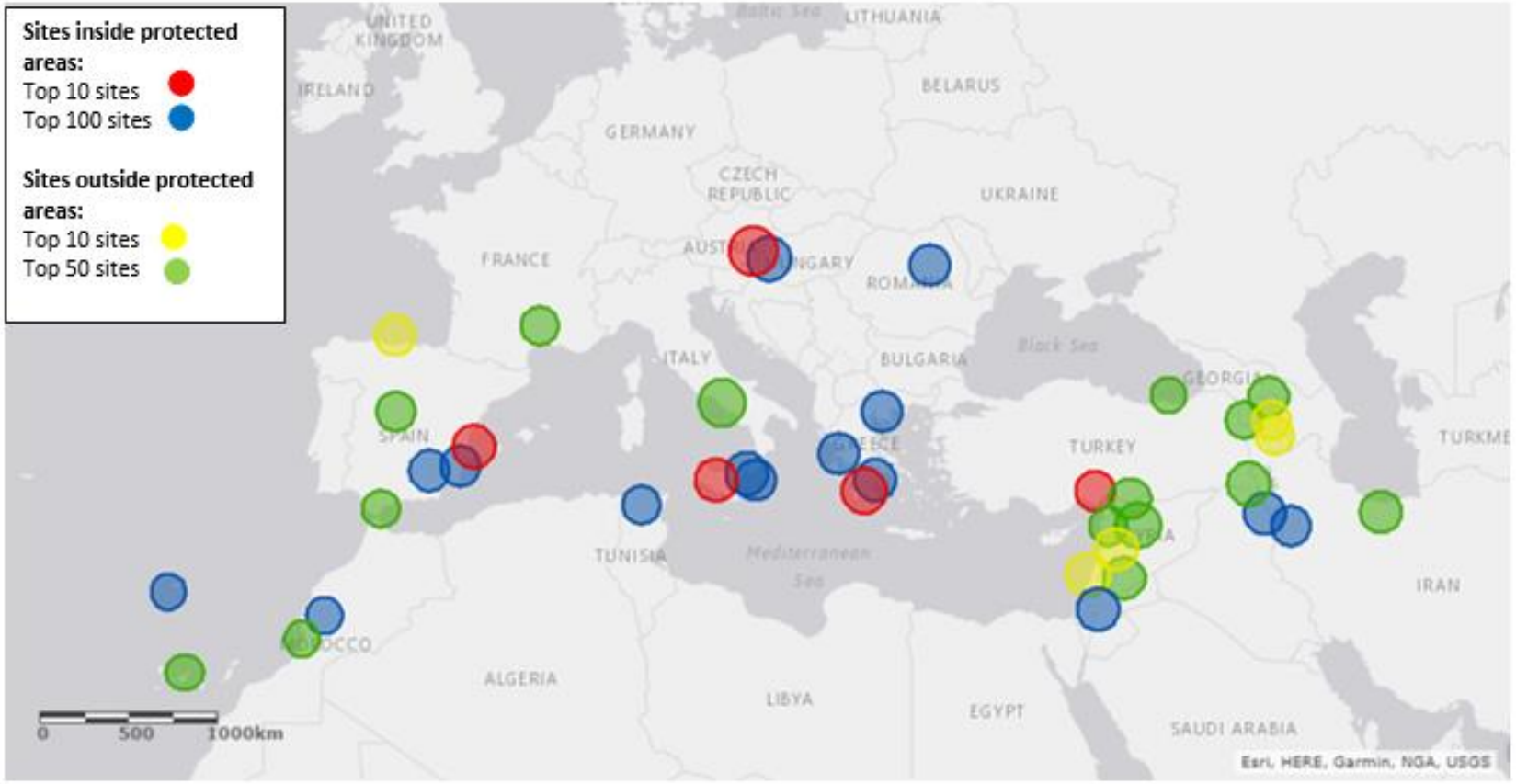


PGRFA in the Euro-Mediterranean region

Important crop species and their wild relatives include several cereals and legumes (e.g., wheat, oat, chickpea, lentil, pea and faba bean), fodder and forage crops (e.g., lucerne, white clover and sugarbeet), and many vegetables, fruits, nuts, herbs and oils (e.g., brassicas, lettuce, grape, almond, pistachio, sage and olive)

Globally important sites for CWR conservation

40 out of 150 are in the Euro-Mediterranean region



Global diversity analysis of priority wild relatives of 192 food and beverage crops (Vincent *et al.*, in press)

PGRFA are threatened

Crop wild relatives (CWR) – threatened by climate change, agricultural intensification, land-use transformation, habitat destruction and pollution

Traditional crop varieties (farmers' varieties, or 'landraces') – threatened by under-use or abandonment

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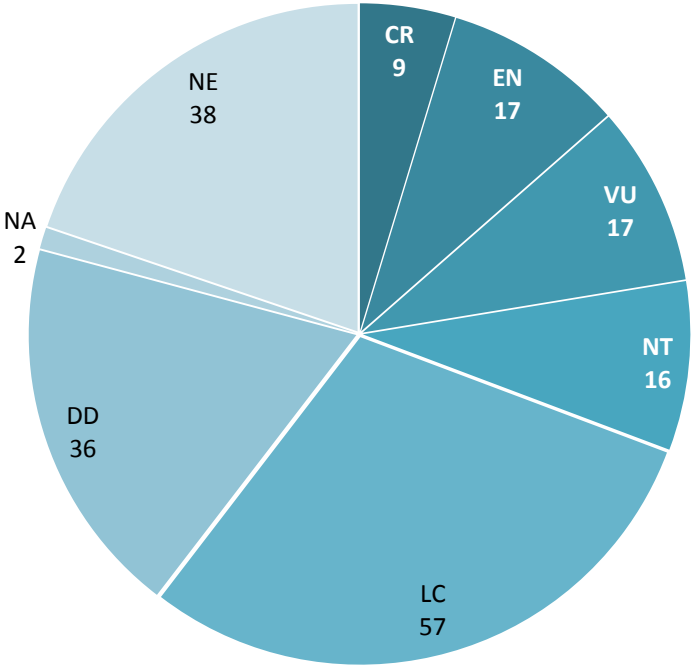
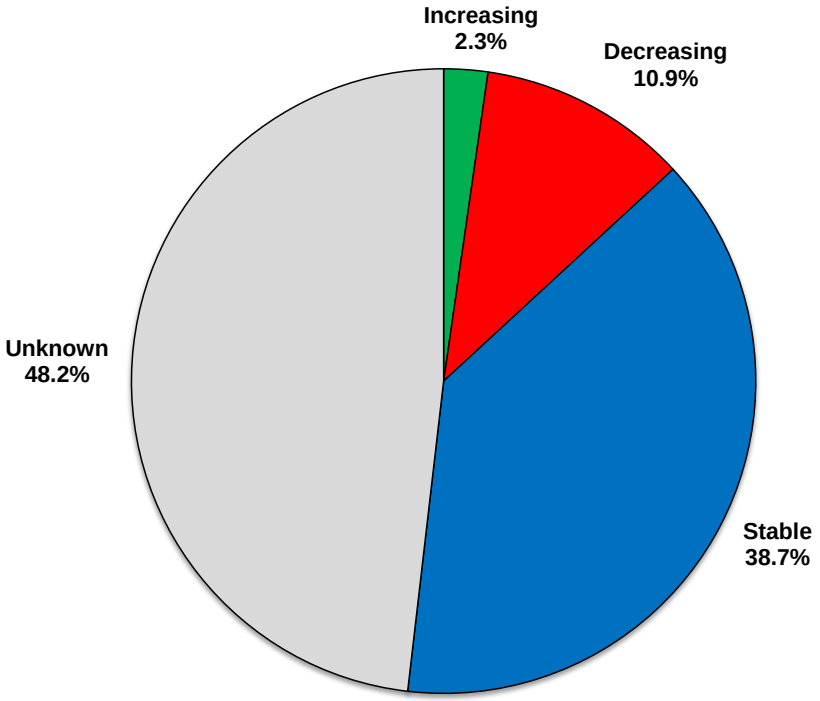
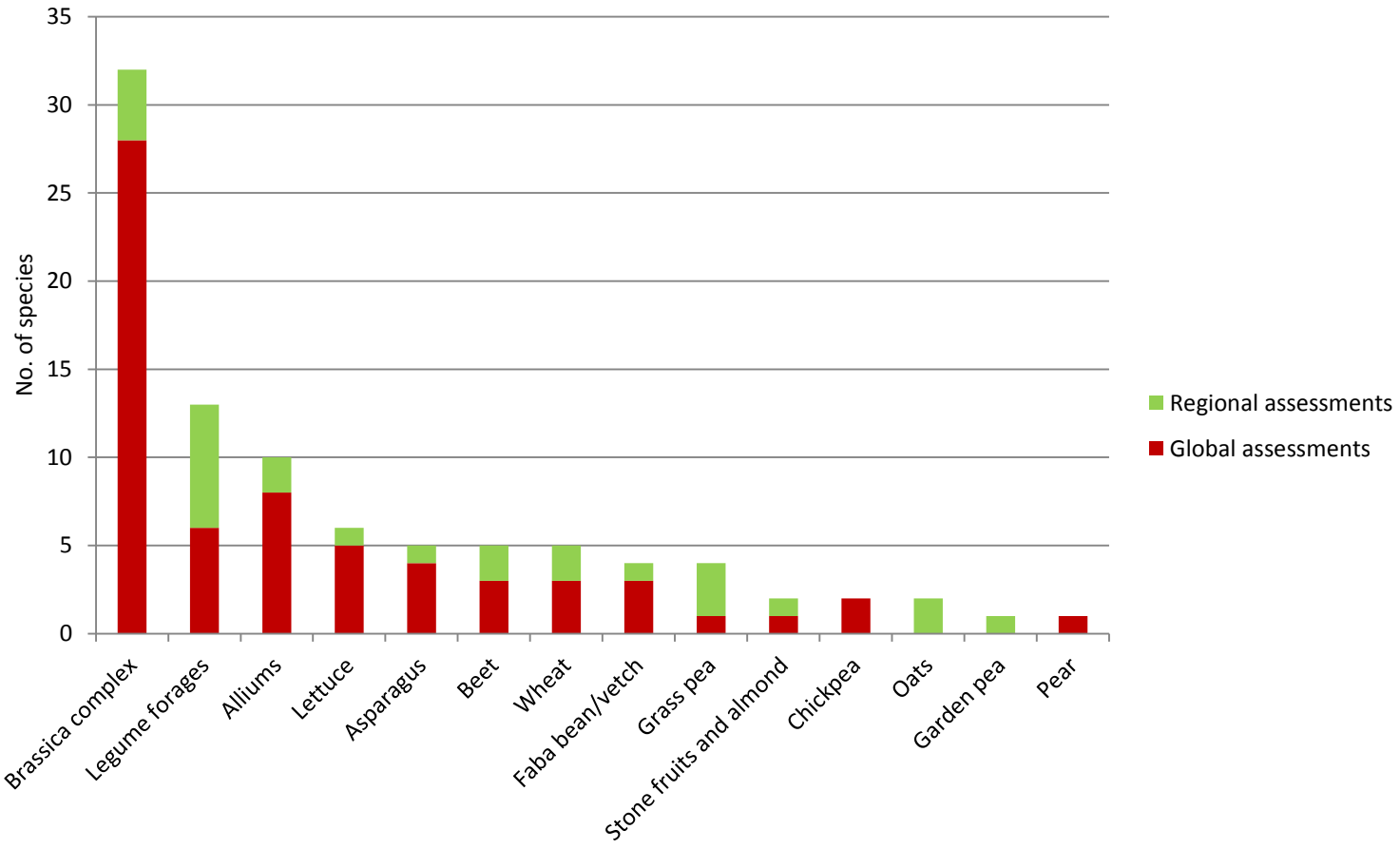
Red List status and population trends of 192 high priority European CWR



31% threatened or Near Threatened

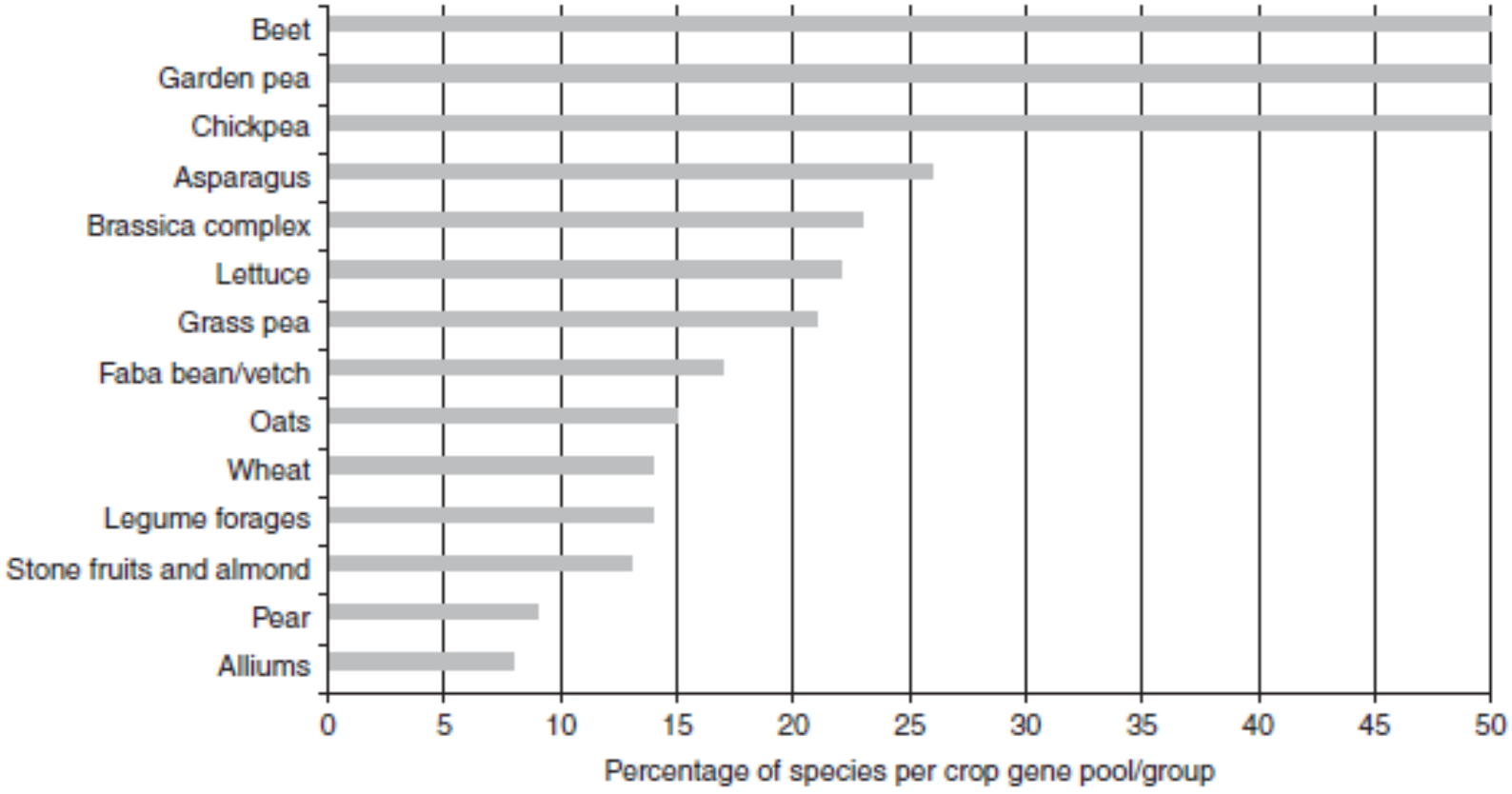


Globally and regionally threatened European CWR



Globally and regionally threatened (CR, EN or VU) or Near Threatened (NT) species, out of 571 assessed in 14 crop gene pools/groups

Globally and regionally threatened European CWR



The percentages of globally and regionally threatened (CR, EN or VU) or Near Threatened (NT)
species, out of 571 assessed in 14 crop gene pools/groups

CWR diversity is under-conserved *ex situ*

Percentage of accessions of wild origin: 7% in Europe, 18% globally

The breadth of coverage of crop gene pools is limited

Most species are represented by very few *ex situ* accessions

Most species are reported by only one gene bank

Most species have been collected from only a small part of its range

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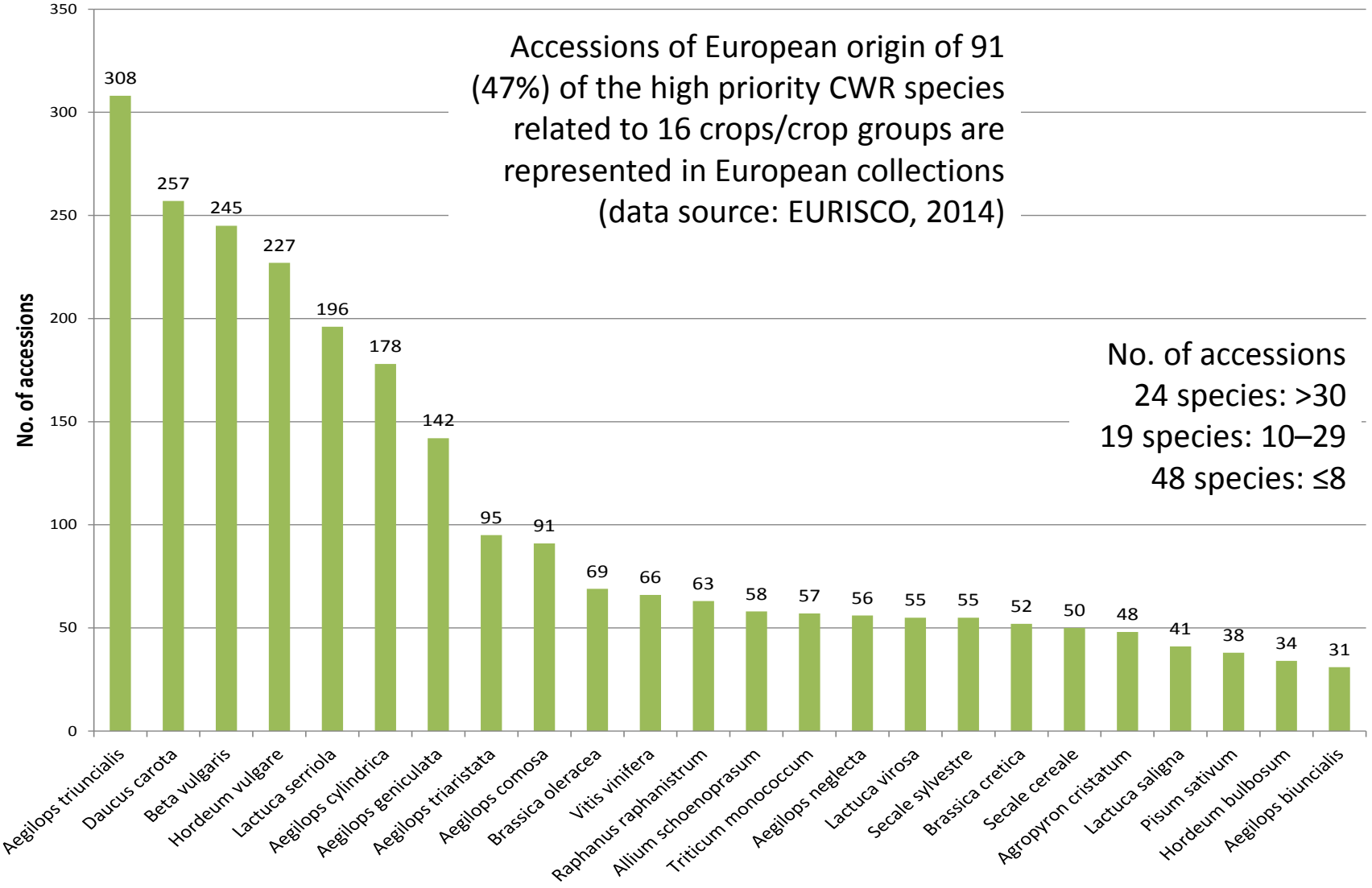
Ex situ conservation status of high priority European CWR



CWR diversity is under-conserved *in situ*

Very few examples of active *in situ* conservation of CWR

Aegilops species in Ceylanpinar of southeast Turkey
Citrus, *Oryza* and *Alocasia* species in Ngoc Hoi, Vietnam
Solanum species in Pisac Cusco, Peru
Triticum species in Ammiad, Eastern Galilee, Israel
Zea perennis in the Sierra de Manantlan, México

Policy context for PGRFA conservation and sustainable use

- International Treaty on PGRFA [ITPGRFA]
- Second Global Plan of Action for PGRFA [Second GPA]
- Convention on Biological Diversity [CBD]
  - Strategic Plan for Biodiversity 2011–2020 (Aichi Biodiversity Target 13)
  - Global Strategy for Plant Conservation 2011–2020
  - Programme on Agricultural Biodiversity—in particular, the International Initiative on Biodiversity for Food and Nutrition

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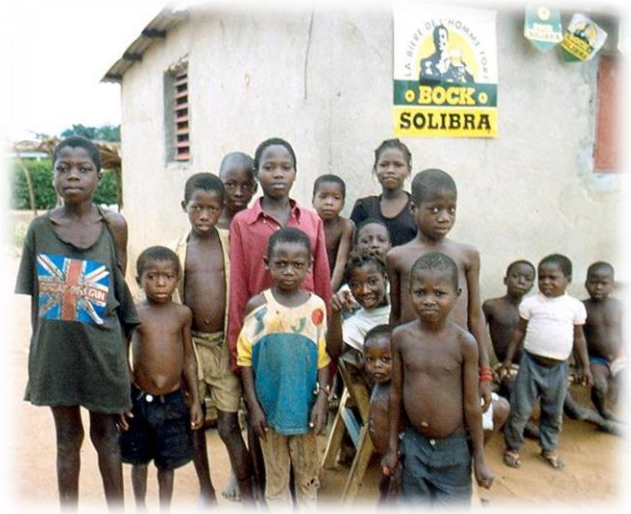
PGRFA policy context

- Underline the **commitment of governments** to conserve and sustainably use PGRFA to increase food security and nutrition, and to alleviate poverty

- Highlight the **need to develop and implement national strategies** for PGRFA conservation and sustainable use



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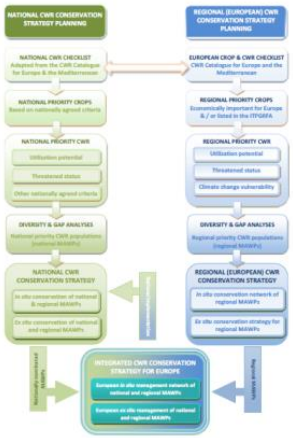
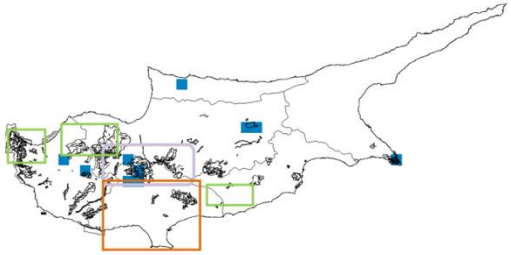
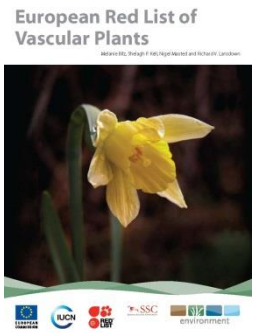
PGRFA policy context

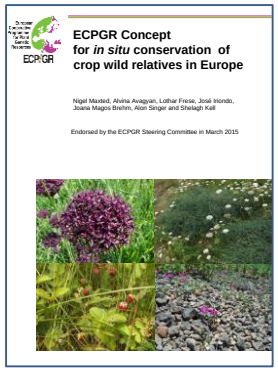
Target 2.5

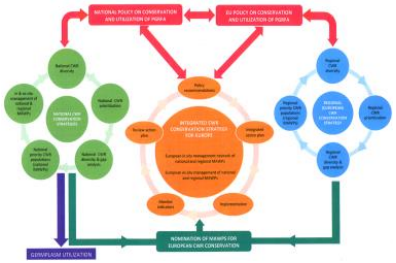
By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

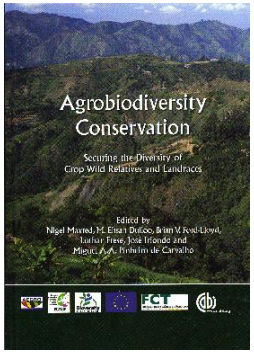


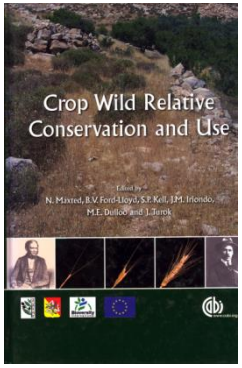


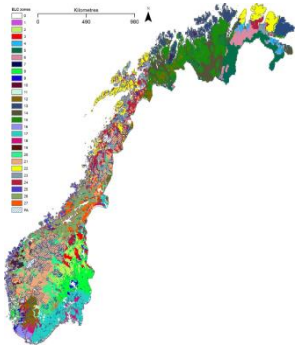


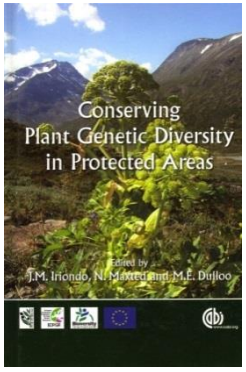


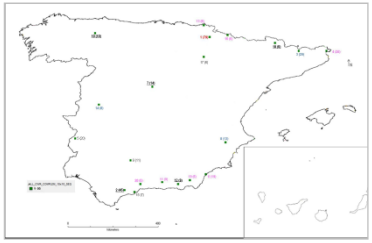


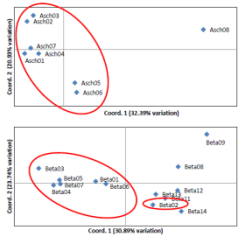


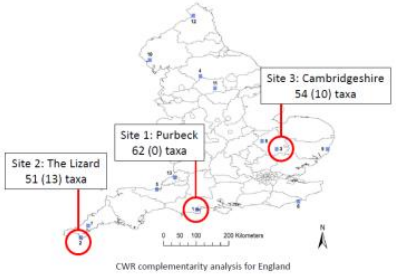




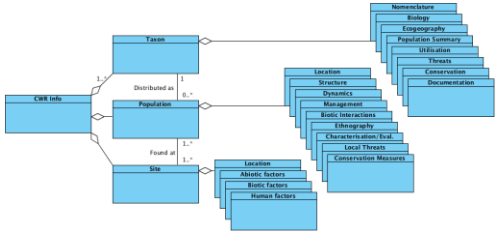


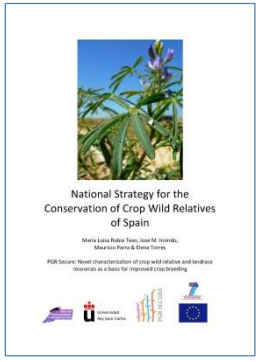


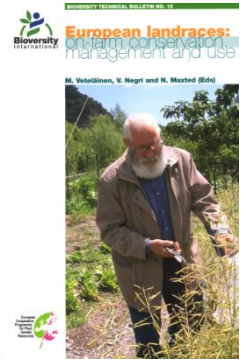


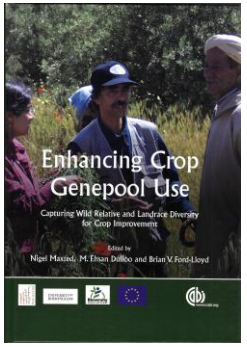


CWR complementarity analysis for England









Networking, partnerships and tools to enhance *in situ* conservation of European plant genetic resources

Enhance and promote the *in situ* management, conservation and use of plant genetic resources in Europe to provide greater diversity for food, nutrition and economic security

Funded by the Horizon 2020 Framework Programme of the European Union

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Establishing a European network for *in situ* conservation of plant genetic resources

- Improving knowledge of the roles and interests of people and organizations involved in PGR conservation and use *in situ*
- Establishing a communication platform to enable knowledge sharing and foster multi-actor partnerships
- Identifying locations where PGR populations are managed according to agreed practices and designating them as the first sites of the European network
- Building a European network governance structure using existing organizations with mandates to conserve PGR *in situ*

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Improving and promoting best practices

- Improving knowledge of PGR population management *in situ*
- Showcasing how *ex situ* and *in situ* PGR conservation can be integrated
- Creating tools to manage information associated with PGR conservation *in situ*
- Testing and refining guidelines for community seed bank management

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Enhancing the use of *in situ* conserved PGR

- Promoting and facilitating access to *in situ* conserved diversity
- Engaging with plant breeders, farmers and other users of PGR to determine which traits are likely to be most important to meet future agricultural and market needs
- Undertaking analyses to predict which populations are most likely to contain these traits to prioritize them for conservation action
- Creating stronger and long-lasting local, national and international seed networks

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Influencing the policy environment

- Investigating the suitability of the current policy environment to support the European network governance structure
- Identifying cost-effective strategies and policies to improve the PGR conservation and use system in Europe
- Improving our understanding of the public and private benefits associated with PGR conservation and use
- Identifying gaps and needs for policy change and establishing a dialogue to communicate recommendations to policy-makers

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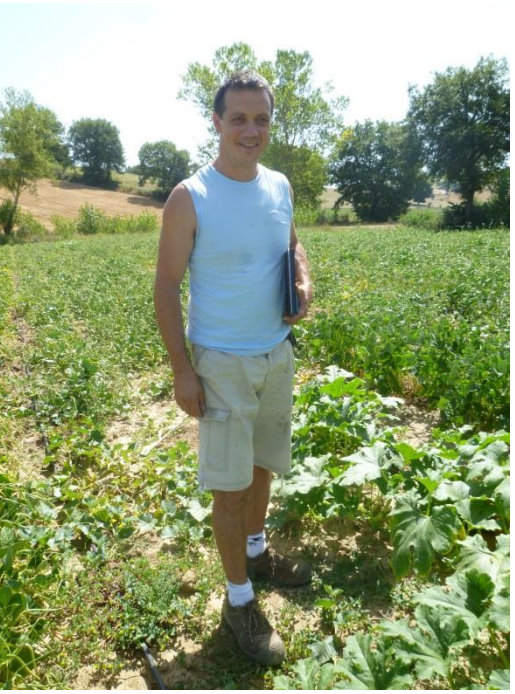
Collaborators



- **19 partner organizations representing the diverse PGR stakeholder community** – farmer, agrobiodiversity, conservation and civil society NGOs; plant breeding/seed sector; public research institutes; protected area networks
- **18 Farmer's Pride Ambassadors** – to extend the geographical and stakeholder reach of the project and increase the range of expertise
- **8 External Advisory Board members** – to review and evaluate project progress and outputs, and provide advice and guidance

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Workshops and conference

- Three international stakeholder workshops for discussion and decision-making on the development of the European network and all related project activities
- Four workshops to develop, promote and strengthen national seed networks (2 x Denmark, 2 x Hungary)
- Policy dialogue workshop
- Final dissemination conference

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Home Context Actions Survey Collaborators Contact

Stakeholder survey

If you are involved in conserving wild or cultivated plant genetic resources *in situ* or if continued access to plant genetic diversity is important to you, please take 10–15 minutes to complete our survey.

Your contribution is important for future generations.

For more information about the survey, click here.

The survey is available in Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Spanish and Turkish.

Or click here to go directly to the survey

www.farmerspride.eu

Farmer's Pride

'Networking, partnerships and tools to enhance *in situ* conservation of European plant genetic resources' (short name, 'Farmer's Pride') is a three year EU-funded project which started in November

University of Birmingham
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IPK Gatersleben
Wageningen University & Research
Plantlife
Universidad Rey Juan Carlos
pro specie rara – Swiss Foundation for Cultural and Genetic Diversity of Plants and Animals
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Thank you!

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