

Global and Regional Conserving planning

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1st Mediterranean Plant Conservation Week

“Building a regional network to conserve plants and cultural
diversity”

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European and National Wild Plant Conservation

Three alternatives:

1. National network(s) alone:

- Advantages:
 - Strong **national commitment** and support for the network
 - Good **linkage to the national user** community
- Disadvantage:
 - Multiple national networks may provide **insufficient European coverage** of plant biodiversity and therefore important plant diversity made be left vulnerable to extinction or erosion
 - Multiple national network(s) alone may also **lack regional support and resources** to maintain purely nationally designated sites.

2. European network alone:

- Advantages:
 - **Good European coverage** of agro-biodiversity
 - Good **linked to European user** community (notably CG Centres)
 - Relatively easily **linked to European policy instruments** (e.g. CDB, IT)
- Disadvantages
 - **Lack of commitment from national authorities** to establishing sites which may not be a national priority
 - Likely to **require European funding** to maintain global sites if they are not a national priority
 - **Some countries with European important plant diversity may not wish to be involved** in the integrated global network, undermine the European network itself.



European and National Wild Plant Conservation

Three alternatives:

3. Integrated national and European network:

- Advantages:
 - Good national and European commitment and support,
 - Good national and European coverage of plant biodiversity,
 - Good mixture of national and European funding to resource site management,
 - Good links to the international, European and national user community
 - Good links to European policy instruments (e.g. Natura 2000, Habitat and Bird Directive)
- Disadvantages
 - Some countries containing European important plant diversity may not wish to be involved in the integrated global network.



In situ networks of wild plant populations

Function

- Facilitating the **coordination** of the many ongoing initiatives dealing with *in situ* conservation and/or on-farm management of PGRFA;
- Fostering **stronger partnerships (funding)** at national, regional and global levels;
- **Impacting positively on activities at country-level** and demonstrate benefits that directly support the ultimate custodians of PGRFA, the **local communities** that may be found in and around protected areas/reserves and/or farmers and farming communities who are involved in day-to-day management of crops and varieties;
- Achieving the desired fundamental outcome of both *in situ* conservation and on-farm management of PGRFA: the **safeguarding in perpetuity of important genetic resources** for use either directly by farmers or by plant breeders and other scientists in crop improvement. Thus, another important function of the network(s) is to catalyse **better linkages between conservation and sustainable use** of PGRFA for the benefits of



Governance of an *In situ* Networks of wild plant sites / populations

What is governance

- “Governance is the way the **rules, norms and actions are structured, sustained, regulated and held accountable**. As such, governance may take **many forms**” Wikipedia (Sept. 2016)
- Geopolitical and administrative scales - who provides oversight?
 - European options – ECPGR, EEA, EU Environment (Natura 200), EUROSITE, EUROPARK?
 - International options – **FAO Globally Important Agricultural Heritage Systems**, FAO IT, CG Centres, UNESCO Man and Biosphere Programme, UNESCO World Heritage Sites, CBD Programme of Work on Protected Areas, IUCN Key Biodiversity Areas?
- Physical versus virtual management - what type of network structure?
 - Novel stand alone sites or **existing sites (PA) and Non PA?**
- National sovereignty over genetic resources (ITPGRFA) - who controls sites?
 - a. all sites **nominated by national PGRFA coordinators**,
 - b. all sites remain under the **jurisdiction of national agencies**,
 - c. **access to material controlled by national authorities via SMTA**



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= European component of Vavilov Network?

Governance responsibilities

Management and coordination responsibilities

- Sets and maintains **minimum criteria** for inclusion in European network(s);
 - Proposed minimum criteria for inclusion in Network (Maxted, 2014)
 - Plant population is **native** at that location or if introduced has existed at that location for **at least fifteen generations**.
 - The population contains **distinct or complementary genetic diversity** (ecogeographic diversity may be used as a proxy for genetic diversity) or specific traits of interest that enhances the overall value of the network.
 - The population is actively and sustainably managed according to the **minimum quality standards for genetic reserve conservation** (Iriondo *et al.*, 2012).
 - The population is **routinely sampled** and held in a backup *ex situ* facility every fifteen generations.
 - The population is **'healthy' with a good chance of long term survival** (normally thought to mean 100 years) and so **threats from development or climate change** are minimal.
 - The **population is accessible** for research or utilisation in accordance with the International Treaty via the appropriate national agencies and samples must be available on request from a specified *ex situ* facility as part of the multilateral system.
 - The population is **nominated by the appropriate national authority** for inclusion in the Network
 - Assess whether individual sites **meet minimum criteria for inclusion**;
 - Periodically **review whether individual sites meet minimum criteria** for inclusion in network and fulfil reporting obligations;



Governance responsibilities

Management and coordination responsibilities

- Promote access to *in situ* conserved populations linked to sustainable utilization and benefit sharing;
- Increase awareness of value of wild plants for agriculture and the environment among governments, commercial entities, institutions, decision-makers and the general public;
- Ensure and promote *dynamic in situ* conservation of plant populations;
- Coordinate and provide expertise on *in situ* conservation management (tools, protocols, exemplars, evidence-base, etc.);
- Assist with provision of grants from European funds, in-kind assistance and co-financing to support the network;



Governance responsibilities

Management and coordination responsibilities

- Develop effective strategies for **gathering, documenting and disseminating** baseline information on wild plant populations;
- Recommend **research projects** to countries and to make proposals on the organization of regional or international cooperation;
- Coordinate European **cooperation between Member States** participating in the network, establish a European and national **policy and legislative framework** e.g. EU Directive on PGRFA;
- **Coordinate European scientific programmes**, inclusion of **more priority plants in EU Habitat Directive**, promotion of **nature and agrobiodiversity conservation** collaboration;
- Consult with international non-governmental organizations on **scientific or technical questions and helpdesk provision**.



Governance of an *In situ* Networks of plant sites / populations

Minimum quality standards for genetic reserve conservation (Iriondo *et al.*, 2012)

- **Location**
 - Located following rigorous scientific process
 - Located in a protected area network
- **Spatial structure**
 - Polygon of the genetic reserve should be clearly defined
 - Sufficient extent to conserve plant populations and natural processes.
- **Target taxa**
 - Genetic reserves are designed to capture maximum genetic diversity
 - Demographic survey of target plant taxa
- **Populations**
 - Population sizes are large enough to sustain long-term populations
- **Management**
 - Site recognised by the appropriate national agencies
 - Management plan formulated
 - Monitoring plans are designed and implemented
 - Local community involved in site management
 - Clearly-defined procedure to regulate the use of genetic material
- **Quality standards for the protected areas selected for the establishment of genetic reserves**
 - Site has legal foundation
 - Site governance ensures continuing commitment to *in situ* plant conservation
 - Site management plan acknowledges genetic
 - Inventory of all plants present



Wild chives, *Allium schoenoprasum*

In situ networks of European wild plant populations

Finance

		€(x000)	€ (x000)	€ (x000)
International costs	Research regional priority sites to establish genetic reserves for wild plant taxa	375		
	Initial set of 25 genetic reserves for wild plant taxa established within 10 years of European network(s) @ €100,000 per plant genetic reserve	2,500		
	Network(s) Secretariat staff and a Managerial Committee for first 10 years of global network(s) @ €150,000 per annum	1,500		
	Total international costs		4,375	
National costs	Production of national plant conservation strategies for 10 countries in Europe @ €100,000 per national wild plant conservation strategy	1,000		
	Running costs of 25 national genetic reserves @ 25,000 USD per genetic reserve for 10 years	625		
	Total national costs		1,625	
	Total costs of global European network(s)			6,000

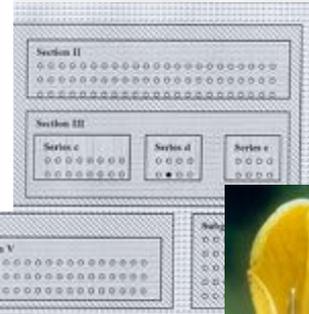
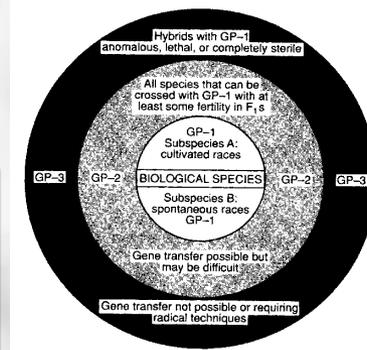
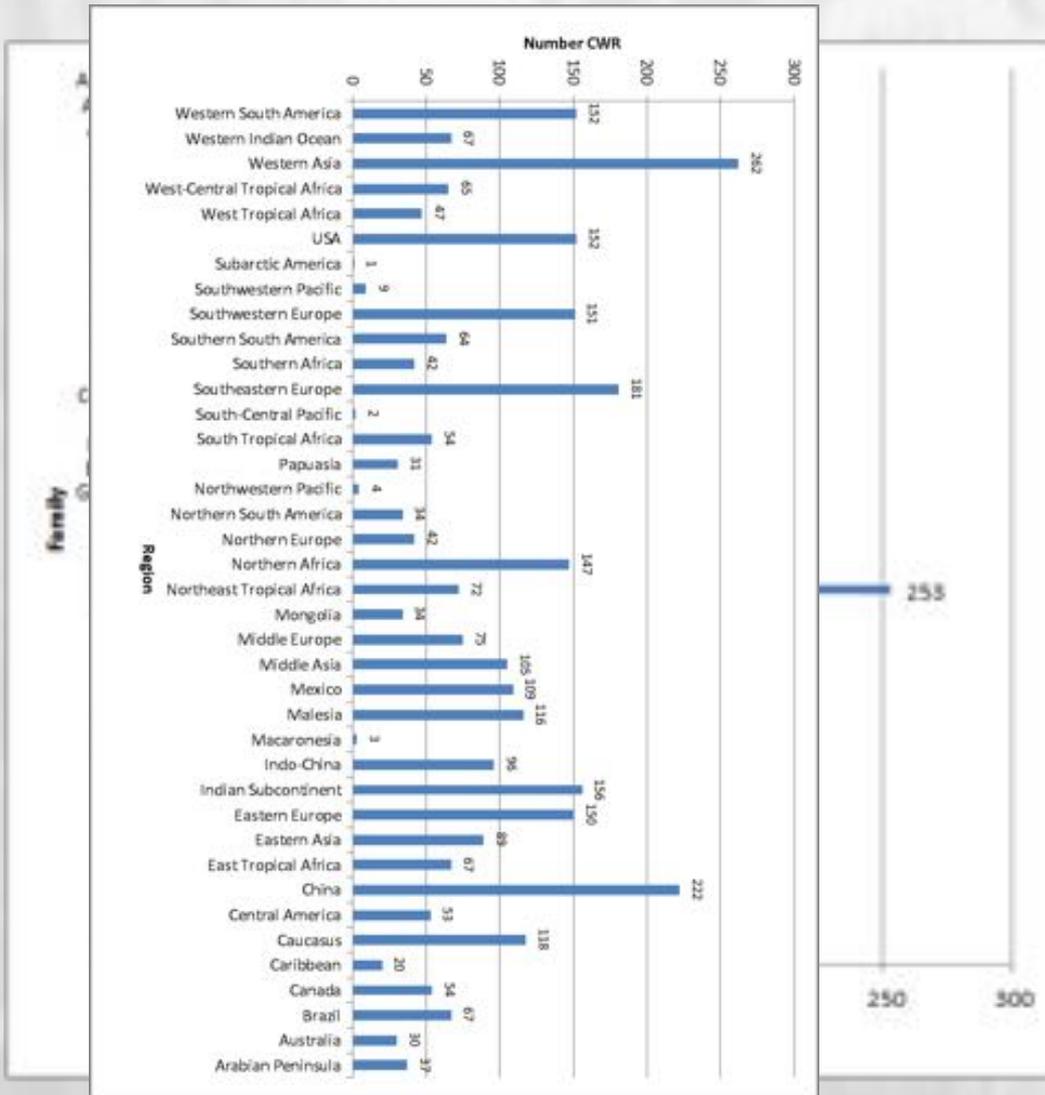
€6M for a European Network – But the UK network was started with €120K

Global *Ex situ* targeted CWR sampling

- Global Crop Diversity Trust project with Norwegian Gov. funding (budget \$80M over 10 years)
- Primarily use orientated, but \$8M for *ex situ* collecting in first 6 years:
 1. List of gene pools and taxa to collect 92 genera with crops
 2. Ecogeographic data collection
 3. Gap analysis using Maxted *et al.* (2008) / Ramírez-Villegas *et al.* (2010) methodology
 4. Field collection
 5. *Ex situ* storage



Global Priority CWR taxa



1,667 priority CWR taxa from 194 crops

- 37 families
- 109 genera
- 1,392 species
- 299 sub-specific taxa

Vincent *et al.* (2012)

<http://www.cwrdiversity.org/checklist/>

Global CWR Gap Analysis

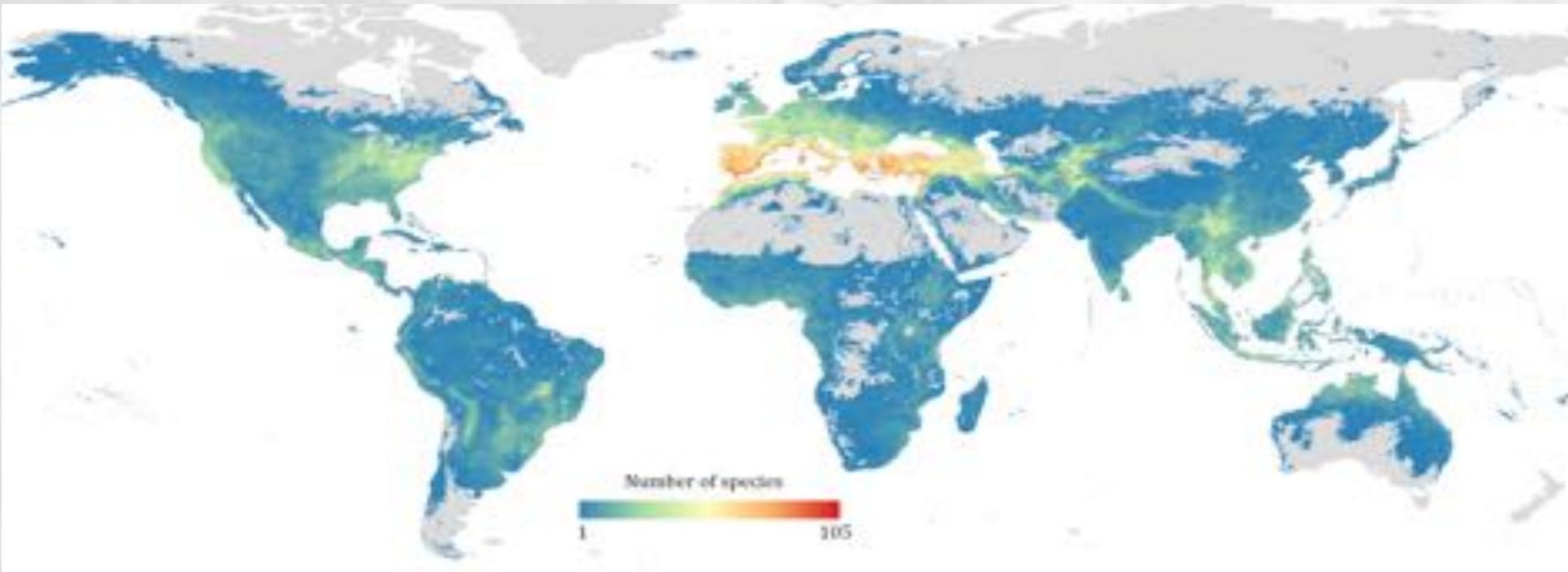


Figure 1. Species richness map for the priority CWR related to 194 crops at five arc minutes resolution (Vincent *et al.*, 2017).

Global CWR Gap Analysis

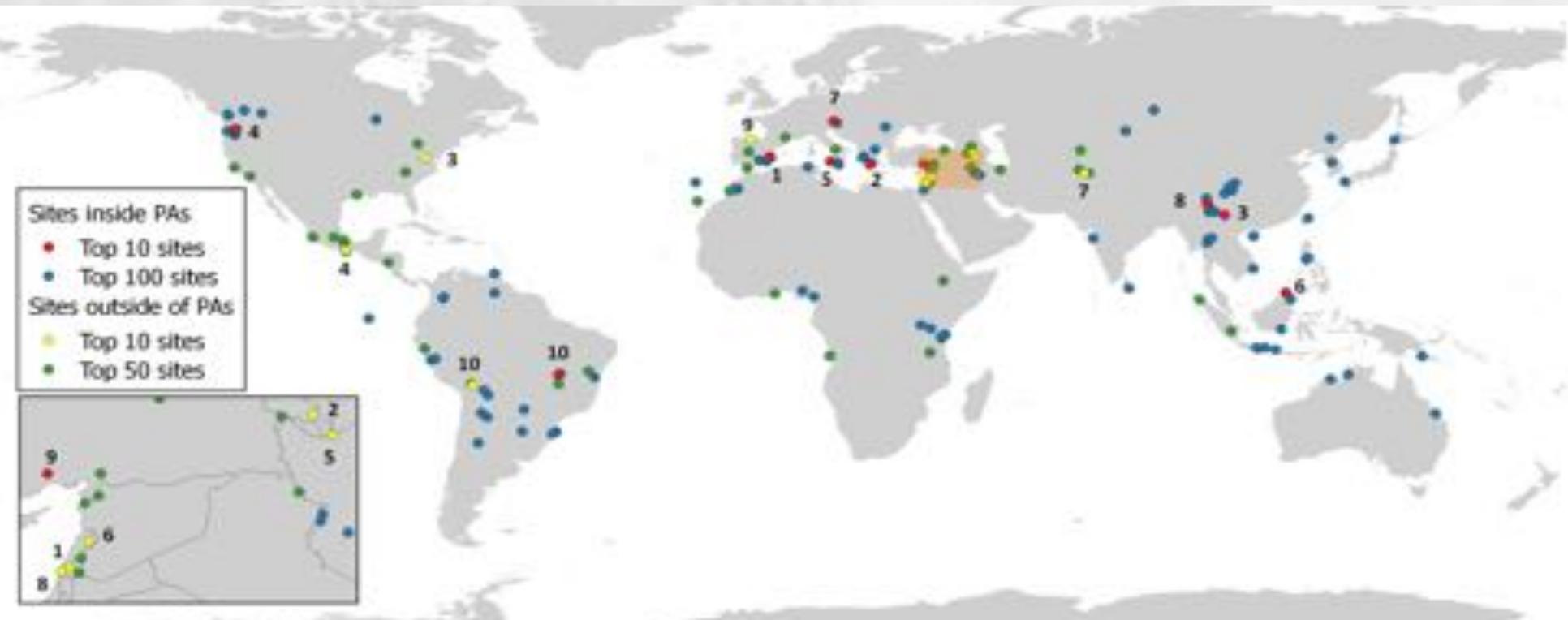


Figure 2 Top 150 sites for global *in situ* CWR conservation (PA and non-PA), with magnification on the Fertile Crescent and Caucasus (Vincent *et al.*, 2017).

Global CWR Gap Analysis

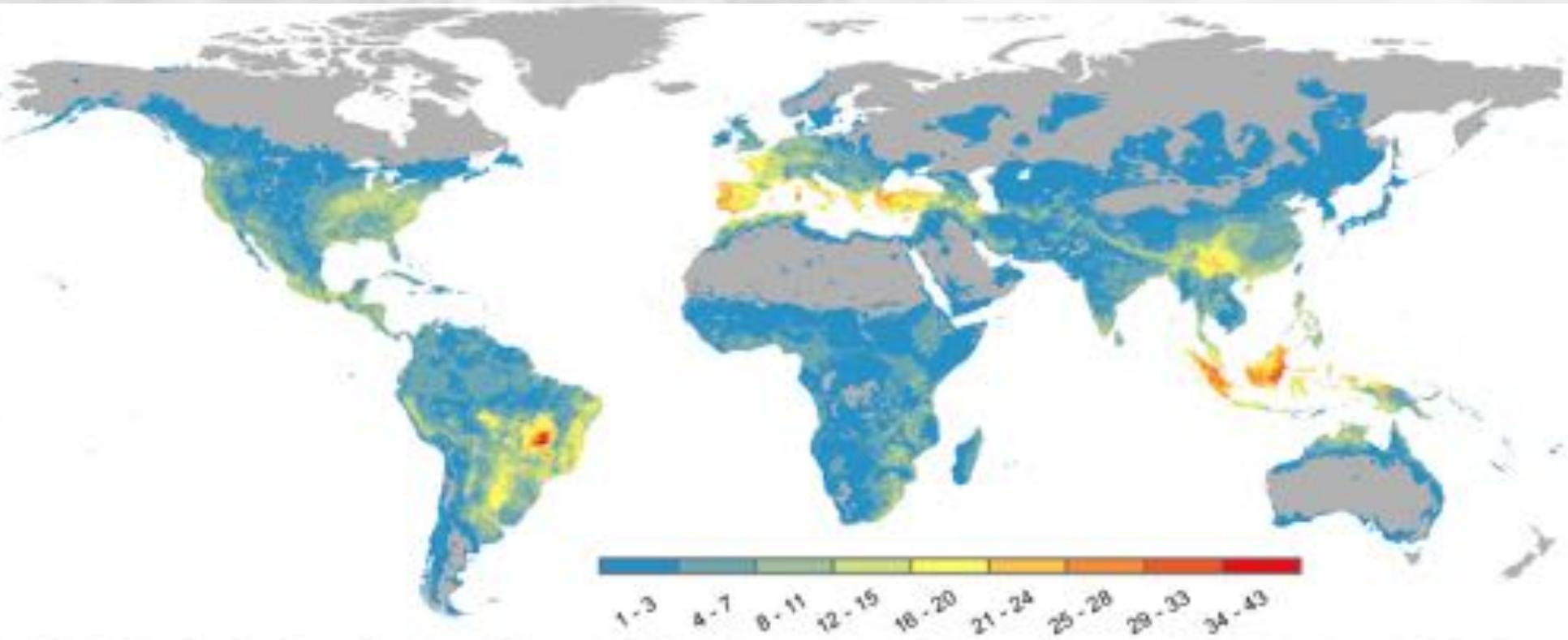


Figure 3. Global collecting hotspots for High Priority CWR for 76 crop gene pools (Castañeda-Álvarez *et al.*, 2016).

Take home messages

We can systematically conserve European wild plants species, if we try?

