

U **From plant conservation planning to implementation: a European perspective** B

Nigel Maxted

'Fourth annual BIFoR Community Meeting'

29 and 30 January 2020, Writer's Suite, Edgbaston Park

Hotel and Conference Centre *Birmingham, UK*

Talk objectives

1. GenRes Bridge and the UK Forestry Strategy
2. PGR and FGR links in the UK
3. First steps toward the 'Vavilov' Network and a possible forestry link

All results: [europa.eu/rapid/press-re ...](https://europa.eu/rapid/press-releases.htm?ID=190506_1&LANG=en)
#EUBiodiversity



3:14 AM - 6 May 2019

The background of the slide is a soft-focus photograph of a field of small, spiky flowers, possibly thistles, in shades of green and yellow. The text is overlaid on the left side of the image.

1. GenRes Bridge and the UK Forestry Strategy

H2020 GenRes Bridge



- Builds on knowledge of **decades of GenRes research**, conservation and use
- Build on **established networks** (ECPGR, EUFORGEN, ERFP)
- GenRes Bridge offers a unique opportunity for European GenRes networks to grow a **common voice** in the Food, Agriculture, Forestry and biodiversity sectors, it will:
 - increase the **effectiveness of sustainable management** for crop, forest and animal GenRes
 - **widen capacities** to increase the knowledge on conserved diversity of crop, forest and animal GenRes
 - enhance the **conservation status** of GenRes
 - improve the **services offered** to the end-users of GenRes



Hordeum vulgare ssp. spontaneum

Strategy or Strategies?



1. European GenRes Integrated Strategy for Food, Agriculture and Forestry
 - Main document, policy focus, max 20 pages
 2. European GenRes Strategy for Crop Genetic Resources
 3. European GenRes Strategy for Animal Genetic Resources
 4. European GenRes Strategy for Forest Genetic Resources
- } Domain specific, science focus, with policy recommendations

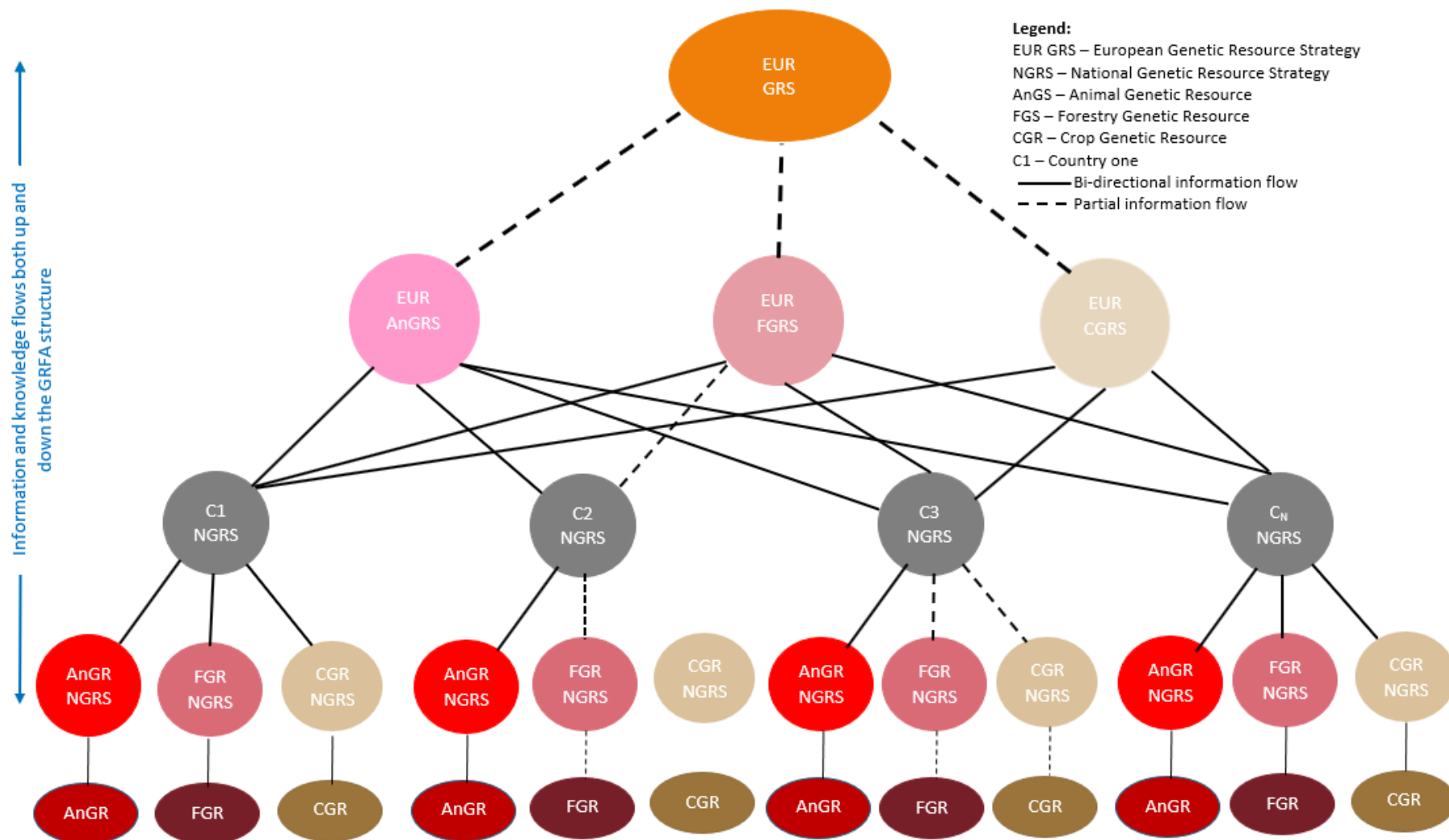
Proposed GenRes Strategy Production Methodology



1. Collation and analysis of available GenRes Strategy information across 3 domains
2. Review and agree contents of Integrated GenRes Strategy, input from stakeholders formal and informal
3. Stimulate countries to develop national animal, crop and forestry, and / or integrated inter-sector genetic resource conservation and use strategies
4. Organize “Sharing strategies and perspectives” workshop of experts, GR stakeholders and end-users to review options (Helsinki, Finland; November 2019)



Proposed GenRes Strategy Production Methodology – Schematic presentation



Proposed GenRes Strategy Production Methodology



5. Draft GenRes Strategy or Strategies
6. Reviewed and validated by stakeholders
7. Publish European animal, crop and forestry, and / or integrated inter-sector genetic resource conservation and use strategies
8. Use published strategies to lobby for a more holistic approach to national and European genetic resource conservation and use



Looking for input from the
UK forestry community
building on UK Forest
Genetic Resources Strategy

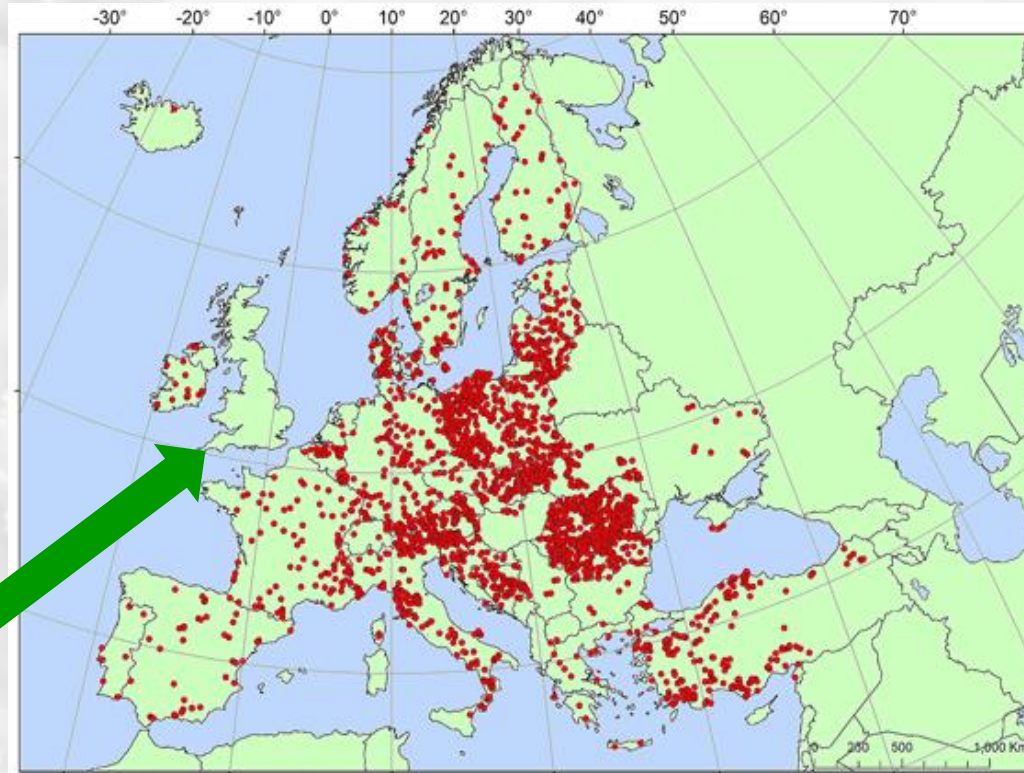


2. PGR and FGR links in the UK

The objective of UK forestry conservation

To provide long-term security for UK forestry species by proactive conservation of the maximum range of genetic diversity in a network of evidence-based selected *in situ* sites across the UK with back-up *ex situ* duplication of seed samples. The sites will form an integrated network of diversity available for use in forestry breeding programmes for climate change, and pest and disease mitigation, so promoting sustainable use of UK forest genetic resources and securing the UK forestry industry.

Mind the gap!



EUFORGEN website

<http://www.euforgen.org/>

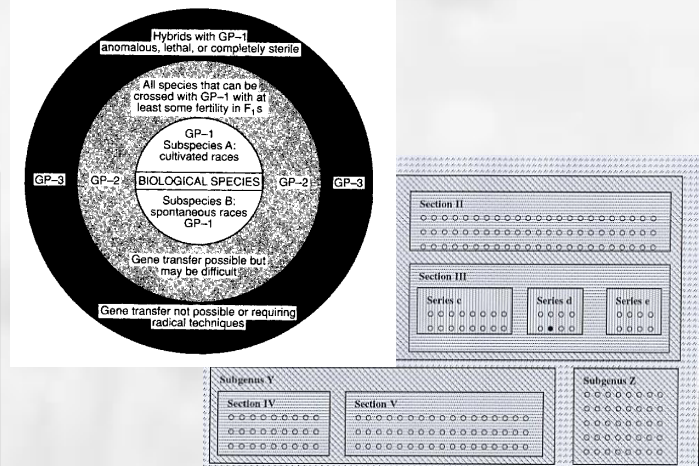
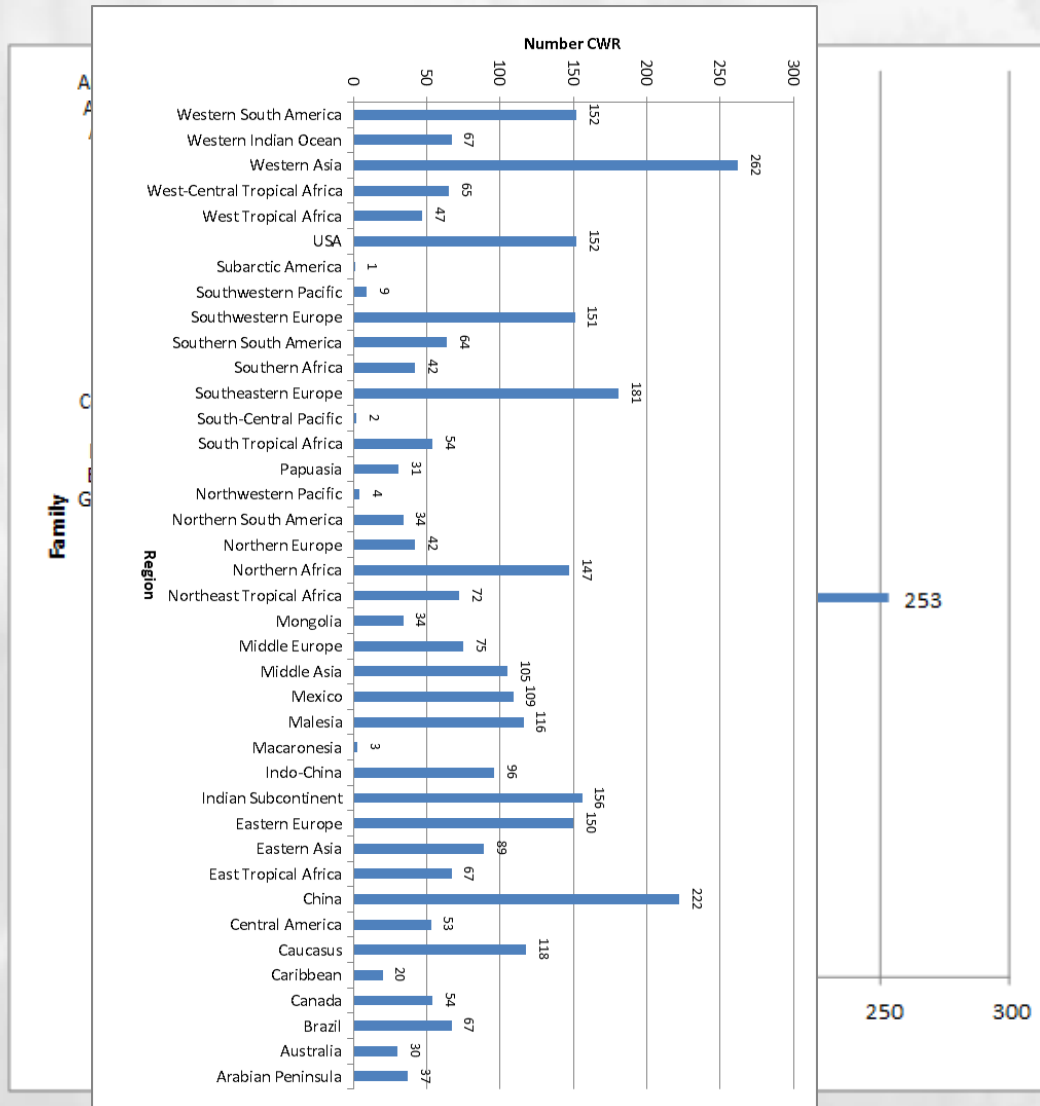
ID of UK forestry conservation units to add to Current 3,590 already ID in Europe

Global CWR Project

- Global Crop Diversity Trust, RBG Kew, CIAT and UOB project with funding from Norwegian Gov. funding
- Primarily use orientated, but *ex situ* collecting in first 5 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 Crop Diversity Trust: global *ex situ* CWR conservation



Harlan and de Wet Inventory

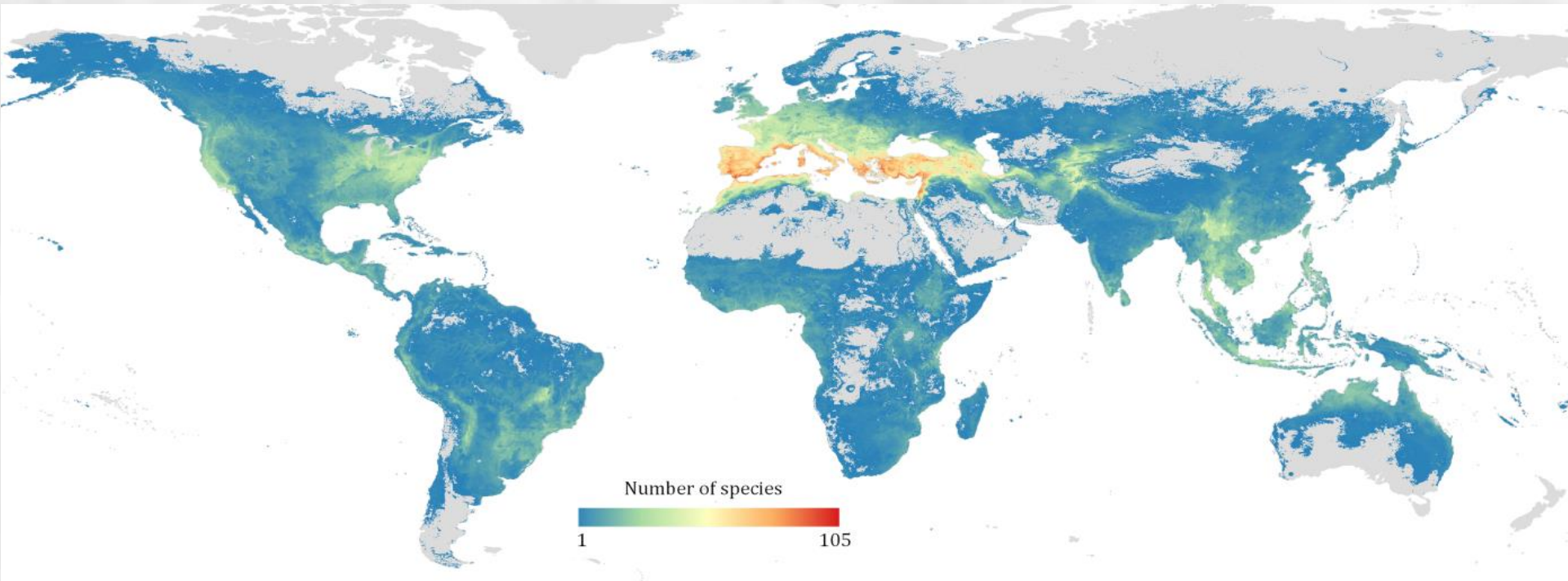
1,667 priority CWR taxa from 194 crops

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

Vincent *et al.* (2013)

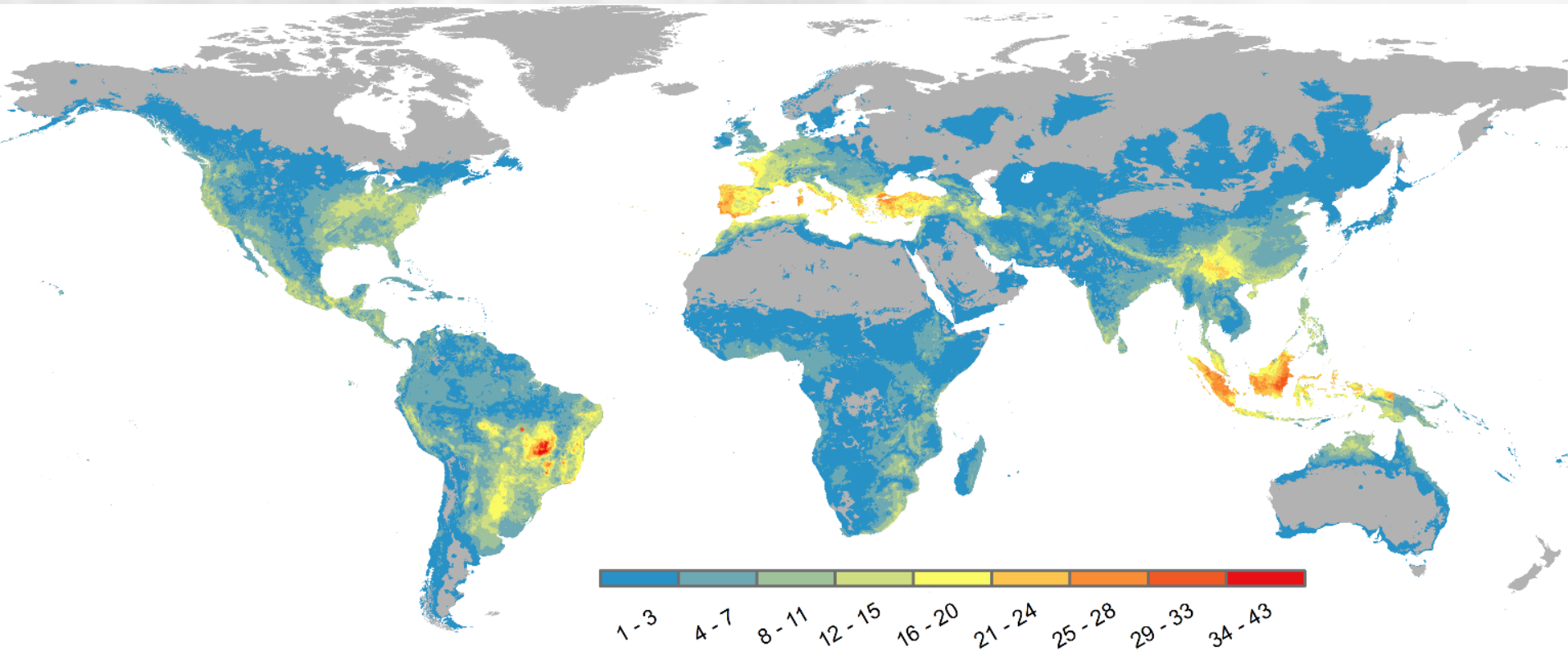
<http://www.cwrdiversity.org/checklist/>

Global CWR Conservation



Species richness map for the priority 1,394 CWR related to 194 crops at five arc minutes resolution (Vincent *et al.*, 2019).

Global CWR Conservation



Global collecting hotspots for High Priority CWR for 1,026 CWR related to 81 crop gene pools (Castañeda-Álvarez *et al.*, 2016).

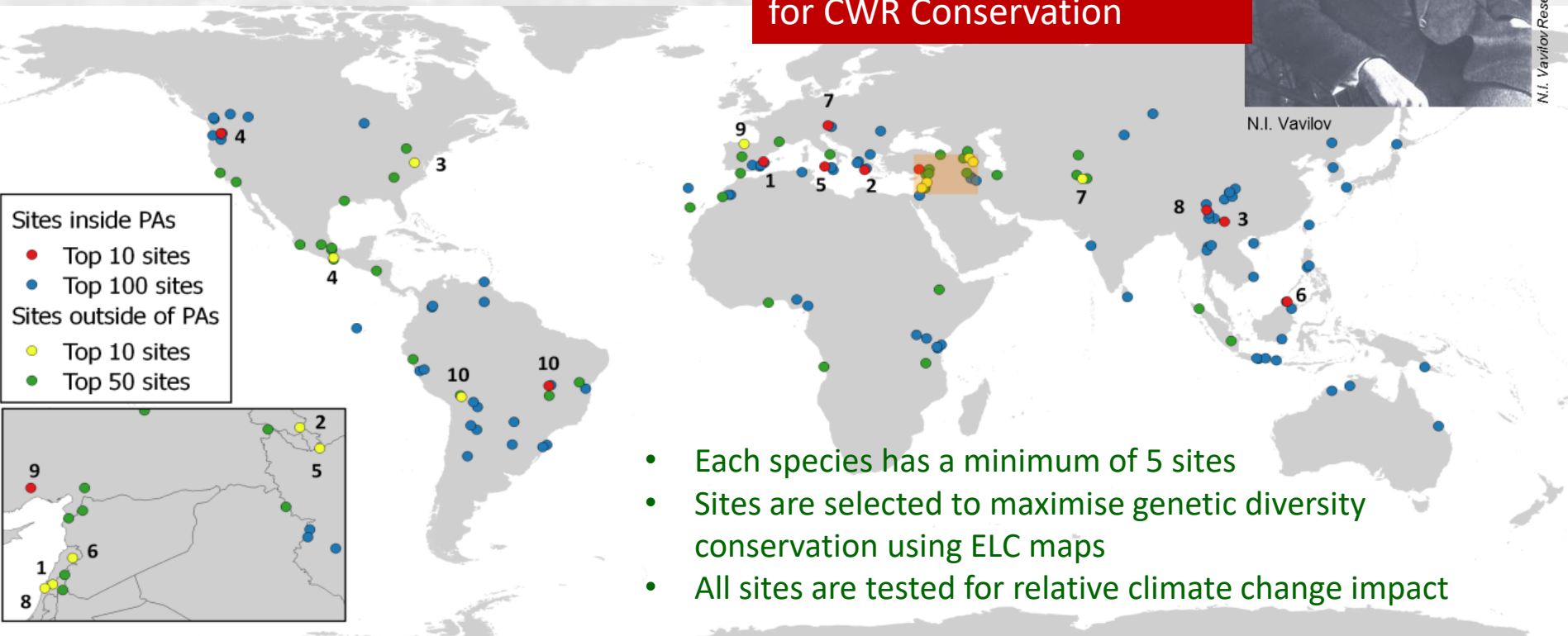
Global CWR Conservation

A PROPOSAL:
NI Vavilov Global Network
for CWR Conservation



N.I. Vavilov Research Institute of Plant Industry

N.I. Vavilov



The background of the slide is a soft-focus photograph of a field of dandelions. The dandelion heads are in various stages of bloom, some showing bright yellow petals and others as darker, seedier heads. The stems are thin and green, rising from a bed of leaves. The overall lighting is bright and natural, creating a peaceful, outdoor atmosphere.

3. First steps toward the 'Vavilov' Network and a possible forestry link

SFS - 04 [2017] New partnerships and tools to enhance European capacities for in-situ conservation — Farmer's Pride

Aim to build (a) **network(s) of *in situ* (including on-farm and in-garden) conservation sites** and stakeholders

- Meeting **policy and legislative obligations (UN SDG Zero Hunger 2.5)**
- Addressing **threats posed by climate crisis** by **doubling genetic diversity actively conserved**
- Filling the **germplasm availability gap** (Tanksley and McCouch, 1997; Volbrecht and Sigmon, 2005; Feuillet *et al.*, 2008; McCouch *et al.*, 2013)
- **Conserving threatened resources** in a globally important hotspot
- Building on the **scientific knowledge** foundation established by ECPGR



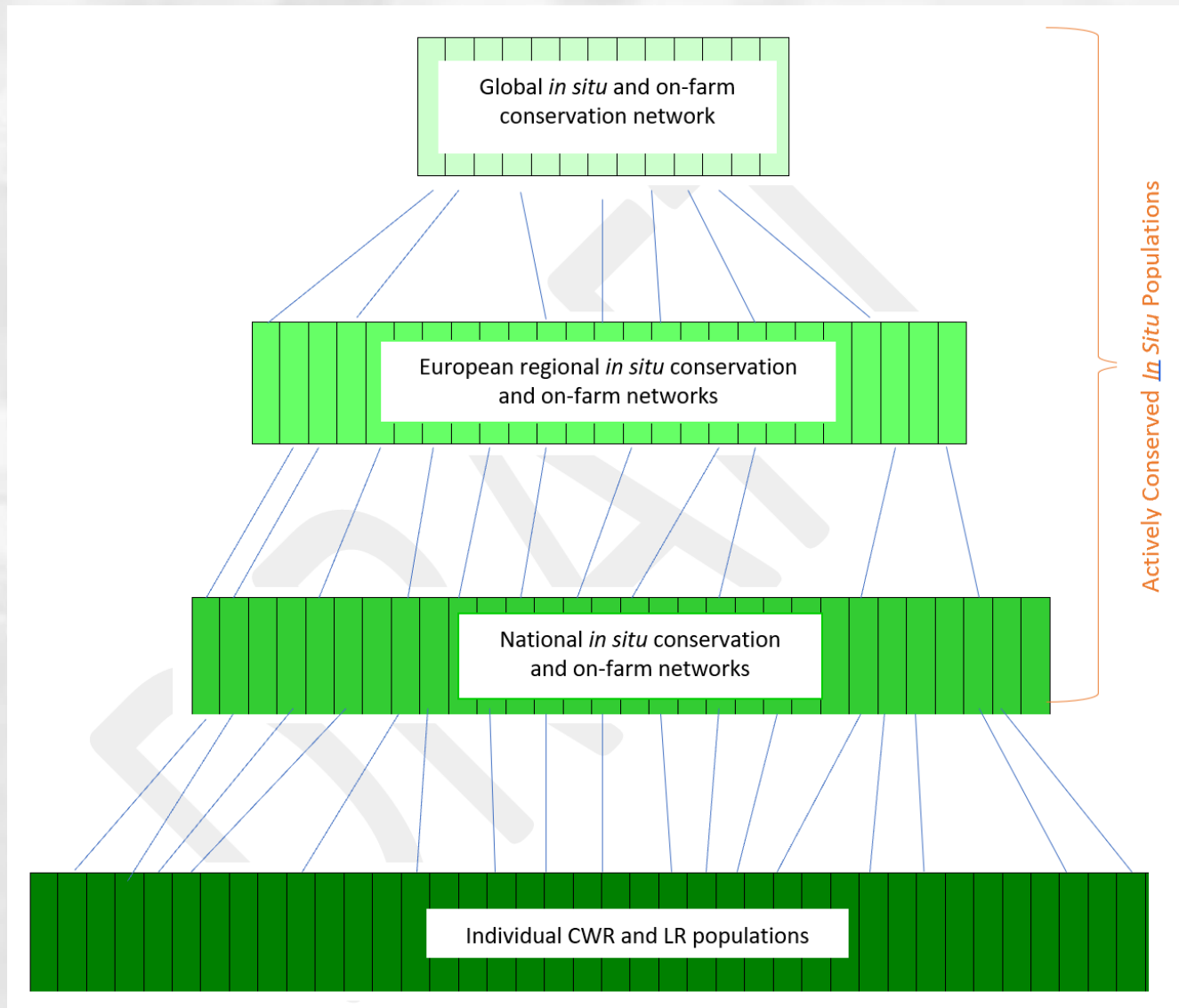


A unique opportunity

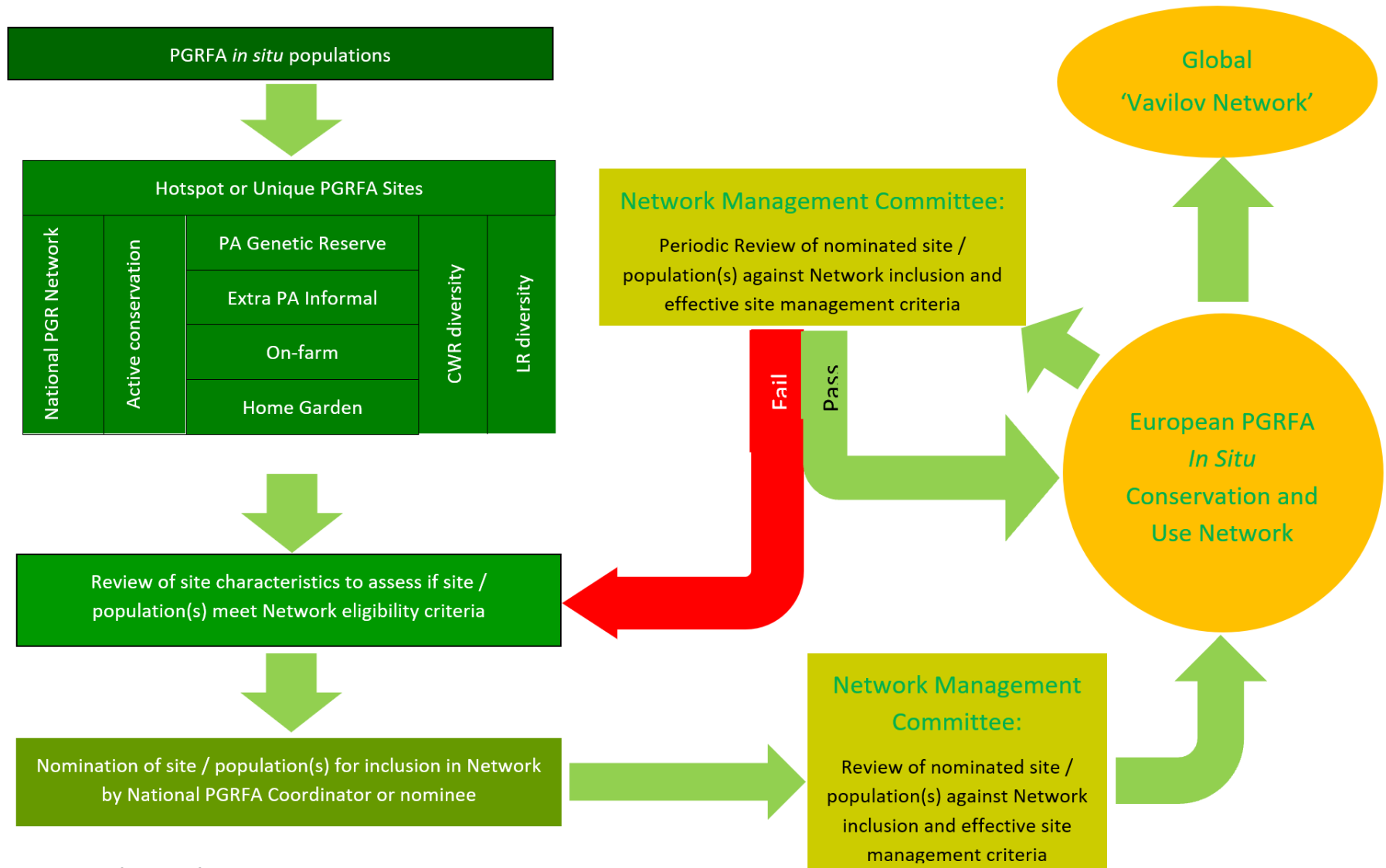
- Opportunity to **double the current diversity available to farmers and breeders** in a time of rising population and changing climate!
- Opportunity for Europe to take the lead in building the **first component of the Global Vavilov Network**
- Opportunity to implement **complementary conservation** for the first time, to establish long-term *In Situ* and On-farm conservation in Europe
- But it does require stepping back, taking a big breath and running forward into the future, A **NO REGRET ACTION** but **public opinion is on our side**



Building blocks of the European Network: A network of networks



Establishing the European Network: Site / population identification/nomination process



European Parliament's
Committee on
Agriculture and Rural
Development :

Genetic diversity,
conservation and
crops wild relatives - 7
December 2017,
Brussels, Belgium

Briefing on Network Governance to
EC Directorate Generals (ENR, AGRI, SANTE),
ECPGR (ExCo), Agro- and in-garden
conservation NGOs, and Euroseeds
- 23rd February 2020, Brussels, Belgium

