Nordic countries join forces in crop wild relative conservation

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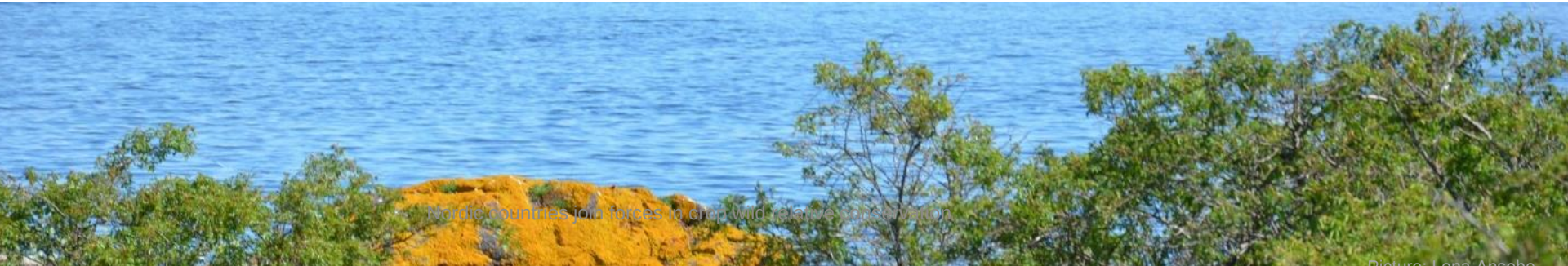
Picture: Lena Ansebo

Food security and CWR

- Human population will reach 9.8 billion by 2050
- Food supplies need to increase 60% globally & 100% in developing countries to feed the population (FAO, 2011)
- Agricultural production may reduce 2% each decade due to climate change (IPCC, 2014)
- CWR can provide one solution to global challenge of food security



Crop wild relatives

- Socio-economically important wild species related to cultivated plants
- Can be used in improving crop plants adaptation to the changing conditions such as new pests and diseases, waterlogging, droughts, and tolerance to cold or heat
- Threatened by changing land use, habitat fragmentation, invasive species and climate change
- *in situ* conservation to conserve CWR genetic resources and safeguard their evolutionary potential in the wild
- *ex situ* conservation to act as a backup and serve as a source for reintroductions and distribution of material

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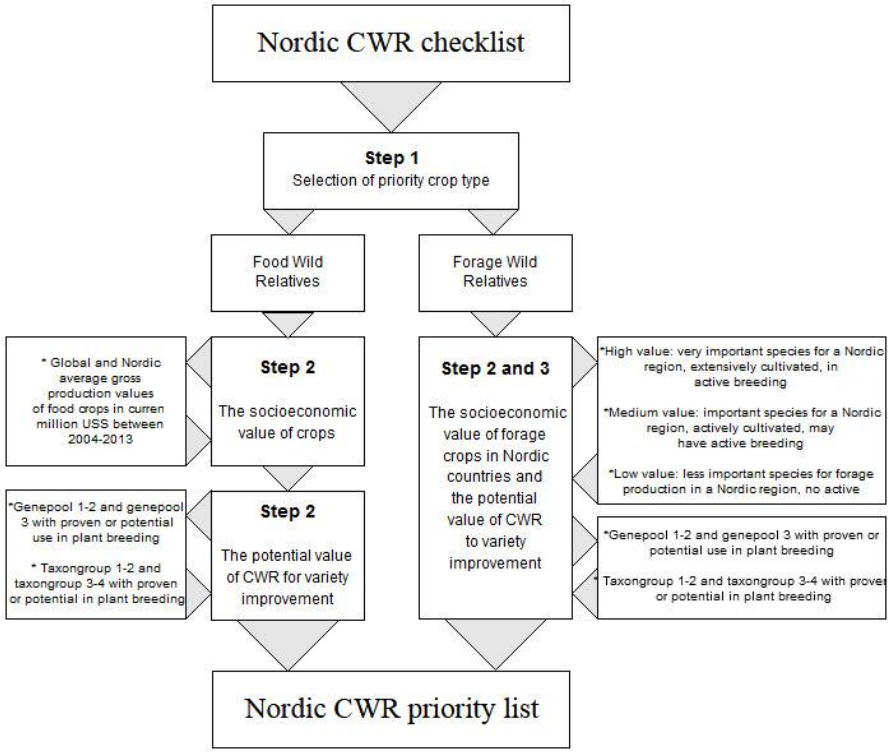
Picture: Lena Ansebo

CWR regional conservation planning

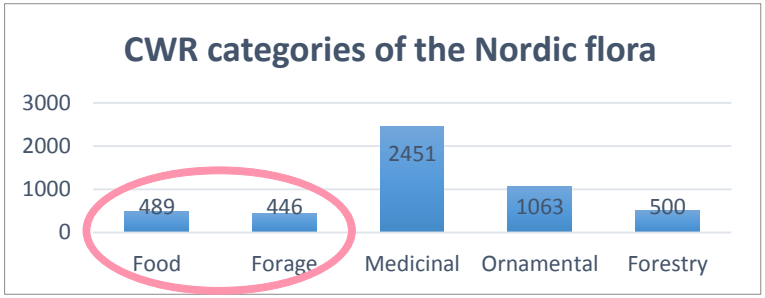
- Regional checklist (https://doi.org/10.15468/itkype) and priority list
- In situ conservation plan, potential genetic reserve sites
- *Ex situ* gap analysis and collecting priorities
- Policy inputs
- Coordinating conservation efforts, reducing costs, sharing data and expertise
- Providing materials to support national conservation plans
- Implementation on national level

Picture: H. Fitzgerald

Prioritizing CWR checklist

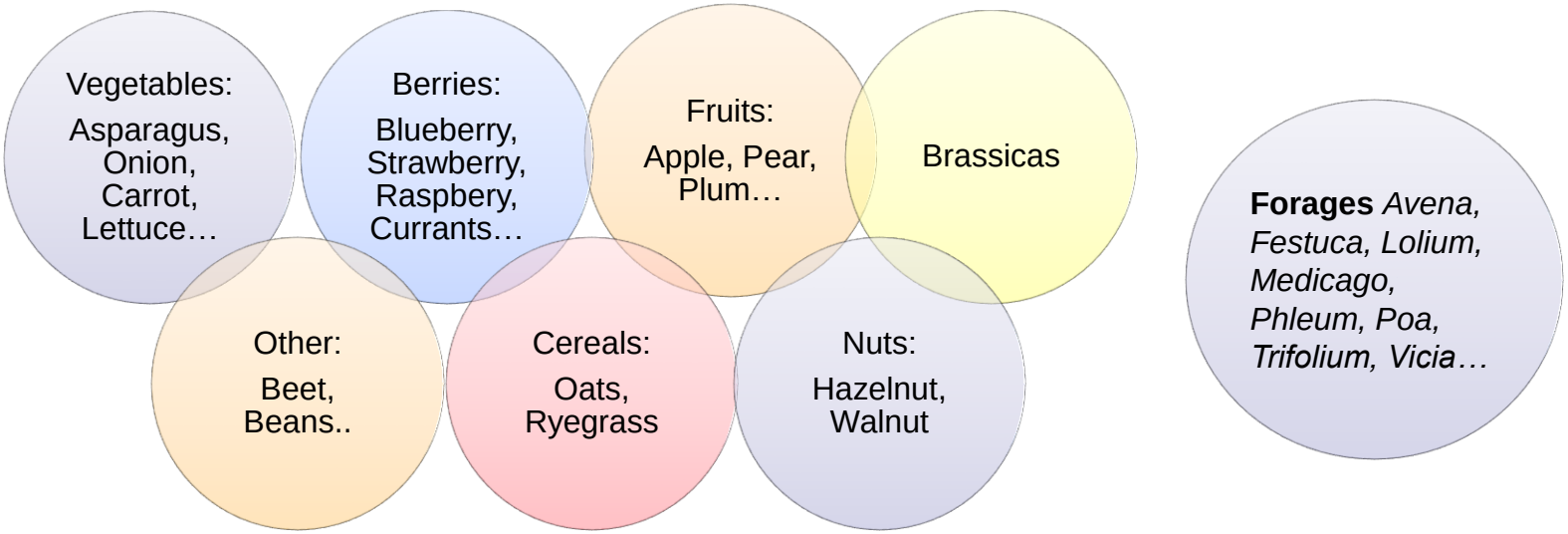


- 2756 CWR taxa - > 114 priority taxa
- **Socio-economic value**: food and forage relatives, high economic value
- **Utilization potential**: genepool concept (Harlan and de Wet 1971), taxon group concept (Maxted et al. 2006)



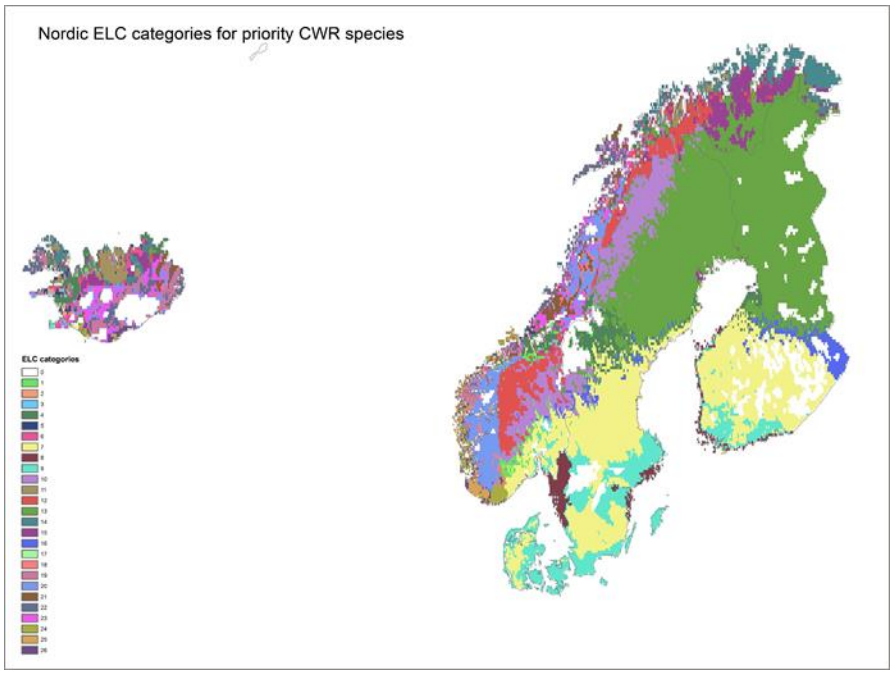
Examples of Nordic CWR diversity

- Wild species related to vegetables, cereals, fruits, berries, nuts, spices, grass forages, legume forages



Picture: Heli Fitzgerald

In situ conservation planning

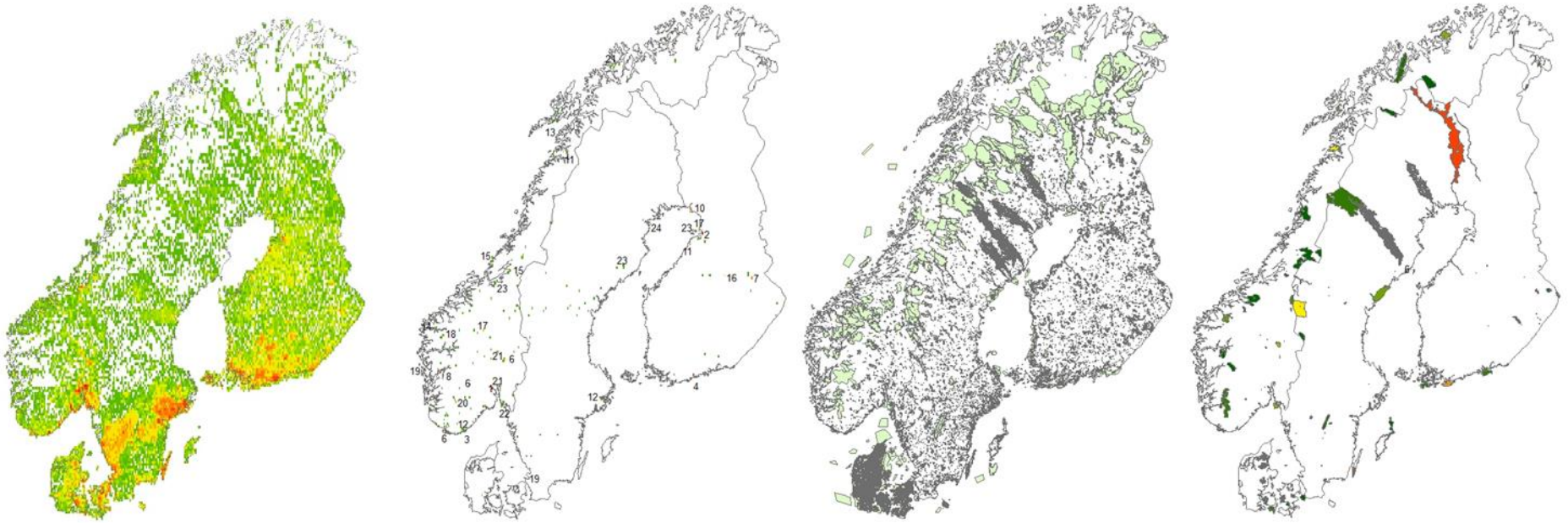


- Identification of the key CWR areas
- Complementary genetic reserve site network
- Looking for maximum CWR diversity conserved in minimum number of sites, ecogeographically distinct populations
- Using ecogeographic diversity as a proxy for genetic diversity

Picture: Heli Fitzgerald

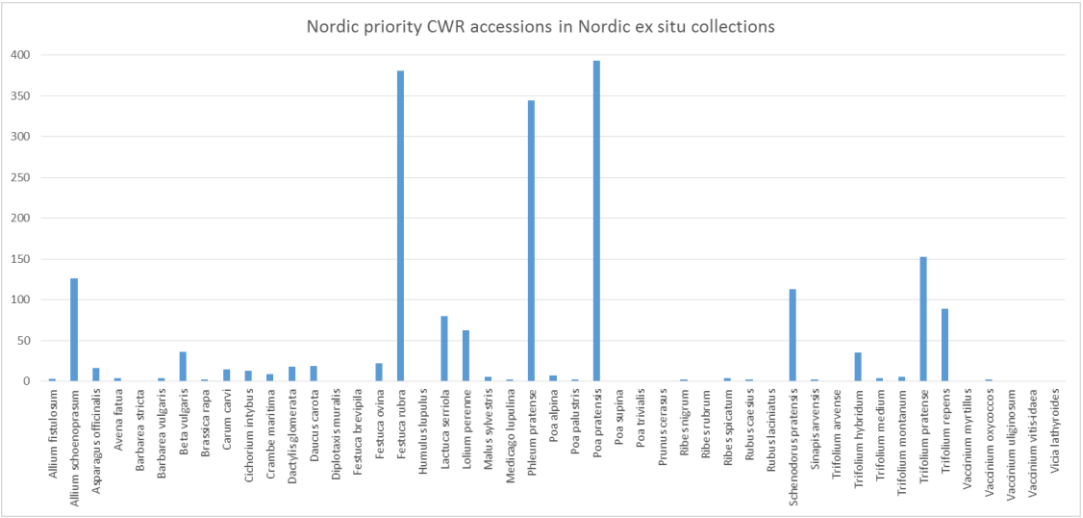
In situ conservation planning

- Distribution data for priority taxa from 5 countries, grid, protected areas, top sites



Picture: Heli Fitzgerald

Nordic CWR ex situ conservation planning



- CWR taxa under represented in ex situ collections
- NordGen, Oslo, Helsinki
- Large spatial and ecogeographic gaps in ex situ collections
- 43% of CWR priority taxa are not at all in ex situ collections
- Many have only couple of accessions
- Aiming for ex situ collections which represent the sp genetic diversity
- Using ecogeographic diversity as a proxy for genetic diversity

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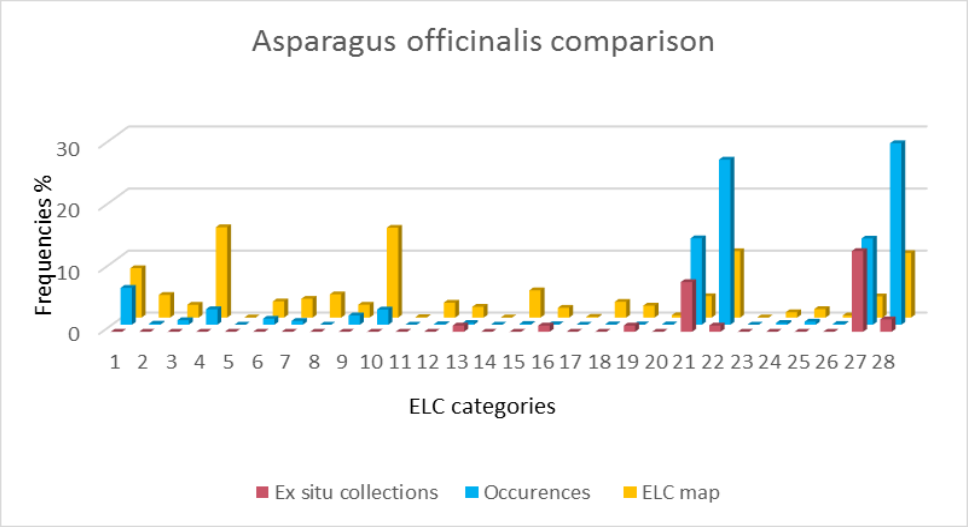
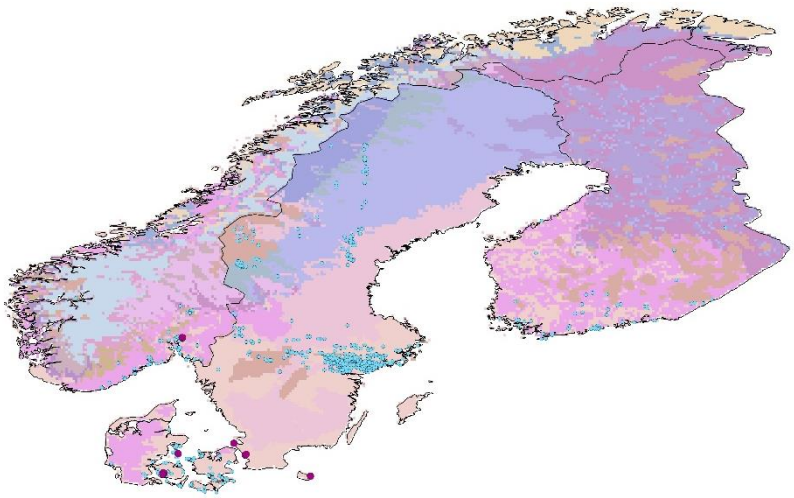
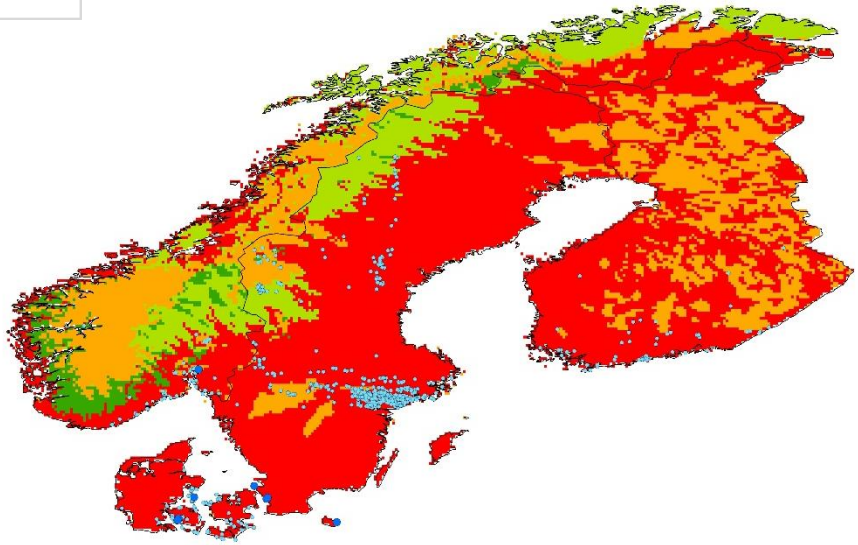
Nordic CWR ex situ conservation planning



- ELC map, observations, ex situ collecting points and ecogeographic gaps
- Finding complementary collecting sites based on ecogeographic representativeness





Nordic in situ and ex situ conservation strategy

- Regional results can be used in national in situ and ex situ planning
- Different levels should be linked and complementing each other
- Conservation actions (genetic reserve establishment, management, monitoring) implemented on a national level.

National strategy	Sub-regional (Nordic) strategy	Regional (Europe) Strategy	Global strategies

Thank you

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