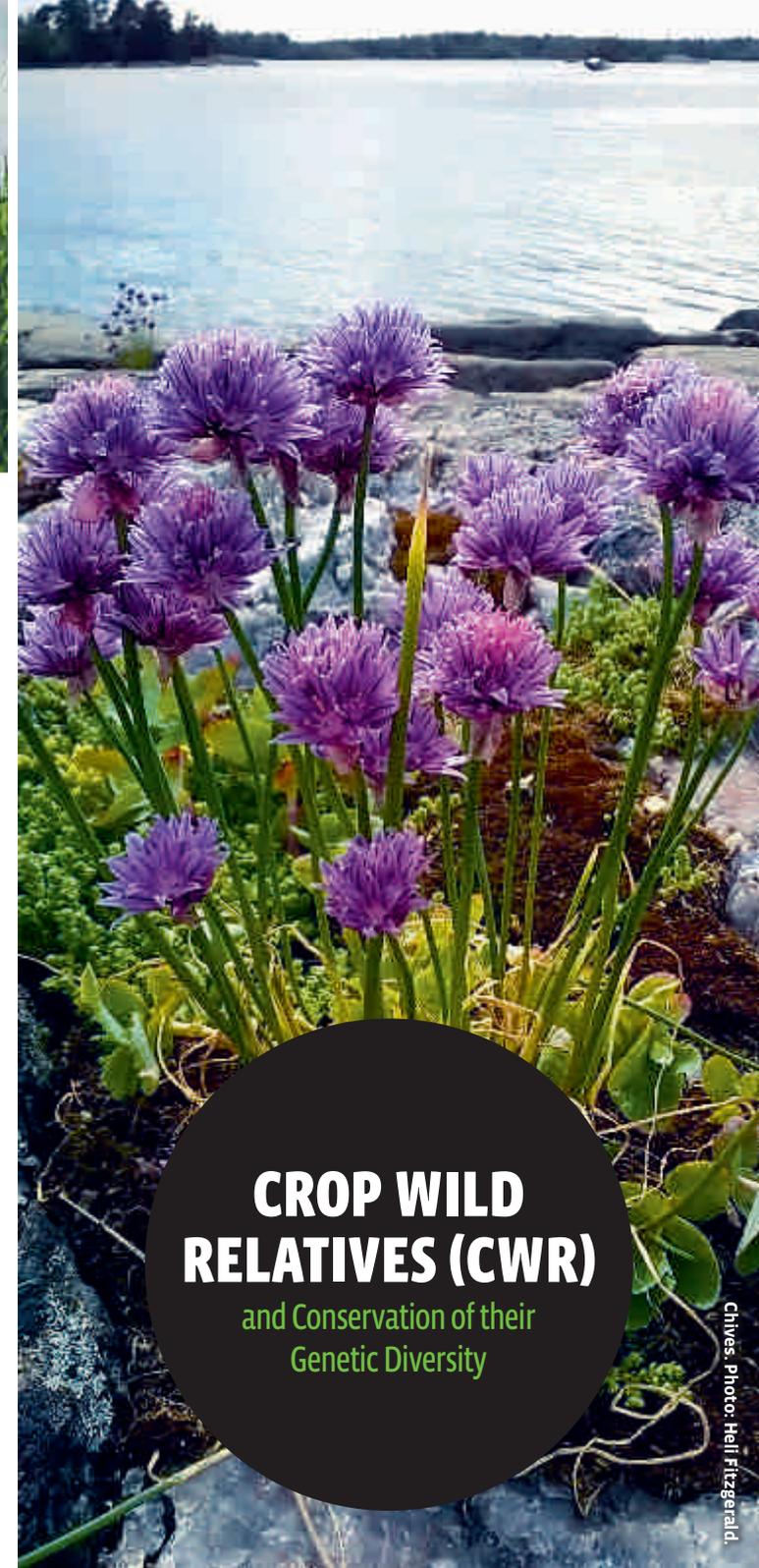




Red clover. Photo: Oiva Niemeläinen.



Timothy. Photo: Boreal Plant Breeding Ltd.



Chives. Photo: Heili Fitzgerald.

The Nordic CWR priority list can be found at:
http://bit.ly/cwr_nordic

Examples of Nordic CWR species:

- **Sea kale** (*Crambe maritima*) is a relative of Abyssinian kale and other kales.
- **Crab apple** (*Malus sylvestris*) is a relative of the domestic apple.
- **Chives** (*Allium schoenoprasum*) is a relative of onions and leek.
- **Arctic bramble** (*Rubus arcticus*) is a relative of raspberry.
- **Wild turnip** (*Brassica rapa*) is a relative of turnips, turnip rape, mustard and cabbages.
- **European hazel** (*Corylus avellana*) is the same species as the cultivated hazelnut.
- **Timothy** (*Phleum pratense*), **white clover** (*Trifolium repens*) and other wild grasses and legumes can be used in forage cultivar breeding.
- **Spring vetch** (*Vicia lathyroides*) is a relative to both food and feed plants such as faba bean and common vetch.

Contact information:

- Nordic Genetic Resource Centre** Nordic cooperation and plant genetic resource conservation
info@nordgen.org, nordgen.org/cwr
- Finnish Museum of National History, LUOMUS**, luomus.fi/en
- Luke, Natural Resources Institute Finland**, luke.fi/en/
- Swedish Board of Agriculture**, jordbruksverket.se/
- Danish Agricultural Agency**, eng.lbst.dk/
- Reykjavik Botanic Garden**, grasagardur.is/
- Natural History Museum, University of Oslo**, nhm.uio.no/english/
- Norwegian Institute for Bioeconomy Research**, nibio.no/en

International cooperation:

ECPGR, European Cooperative Programme for Plant Genetic Resources, ecpgr.cgiar.org/working-groups/wild-species-conservation/

Funding:

NKJ, The Nordic Joint Committee for Agricultural and Food Research

CROP WILD RELATIVES (CWR)
 and Conservation of their Genetic Diversity



Wild turnip. Foto: Aarhus University-FOOD



Crab apple. Photo: Majja Mussaari.



Sea kale. Photo: Heli Fitzgerald.

What are crop wild relatives?

Crop wild relatives (CWR) are wild species that are closely related to cultivated crops.

In the Nordic countries, the diversity of forage and berry plant species is particularly high. However, relatives to globally important crops, such as some vegetables and cereals, are also found in the local wild flora.

CWR species growing in the Nordic countries have been prioritized according to their utility value. The priority list consists of 115 taxa (including both species and subspecies).

Why are crop wild relatives important?

Food and fodder plants are the basis of our food production. While climate change is progressing, and the environment for agriculture is changing, new properties are needed in modern crops. The close relationship between crops and their wild relatives means that beneficial traits from CWR can be transferred to the crop. In this way, crop cultivars can be adapted to changing growing conditions and to new user demands.

Desirable traits include improved resistance to pests and diseases, cold-, drought- and flooding tolerance, adaptation to a short growing season and the long Nordic days during summer. CWR are important tools, among others, to ensure current and future food security for humankind.

How can CWR species be conserved?

Human-induced processes, like climate change and habitat loss, are threats to CWR species. Active conservation measures are therefore needed for safeguarding these valuable genetic resources.

The primary way to carry out CWR species conservation, is to maintain them in their natural growing environment (*in situ*). Seeds can also be saved in a genebank (*ex situ*), from which populations can be reintroduced into nature if they go extinct.

Methods to conserve CWR species are in line with the conservation of wild plant species in general. Some species survive without special management. Other species need active management of their living environment. The existing network of natural conservation areas maintains populations of CWR species as well. Therefore, the most cost-efficient way to enhance CWR conservation *in situ* is to implement it within already established protected areas.

To be able to exploit the added value of CWR species in the future, it is important to ensure their accessibility for the different users, such as plant breeders and researchers.



Wild strawberry. Photo: Heli Fitzgerald.



Arctic bramble. Photo: Saara Tuohimetsä.



Sheep grazing among hazel bushes. Photo: Tiina Kanerva.