

# Update inventory of ESCAPE plants in botanic gardens

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## Milestone C.4

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An inventory on the situation of the ex situ -conserved native plants in Botanic gardens of Kumpula, LUOMUS in Helsinki, and in Oulu Botanic garden, Oulu was made with up-to-date information on the numbers of taxa and accessions is reported. Furthermore, the routes of the accessions to the living collections in the two botanic gardens are described.

# Update inventory of ESCAPE plants in gardens

## ESCAPE LIFE+2011 BIO/FI/917

### Milestone C.4

ESCAPE C.4. Report on plants in ex situ -conservation in botanic gardens of Finnish Museum of Natural History, University of Helsinki and Oulu Botanic Garden, University of Oulu during the period of May 1, 2013 to June 15, 2014

#### Botanic Garden of the University of Helsinki (UH)

During the growing season of the 2013 27 threatened taxa of the Finland were collected in the seed bank in Kumpula Botanic Garden, Helsinki. Altogether nine taxa were sown in autumn 2013 in the propagation glasshouse. The taxa are as follows:

*Armeria maritima* subsp. *intermedia* (germinated 144 seedlings and 130 pots were planted back to the nature near Hamina on 12 June 2014),

*Astragalus glycyphyllos* (not germinated, inventory on 28 April 2014)

*Bromus benekenii* (14 seedlings)

*Carex atherodes* (not germinated)

*Dianthus arenarius* subsp. *borussicus* (two accessions: 79 potted seedlings from wild oriented plants from UO + 8 potted seedlings from natural habitat – Raasepori)

*Primula nutans* var. *jokelae* (an accession from the Oulu Botanic Garden, 23 plants in the pots, but discarded, because of unsure origin)

*Pulsatilla patens* (2 potted seedlings),

*Scirpus radicans* (not germinated),

*Viola uliginosa* (two accessions: c. 30 germinated seedlings from wild oriented garden plants; wild accessions (Hanko) have not been germinated).

Please, note! *Viola uliginosa* and *Astragalus glycyphyllos* were shifted in a cold frame to overcome the seed dormancy.

During winter season 2014 germination tests had been carried out on the seed accessions added to the seedbank in Kumpula Botanic garden. The germinated seeds of the rare plants on germination tests on agar plates were shifted on mold pots, and the following 14 accessions were shifted to the propagation house for further growing in the seed bed.

*Aconitum lycoctonum* (two accessions: 2 seedlings from wild origin (Kitee) + 5 seedlings from wild origin (Tohmajärvi))

*Agrimonia pilosa* (24 potted seedlings)

*Carex arenaria* (two accessions: 5 discarded + 27 potted seedlings from the wild origin (Hanko))

*Carex viridula* var. *bergrothii* (5 potted seedlings)

*Dianthus deltoides* (two wild oriented accessions from the Oulu Botanic Gardens: potted 31 + 39 plants)

*Dianthus deltoids* (two accessions: 12 plants in propagation house, 36 plants in Hortus Fennicus (Iitti); abundant colony of plants in Hortus Fennicus (Juva))

*Eriophorum latifolium* (13 seedlings)

*Hypericum montanum* (44 seedlings)

*Leersia oryzoides* (two accessions: 14 seedlings (from the wild origin – Kotka) in the propagation house + 2 healthy plants received already 2008 and now growing in the Hortus Fennicus (also from Kotka))

*Pimpinella major* (8 potted seedlings)

*Melica ciliata* (two accessions: seedlings have been grown in the propagation house of the Kumpula Garden since spring 2011 and planted back to the original habitat (Tenala) in the growing seasons 2012–2013. Four seedlings of one accession were planted in the growing season 2013 in the Hortus Fennicus of the Kumpula Botanic Garden.

Seedlings of *Primula nutans* var. *finmarchica* are not planted yet in the collections of the Hortus Fennicus at the Kumpula Botanic Garden, although they have been intensively tested in experimental outdoor seedbeds in Kumpula and Kaisaniemi Botanic Gardens. In the growing season (2013) examples of the taxon have been shifted back to the original habitat.

In the growing season 2014 collection of seeds for the seed bank will be continued. A major part of the seedlings for the garden and replanting in the original habitat will be obtained from the germination tests (Fig. 1), which are routinely carried out when a seed lot is received from a collector.



**Figure 1.** Germinated seeds of *Agrimonia pilosa* in a germination test of a seed set in the seedbank at Kumpula Botanic garden. © Mari Miranto

On the basis of previous knowledge and responsible gardeners' experiences on plant seedlings' survival, we have applied a practice that no seedlings/plants from the 2013 seed batches will be planted to the outdoor garden during the growing season 2014. Longer growing in controlled environment in the propagation house will enable abundant development root system and viability of the seedlings (Fig. 2). Our experience shows that seedlings grown 1–3 years in the controlled environment will secure more healthy and strong plants for the forthcoming replanting both in the botanic garden and in the original habitat.



**Figure 2.** Seedlings of *Agrimonia pilosa* potted in soil after moving germinated tiny seedlings from agar plates (see Fig. 1). These seedlings will be grown in controlled conditions before planting outdoors in the garden or, when needed, returned to their natural habitat. © Mari Miranto

## Botanic Garden of University of Oulu (UO)

Data provided by Head gardener Tuomas Kauppila from the Oulu Botanical Garden (info translated and sorted out by L. Junikka).

### *Campanula cervicaria*

Seeds of the wild accession 02-248 (Lempäälä) sown and planted in the garden; seeds collected August 2013 from garden plants, germinated and 12 seedlings planted in the garden 13 June 2014.

### *Euphrasia bottnica*

Seed of wild accession 2006-494 (Simo) were sown and grown in the garden; seeds collected August 2013 from the garden, germinated and 12 seedlings planted in the garden 13 June 2014.



*Geranium palustre*

Seeds from the wild accession 98–220 (Ala-Kieri) sown and grown in the garden; seeds collected on August 2013, germinated and 8 seedlings planted on 13 June 2014 in the garden.

*Rosa canina*

Seeds from the wild accession 80–79 (Siuntio) sown and grown in the garden; cuttings were taken on June 2013, rooted and c. 50 rooted cuttings will be planted in the garden on July 2014.

*Rosa sherardii*

Seeds from the wild accession 87–3660 (Jomala) plants sown and grown in the garden; micropropagation and cuttings on June 2013, rooted and seedlings will be planted in the garden on July 2014.

*Silene tatarica*

Seeds from the wild accession 2012–1073 (Kuusamo) sown and grown in the garden and planted in the outdoor collections on 13 June 2014

*Thalictrum minus* subsp. *kemense*

Seeds from the wild accession 98–1721 (unknown?) received from the Jyväskylä University Botanic Garden; germinated and planted 12 seedlings to the outdoor collections on 13 June 2014.

*Trifolium aureum*

Seeds from the wild accession 03-21 (Elimäki) received from the Botanic Garden of the UH, sown and grown in the garden; seeds collected on September 2013, germinated and 9 seedlings planted in the garden on 12 June 2014

### Taxa which have been planted in the own collections of Kumpula Botanic garden in 2013

*Campanula cervicaria* (02–248, Lempäälä) – several dozen plants

*Dianthus arenarius* subsp. *borussicus* (89-21) – c. 100 plants

*Dianthus deltoides* (92–269, Jokioinen) – c. 50 plants

*Dianthus deltoides* (97–2442, Hietasaari) – c. 90 plants

A taxon, which has been received from the Botanic Garden of UH

*Melica ciliata* (2013–858, Tenala) – 4 plants

Taxa of UH, which will be given to Helsinki on July 2014

*Campanula cervicaria* – 6 plants

*Euphrasia bottnica* – 6 plants

*Geranium palustre* – 3 plants

*Rosa canina* – 6 plants

*Rosa sherardii* – 12 plants

*Silene tatarica* – 6 plants

*Thalictrum minus* subsp. *kemense* – 6 plants

*Trifolium aureum* – 6 plants

Taxa, which have been sent to the Botanic Garden of UH as micropropagated plantlets

*Arctophila fulva* var. *pendulina* (2011–753) – 100 plantlets

*Dianthus superbus* (2006–443) – 100 plantlets

*Lychnis alpina* var. *serpenticola* (Kuhmo, 2006–446) – 100 plantlets

*Lychnis alpina* var. *serpenticola* (Puolanka, 2006–440) – 100 plantlets

*Ranunculus sulphureus* (03–1750) – 100 plantlets