

Nordic Forest Historic Meeting
Reykjavík, Iceland.
11th - 14th of September 2013.

**Exotic tree and shrub species and their use
for woodland, garden and amenity purposes
in the Faroe Islands since the 1880's.**

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Geology and landscape

18 islands, situated 62° N and 7° W

Total area = 1.400 km²

Volcanic origin – tertiary Basalt; ~ 50-60 million years old

The volcanic activity is often grouped into 3 main series:

- the lower
- the middle
- the upper series

Differences in the volcanic activity during these 3 series influences the macro landscape

- the lower series: thick benches with steep slopes in between (big ladder steps)
- the middle series: more gentle, convex slopes (no ladder)
- the upper series: similar to the lower series, but with thinner benches (and thus smaller ladder steps)

The highest peak = 880 m a.s.l.

Average elevation ~ 300 m a.s.l.

Shallow soils, rather poor in nutrients

The lowland frequently covered with peat

pH typically ranging between 4.4 – 5.3.

Climate

Data from the Danish Met. Office (DMI); records 1931-60/records 1961-90, respectively.

The climate is extremely maritime:

– High annual precipitation

Tórshavn: 1434/1284 mm

Hvalvík: 3261 mm

Akraberg: 834/884 mm

– Cool summers and mild winters

Tórshavn: mean temp.: Aug. = 11.1°/10.5° C, Feb./Jan. = 3.7°/3.4° C

Tórshavn: days with snow = 49/44 per year

Tórshavn: mean rel. hum.: Apr./May = 82/87 %, Aug. = 87/90 %

Tórshavn: hours of bright sunshine = 902/840 per year

– Windy conditions

Number of windy days per year (wind speed > 11 m/s):

Tórshavn: 113 Akraberg: 187

Number of stormy days per year (wind speed > 21 m/s):

Tórshavn: 2,8/2,8 Akraberg: 19

Dendrovegetation – fragments of vegetation history etc.

The islands are generally considered to be naturally without woodlands or forests. Research in vegetation history, as well as in earth science and archaeology, have shown proof of a former woodland vegetation.

The woodland vegetation was soon eradicated during the settlement, but the Montane scrub zone vegetation persisted well into the Viking age.

Present indigenous species: 4 *Salix spp.*, and *Juniperus communis* and *Rosa mollis*. Archeological evidence of a rich *Juniperus* vegetation in the Viking age, along with *Betula pubescens* and *Corylus avellana* (Malmros 1994).

Pollen studies indicate potential occurrence of both *Fraxinus*, *Tilia*, *Sorbus*, *Alnus*, *Ulmus*, *Quercus*, and *Pinus*, growing in scattered places (Hannon and Bradshaw 2000).

Tuhkanen (1987) characterises the phytogeographic position of the Faroes as a highly oceanic sector of the hemiboreal sub-zone.

Landt (1800) describes the local habit of smoking meat for preservation, which might refer to a former woodland vegetation at hand.

An *in situ* conservation site representing material from the populations of indigenous lignose's was established in 2000. This is in accordance with the recommendations by Egelund et al. (2012).

Salix phylicifolia and *Juniperus communis*





The community woodland in Mikladalur on Kalsoy.

– In the background is the old place-name “The Woods” on the island of Kunoy.

Some milestones regarding tree-planting

Scattered attempts of tree planting in gardens began around 1800

The first attempt of woodland planting was in Tórshavn in 1885 (for fuel wood)

The “Danish Heat Society” lead the planting trials from approx. 1900 and some 70 years onwards

The first locally produced trees (all exotics) were transplanted to the field in 1914

The first successful woods on the islands were established around 1st WW

In 1952, the local Parliament (Løgtingið) passed the law for the woodland activity

In the mid 1970's, the Nordisk Arboretudval (NAU), i.e. the Nordic Arboretum Committee, established cooperation with Skógfriðingarnevndin (the local Forestry Committee)

In second half of the 1970's, Skógfriðingarnevndin and Tórshavn City Council together established the Gróðurstøðin centre; i.e. the arboretum and nursery area

The activity in Gróðurstøðin, provided with support from various members of the NAU, has proven instrumental for elevating the arboricultural activity to the present level

For more information see: Træplanting í Føroyum í eina øld – A century of tree-planting in the Faroe Islands (Højgaard et al., (Eds.) 1989) which can be downloaded from:

<http://www.us.fo/Default.aspx?ID=10363>

Some milestones regarding tree-planting

And also the fundamental work by Ødum (1991), "*Choice of species and origins for arboriculture in Greenland and the Faroe Islands*"

<http://www.dendron.dk/aarsskrift/docs/117.pdf>

Access to better adapted plant material has revolutionised the activity regarding planting in private gardens, in various public spaces, in woodlands etc.

In 2011 we produced a commented list of woody plants (in Faroese language only) with some 460 names (species, sorts and cultivars):

<http://www.us.fo/Default.aspx?ID=12088>

This arboricultural activity has also led to the rise of a new local profession of landscaping gardeners and horticulturalists, respectively.

Activities and attitudes

3 main actors on the arena: – government – town councils – private citizens

Dept. of Woodlands, Landscape and Recreation:

- Planting experiments, arboricultural tests, administration of woodlands for amenity and recreational purposes
- Nursery operations, i.e. experiments and commercial sale

Tórshavn Municipality and other City Councils:

- Establishment of local parks and green spaces, support of planting initiatives by volunteers
- Since 1992, Tórshavn City Council has financed free hands out of plants to the citizens
- Many parish councils around the islands now follow suit
- Trees and shrubs from these schemes are now emerging in the landscape

Total area of woodland cover in the Faroes is approximately 100 ha.

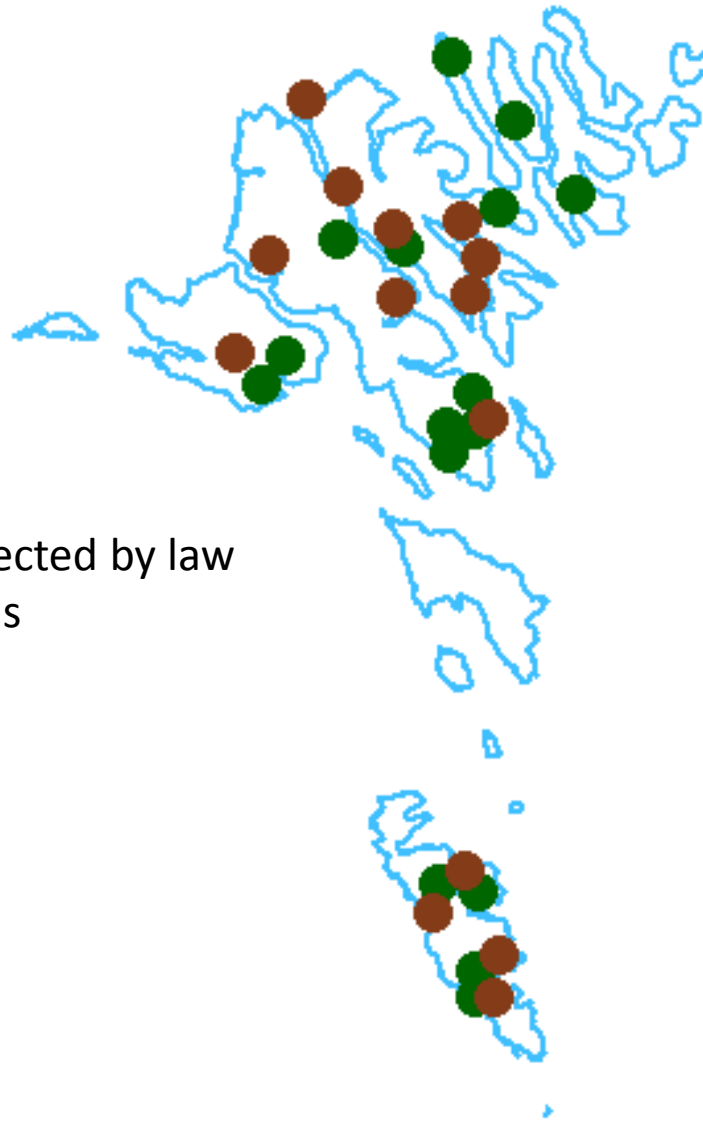
- The est. area of tarmac roads is approx. 5 times this number (Eysturoy 2013)

Potential tree line is estimated to approx. 300 m a.s.l. on sheltered sites (Leivsson 1993).

The public opinion is in favour of more woodlands.

- According to Rørbo (2004), 88% have positive attitudes towards more woodland areas (very much in favour = 62%, rather positive = 26%).

Woodlands in the Faroe Islands



Green dots: woodlands protected by law
Brown dots: other woodlands

Gróðurstöðin í Miðhoydølum

the former mink farm, and present nursery and arboretum area



View into the Ovastu Hoydalar valley

1978



2013





Some aims:

Possible utilization of the woodlands:

- Amenity
- Recreation and health services
- Erosion control and provision of shelter
- CO₂ sequestration
- Agro forestry purposes

Possible utilization of the wood products:

- Greenery and Christmas trees
- Handicrafts
- Special products for the local market
- Chips for energy and mulch

Wood and wood products are not yet a priority; but

Trees in the older trials have ...

- Inferior technical quality due to poor cell development (not optimal provenances)
- Incomplete growth cession (both shoots and annual rings)
- Diebacks (shoots and buds) resulting in crooked growth

Expectations from the new plant material are ...

- Better adaptation and growth cession, hence less defects and higher density
- Higher amount of quality wood
- Maybe a lower volume production
- Wider variety of wood materials

Increased need for skills in silvicultural management under a maritime climate regime.

Products made from Faroese grown wood



Products made from Faroese grown wood



“nú skal taka upp annan tátt;
dreingir, leggið í minni!”

(from the ballad “Ormurin langi”

Some quotations from C. E. Flensburg (1903).

“Af de hidtil paa Færøerne forsøgte Træarter synes Selje-Røn og Amerikansk Røn foreløbig at være de, der ere mest modstandsdygtige overfor det vanskelige Klima”.

“Alm. Røn, *Sorbus aucuparia*, trives derimod mindre godt.”

“Løn (*Acer pseudoplatanus*) trives næsten alle Steder godt.”

“Af Ælm (*Ulmus camp.*) har jeg set enkelte Eksemplarer i Haverne trives ret vel.”

“Birk har jeg ikke set meget til på Færøerne, der findes kun hist og her enkelte vantrevne Eksemplarer.”

Hæg, Asp og Seljepil ere formentlig ogsaa værdt at gøre forsøg med.”

“Af Naaletræer har jeg, ..., set nogle ret smukke Ædel- og Hvidgran paa ca. 18 Aar og 8 à 12 Fod høje.”

“Enkelte Steder er man dog begyndt at plante Bjergfyr og forskellige Granarter. Disse plantninger ere imidlertid saa unge, at ...”

“Nogle enkelte Lærk findes hist og her i Haverne. De ere dog alle smaa og daarligt formede.”

“Jeg kan dog ikke tro andet, end at her maa kunne dyrkes enkelte Naaletræer.”

“I det nordlige Norge ... dyrker man nu med Held baade Bjergfyr, Rødgran (Polargran), norsk Kystfyr og sibirisk Lærk.”

Some quotations from C. E. Flensburg (1903).

“Jeg kan ikke andet end anbefale, at der gøres Forsøg med nogle af de her nævnte Arter saavel Løv- som Naaletræer.”

“Forsøgene maa dog, om de skulle give paalidelige Resultater, indledes med Oprettelse af Planteskoler.”

“Det er muligt, at fremtidige plantninger en Gang i Tiden kunne yde en Del godt Brændsel og mindre Gavntræ, ...”

“men Hovedformaalet her paa Færøerne maa dog, som anført, formentlig være det at skaffe Læ for Haver og Huse og derved gøre Landet til et mere tiltalende Opholdssted for Mennesker og Dyr.”

“Endvidere ville Plantninger paa Fjeldskraaningerne bidrage til at forhindre Fjeldskred, Sneskred og Jordskred, idet Trærødderne dels vil holde Jorden sammen, dels gøre den mere porøs, saaledes at Vandet siver langsomt igennem og ikke som nu skyller ned ad Skraaningerne rivende det øverste Muldlag med sig ...”

A sum up from S. Ødum (1991).

Table 2. The at present most important or promising tree species and origins.

Faroe Islands	Origins	Area recommended
<i>Abies grandis</i>	?	NW-Washington
<i>Abies procera</i>	?	NW-Washington
<i>Picea sitchensis</i>	Pr. Will.Sound	Alaska coast
<i>Pinus contorta</i>	Annette Island	Alaska coast
<i>Tsuga heterophylla</i>	?	Alaska coast
<i>Alnus sinuata</i>	Kenai	Alaska coast
<i>Populus trichocarpa</i>	Kenai	Alaska coast

<i>Acer pseudoplatanus</i>	?	W-Alps
<i>Sorbus mougeottii</i>		W-Alps

<i>Larix leptolepis</i>	?	C-Japan

<i>Nothofagus antarctica</i>	Entre Rios	Tierra del Fuego
<i>Nothofagus betuloides</i>	Lago Escondido	Tierra del Fuego
<i>Nothofagus pumilio</i>	Paso Garibaldi	Tierra del Fuego

Many promising tree- and shrub species today

- Promising conifer trees e.g.:
 - *Pinus contorta*, of Alaskan origin
 - *Larix kaempferi* and *Larix x eurolepis* (and maybe other hybrids)
 - *Picea sitchensis*, of Alaskan origin
 - *Abies procera*, *A. alba*, and other *Abies spp.*
 - *Chamaecyparis lawsoniana* and *Cupressocyparis leylandii*
 - *Tsuga heterophylla* of Alaskan origin
 - *Thuja plicata*, of northernmost origin in Alaska

Many promising tree- and shrub species today

- Promising broad leaved trees e.g.:
 - *Populus trichocarpa*
 - *Alnus sinuata*, *A. rubra*, and other *Alnus spp.*
 - *Salix alaxensis*, *S. hookeriana*, and many other *Salix spp.*
 - *Sorbus mougeotii*, *S. commixta*, and other *Sorbus spp.*
 - *Laburnum alpinum*
 - *Nothofagus betuloides*, *N. antarctica* and *N. pumilio*
 - *Hoheria glabrata*

Many promising tree- and shrub species today

- Promising shrubs e.g. (in random order):
 - *Olearia x haastii*, *O. macrodonta*, and many other *Olearia spp.*
 - *Hebe cockayniana*, *H. odora* and many other *Hebe spp.*
 - *Lonicera ledebourii*
 - *Cotoneaster spp.*
 - *Fuchsia magellanica*
 - *Rosa rugosa* and some other *Rosa spp.*
 - *Chiliodendron diffusum*
 - *Embothrium coccineum*
 - *Spiraea spp.*
 - *Buddleia globosa*
 - *Ribes sanguineum*, *R. bracteosum*, and other *Ribes spp.*
 - *Berberis ilicifolia* and other *Berberis spp.*
 - *Potentilla fruticosa* cultivars
 - *Griselinia littoralis*

The commented list of woody plants (species, sorts and cultivars) contains per 2013 approx. 225 different specimens/types which have scored the value 3, i.e. “Thriving excellently”.

Examples of improved provenances



Examples of improved provenances



Examples of improved provenances



Examples of improved provenances



Examples of new species



Examples of new species



Examples of species capable of self regenerating



Examples of species capable of self regenerating



Examples of species capable of self regenerating



Examples of species capable of self regenerating



Urban trees





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Challenges in selecting appropriate plant material for the new suburbs of Tórshavn

There are 350 m and approx. 10 years laps in time between these two sites



Public-Private Partnership ?

2005



2013



Faroe woodlands ☺





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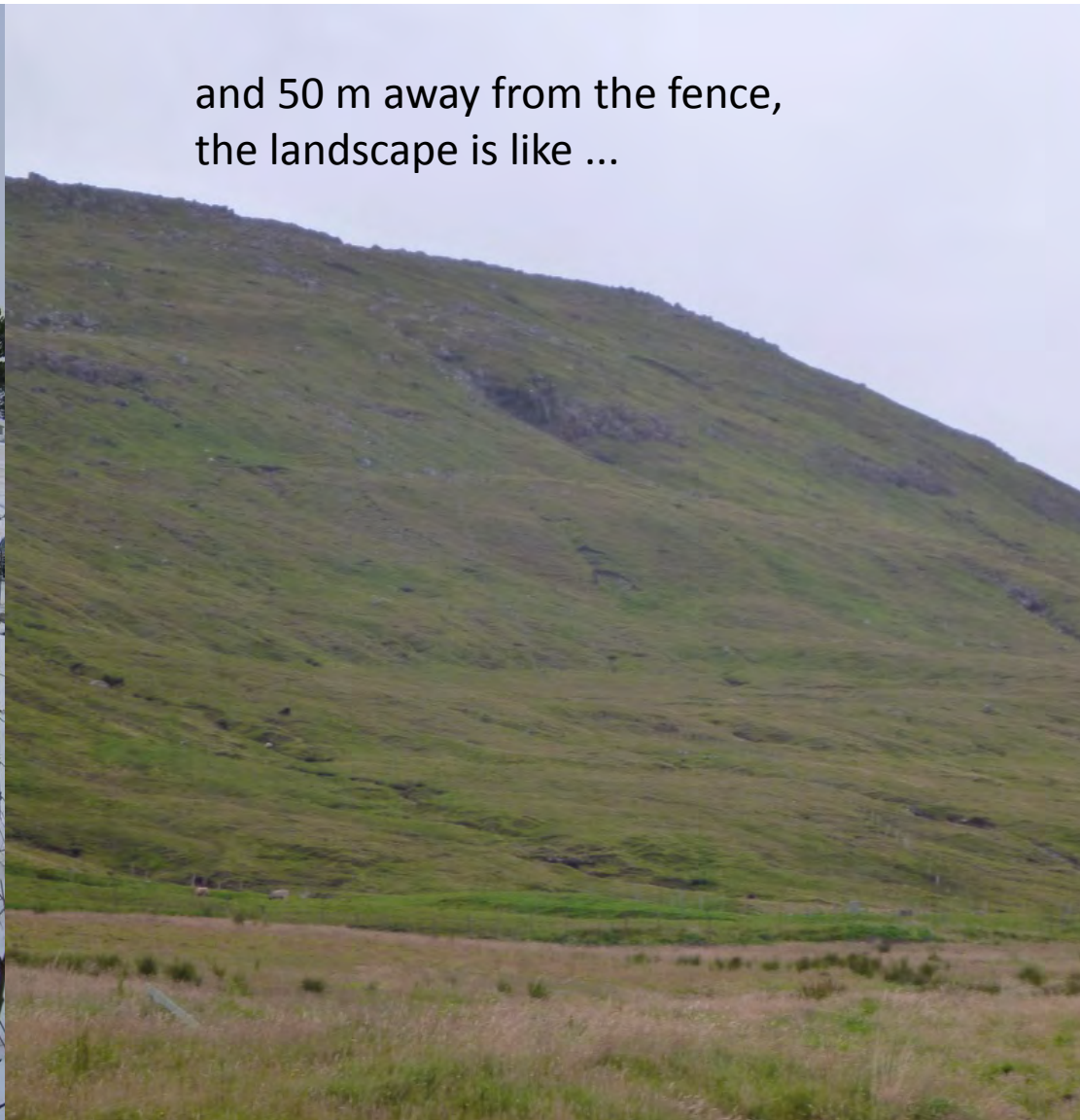




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and 50 m away from the fence,
the landscape is like ...





You visited the community woodland in Selatrað,

area size 1,55 ha

Thanks for your attention.

References

- Eysturoy, H. (2013). Persónlig frásøgn. Landsverk. Tórshavn.
- Flensburg, C. E. (1903). Særtryk af “Hedeselskabets Tidsskrift”. Viborg.
- Hannon, G. and Bradshaw, R. (2000). Impacts and Timing of the First Human Settlement on Vegetation of the Faroe Islands. *Quaternary Research* 54, 404-413.
- Højgaard, A.; Jóhansen, J.; Ødum, S.; Eds. (1989). Træplanting í Føroyum í eina øld. Føroya Fróðskaparfelag, Tórshavn.
- Landt, J. (1800). Forsøg til en Beskrivelse over Færøerne. København.
- Leivsson, T. G. (1993). Potential tree line in the Faroe Islands. Pp. 463 – 474. In Alden, J.; Mastrantonio, J. L.; Ødum, S.; Eds. (1993). *Forest Development in Cold Climates*. Plenum Press, New York.
- Malmros, C. (1994). Exploitation of Local, Drifted and Imported Wood by the Vikings on the Faroe Islands. *Botanical Journal of Scotland* 46, 552-558.
- Rørbo, K. (2004). Den færøske befolknings holdning til natur- og miljøforvaltning. *Innlendismálaráðið*, Tórshavn.
- Tuhkanen, S. (1987). The phytogeographical position of the Faeroe Islands and their ecoclimatic correspondences on the other continents: Problems associated with highly oceanic areas. *Ann. Bot. Fenn.*, 24:111-135.
- Ødum, S. (1991). Choice of species and origins for arboriculture in Greenland and the Faroe Islands. *Dansk Dendrologisk Forening IX*, 3-78. København.
- Egelund, B.; Pertoldi, C.; Barfod, A. S. (2012). Isolation and reduced gene flow among Faroese populations of tea-leaved willow (*Salix phylicifolia*, Salicaceae). *New Journal of Botany*, Vol. 2 (1), 9-15.