Land and demand:

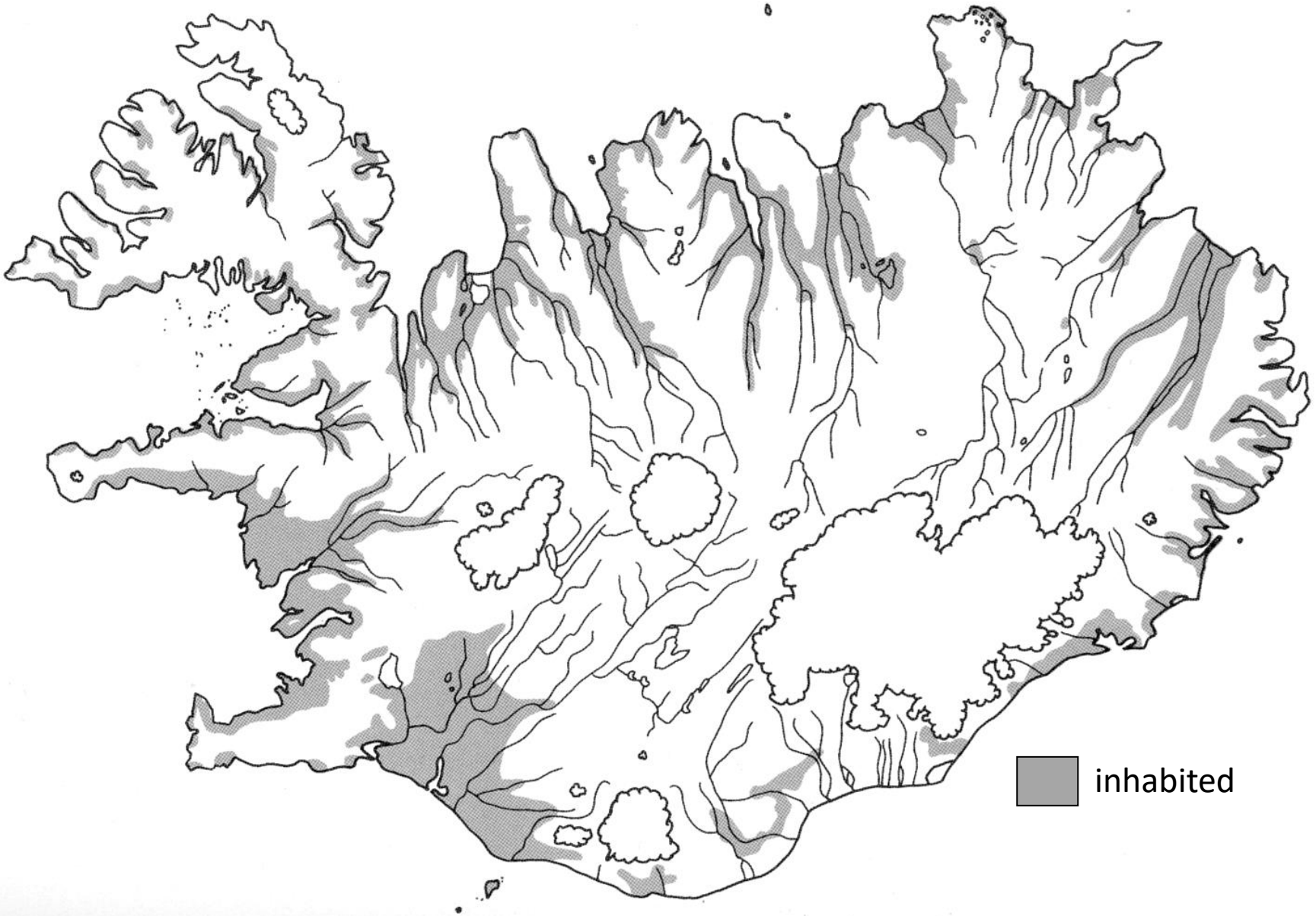
Land use in Iceland and where we are heading

Þóra Ellen Þórhallsdóttir
University of Iceland

Iceland: 103 th sq km

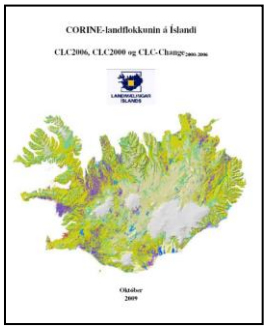
Denmark: 43, Finland 338, Norway 385, Sweden 447

Almost all inhabited areas are <200 m a.s.l.
Three quarters of Iceland lie above that.



……. Europe‘s most sparsely populated country…..

Corine project:
'Coordination of information on the environment'
Inventory of European land cover split into 44 classes.



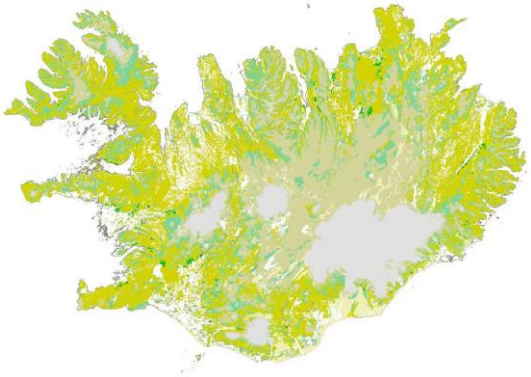
How is land cover in Iceland classified in this common European scheme?

Level 1 class 3. Forest and semi-natural areas comprise almost 88%.

Although actual forests and woodland are <2%.

Main classes are;

- Moors and heathland (35%),
- Bare rocks (23%),
- Sparsely vegetated areas (13%) and
- Glaciers (10.5%).



Mynd 18. *Dreifing og útbreiðsla landgerða í grunnflokki 3. Skógar og önnur náttúruleg svæði. Samanlagt mynda landgerðir þessa grunnflokks nánast samfellda þekju á öllu landinu, eyður (hvítir blettir) eru aðeins áberandi þar sem stærstu votlendis- og vatnaflákarnir eru (sjá myndir 10 og 11).*

Only four out of 44 classes account for >80% of land area

For most of its human settlement history, Iceland remained almost exclusively rural. In 1900, 80% of the population lived on farms.

Thinking about future land use, lets begin with two statistics

How many farms are there in Iceland?

How large are the farming properties?

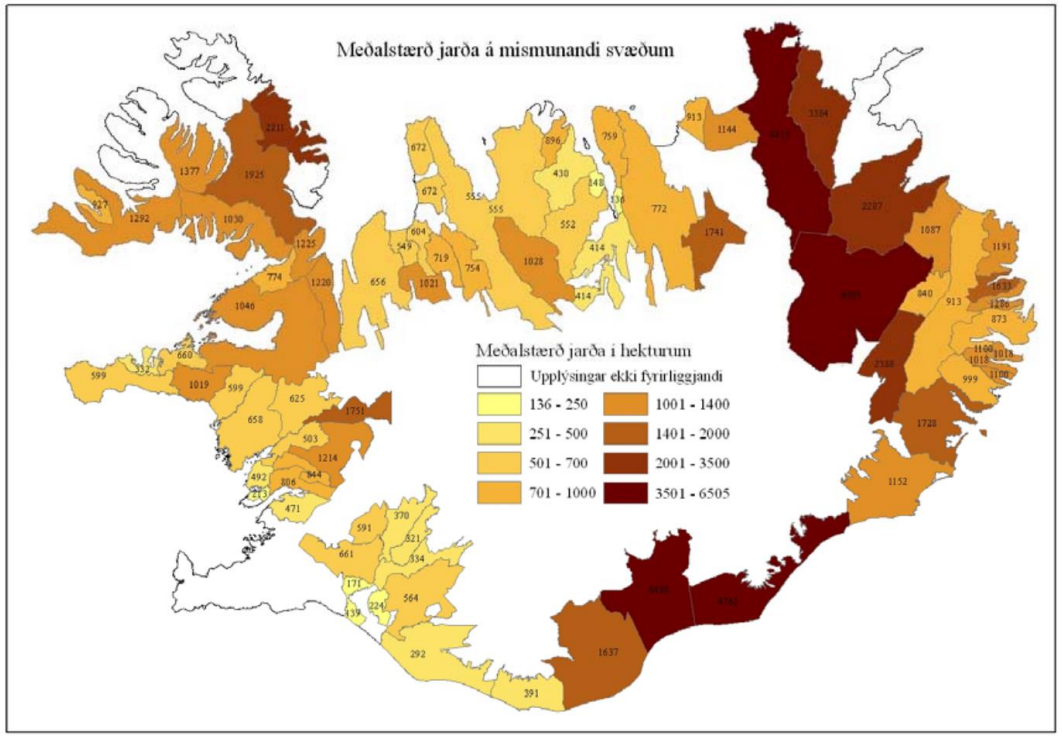
N registered farms (lögbýli) ~ 6400
N farms in production
2006: 3000
2010: 2595

Kristófersson et al. 2007, Statistics Iceland 2023

Mean farm area: 1103 ha.

In good agricultural regions, farms are commonly 250-700 ha.

Farms in less productive areas are more extensive, mostly >1000 ha



Gísladóttir, F. Ó. et al. 2006. Stærð bújarða á Íslandi. Fræðaþing landbúnaðarins 2006 https://timarit.is/page/7488588#page/n315/mode/2up

In terms of land cover and land use,
Iceland is very different from all other European countries

Most of the land has never been inhabited

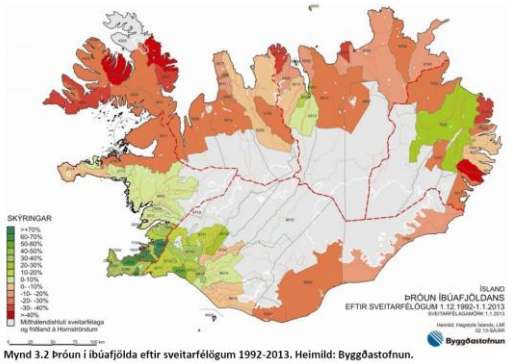
Agriculture is predominantly based on animal husbandry (sheep, cattle, horses) with very limited arable land and little intensive agriculture

The farms are HUGE

Generally, farms have been family-run but signs of this changing

Most radical changes will be the large number of farms going out of traditional agriculture.

This will mean cessation of grazing and haymaking with attendant changes in vegetation.



Mynd 3.2 Þróun í íbúafjölda eftir sveitarfélögum 1992-2013. Heimild: Byggðastofnun.

Changes in population by local communities in 1992-2013
Red: decreases, green: increases

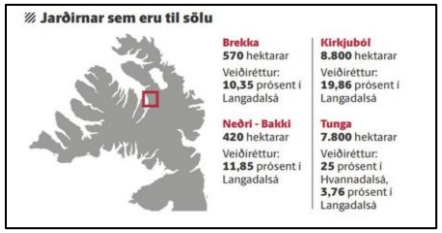
Changes in the social fabric in rural areas, many of which have very small local communities.

Who are the buyers of these farms?

How will the land now be used?

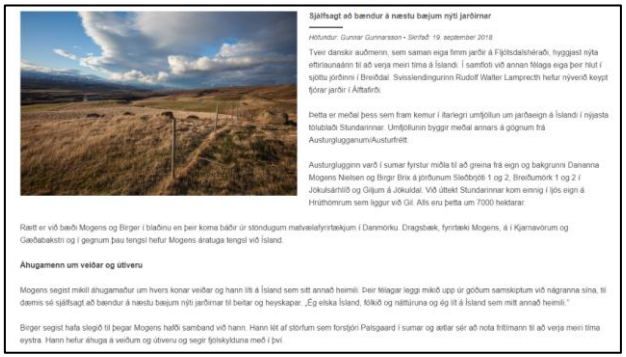
Zeal of foreigners….

Visir 2018



RÚV 2019

Austurfrétt 2018


Sjálfsagt að bændur á næstu bæjum nýti jarðirnar

Mótmælir Gunnar Gunnarsson - Skrifað 19. september 2018

Tveir danskir auðmenn, sem saman eiga fimm jarðir á Fljótsdalshéraði, hyggjast nýta eftirlaunaárin til að verja meiri tíma á Íslandi. Í samtali við annan félaga eiga þeir hlut í sjöttu jörðinni í Breiðdal. Svissleindingurinn Rudolf Walter Lamprecht hefur nýverið keypt fjórar jarðir í Álftafirði.

Þetta er meðal þess sem fram kemur í ítarlegri umfjöllun um jarðaeign á Íslandi í nýjasta tölublaði Stundarinnar. Umfjöllunin byggir meðal annars á gögnum frá Austurglugganum/Austurfrétt.

Austurglugginn varð í sumar fyrstur miðla til að greina frá eign og bakgrunni Dananna Mogens Nielsen og Birgir Brix á jörðunum Sleðbrjóti 1 og 2, Breiðumörk 1 og 2 í Jökulsárhlíð og Gilsum á Jökuldal. Við úttekt Stundarinnar kom einnig í ljós eigin á Hrúthömrum sem liggur við Gil. Allis eru þetta um 7000 hektarar.

Rætt er við bæði Mogens og Birger í blaðinu en þeir koma báðir úr stóndugum matvælaiðnaðarfyrirtækjum í Danmörku. Dragsbæk, fyrirtæki Mogens, á í Kjarnavörum og Gæðabakstri og í gegnum þau tengsl hefur Mogens áratuga tengsl við Ísland.

Áhugamenn um veiðar og útiveru

Mogens segist mikill áhugamaður um hvers konar veiðar og hann lít á Ísland sem sitt annað heimili. Þeir félagar leggi mikið upp úr góðum samskiptum við nágranna sína, til dæmis sé sjálfsagt að bændur á næstu bæjum nýti jarðirnar til beitar og heyskapar. „Ég elska Ísland, fólkið og náttúruna og ég lít á Ísland sem mitt annað heimili."

Birger segist hafa slegið til þegar Mogens hafði samband við hann. Hann lét af störfum sem forstjóri Pelsgaard í sumar og ætlar sér að nota frítímann til að verja meiri tíma eystra. Hann hefur áhuga á veiðum og útiveru og segir fjölskylduna með í því.

Swedish owner of 4 farms in Westfjords, in all 17,000 ha.

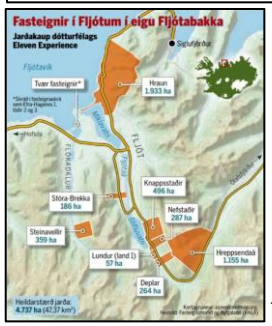
Two Danes own 5 farms & part owners of the 6th: 7,000 ha in east.

Englishman Jim Ratcliffe part or sole owner of 41 farms. Approx. 1.4% of Iceland's area.

Huang Nubo – wanted to but did not buy 30,000 ha Grímsstaðir farm in central highland

New York Times 2011 on plans of Chinese businessman

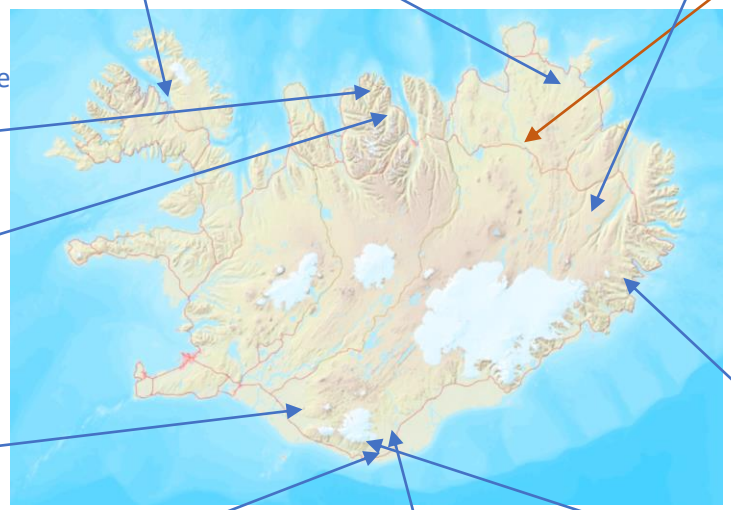
Mbl 2019



Eleven Experience 10 properties in Fljót, 4,737 ha

1 farm in Svarfaðardalur

Trölli.is 2018



Mbl 2019

DV 2023

"Foreign investors" buy 4,700 ha farm Höfðabrekka

Kjarninn 2021

German and Icelandic investors buy Hjörleifshöfði for pumice mining for cement on Mýrdalssandur outwash plain. STEAG Power Minerals (SPM). 11,700 ha.


The New York Times

LETTER FROM CHINA

Chinese Deal for Iceland Property Founders Over Distrust

Share full article

By Didi Kirsten Tatlow
Sept. 21, 2011

BEIJING — Mix in a caldron: lots of fear of Communist domination, one billionaire property developer with a poet's soul, a dash of James Bond and a soupçon of "yellow peril" — the story of Huang Nubo's bid for a piece of Iceland shows, above all, widespread unease about China's rise, analysts say.

Speculation erupted this month after Mr. Huang, the founder and chairman of the Beijing Zhongkun Investment Group, announced plans to buy 300 square kilometers, or 116 square miles, of Iceland's harshly beautiful, remote northeast — 0.3 percent of the country's land area. Mr. Huang plans to invest $200 million in a luxury 120-room hotel, airport, golf course and horse-riding facilities, the Chinese news media said.

Visir 2019

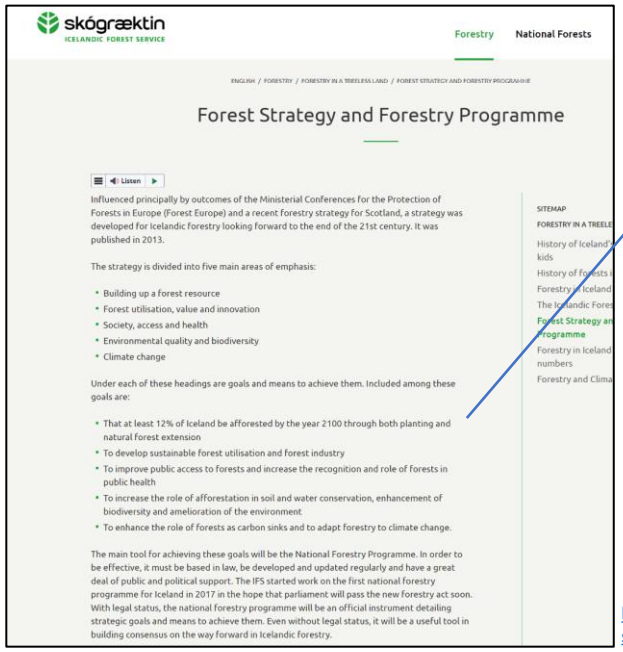
Swiss owner of 4 farms in east and 3 in Mýrdalur

Plans for afforestation, mostly through conifer plantations

State subsidised: financially attractive for traditional farmers but also very popular with new landowners

Many biologists are worried…..

First, by the scale, as planned by the Icelandic Forestry Service



skógræktin
ICELANDIC FOREST SERVICE

Forestry National Forests

ENGLISH / FORESTRY / FORESTRY IN A TREELESS LAND / FOREST STRATEGY AND FORESTRY PROGRAMME

Forest Strategy and Forestry Programme

Listen

Influenced principally by outcomes of the Ministerial Conferences for the Protection of Forests in Europe (Forest Europe) and a recent forestry strategy for Scotland, a strategy was developed for Icelandic forestry looking forward to the end of the 21st century. It was published in 2013.

The strategy is divided into five main areas of emphasis:

- Building up a forest resource
- Forest utilisation, value and innovation
- Society, access and health
- Environmental quality and biodiversity
- Climate change

Under each of these headings are goals and means to achieve them. Included among these goals are:

- That at least 12% of Iceland be afforested by the year 2100 through both planting and natural forest extension
- To develop sustainable forest utilisation and forest industry
- To improve public access to forests and increase the recognition and role of Forests in public health
- To increase the role of afforestation in soil and water conservation, enhancement of biodiversity and amelioration of the environment
- To enhance the role of forests as carbon sinks and to adapt forestry to climate change.

The main tool for achieving these goals will be the National Forestry Programme. In order to be effective, it must be based in law, be developed and updated regularly and have a great deal of public and political support. The IFS started work on the first national forestry programme for Iceland in 2017 in the hope that parliament will pass the new forestry act soon. With legal status, the national forestry programme will be an official instrument detailing strategic goals and means to achieve them. Even without legal status, it will be a useful tool in building consensus on the way forward in Icelandic forestry.

SITEMAP

FORESTRY IN A TREELE

History of Iceland' kids

History of Forests i

Forestry in Iceland

The Icelandic Fores

Forest Strategy an Programme

Forestry in Iceland numbers

Forestry and Clima

"… at least 12% of Iceland be afforested by the year 2100 through both planting and natural forest extension."

12% of Iceland is 12,360 km²
Most of this would be <200 m a.s.l. Such land = 25,149 km² and encompasses almost all directly farmed land and the most productive and valuable wetlands, and virtually all towns and villages. Significant tracts cannot be used for either farming or afforestation (e.g. lava fields, glacial outwash plains).

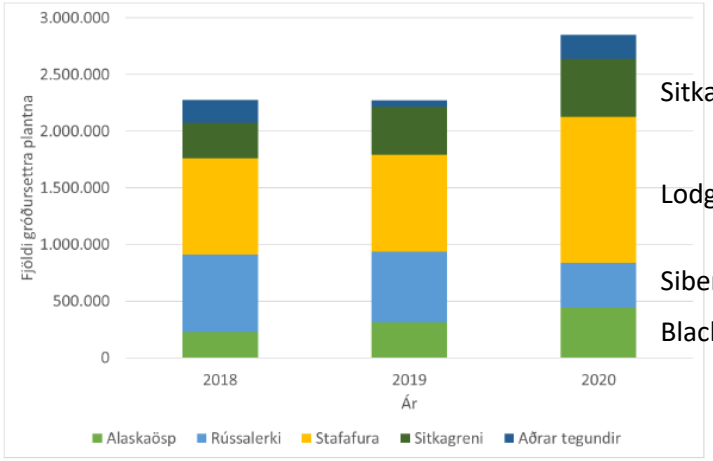
https://www.skogur.is/en/forestry/forestry-in-a-treeless-land/forest-strategy-and-forestry-programme , copied 25th Sept. 2023.

Second, by their spatial dispersion across all lowland regions of Iceland

Upwards of 800 sites of small island-plantations surrounded by semi-natural vegetation.

Third, biologists are worried by the choice of species

Since 2007, exotic conifers have accounted for over half of the annual national total of planted trees. Lodgepole pine is at the top, accounting for 25% of all plantings in recent years.



Mynd 4 Fjöldi gróðursettra plantna af innfluttum trjátegundum á árabilinu 2018-2020.

Sitka spruce, sitkagran, sitkagreni

Lodgepole pine, contortatall, stafafura

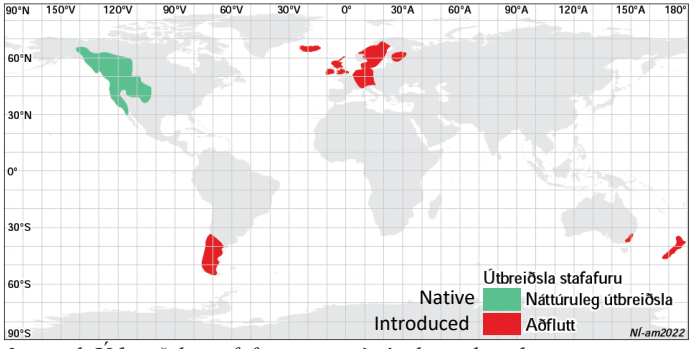
Siberian larch, sibirisk lärk, lerki

Black cottonwood, jättepoppel, Alaskaösp

Graph taken from "Greenbook on the biodiversity of Icelandic ecosystems" , 2022

The conifers are mostly established on heathland, rich or poor depending to plantation species.

Lodgepole pine has turned out to be highly invasive in many countries both in the south and north hemisphere.



3. mynd. Útbreiðsla stafafuru utan náttúrulegra heimkynna.

Pinus species, which have formed the foundation of commercial forestry industry in many countries, are known to be invasive in natural ecosystems, especially in the Southern Hemisphere. *Pinus contorta* is considered one of the most aggressively invasive plantation species. *Penja o.fl. 2008*

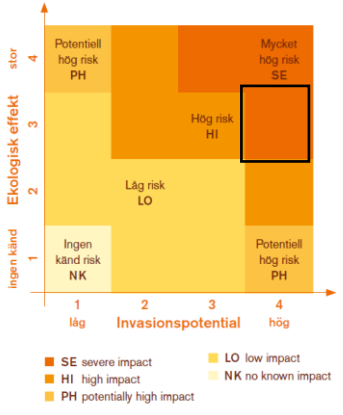
Lodgepole pine (*Pinus contorta*, Dougl.) was introduced to New Zealand in about 1880. It is the most vigorous naturally regenerating introduced conifer, which has led to large areas of unwanted spread or 'wildings'. Wildings threaten existing indigenous flora and fauna, visual landscape and land use values. The area affected by all conifer natural regeneration is estimated at 150,000 ha of which approximately two thirds is lodgepole pine. Control operations have been undertaken in New Zealand since the 1960s. The high 'weed' potential of lodgepole pine, coupled with its low grower and market acceptance in New Zealand, means that the species is seldom planted nowadays.

Contorta pine or lodgepole pine (external site) (*Pinus contorta*)
The most aggressive species with the youngest coning age and farthest spread. Has been declared an unwanted organism under the Biosecurity Act 1993 since 2001, which means it cannot be bred, propagated, distributed or sold

https://www.doc.govt.nz/nature/pests-and-threats/weeds/common-weeds/wilding-conifers/

Strand, M., Aronsson, M., & Svensson, M. 2018. Klassificering av främmande arters effekter på biologisk mångfald i Sverige – ArtDatabankens risklista. ArtDatabanken Rapporterar 21. ArtDatabanken SLU, Uppsala.

Vetenskapligt namn	Svenskt/populär-vetenskapligt namn	Definition	Invasions-potential	Ekologisk effekt	Samlat riskutfall	Utfalls-givande kriterier
Picea glauca	vitgran	Etablerad	3	3	HI	3AB,3E
Picea sitchensis	sitkagran	Etablerad	4	1	PH	4A,1
Pilosella cymosiformis	stäppfibbla	Etablerad	2	1	LO	2B,1
Pilosella flagellaris	gisselfibbla	Etablerad	3	2	LO	3A,2D
Pilosella floribunda	tyskfibbla	Etablerad	2	1	LO	2AB,1
Pinus cembra	cembratall	Etablerad	3	2	LO	3A,2D
Pinus contorta	contortatall	Etablerad	4	3	SE	4A,3D
Pinus mugo subsp. mugo	vanlig bergtall	Etablerad	4	3	SE	4A,3D
Pinus peuce	makedonisk tall	Etablerad	2	1	LO	2B,1
Pinus strobus	weymouthtall	Etablerad	3	2	LO	3A,2I



Submitted paper by Wasowicz et al. 2023

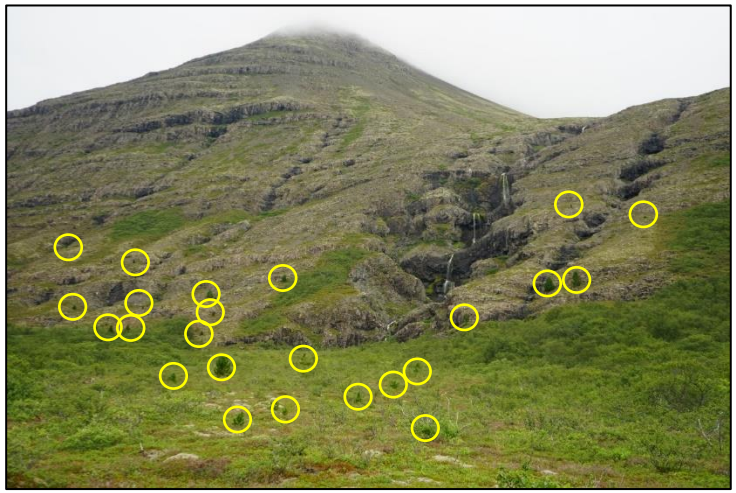
Lodgepole pine in Steinadalur valley, SE Iceland
Planted 1954, expanded in 1961.
First record of spread in 1985.

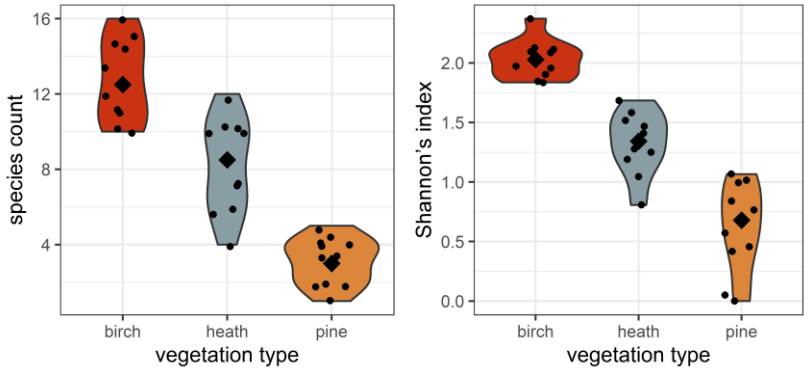
Decadal changes 2010-2021:
- Increase in pine area: 856%
- Increase in population size: 673%

Exponential rate of spread

Susceptible native ecosystems
- open birch woodland
- heathland
- grass heath

Significant impacts
- reduces species richness and diversity
- changes composition





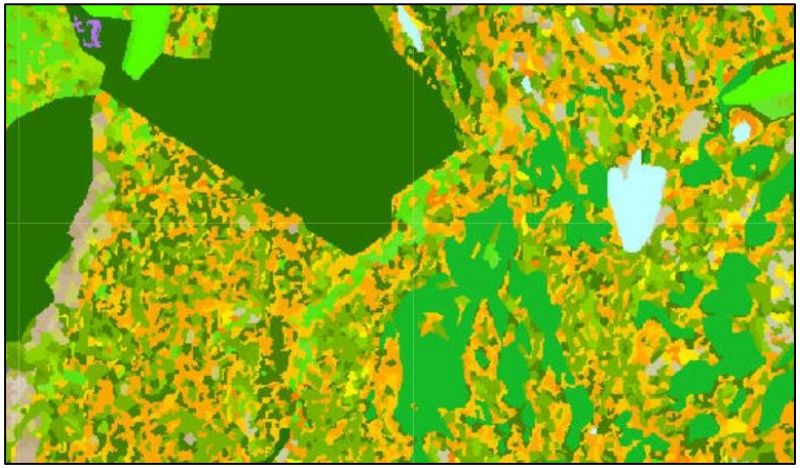
Violin plots showing comparisons between birch woodland, heathland and pine plantation for vascular species richness (left) and Shannon's diversity index (right). Points show individual plot values and diamonds median values for each vegetation type.

Signs that lodgepole pine and possibly sitka spruce will become invasive in Iceland

Susceptible native ecosystems
- low growing vegetation
- often open
- conifers can easily establish

Lodgepole pine naturally forms dense forests
- native vegetation will retreat
- reduction in species richness and diversity

Large number of small plantations hugely increases risk of spread



Habitat type map from the Institute of Natural History. The small scale mosaic of native vegetation (yellow, orange, light & bright green) contrasts with the homogeneous conifer plantations (dark green)