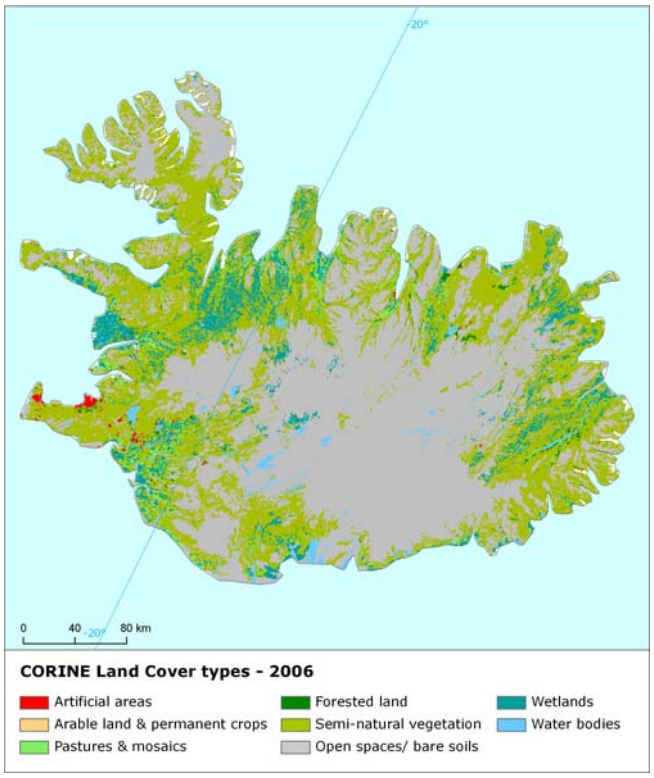
Iceland

Land cover 2006

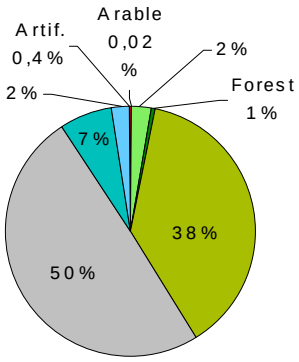
Overview of land cover & change 2000-2006

Icelandic landscape has very specific character compared to other European countries. Most of the island is covered by moors and heathland, bare rocks, sparsely vegetated areas and glaciers, with only very low percentage of agricultural and artificial areas.
This specific landscape character is also reflected in structure of land cover change flows in Iceland. Changes due to natural and multiple causes have absolutely predominant share on total turnover of land cover. The second most powerful driver of land cover change is the sprawl of economic sites and infrastructures.
Concerning the overall change dynamics of particular land cover types, characterized by annual turnover of land cover, opens spaces/bare soil followed by water bodies are the surfaces with highest exchange area. Formation flows are dominated by artificial surfaces with high annual land take rate (3.26%), forested areas and water bodies, while consumption occurs on expense of semi-natural vegetation and open spaces/bare soils.
Changes due to natural and multiple causes are distributed mainly along the southern coast and over neighbouring mountains. Artificial land take is concentrated in the most populated south-western part of the island (especially in surroundings of the capital city Reykjavik and in proximity of the city Selfoss).

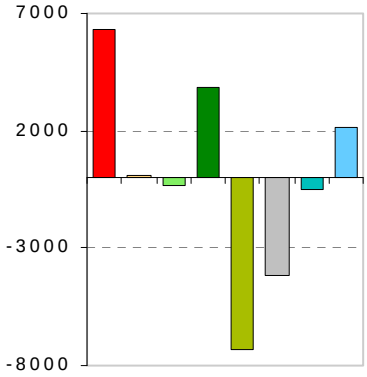


Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100.000 scale across Europe over almost two decades 1990-2006 - see Corine land cover (CLC) programme for details.
Number of years between CLC2000-CLC2006 data for Iceland: 6

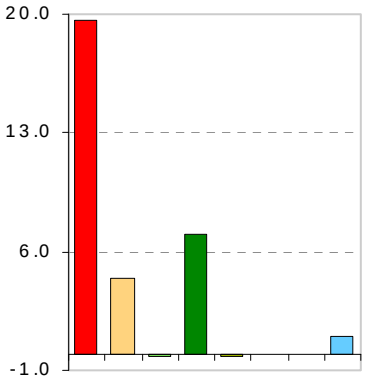
1.1. Land cover 2006 [% of total]



1.2. Net change in land cover 2000-2006 [ha]



1.3. Net change in land cover [% of initial year 2000]



Artificial areas | Arable land & permanent crops | Pastures & mosaics | Forested land
Semi-natural vegetation | Open spaces/ bare soils | Wetlands | Water bodies

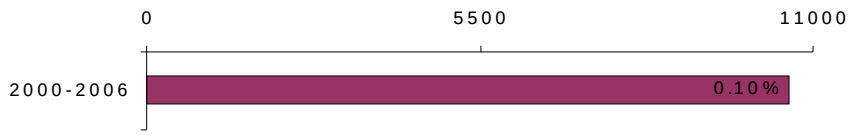
Summary balance table 2000-2006

	Artificial areas	Arable land & permanent crops	Pastures & mosaics	Forested land	Semi-natural vegetation	Open spaces / bare soils	Wetlands	Water bodies	TOTAL [hundreds ha]
Land cover 2000	**320**	**20**	**2485**	**544**	**38802**	**51131**	**7088**	**2233**	**102624**
Consumption of initial LC	3	0	9	1	84	386	5	150	637
Formation of new LC	65	1	6	39	10	344	0	171	637
Net Formation of LC	**63**	**1**	**-4**	**38**	**-73**	**-41**	**-5**	**22**	**0**
Net formation as % of initial year	*19.6*	*4.4*	*-0.1*	*7.0*	*-0.2*	*-0.1*	*-0.1*	*1.0*	
Total turnover of LC	**68**	**1**	**15**	**41**	**94**	**730**	**5**	**321**	**1274**
Total turnover as % of initial year	*21.2*	*4.4*	*0.6*	*7.5*	*0.2*	*1.4*	*0.1*	*14.4*	*1.2*
Land cover 2006	**383**	**21**	**2481**	**582**	**38728**	**51089**	**7084**	**2255**	**102624**

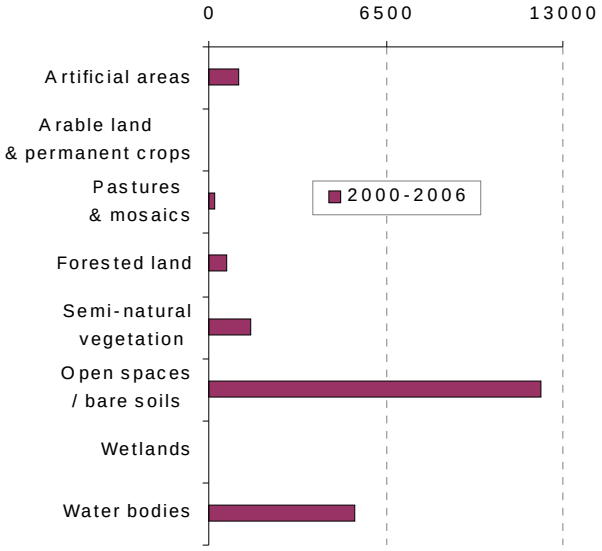
Iceland

Land cover trends 2000-2006

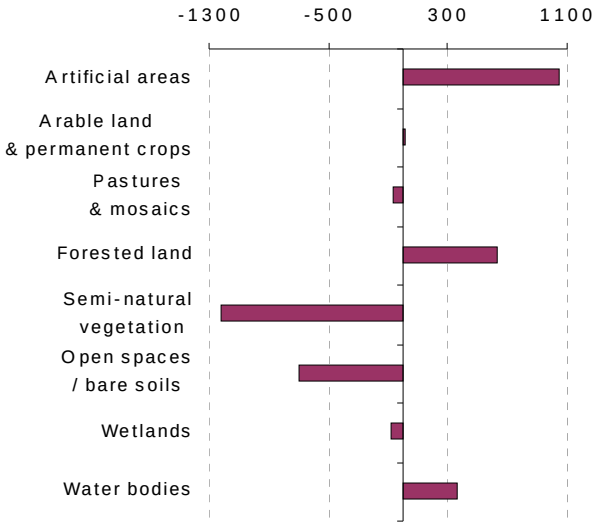
2.4. Annual land cover change [ha/year, % of total area]



2.5. Annual turnover of LC types [ha/year]

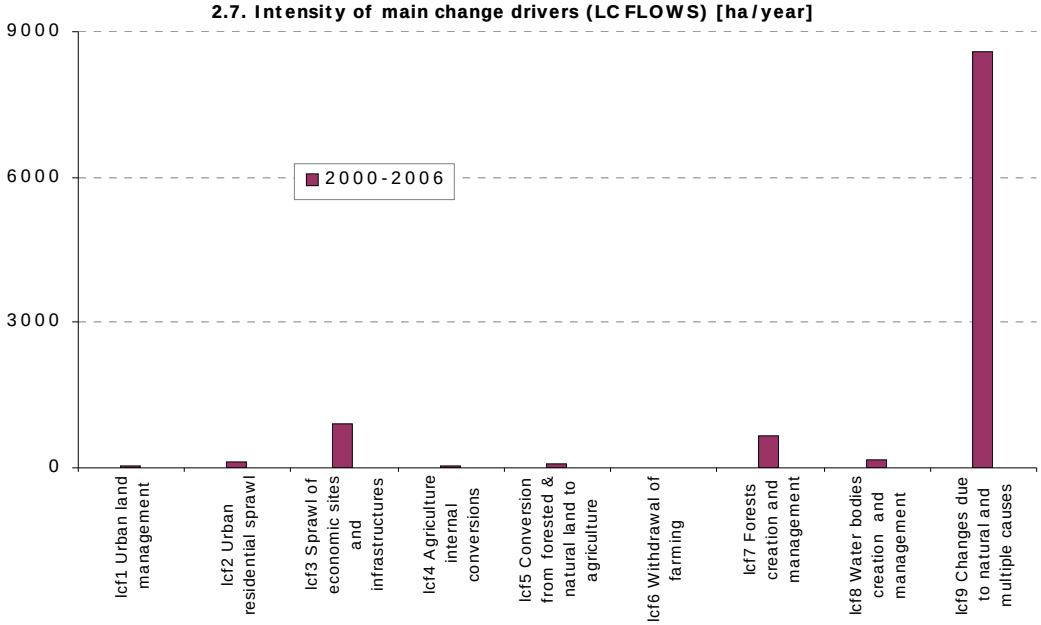


2.6. Net annual change of LC types [ha/year]



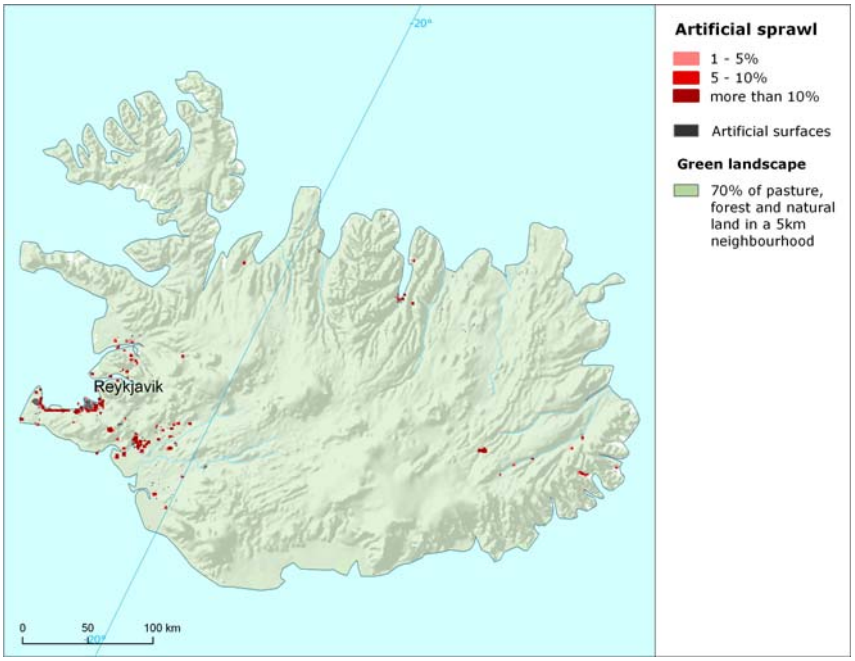
Summary trend figures	2000-2006
Annual land cover change [ha/year]	**10618**
Annual land cover change as % of initial year	**0.10%**
Land uptake by artificial development as mean annual change [ha/year]	1046
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	105
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	58
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	34
Forest & other woodland net formation as mean annual change [ha/year]	635
Dry semi-natural land cover net formation as mean annual change [ha/year]	-1901
Wetlands & water bodies net formation as mean annual change [ha/year]	277

2.7. Intensity of main change drivers (LC FLOWS) [ha/year]

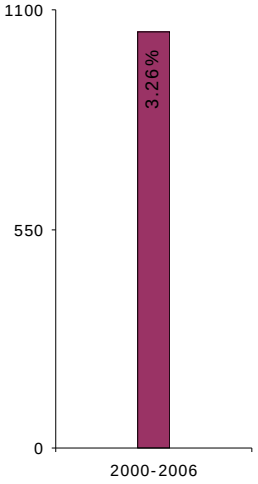


Iceland

Artificial areas



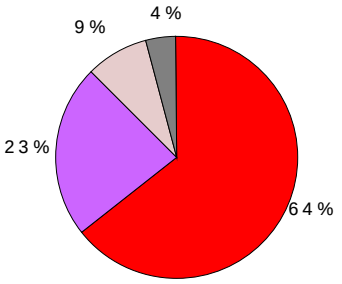
3.8. Artificial land take [ha/year, % of initial year]



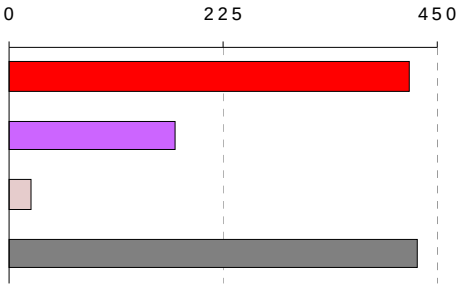
High land take driven by construction

Share of artificial formation between 2000 and 2006 on initial artificial area is almost 20% (3.26% a year), which is one of the highest formation rate among European countries. Artificial land take is driven mainly by sprawl of construction sites (38%), which indicates the potential for further artificial development in next periods. The other significant drivers are the sprawl of sport and leisure facilities (28%), followed by industrial/commercial (17%) and diffuse residential sprawl (11%) to a lower extent.
On the consumption side, mostly semi-natural vegetation areas with prevailing share of moors and heathland, pastures and open spaces/bare soils have been taken by artificial sprawl.

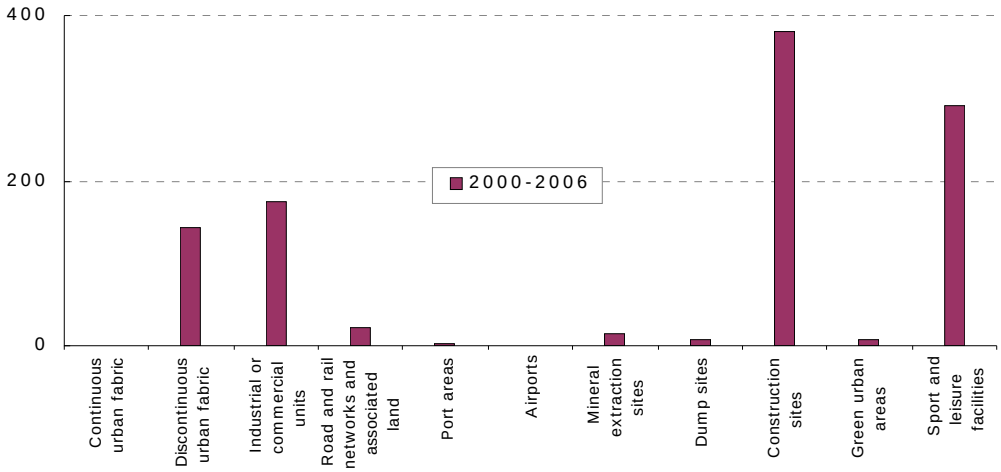
3.9. Artificial surfaces 2006 [% of total area]



3.10. Artificial land take 2000-2006 [ha/year]

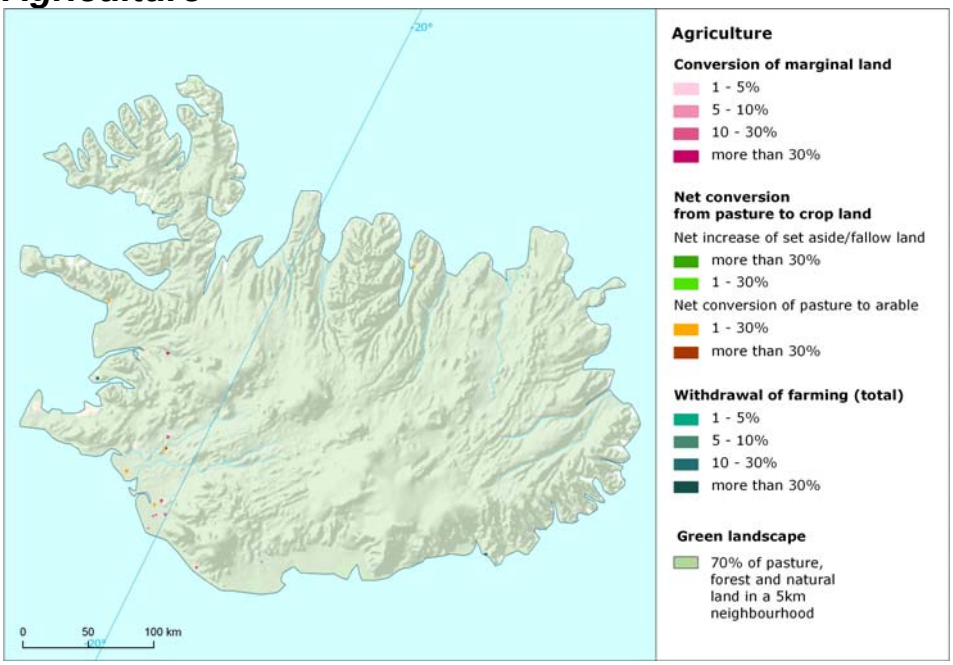


3.11. Mean annual artificial change by class [ha/year]



Iceland

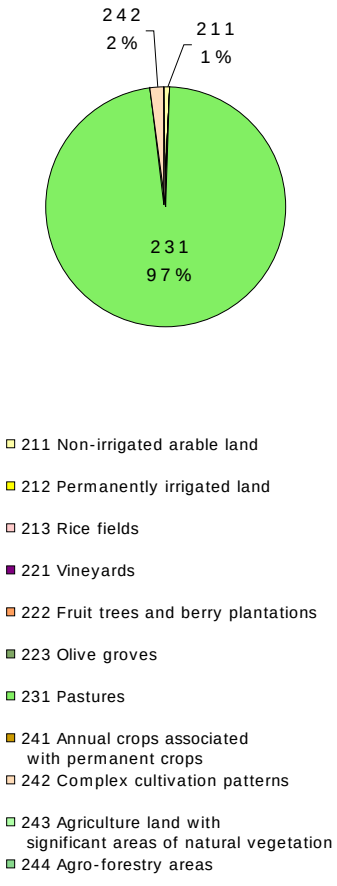
Agriculture



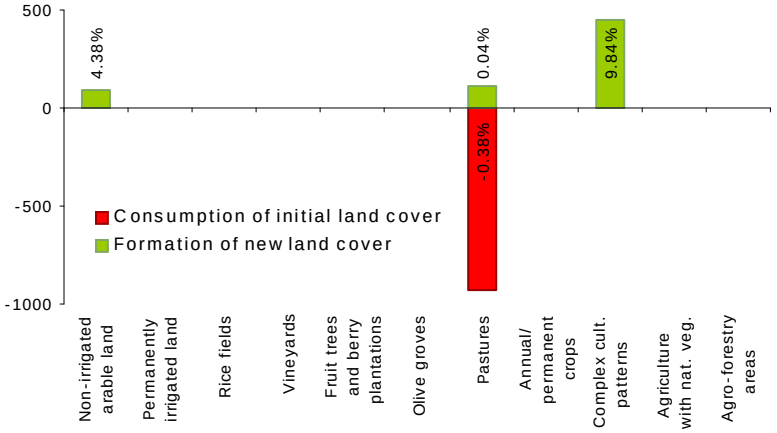
Consumption of pastures by artificial land

Agricultural land in Iceland is composed mostly of pastures. Between 2000 and 2006 there are only three agricultural classes facing change recorded. Pastures have negative balance of net change, with prevailing consumption and only small percentage of area formation. In contrast, there occurs formation of complex cultivation patterns and arable land.
The dominant driver of agricultural land development is the consumption of agriculture area by sprawl of economic sites and infrastructures and to a lesser extent consumption by withdrawal of farming with transitional woodland creation (only pastures). On the other side, formation of new agricultural areas (with prevailing share of complex cultivation patterns) has been driven mainly by diffuse conversion from semi-natural land to agriculture and by conversion from wetlands. Beside external conversions, there also occur internal agricultural ones, represented by (mostly diffuse) conversion from pasture to arable/crop land.

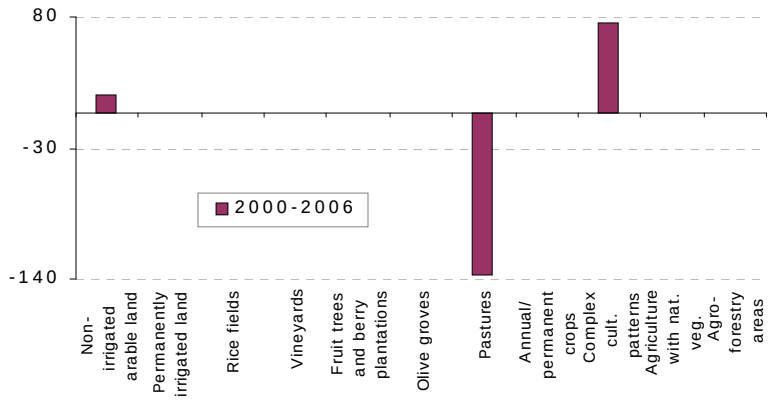
4.12. Agricultural areas 2006 [% of total area]



4.13. Development of agricultural areas 2000-2006 – detailed balance [ha]

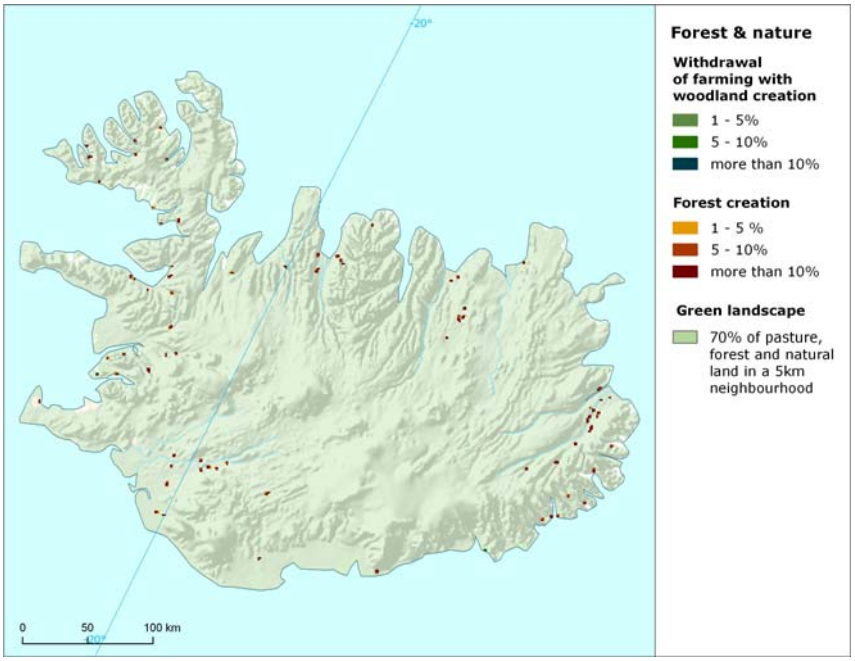


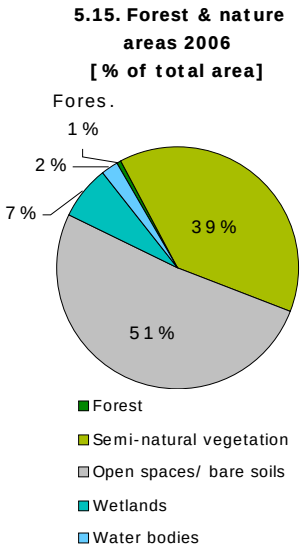
4.14. Mean annual agricultural change by class [ha/year]



Iceland

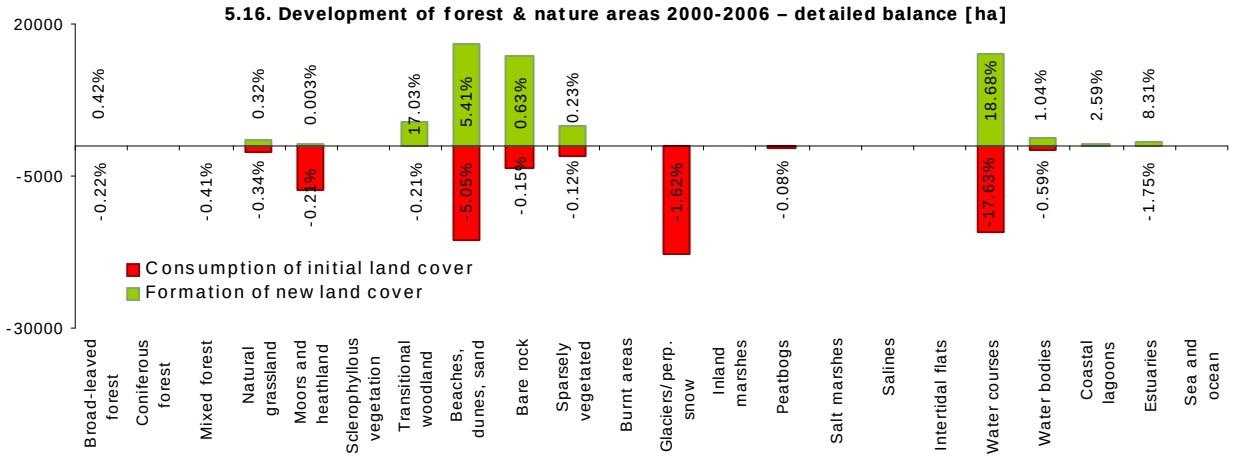
Forest & nature

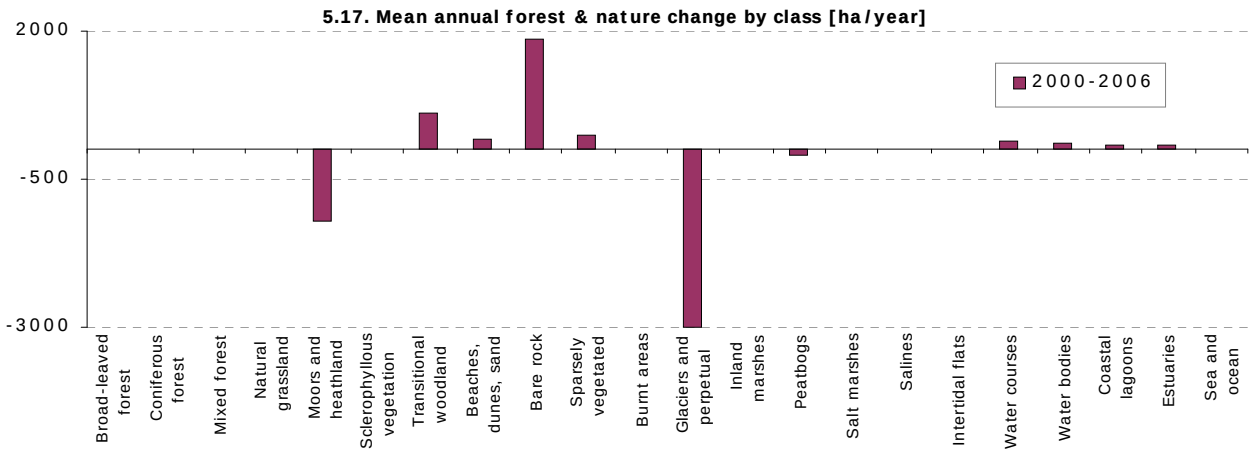




Decrease of permanent snow and glaciers

Natural surfaces cover about 98% of total Iceland area and land cover exchange between various natural classes is the predominant flow of landscape development. In particular, decrease of permanent snow and glaciers cover, followed by extension of water courses over beaches as well as transitional woodland creation over natural grasslands, heathland and sparsely vegetated areas are the main drivers of land cover change natural surfaces in Iceland.

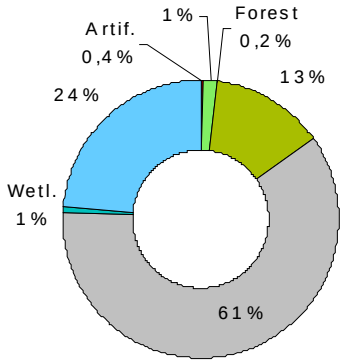




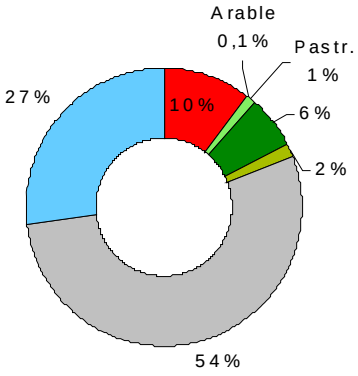
Annex: Land cover flows and trends

Land cover flows 2000-2006

6.18. Consumption of land cover 2000-2006 [% of total change area]

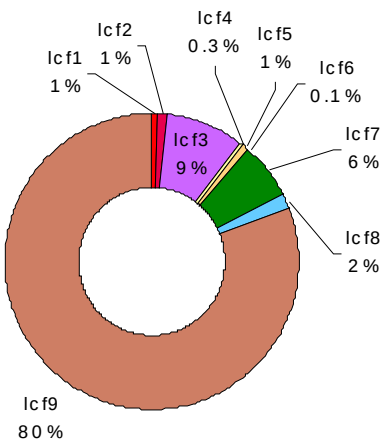


6.19. Formation of land cover 2000-2006 [% of total change area]



Artificial areas | Arable land & permanent crops | Pastures & mosaics | Forested land
Semi-natural vegetation | Open spaces/ bare soils | Wetlands | Water bodies

6.20. Drivers of change (LC FLOWS) 2000-2006 [% of total change area]

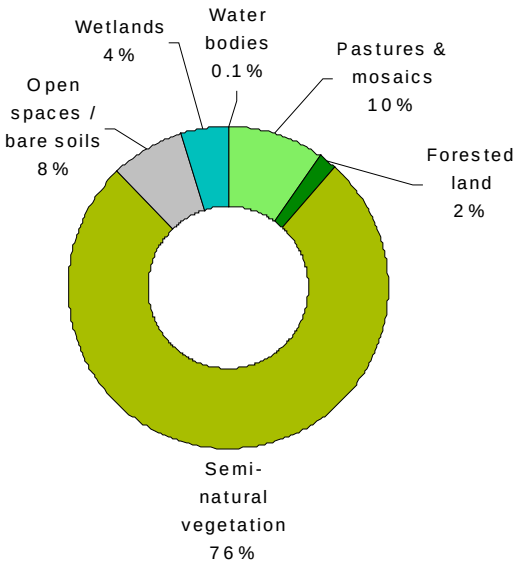


- lcf1 Urban land management
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf4 Agriculture internal conversions
- lcf5 Conversion from forested & natural land to agriculture
- lcf6 Withdrawal of farming
- lcf7 Forests creation and management
- lcf8 Water bodies creation and management
- lcf9 Changes due to natural and multiple causes

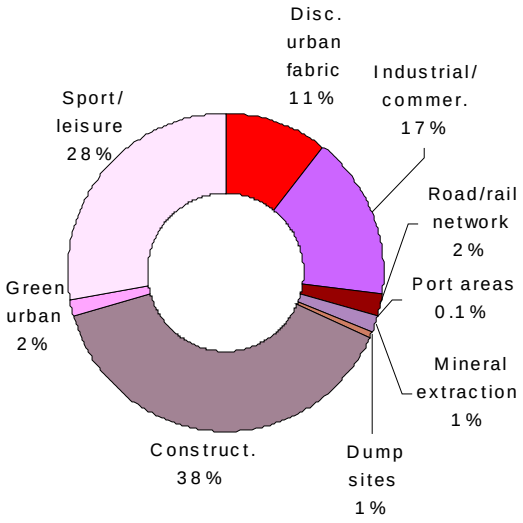
Iceland

Artificial areas

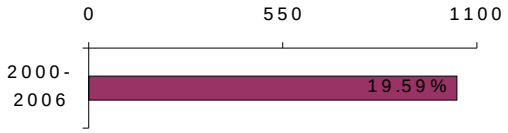
7.21. Consumption by artificial land take 2000-2006 [% of total]



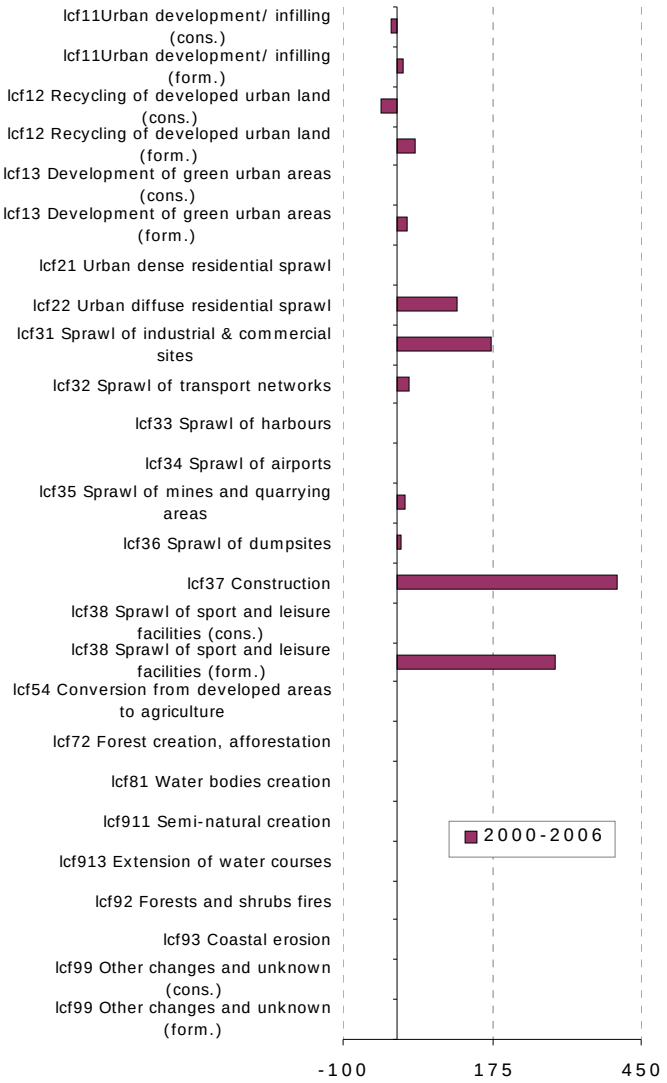
7.22. Formation by artificial land take 2000-2006 [% of total]



7.23. Net formation of artificial area [ha/year, % of initial year]

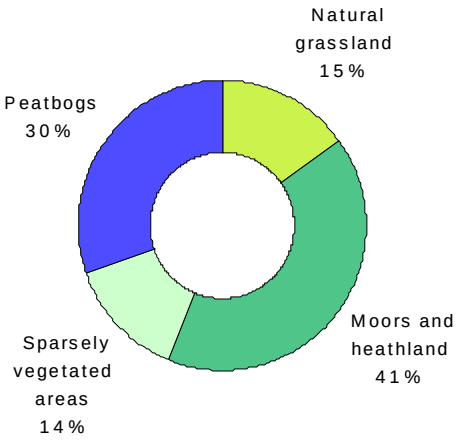


7.24. Artificial development by change drivers (LC FLOWS) [ha/year]

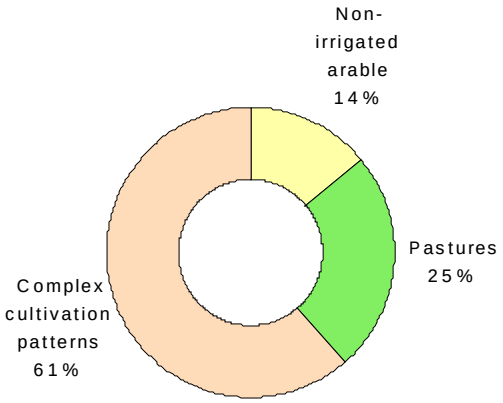


Agriculture

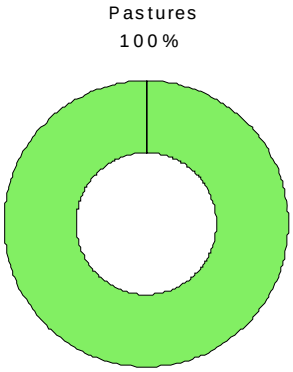
8.25. LC consumed by agriculture 2000-2006 [% of total]



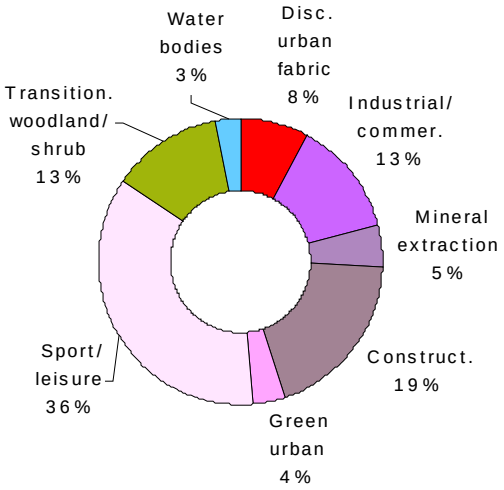
8.26. Formation of agricultural land from non-agriculture 2000-2006 [% of total]



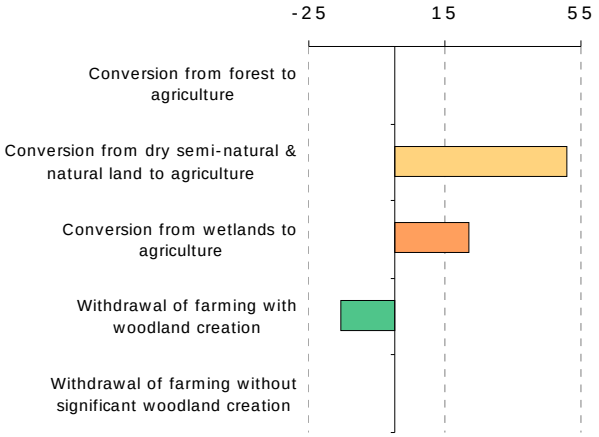
8.27. Consumption of agricultural land by non-agriculture 2000-2006 [% of total]



8.28. Formation of non-agricultural land from agriculture 2000-2006 [% of total]



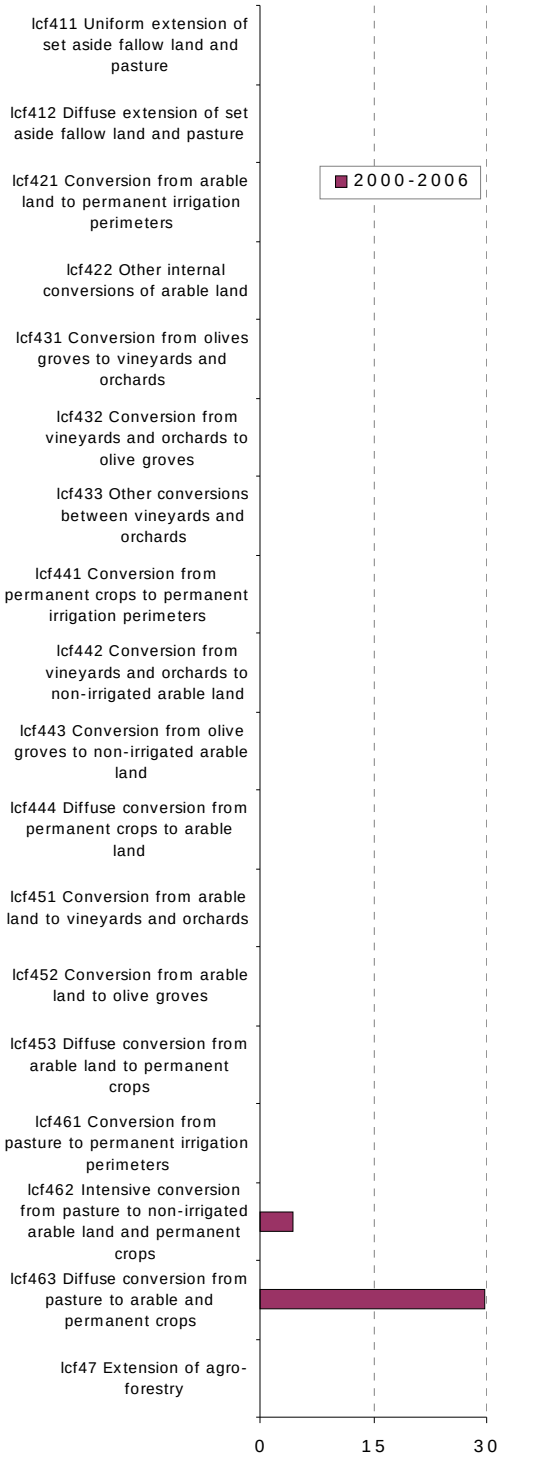
8.29. Main annual conversions between agriculture and forests & semi-natural land 2000-2006 [ha/year]



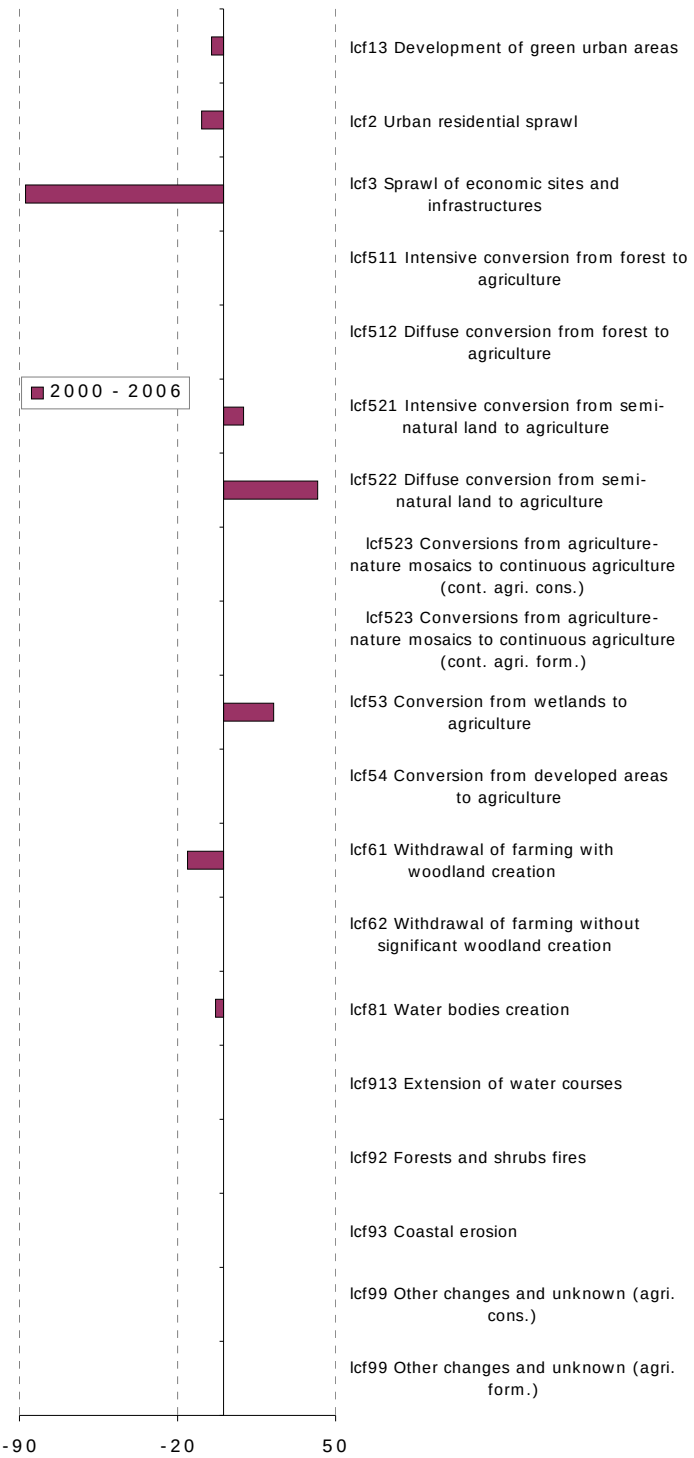
8.30. Mean annual conversion between arable land and pasture [ha/year]

Iceland

9.31. Mean annual agriculture internal conversions [ha/year]

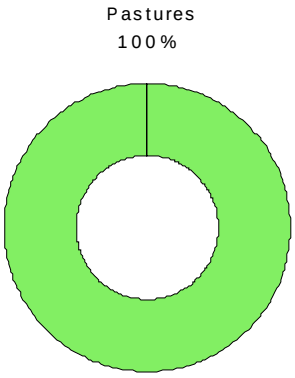


9.32. Mean annual conversions between agriculture and other LC types [ha/year]

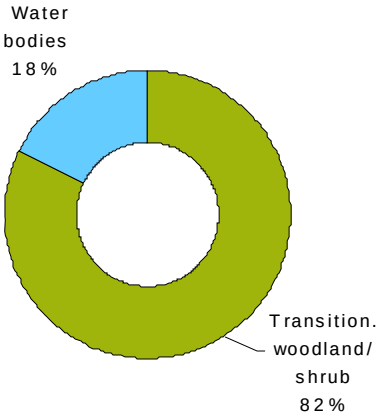


Forest & nature

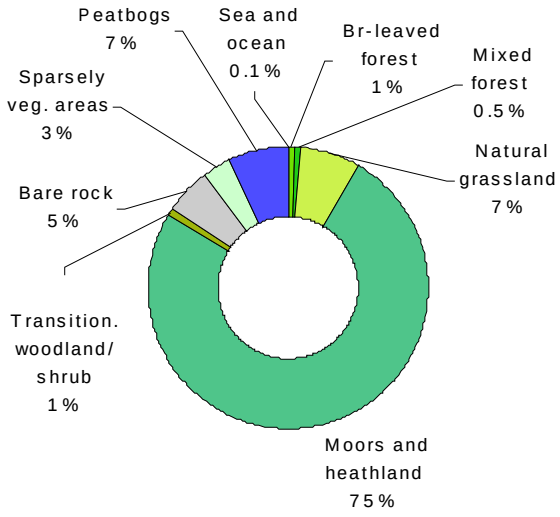
10.33. LC consumed by forest & nature 2000-2006 [% of total]



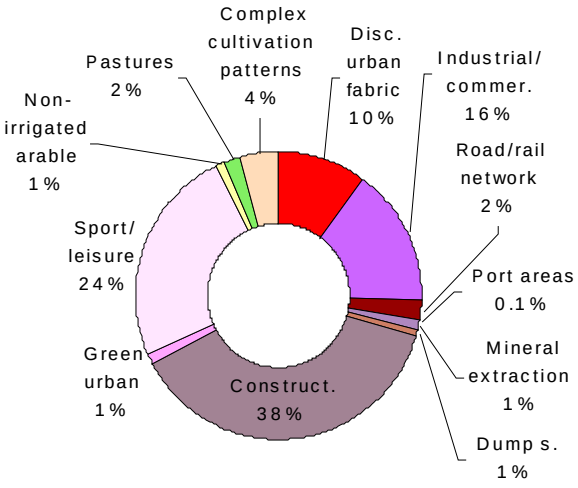
10.34. Formation of forest & nature land from non-forest /nature 2000-2006 [% of total]



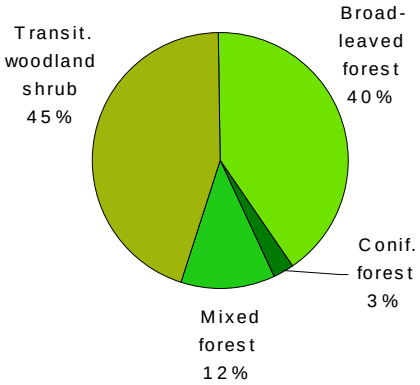
10.35. Consumption of forest & nature land by non-forest/nature 2000-2006 [% of total]



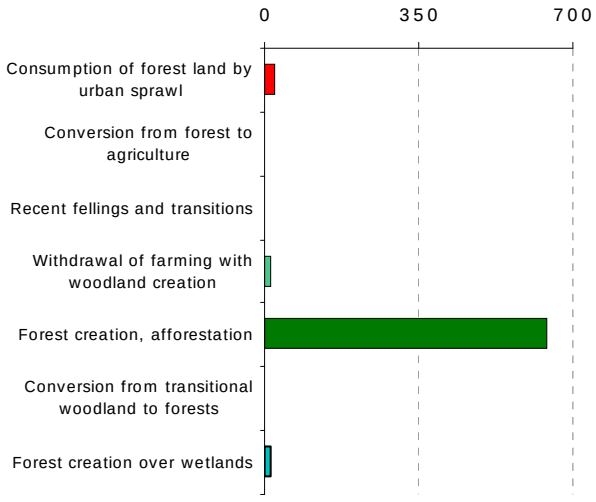
10.36. Formation of non-forest/nature land from forest & nature 2000-2006 [% of total]



10.37. Forested land 2006 [% of total area]

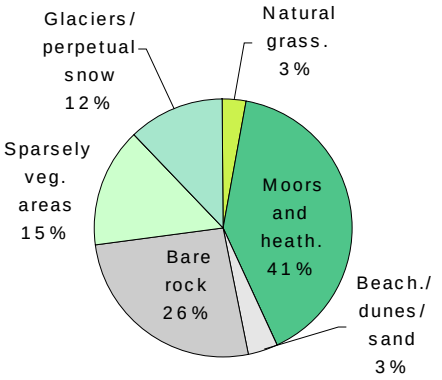


10.38. Main trends in woodland & forests consumption/formation 2000-2006 [ha/year]

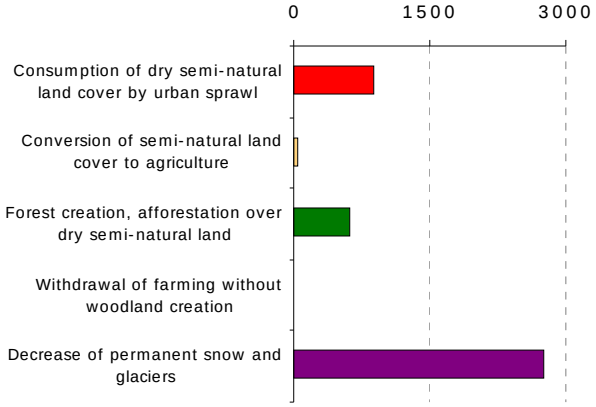


Iceland

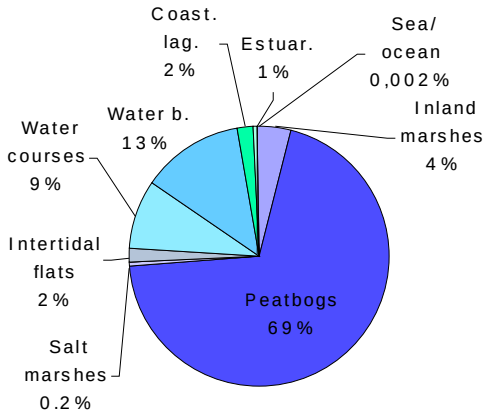
11.39. Dry semi-natural areas 2006 [% of total area]



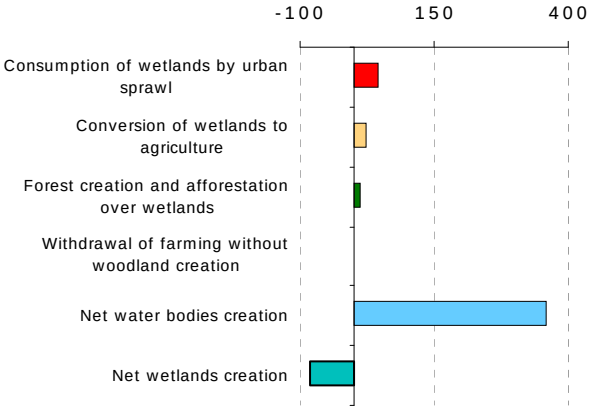
11.40. Main trends in dry semi-natural land consumption/formation 2000-2006 [ha/year]



11.41. Wetlands & water 2006 [% of total area]



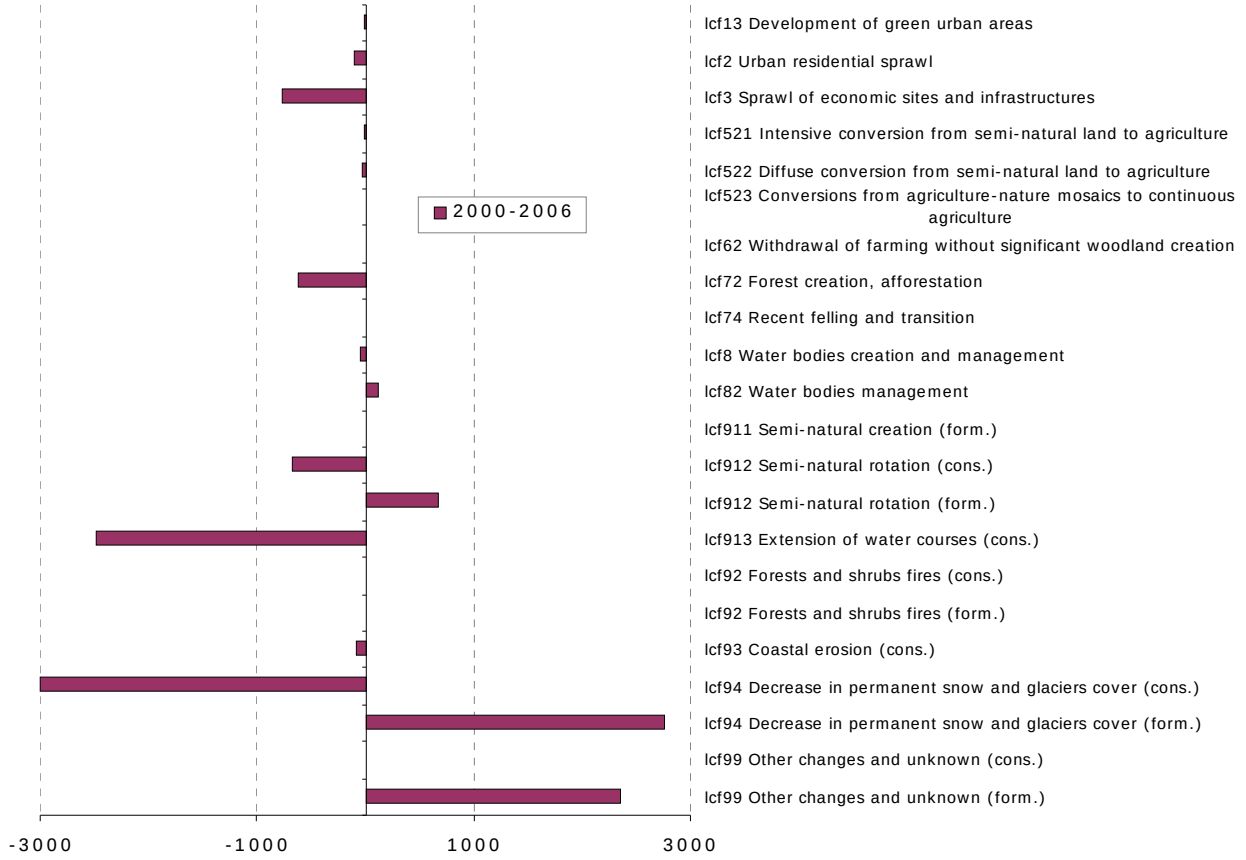
11.42. Main trends in wetlands & water consumption/formation 2000-2006 [ha/year]



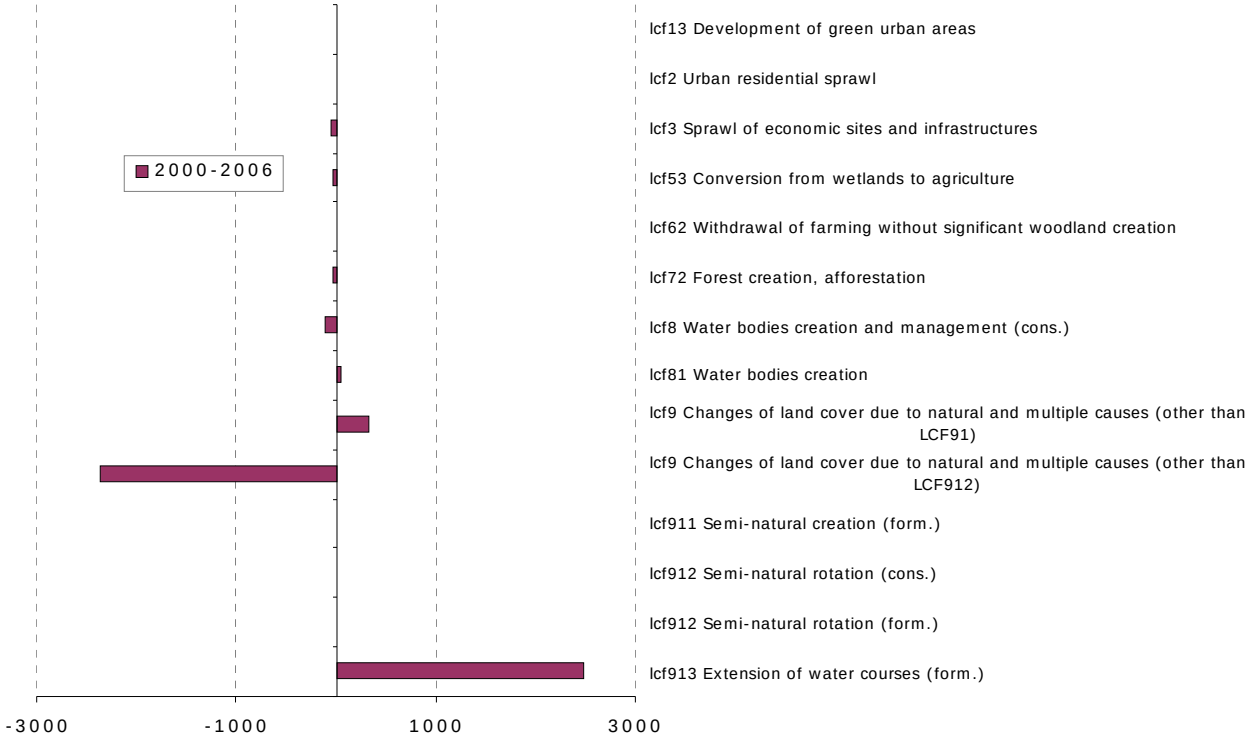
11.43. Mean annual conversions of forest & other woodland [ha/year]

Iceland

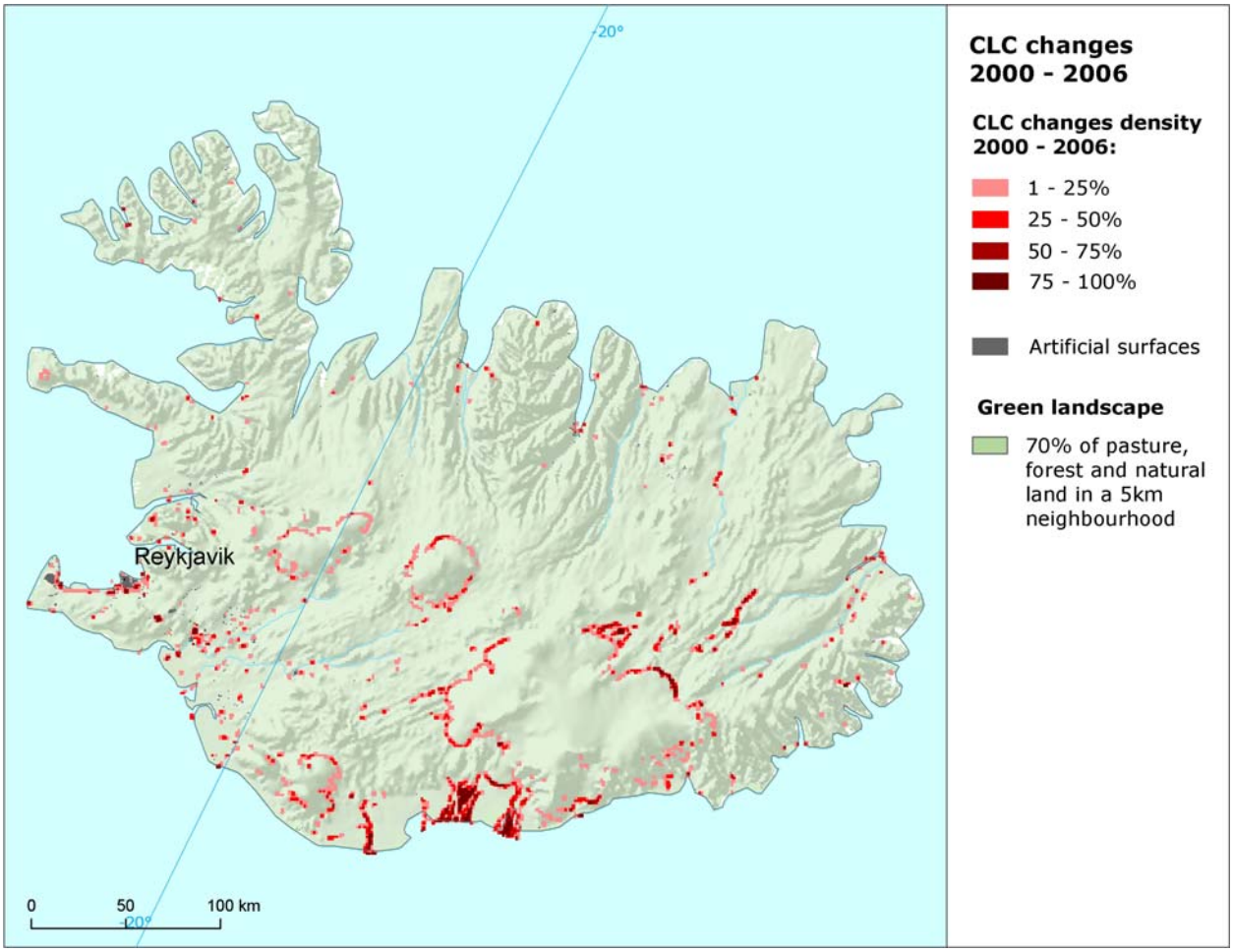
12.44. Mean annual conversions of dry semi-natural LC [ha/year]

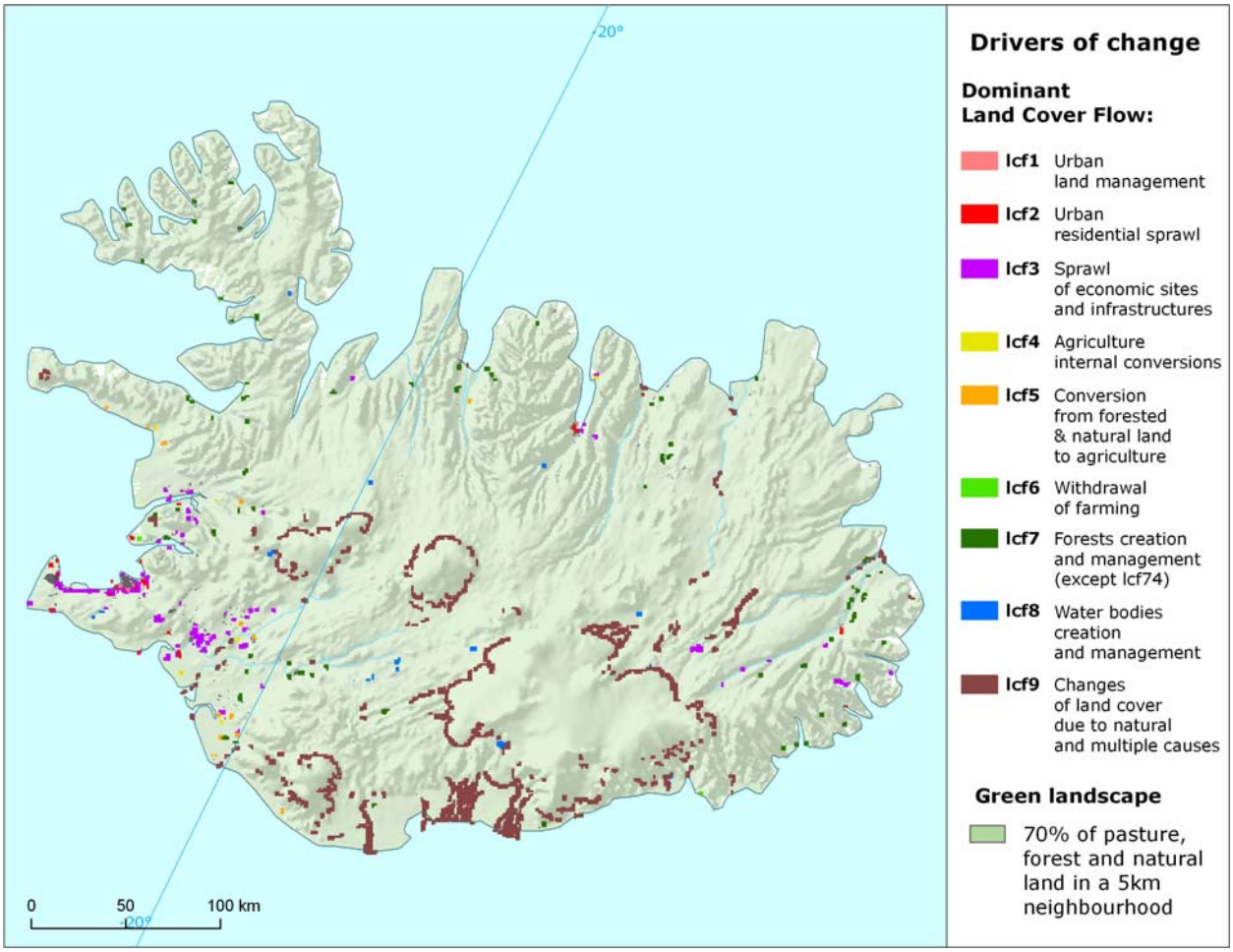


12.45. Mean annual conversions of wetlands and water LC [ha/year]



Iceland


20°
Reykjavik
0
50
100 km
20°
CLC changes 2000 - 2006
CLC changes density 2000 - 2006:
1 - 25%
25 - 50%
50 - 75%
75 - 100%
Artificial surfaces
Green landscape
70% of pasture, forest and natural land in a 5km neighbourhood


20°
0
50
100 km
20°
Drivers of change
Dominant Land Cover Flow:
lcf1 Urban land management
lcf2 Urban residential sprawl
lcf3 Sprawl of economic sites and infrastructures
lcf4 Agriculture internal conversions
lcf5 Conversion from forested & natural land to agriculture
lcf6 Withdrawal of farming
lcf7 Forests creation and management (except lcf74)
lcf8 Water bodies creation and management
lcf9 Changes of land cover due to natural and multiple causes
Green landscape
70% of pasture, forest and natural land in a 5km neighbourhood