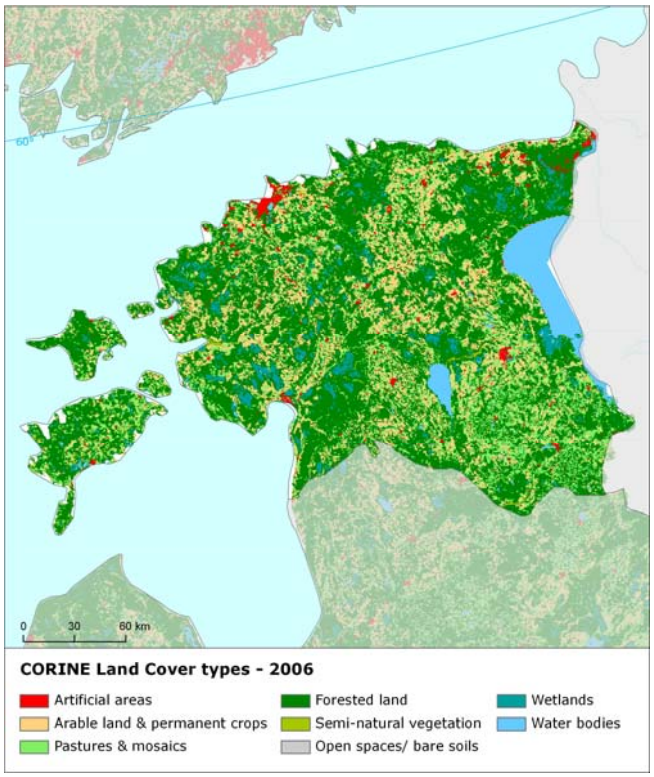
Estonia

Land cover 2006

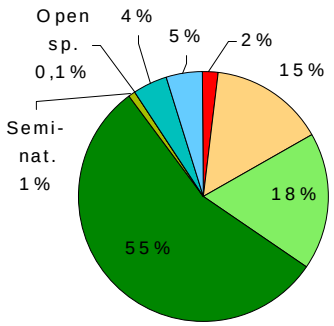
Overview of land cover & change 2000-2006

The period 2000-2006 in Estonia is characterised by significant stabilisation of overall situation in land cover development. The main source of this stabilisation is rapid slow down of internal agriculture conversions, which were the main drivers of change in Estonian landscape during the previous period. After year 2000, the intensity of both conversions between arable land and pasture significantly decreased and conversion from pasture to arable land became the prevailing flow of internal agriculture exchange. This caused increase of net pasture consumption and net arable formation, compared to the period 1990-2000 (which was characterized by steady balance of internal conversions between arable and pasture).
On the other hand, intensity of forest creation and management rapidly accelerated compared to previous period. However, exchange of forested land cover is driven mostly by recent conversions between standing forests and transitional woodlands due to forestry activities and net change balance of forested land is steady.
Beside these internal changes, there is also significant amount of artificial development, which is driven mostly by sprawl of mines and quarrying sites and construction. The intensity of land take in Estonia has been almost doubled, compared to the period 1990-2000.
Concerning the spatial distribution, change areas of forested and agricultural land cover are uniformly scattered over the whole country, although there is significant concentration of withdrawal of farming in south-eastern part of Estonia along Russian borders. Sprawl of economic sites and infrastructures is concentrated in surroundings of the capital city Tallin and other two major cities Pärnu and Tartu as well as to mining resort in north-eastern part of the country. Residential sprawl occurs mostly around the capital city Tallin.

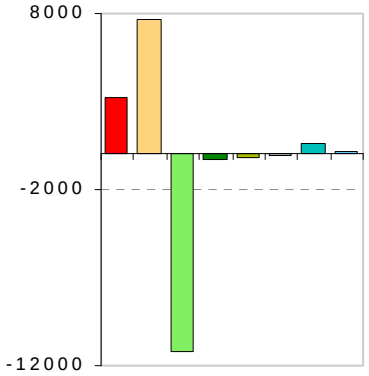
Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100.000 scale across Europe over almost two decades 1990-2006 - see Corine land cover (CLC) programme for details.
Number of years between CLC2000-CLC2006 data for Estonia: 6



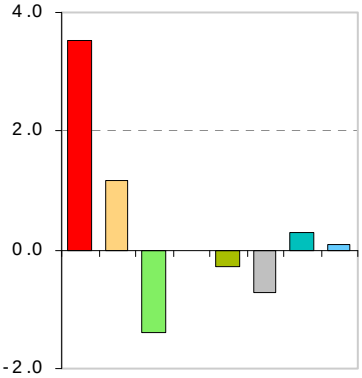
1.1. Land cover 2006 [% of total]

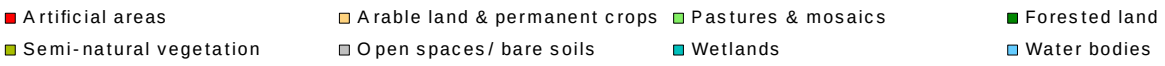


1.2. Net change in land cover 2000-2006 [ha]



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





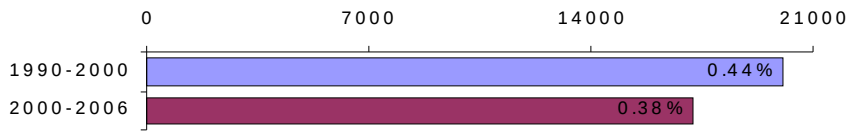
Summary balance table 2000-2006

	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	**910**	**6667**	**8090**	**25013**	**561**	**55**	**2006**	**2101**	**45401**
Consumption of initial LC	18	22	118	870	2	0	3	0	1034
Formation of new LC	50	99	6	868	0	0	9	2	1034
Net Formation of LC	**32**	**77**	**-112**	**-3**	**-2**	**0**	**6**	**2**	**0**
Net formation as % of initial year	*3.5*	*1.2*	*-1.4*	*0.0*	*-0.3*	*-0.7*	*0.3*	*0.1*	
Total turnover of LC	**69**	**121**	**125**	**1738**	**2**	**1**	**12**	**2**	**2068**
Total turnover as % of initial year	*7.5*	*1.8*	*1.5*	*6.9*	*0.3*	*1.0*	*0.6*	*0.1*	*4.6*
Land cover 2006	**942**	**6744**	**7978**	**25010**	**559**	**54**	**2011**	**2102**	**45401**

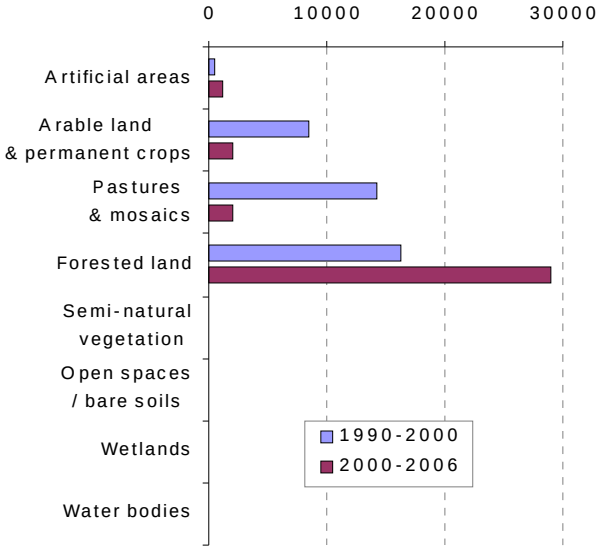
Estonia

Land cover trends comparison 1990-2000 vs. 2000-2006

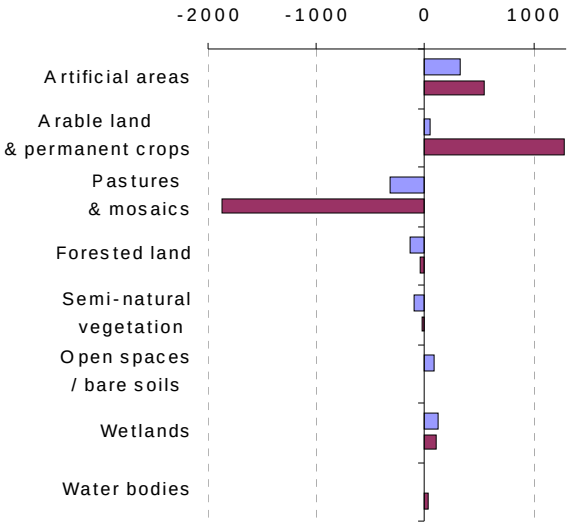
2.4. Annual land cover change [ha/year, % of total area]



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

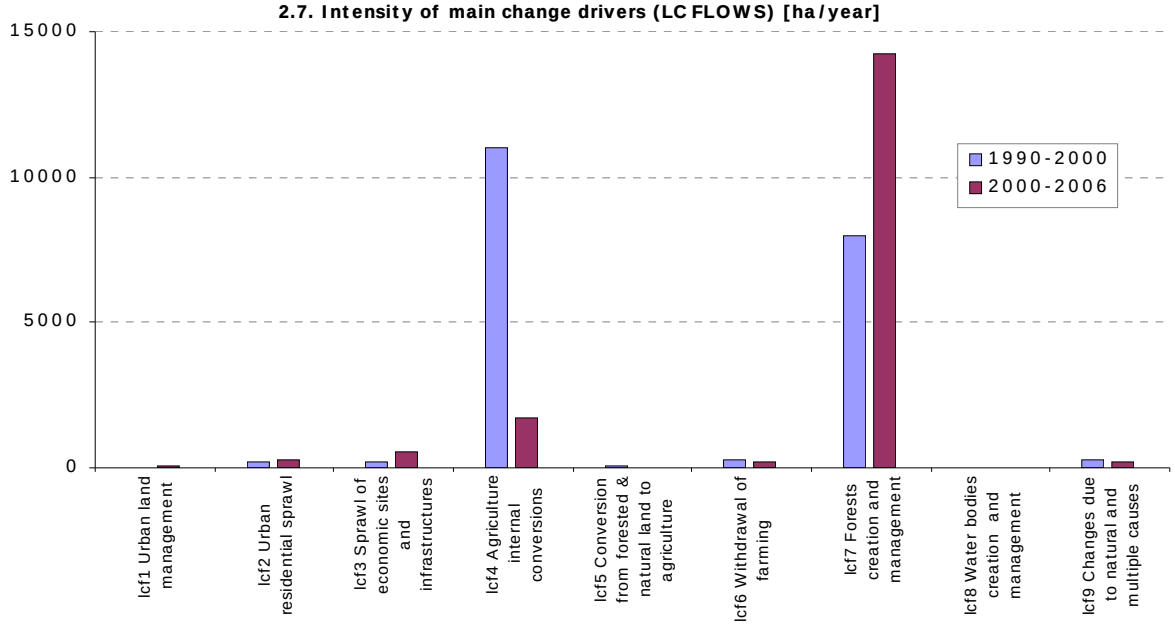


2.6. Net annual change of LC types [ha/year]



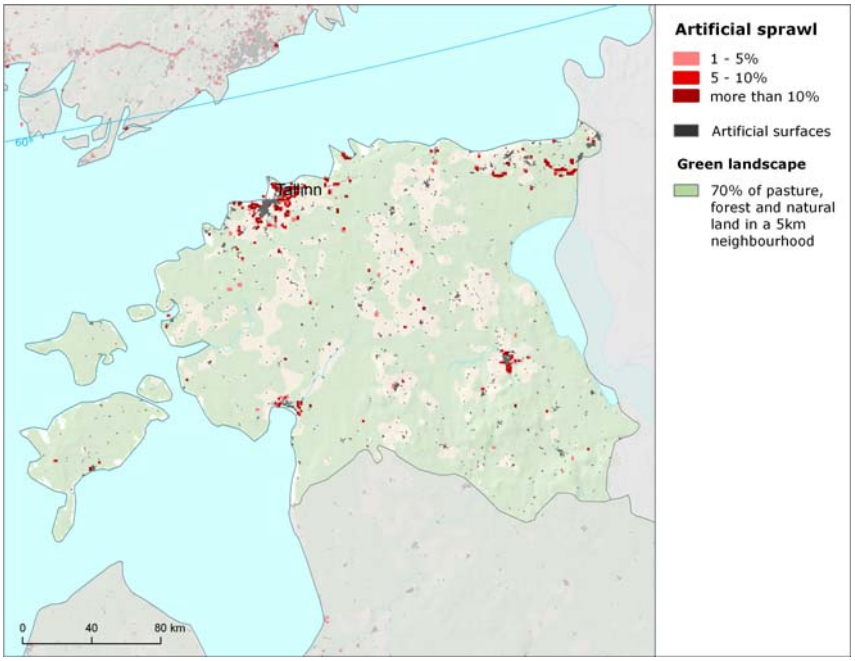
Summary trend figures	1990-2000	2000-2006
Annual land cover change [ha/year]	**20025**	**17237**
Annual land cover change as % of initial year	**0.44%**	**0.38%**
Land uptake by artificial development as mean annual change [ha/year]	426	785
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	247	365
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	-199	-222
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	2520	1556
Forest & other woodland net formation as mean annual change [ha/year]	-141	-46
Dry semi-natural land cover net formation as mean annual change [ha/year]	-12	-34
Wetlands & water bodies net formation as mean annual change [ha/year]	103	126

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

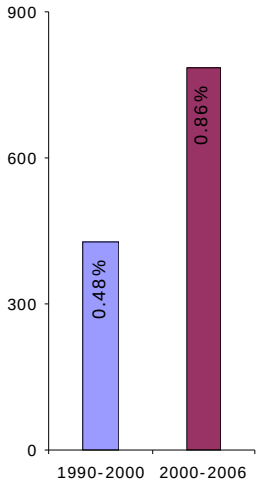


Estonia

Artificial areas



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

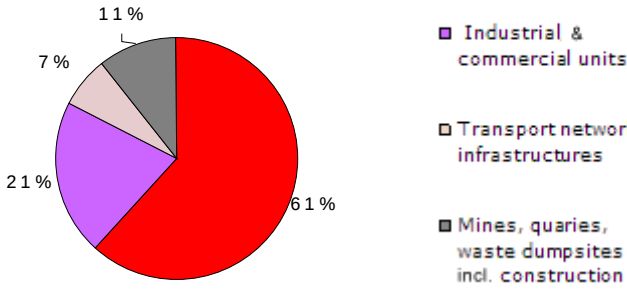


Accelerated artificial sprawl, driven by development of mines and construction

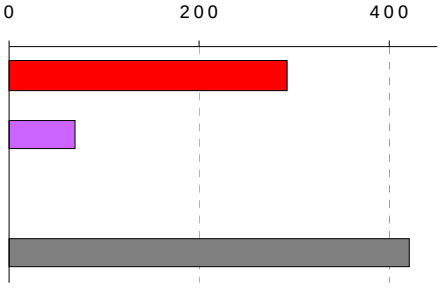
Artificial land take, which is driven mainly by sprawl of discontinuous urban fabric (in surroundings of capital city Tallinn) (33%), mines and quarrying areas (34%) and construction sites (17%), has doubled compared to the previous period. This increase of mines and quarrying areas is caused by extension of mining resort in the north-eastern part of the country, but it is partly compensated through consumption of former mineral extraction sites mostly by transitional woodland.

Artificial land uptake in Estonia occurs at the expense of both natural and agricultural areas, with predominant share of forested land (45%), followed by pastures (24%) and arable land (23%) and by wetlands (6%). Recycling of developed urban land is represented by the conversion of former construction sites into discontinuous urban fabric. Spatially, artificial land uptake is concentrated around the large cities (with exception of mining).

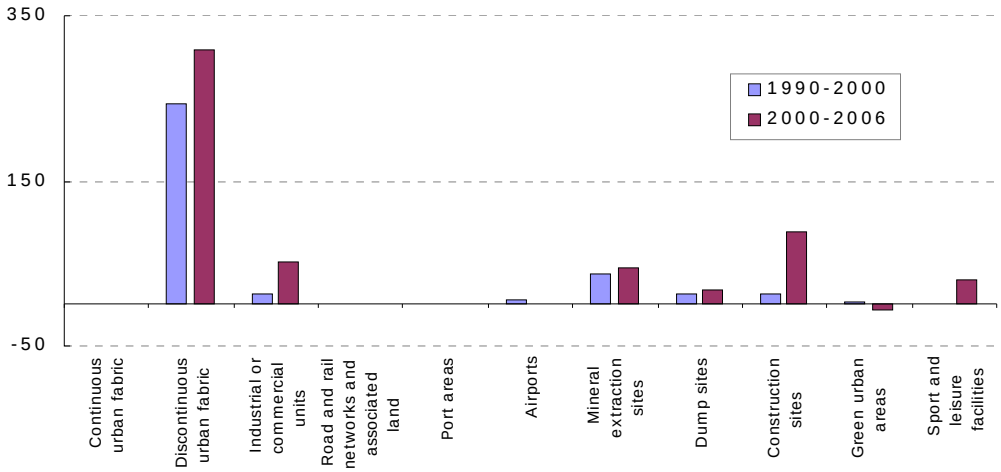
3.9. Artificial surfaces 2006 [% of total area]



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

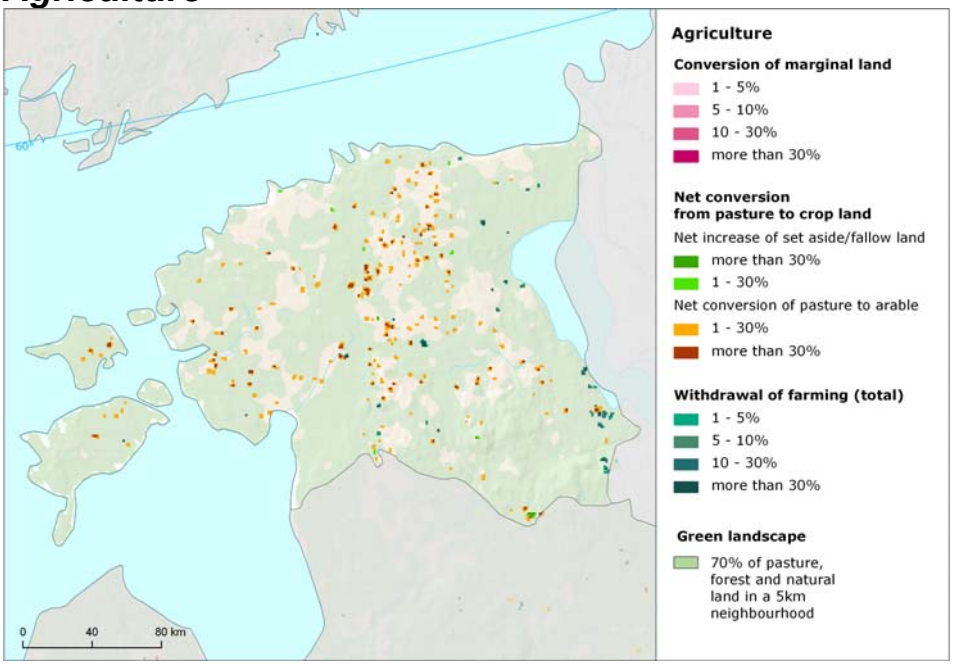


3.11. Mean annual artificial change by class [ha/year]



Estonia

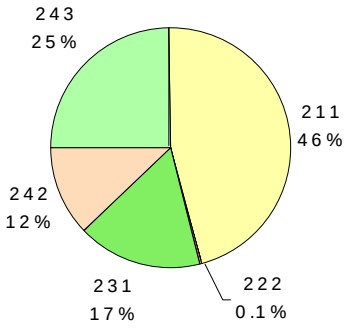
Agriculture

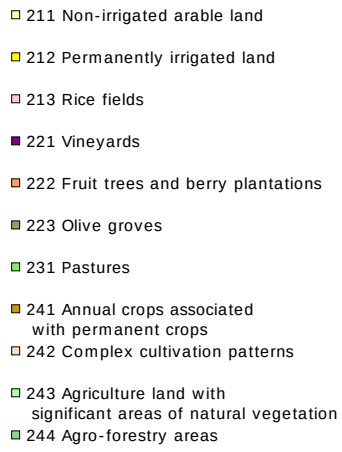


Slow down of internal changes, prevailing conversion from pasture to arable land

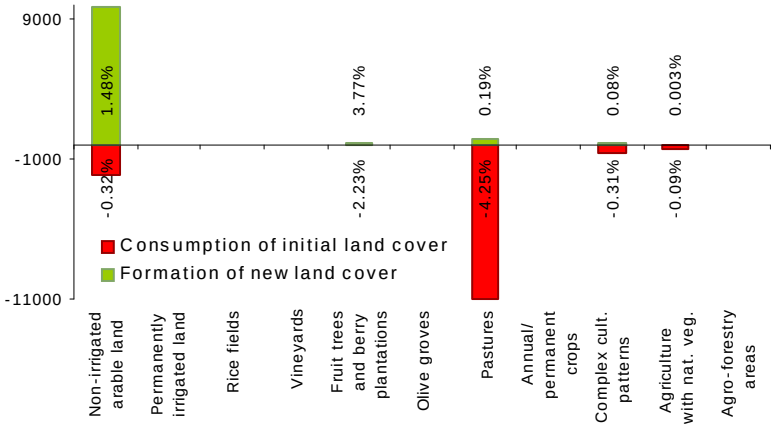
The development of Estonian agricultural land cover in this period is characterized by rapid slowdown of internal agricultural changes, compared to the previous period. After overall significant decrease of conversions between arable and pasture land, intensive conversion from pasture to arable land is the prevailing flow of agriculture development and also, with the exception of internal forest changes, the main driver or land cover exchange in the country.
On the contrary, intensity of conversions between agriculture and other land cover types accelerated, compared to the period 1990-2000. This exchange is represented mostly by artificial land take with still slightly prevailing share of urban residential sprawl followed by accelerating sprawl of economic sites and infrastructures (which is driven mainly by construction). The other consumption flow of agricultural land occurs by the withdrawal of farming with woodland creation, which is also of significantly higher intensity compared to the previous period.

4.12. Agricultural areas 2006 [% of total area]

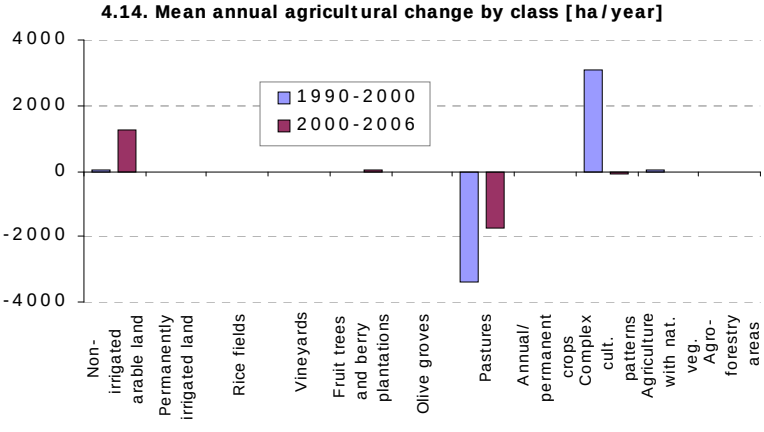




4.13. Development of agricultural areas 2000-2006 – detailed balance [ha]

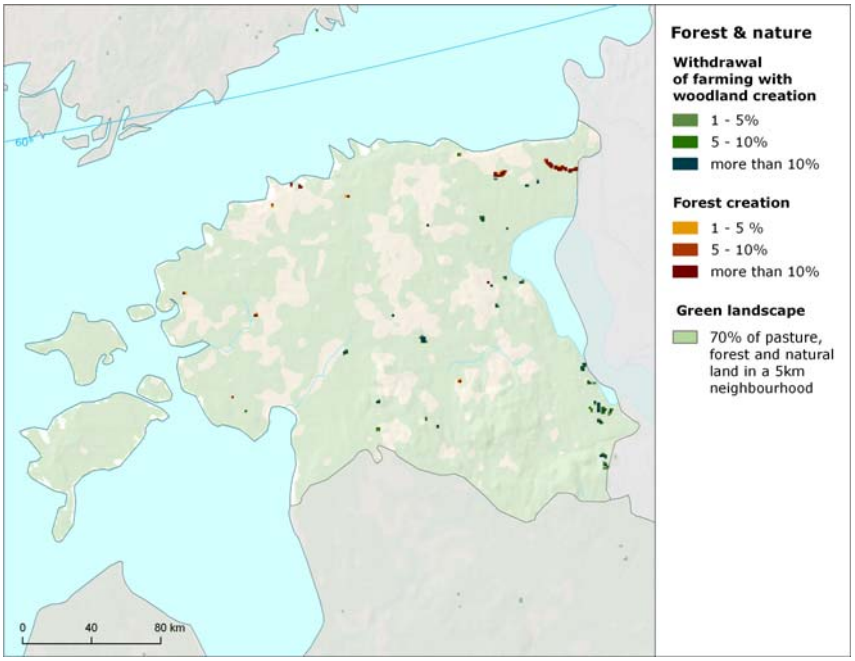


4.14. Mean annual agricultural change by class [ha/year]

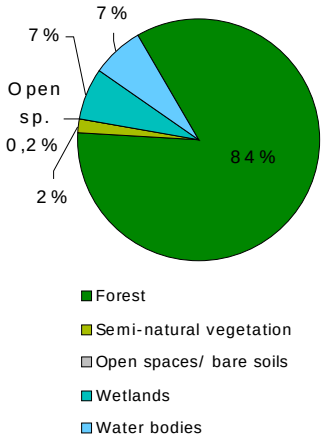


Estonia

Forest & nature



5.15. Forest & nature areas 2006 [% of total area]



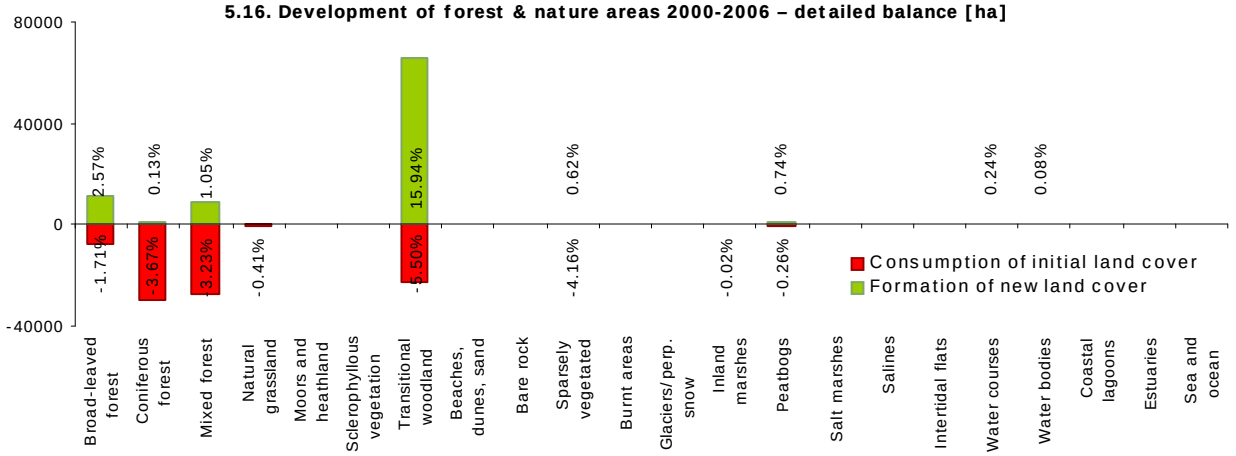
Exchange between mineral extraction sites and forested land

Changes of natural surfaces in Estonia are represented mainly by increased internal conversions between standing forests and transitional woodland due to regular forestry activities, nevertheless the overall forest net balance is steady. Other internal changes of natural land are represented mainly by conversion from transitional woodland to peatbogs.

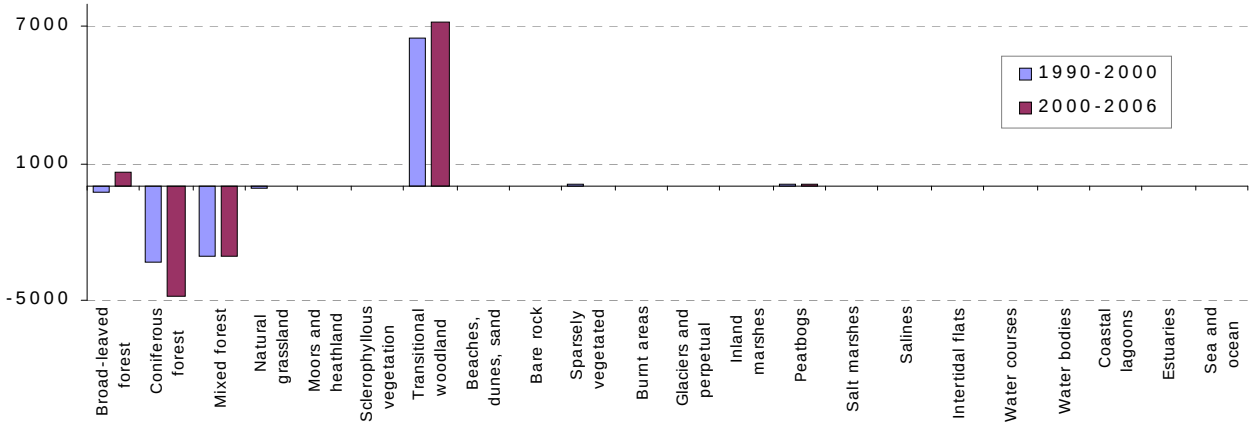
The most significant external changes of forested land are conversions between transitional woodland and mineral extraction sites. Former mineral extraction sites have been covered by transitional woodland of shrubs and in the same time, sprawl of mineral extraction sites has consumed other forested areas. Besides, natural areas have been also consumed by other artificial classes, with prevailing share of discontinuous urban fabric, construction sites and industrial/commercial units.

On the other hand, new forested land has been formatted through withdrawal of farming from pastures or arable land and there also occurs unusual conversion from industrial/commercial land to water bodies (classified as lcf99 - Other changes and unknown).

5.16. Development of forest & nature areas 2000-2006 – detailed balance [ha]



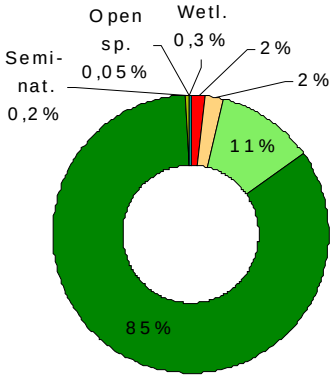
5.17. Mean annual forest & nature change by class [ha/year]



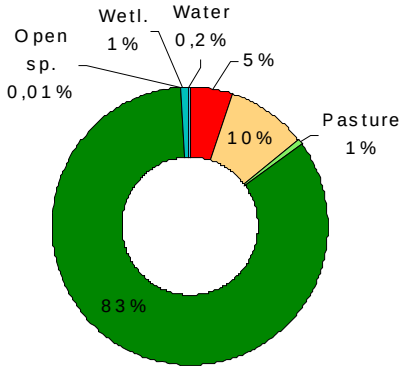
Annex: Land cover flows and trends

Land cover flows 2000-2006

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

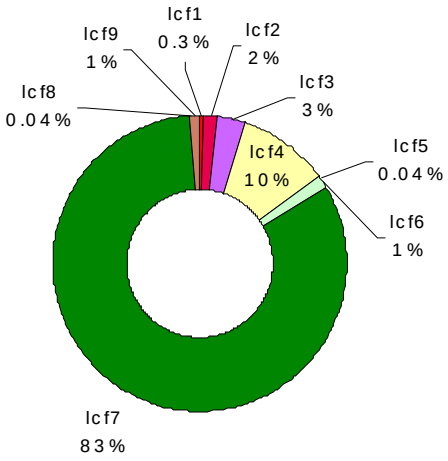


6.19. Formation of land cover 2000-2006 [% of total change area]



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]

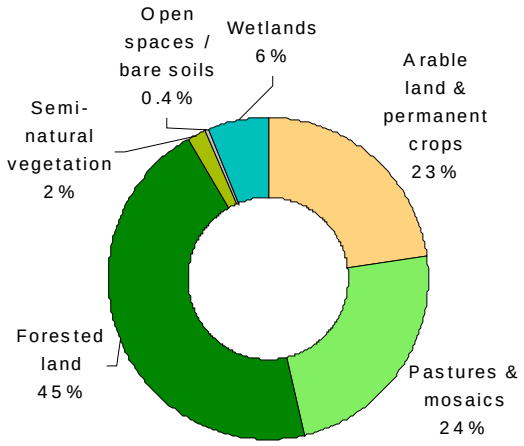


- lcf1 Urban land management
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf4 Agriculture internal conversions
- lcf5 Conversion from forested & natural land to agriculture
- lcf6 Withdrawal of farming
- lcf7 Forests creation and management
- lcf8 Water bodies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

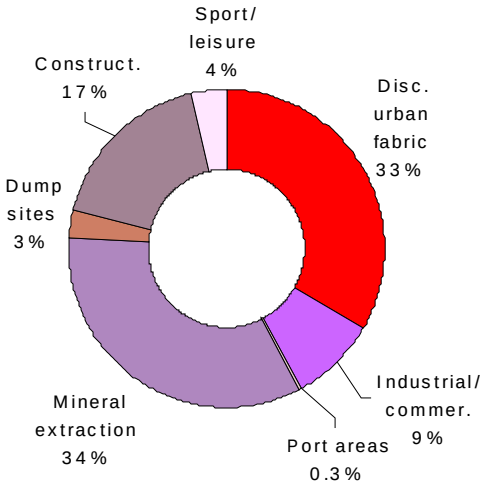
Estonia

Artificial areas

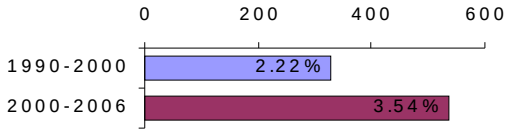
7.21. Consumption by artificial land take 2000-2006 [% of total]



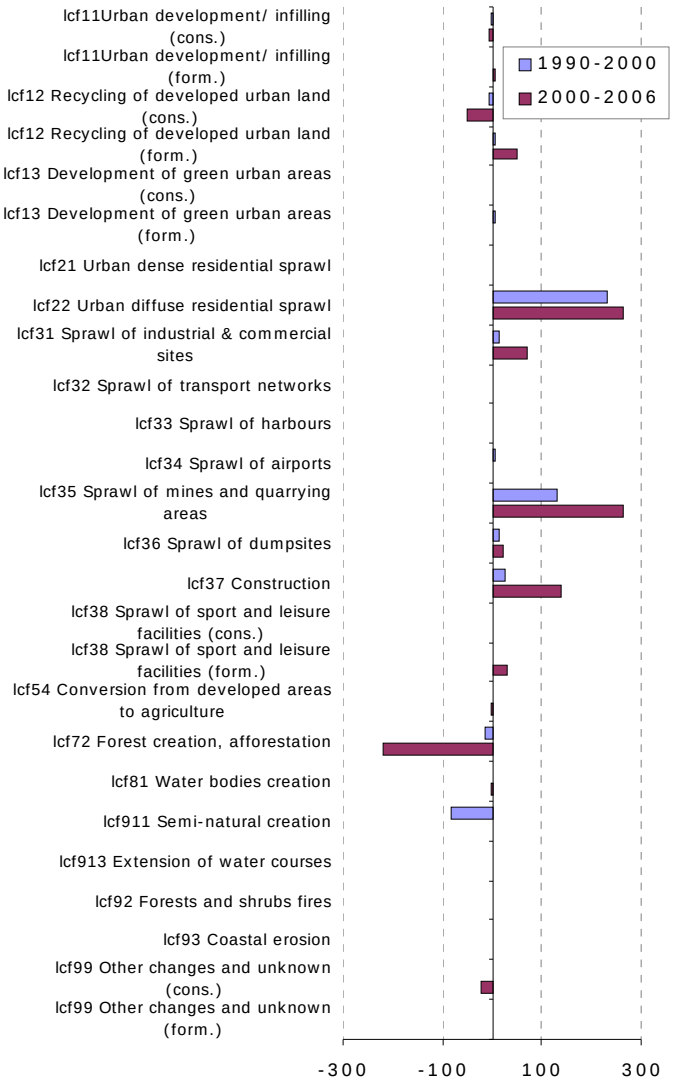
7.22. Formation by artificial land take 2000-2006 [% of total]



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



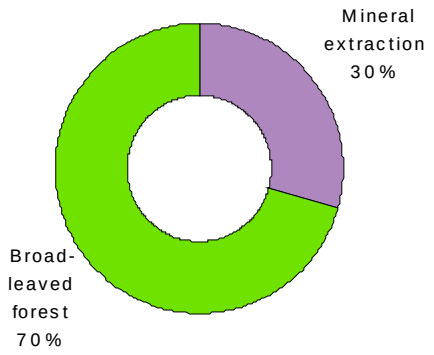
7.24. Artificial development by change drivers (LC FLOWS) [ha/year]



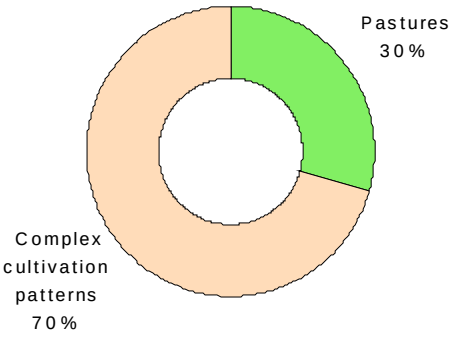
Estonia

Agriculture

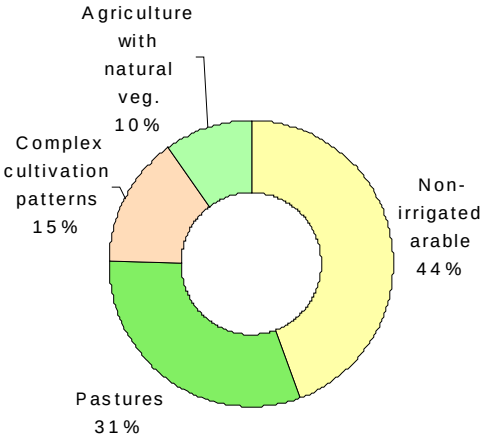
8.25. LC consumed by agriculture 2000-2006 [% of total]



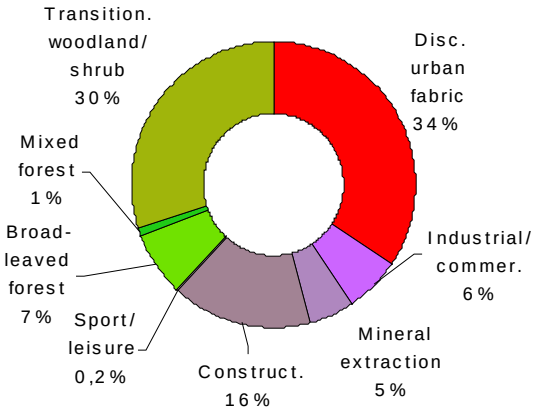
8.26. Formation of agricultural land from non-agriculture 2000-2006 [% of total]



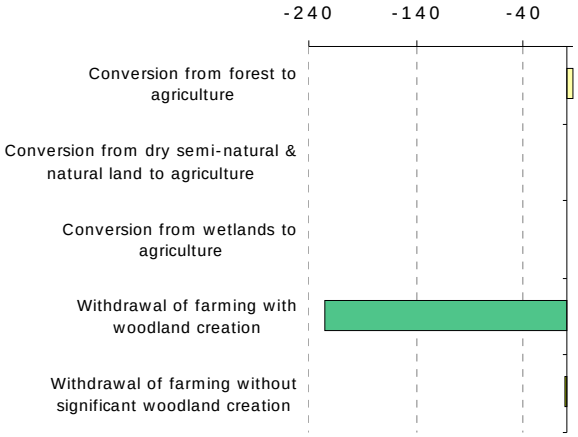
8.27. Consumption of agricultural land by non-agriculture 2000-2006 [% of total]



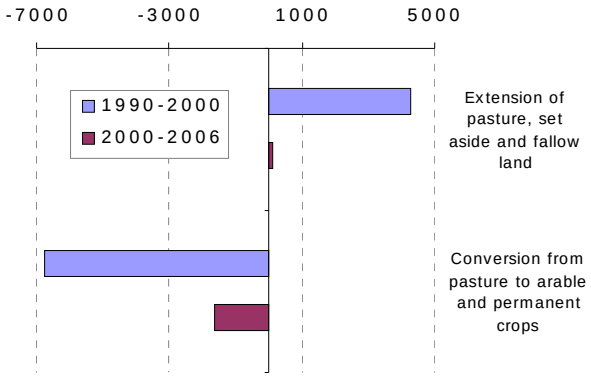
8.28. Formation of non-agricultural land from agriculture 2000-2006 [% of total]



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

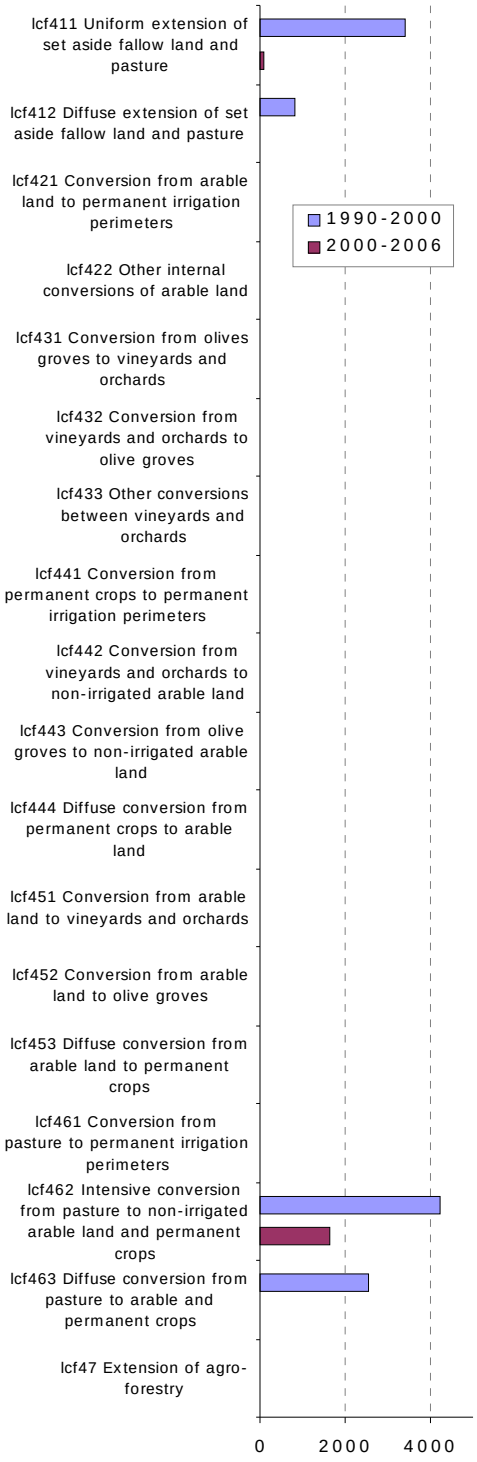


8.30. Mean annual conversion between arable land and pasture [ha/year]

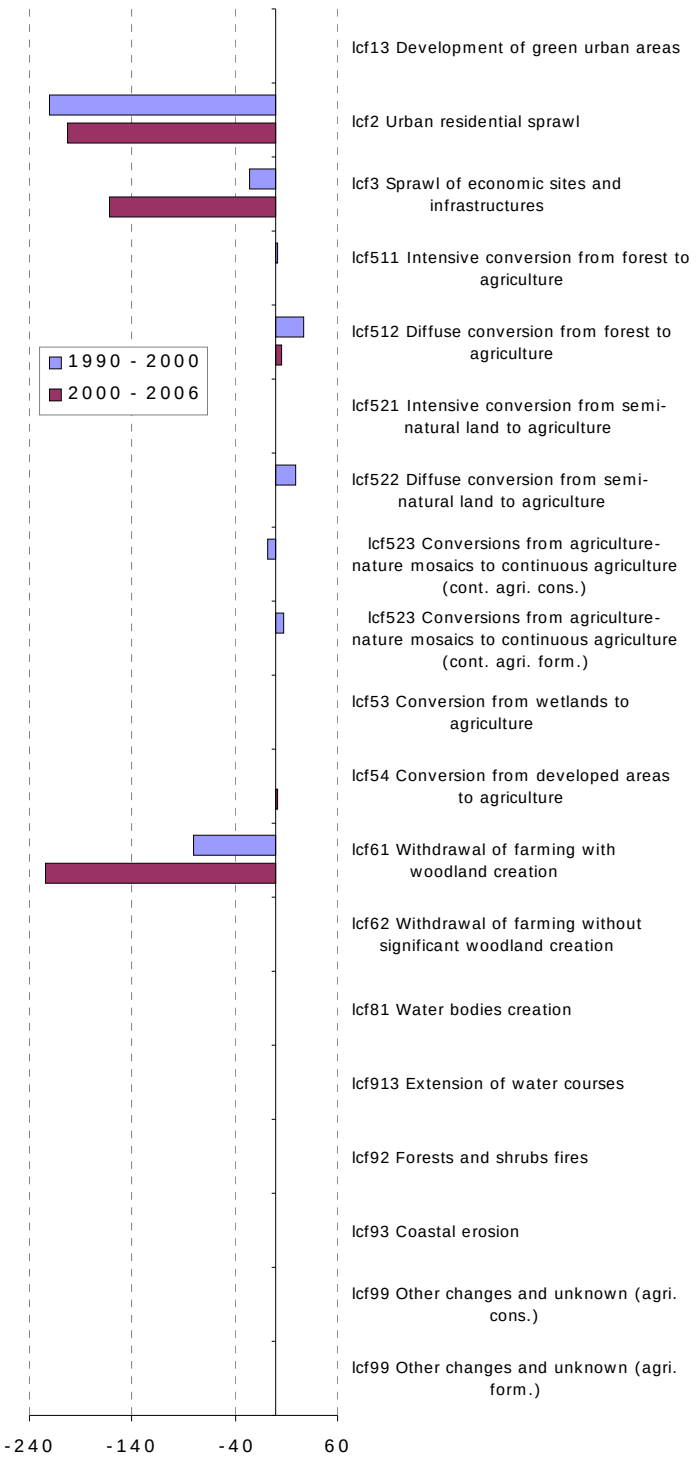


Estonia

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



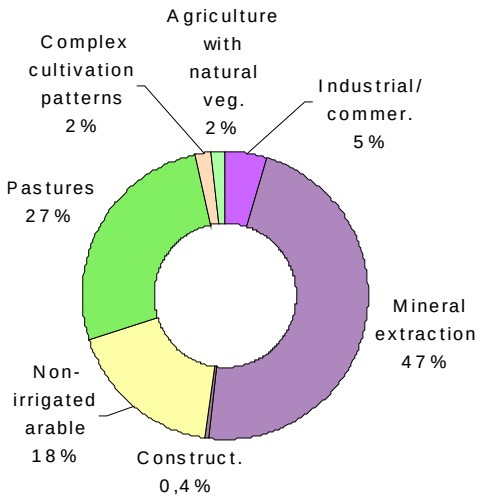
9.32. Mean annual conversions between agriculture and other LC types [ha/year]



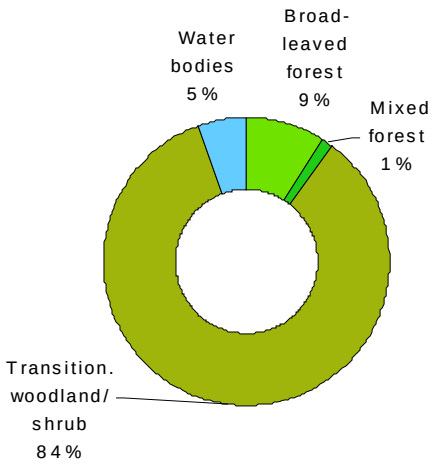
Estonia

Forest & nature

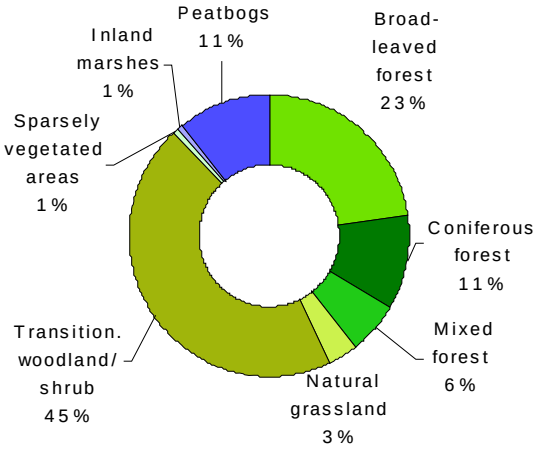
10.33. LC consumed by forest & nature 2000-2006 [% of total]



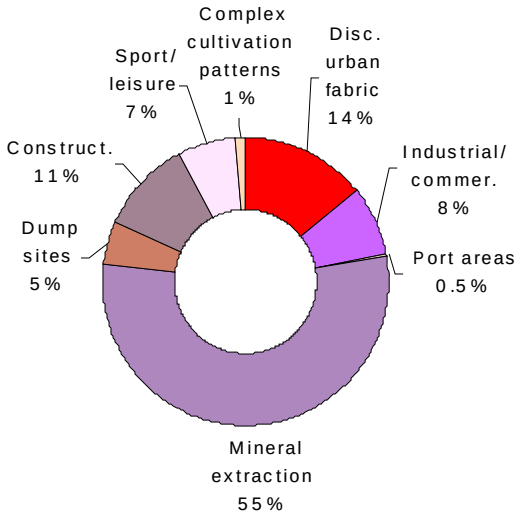
10.34. Formation of forest & nature land from non-forest /nature 2000-2006 [% of total]



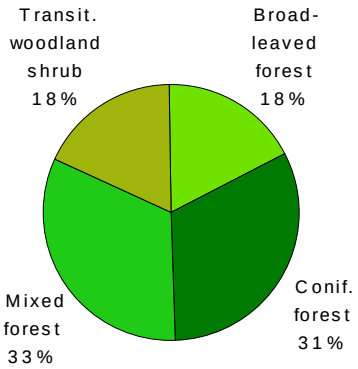
10.35. Consumption of forest & nature land by non-forest /nature 2000-2006 [% of total]



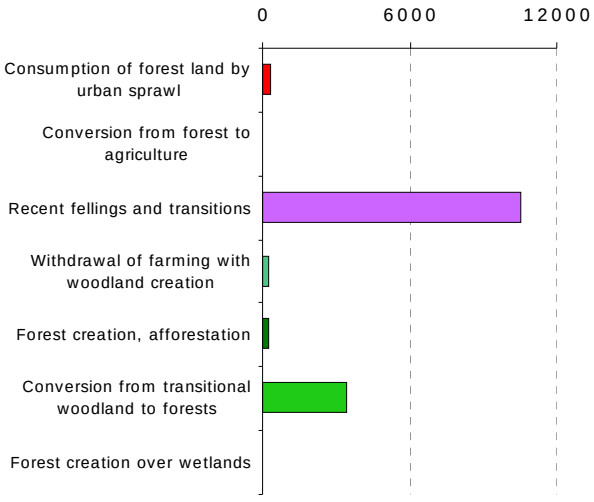
10.36. Formation of non-forest /nature land from forest & nature 2000-2006 [% of total]



10.37. Forested land 2006 [% of total area]



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



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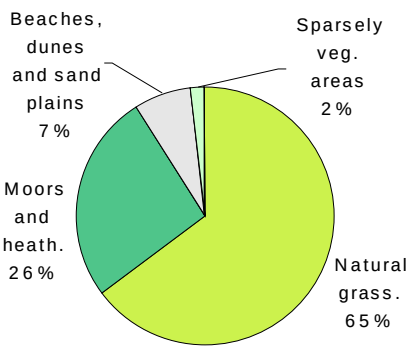
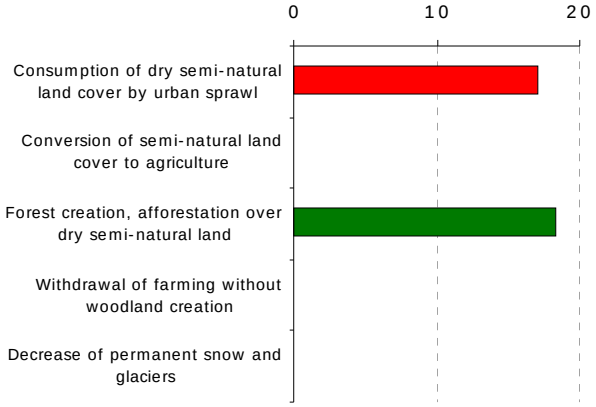
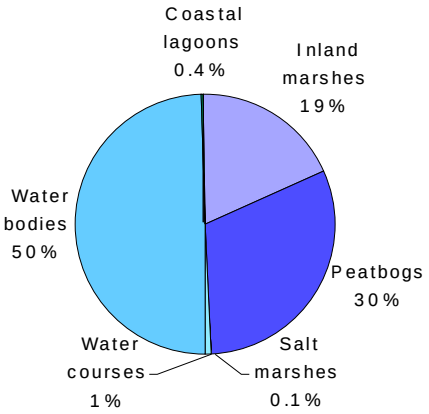
11.39. Dry semi-natural areas 2006 [% of total area]



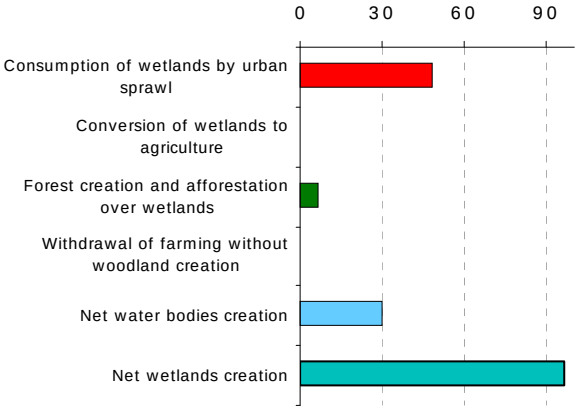
11.40. Main trends in dry semi-natural land consumption/formation 2000-2006 [ha/year]



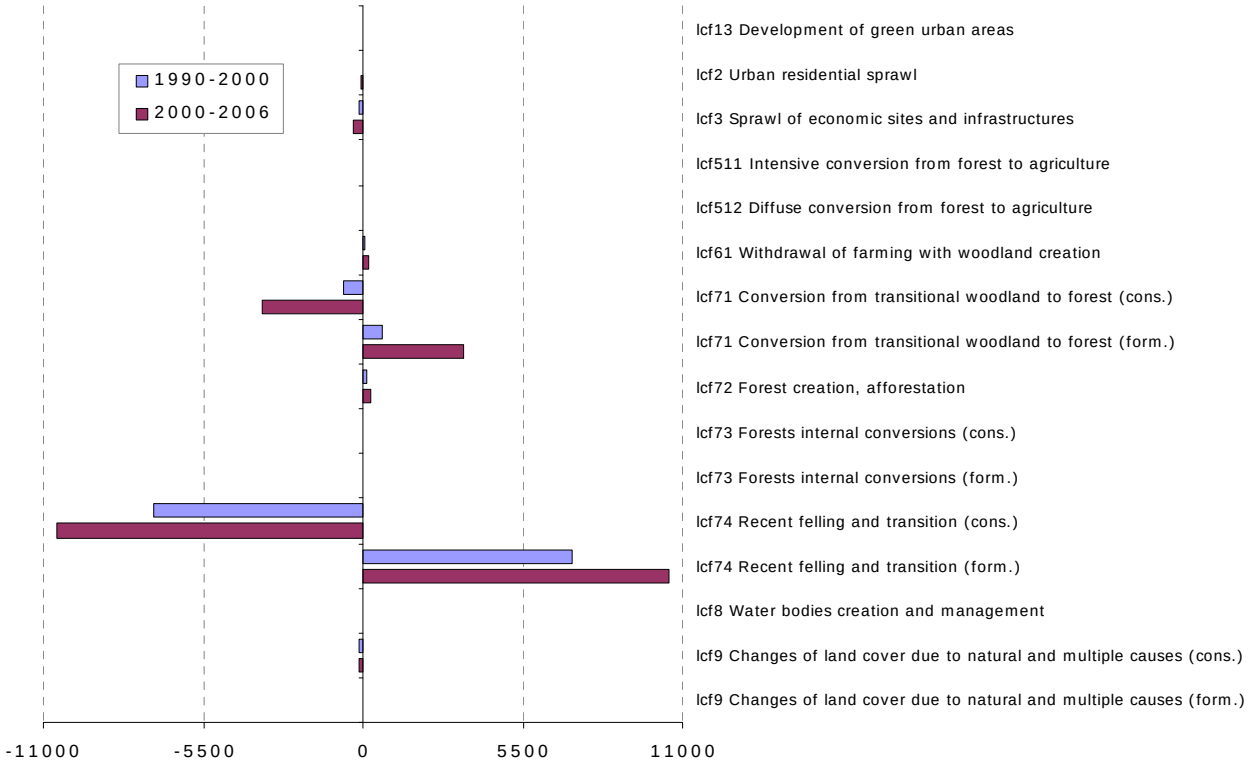
11.41. Wetlands & water 2006 [% of total area]



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

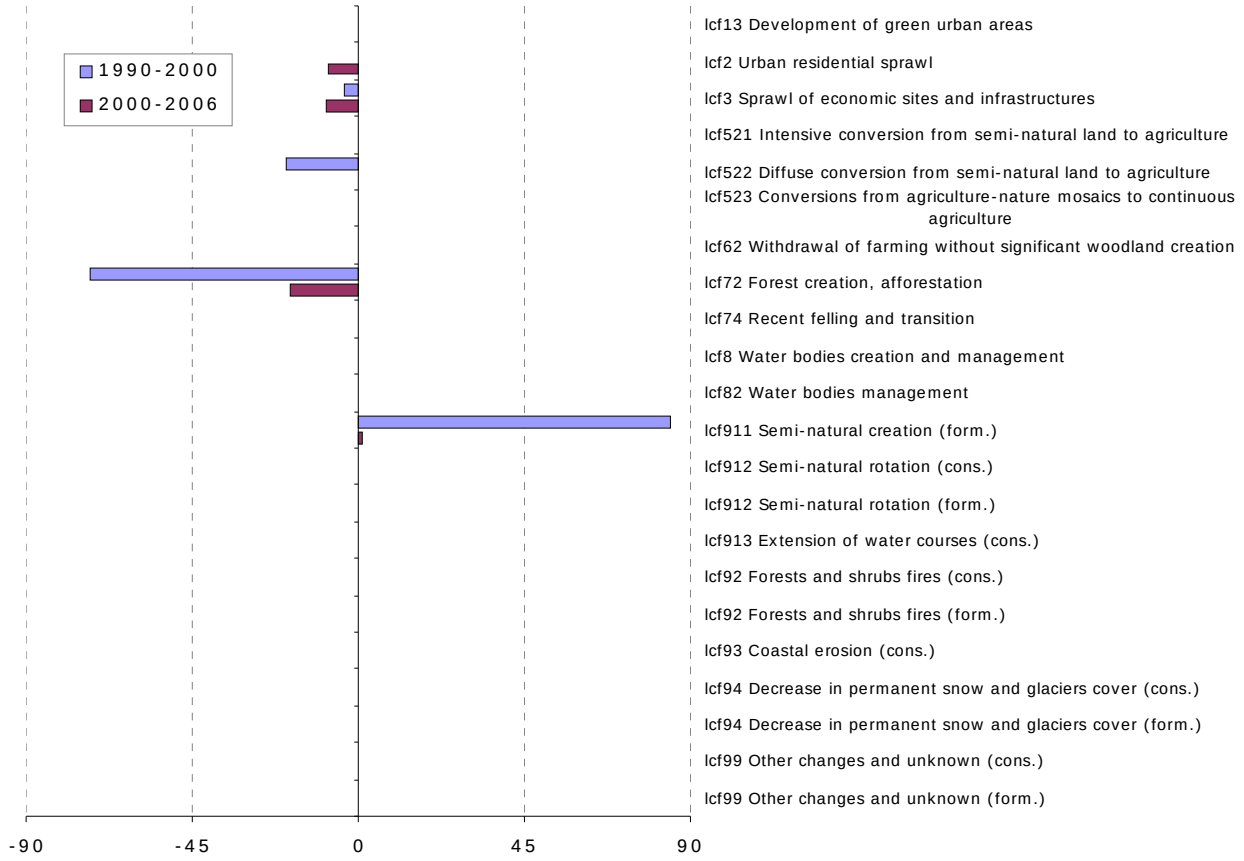


11.43. Mean annual conversions of forest & other woodland [ha/year]

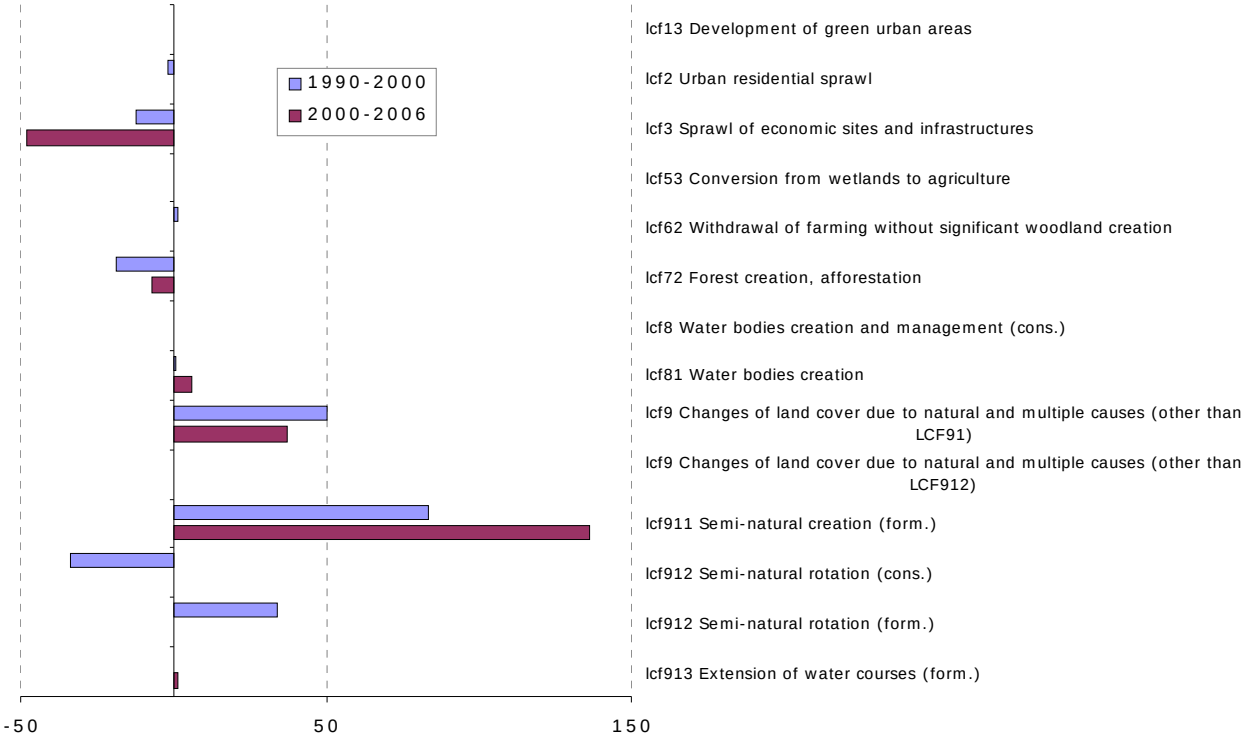


Estonia

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

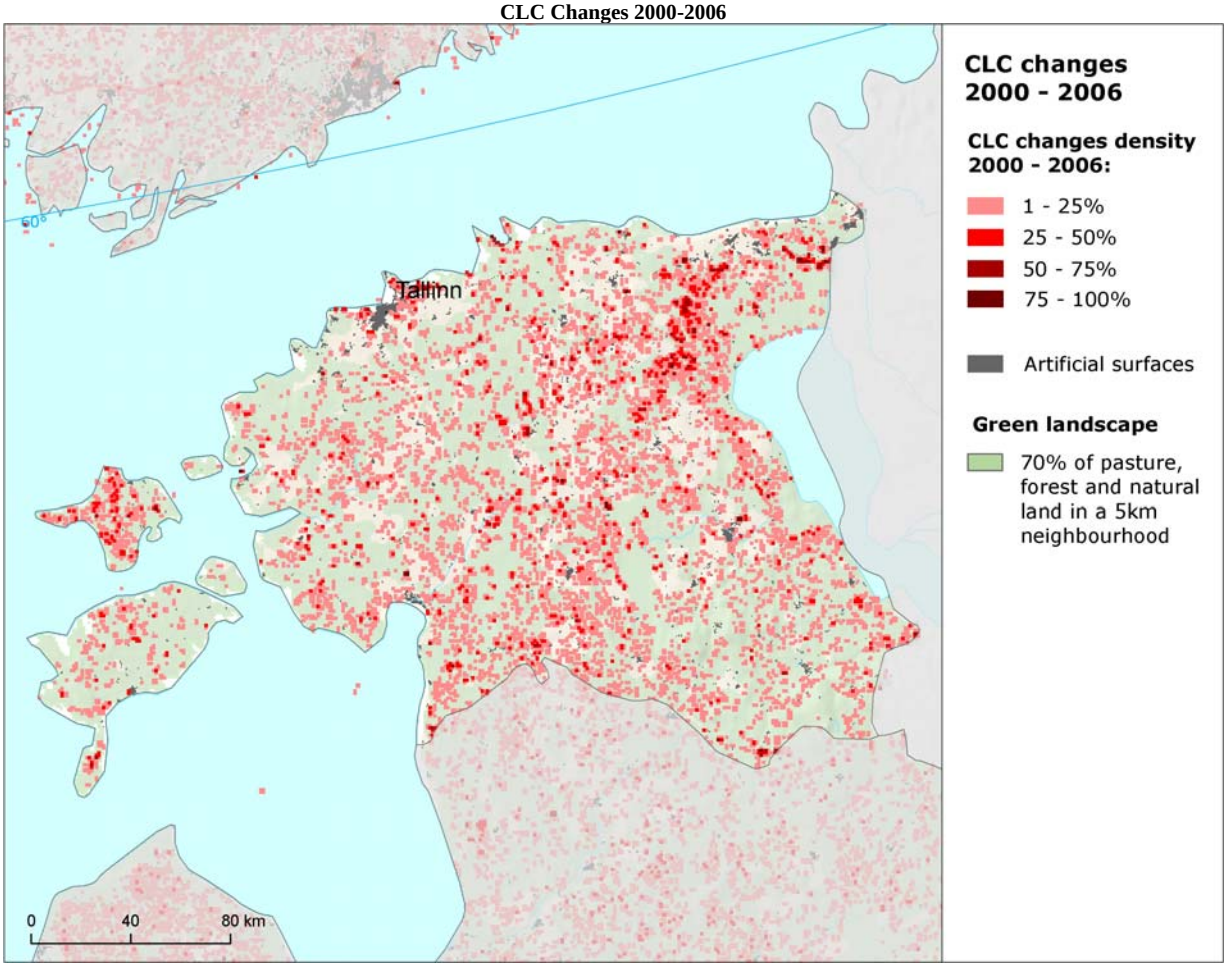


12.45. Mean annual conversions of wetlands and water LC [ha/year]

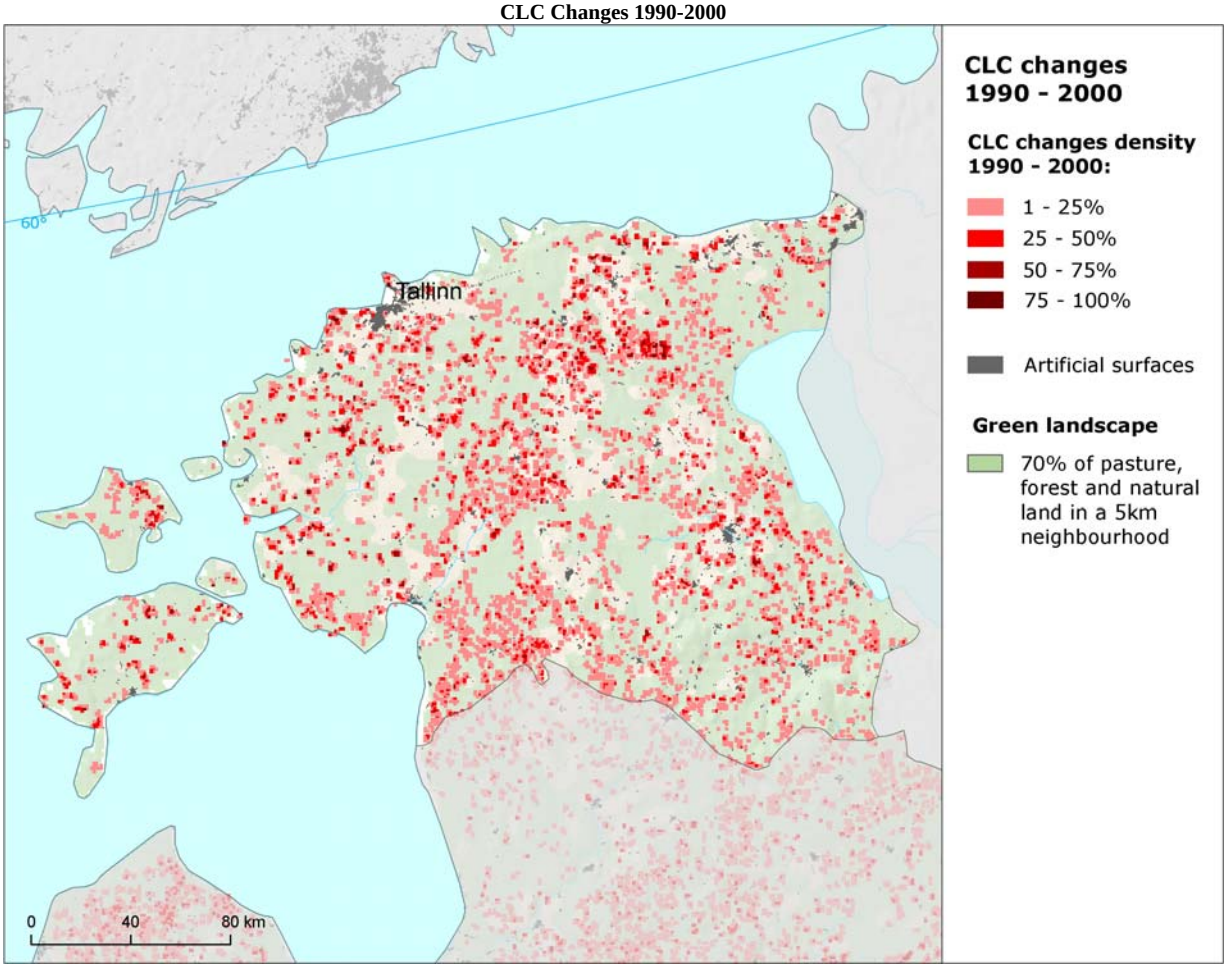


Estonia

CLC Changes 2000-2006

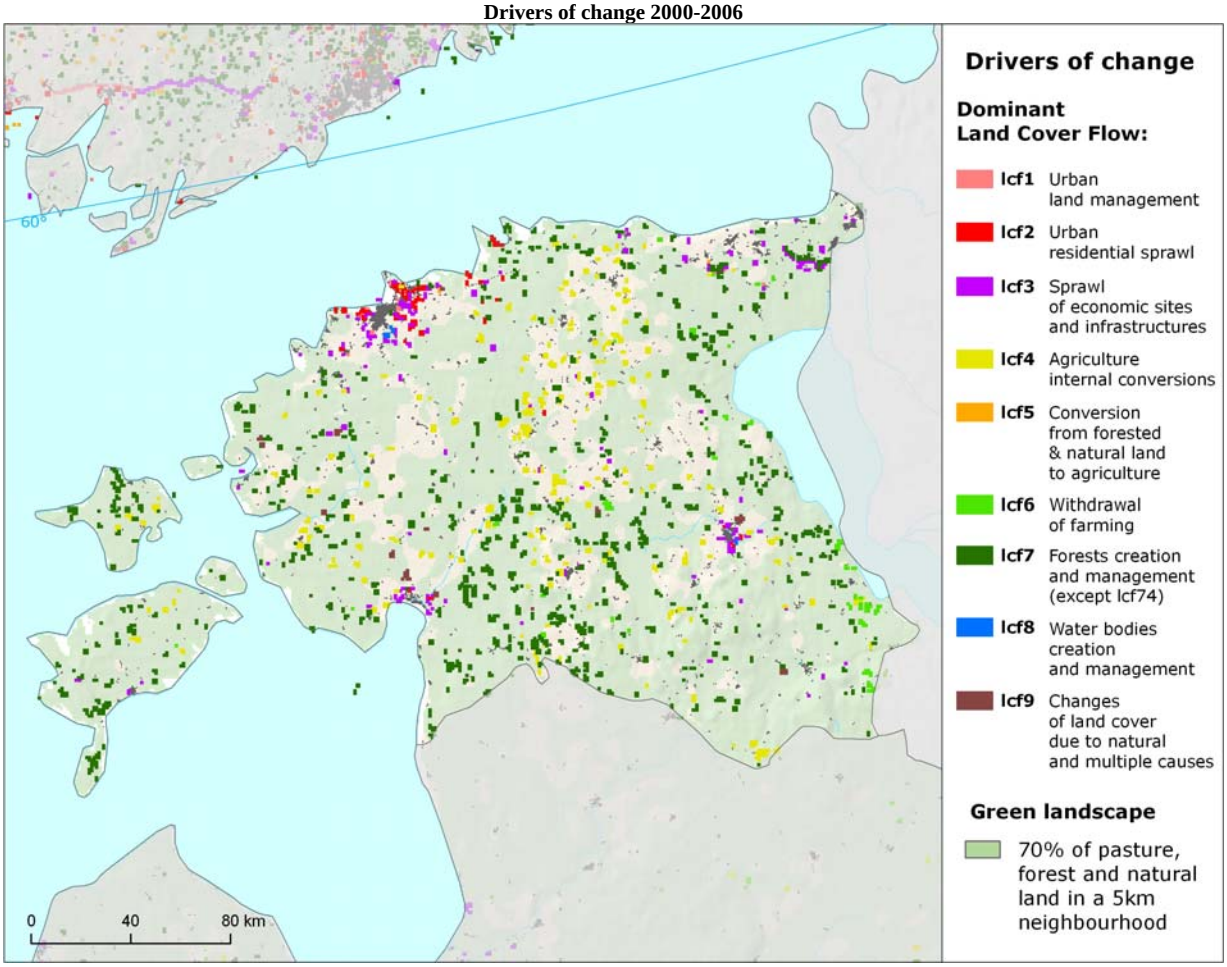


CLC Changes 1990-2000

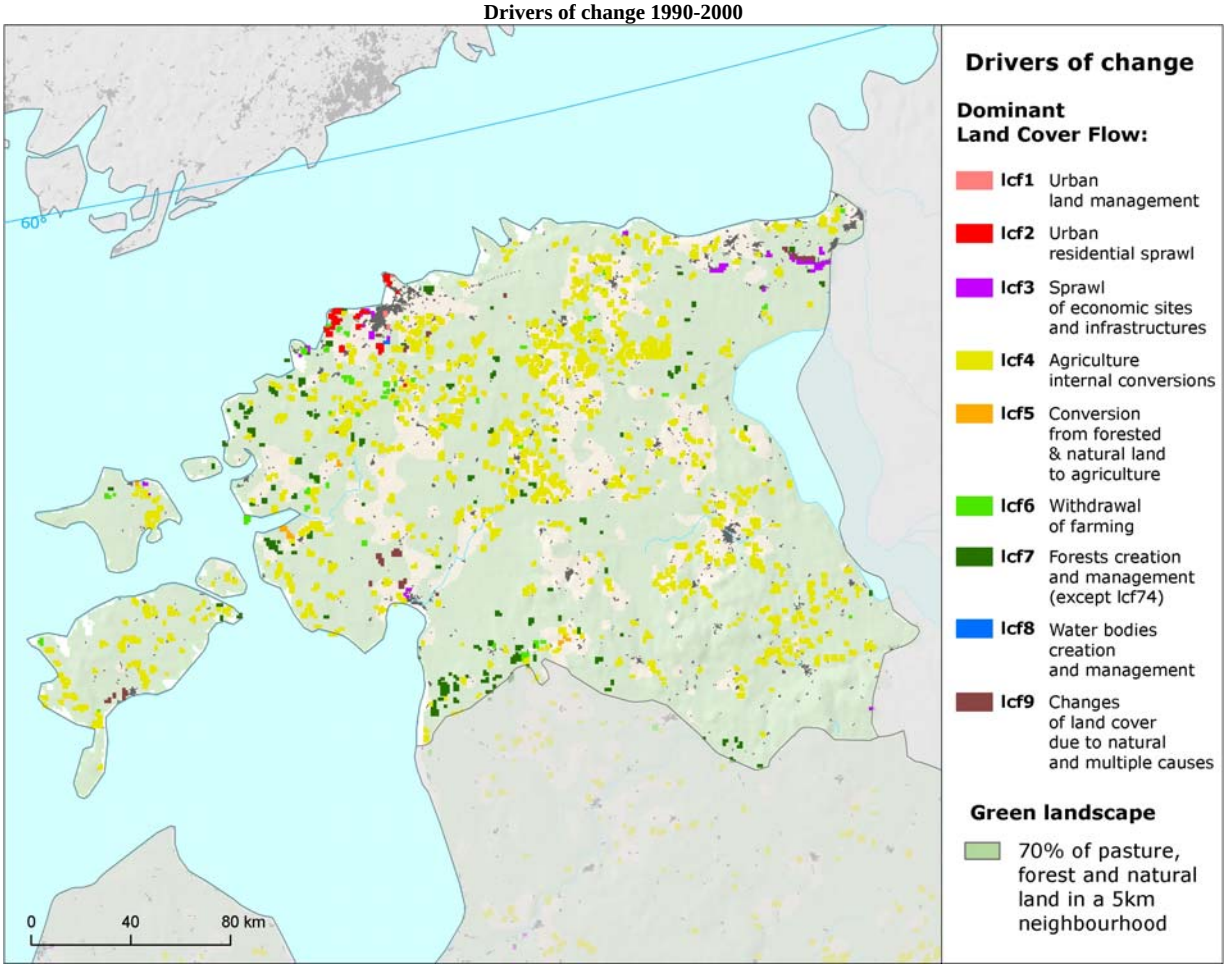


Estonia

Drivers of change 2000-2006

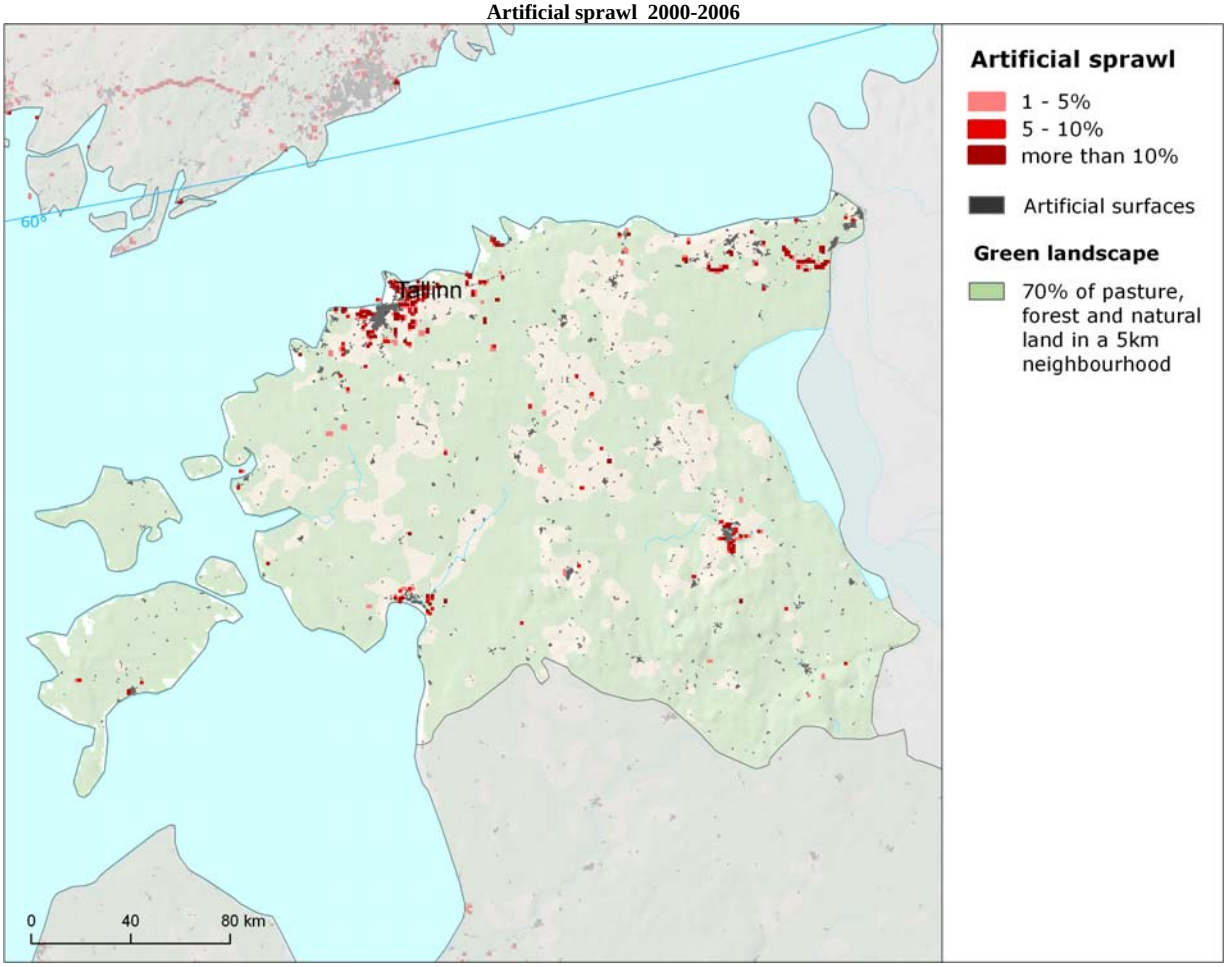


Drivers of change 1990-2000

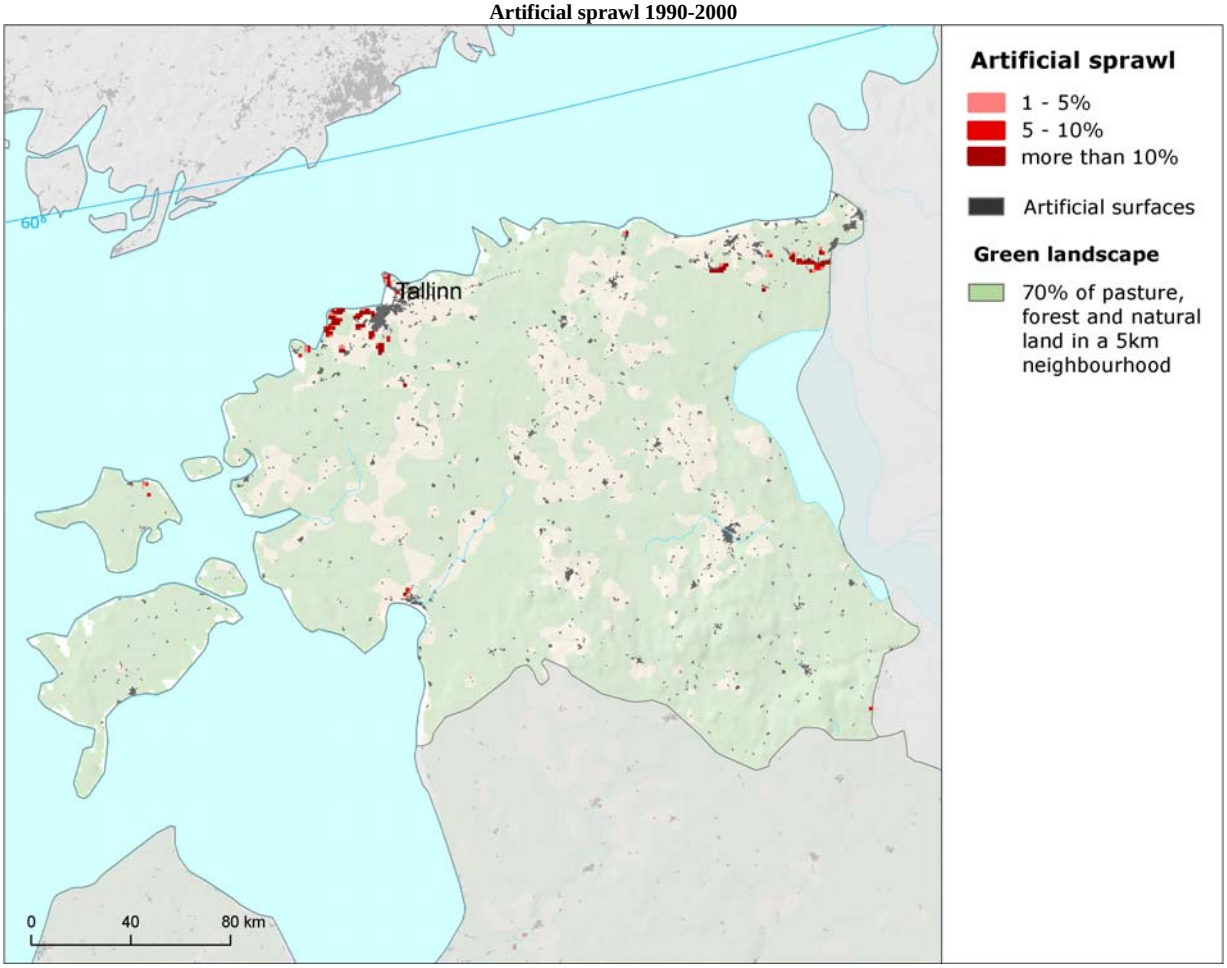


Estonia

Artificial sprawl 2000-2006

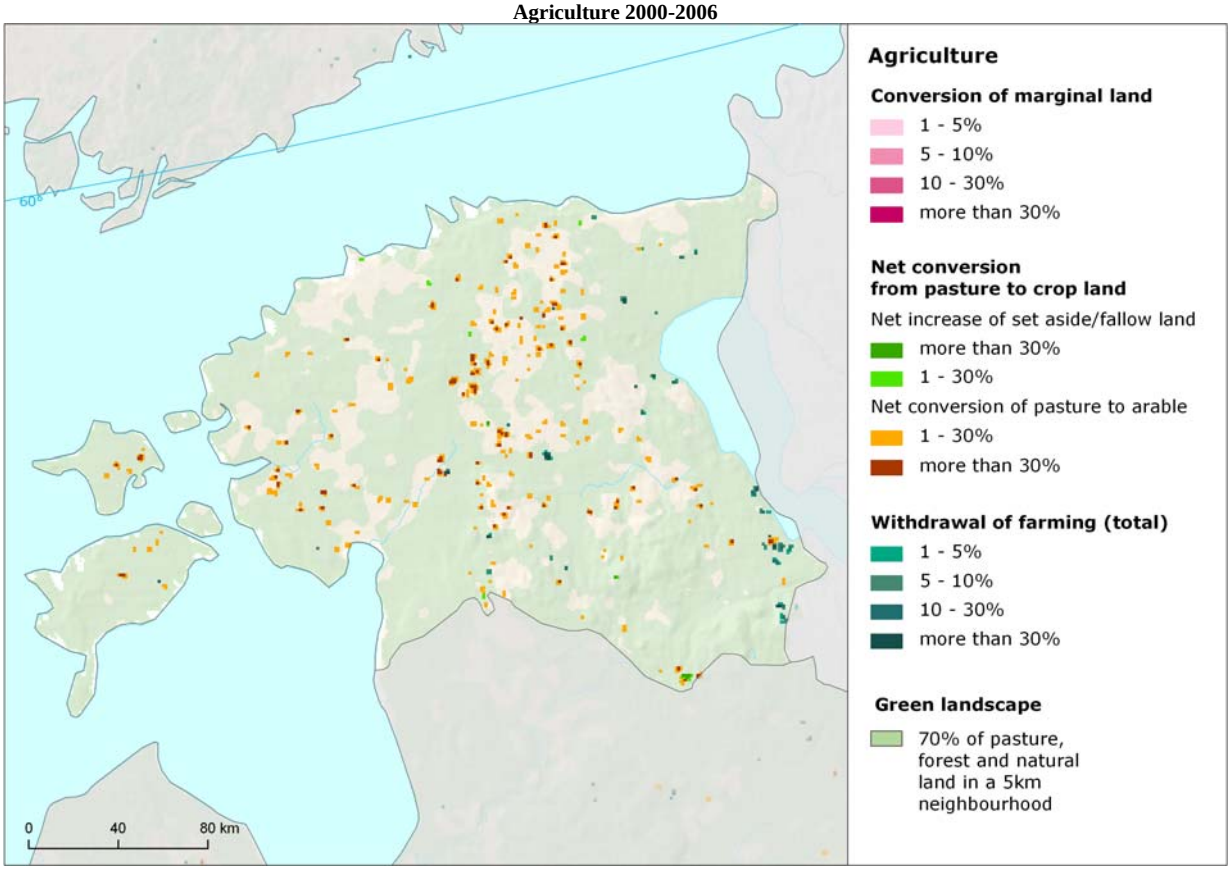


Artificial sprawl 1990-2000

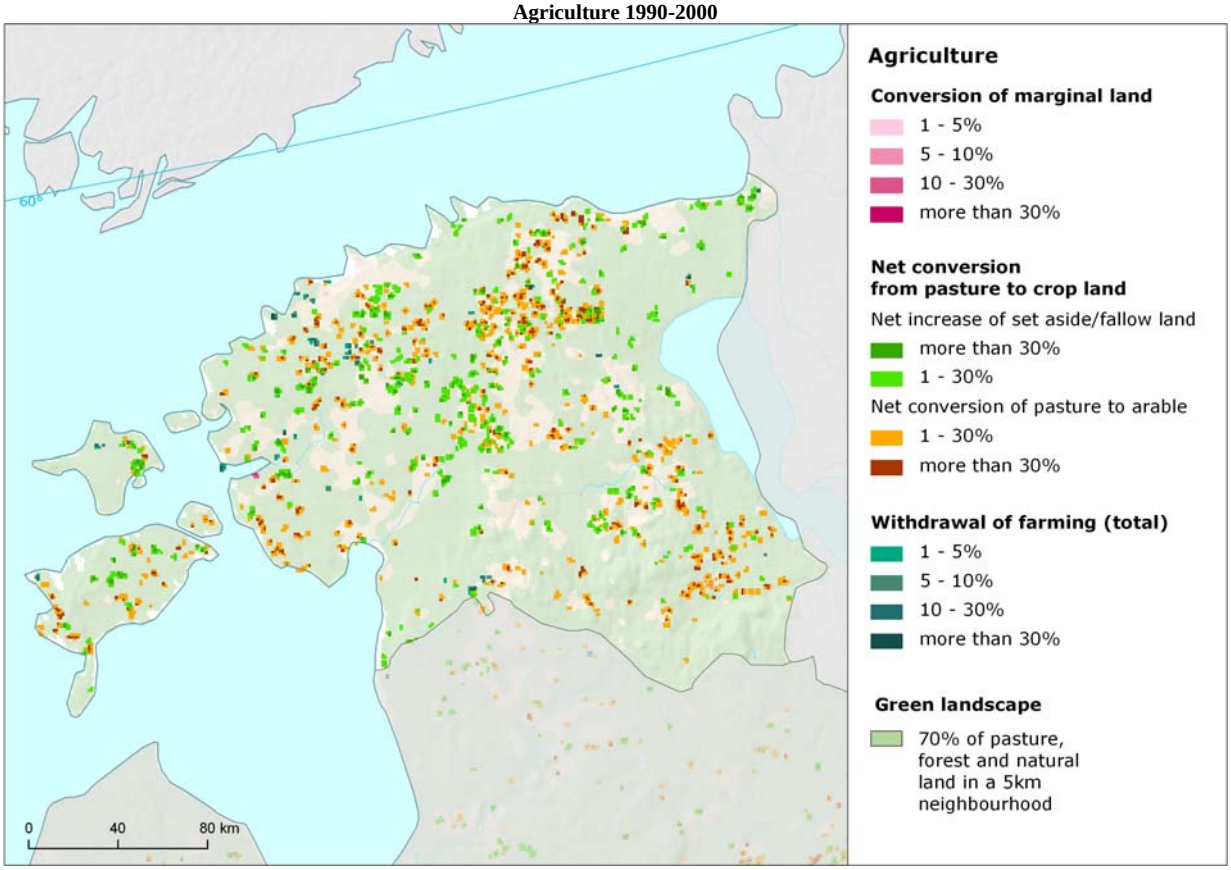


Estonia

Agriculture 2000-2006

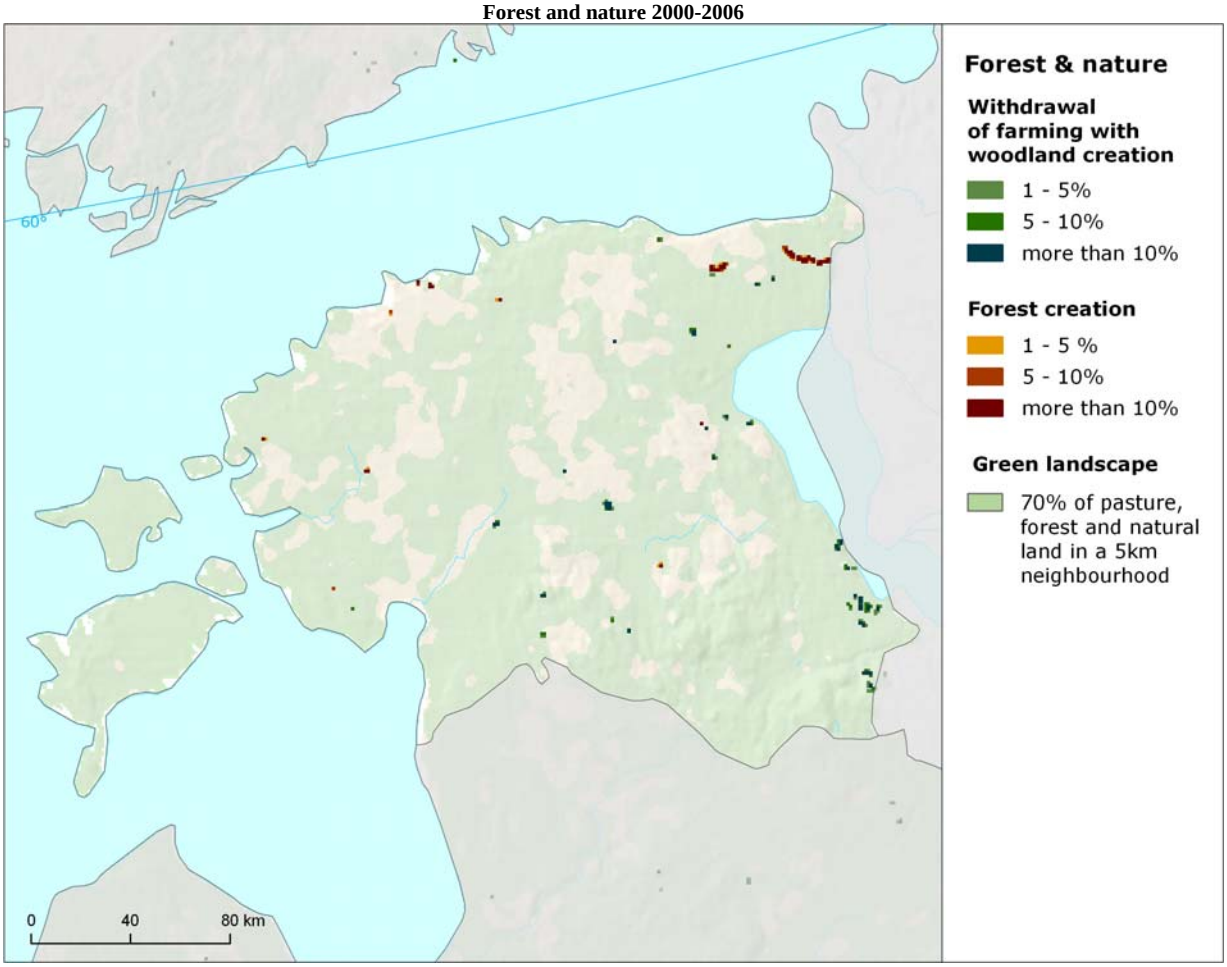


Agriculture 1990-2000



Estonia

Forest and nature 2000-2006



Forest and nature 1990-2000