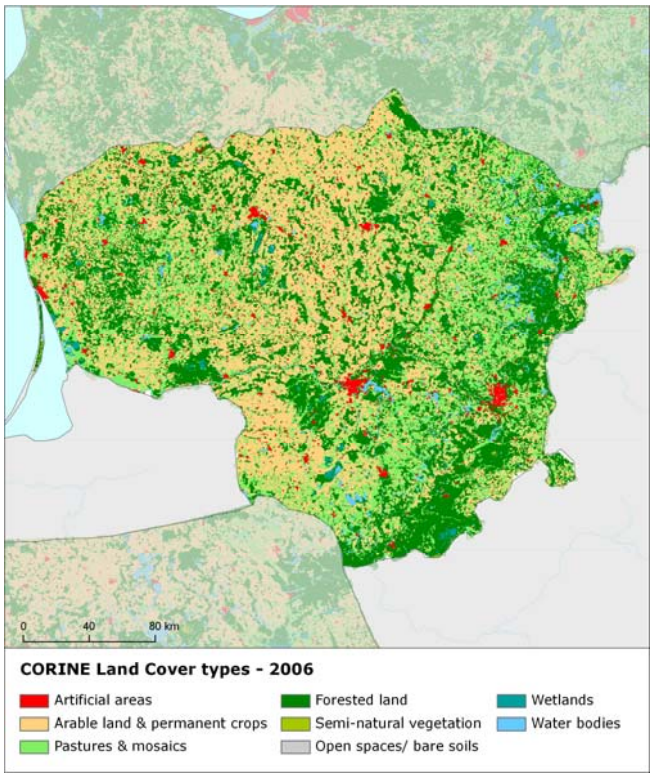
Lithuania

Land cover 2006

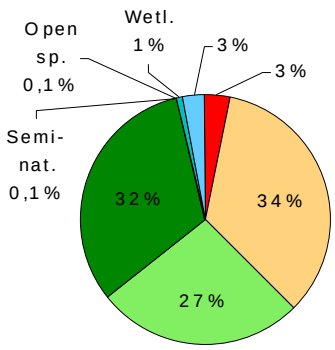
Overview of land cover & change 2000-2006

The situation in Lithuanian landscape has stabilized during 2000-2006, with annual change rate more than twice lower compared to the previous period 1990-2000. This stabilization has been caused by rapid decrease of intensity of internal agricultural conversions. In contrast, intensity of development of forested land and artificial areas rapidly increased, compared to the previous period.
Concerning the net change of particular land cover types, artificial surfaces and forested land have largest formation area and significantly positive balance of net change. In percentual values, open spaces/bare soils and semi-natural vegetation surfaces, followed by artificial areas are the land cover types with highest percentage of land cover formation. In contrast, both pastures and water bodies have negative net change balance.
After slowdown of internal agricultural conversions, the main driver of land cover exchange in Lithuania became accelerated forest creation and management (driven mostly by internal conversions between transitional woodland and standing forests due to forestry activities). Besides, also sprawl of economic sites and infrastructures over agricultural areas and withdrawal of farming (both of them occur with increased intensity compared to the previous period) have significant share of the total land cover change in the country.
Change areas are uniformly distributed over whole Lithuania, with artificial sprawl focused mostly in surroundings of the capital city Vilnius as well as Kaunas, Klaipeda and other major cities.

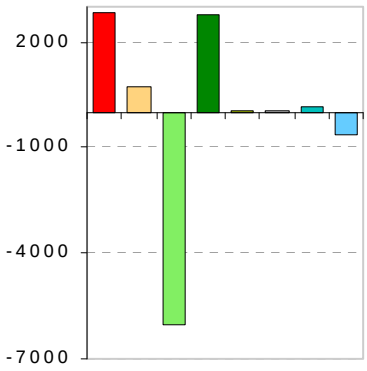


Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100.000 scale across Europe over almost two decades 1990-2006 - see Corine land cover (CLC) programme for details.
Number of years between CLC2000-CLC2006 data for Lithuania: 6

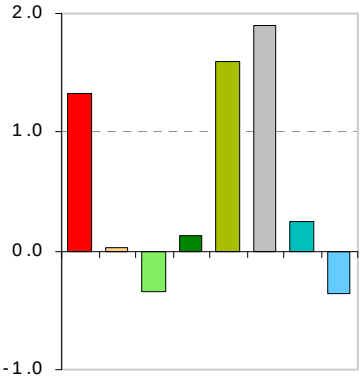
1.1. Land cover 2006 [% of total]



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

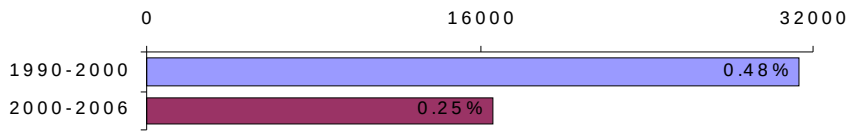
Summary balance table 2000-2006

	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	**2128**	**22262**	**17629**	**20964**	**43**	**33**	**582**	**1733**	**65374**
Consumption of initial LC	21	73	107	784	0	2	2	8	996
Formation of new LC	49	81	47	812	1	2	3	2	996
Net Formation of LC	**28**	**7**	**-60**	**28**	**1**	**1**	**1**	**-6**	**0**
Net formation as % of initial year	*1.3*	*0.0*	*-0.3*	*0.1*	*1.6*	*1.9*	*0.2*	*-0.4*	
Total turnover of LC	**69**	**154**	**154**	**1596**	**1**	**4**	**5**	**10**	**1992**
Total turnover as % of initial year	*3.3*	*0.7*	*0.9*	*7.6*	*1.6*	*11.9*	*0.8*	*0.6*	*3.0*
Land cover 2006	**2156**	**22270**	**17569**	**20992**	**44**	**33**	**583**	**1727**	**65374**

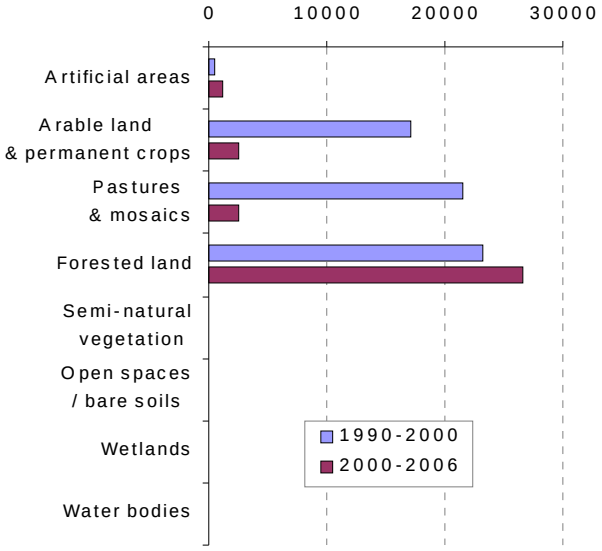
Lithuania

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

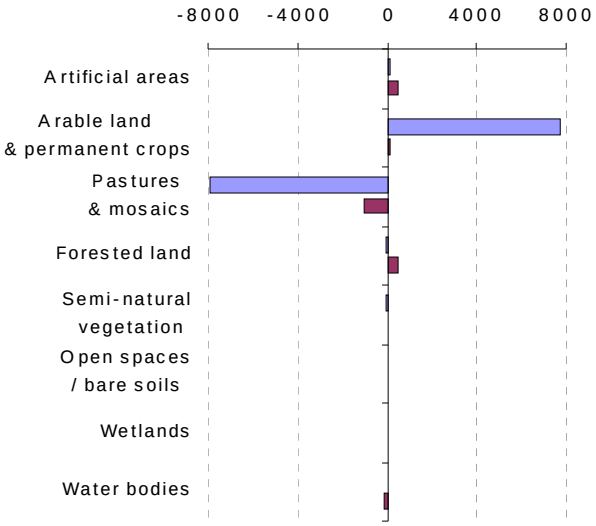
2.4. Annual land cover change [ha/year, % of total area]



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

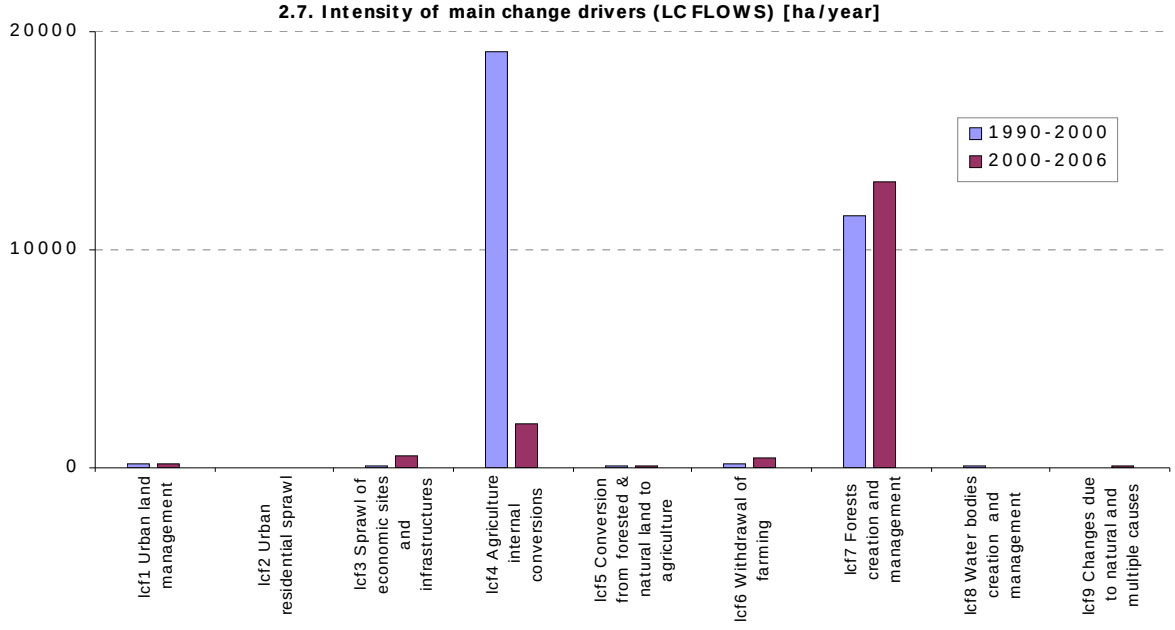


2.6. Net annual change of LC types [ha/year]



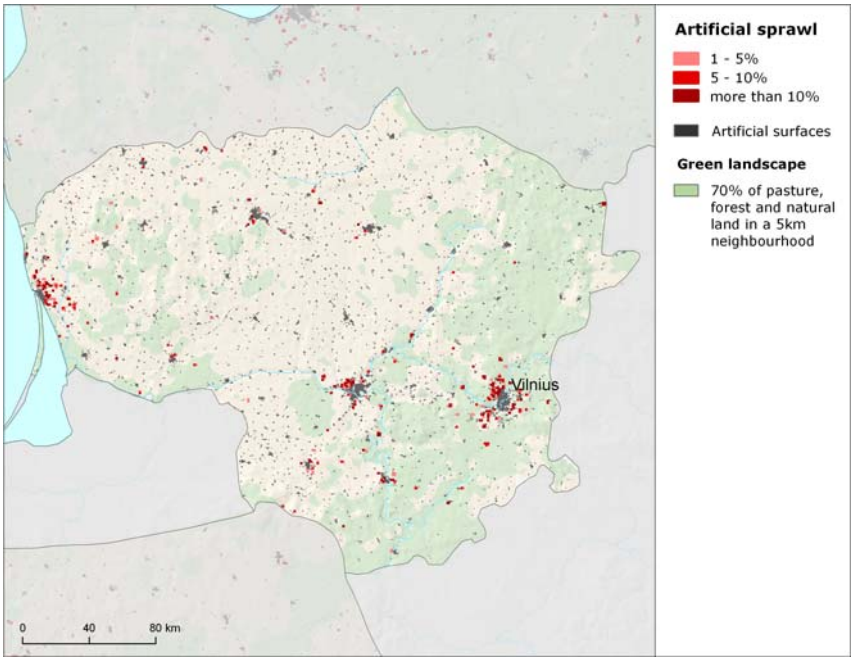
Summary trend figures	1990-2000	2000-2006
Annual land cover change [ha/year]	**31320**	**16604**
Annual land cover change as % of initial year	**0.48%**	**0.25%**
Land uptake by artificial development as mean annual change [ha/year]	146	589
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	160	568
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	-49	-329
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	9724	813
Forest & other woodland net formation as mean annual change [ha/year]	-26	467
Dry semi-natural land cover net formation as mean annual change [ha/year]	-38	22
Wetlands & water bodies net formation as mean annual change [ha/year]	60	-79

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

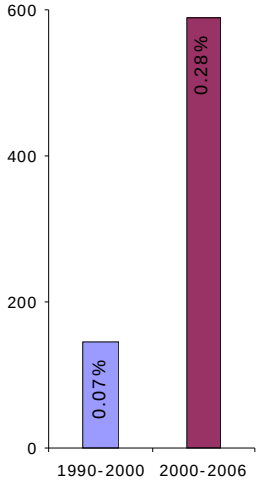


Lithuania

Artificial areas



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



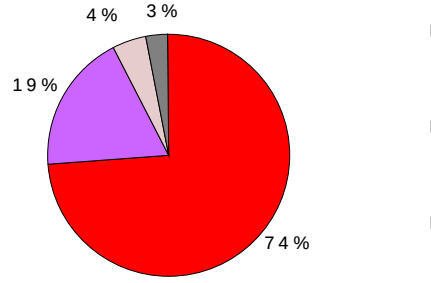
Artificial sprawl rapidly accelerates, driven by development of construction sites

The development of artificial areas in Lithuania accelerated rapidly during the 2000-2006 period. This is documented by annual artificial land take rate, which is four times higher compared to the previous period 1990/2000.

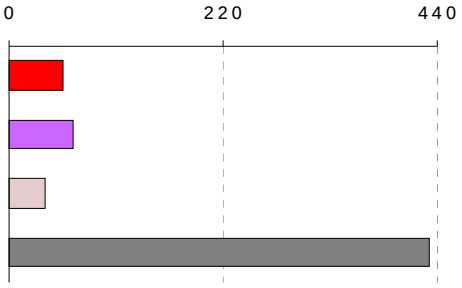
Accelerated recycling of developed urban areas and urban development and infilling has significant share on total artificial change. Large areas, which were classified as construction sites in 2000, have been converted into discontinuous urban fabric (largest formation class of artificial land). This conversion represents more than 80% of all discontinuous urban fabric formation. In contrast, new commercial and industrial units have been created mostly through sprawl over agricultural and natural land.

More than 50% of total artificial land take creates the extension of construction sites (which indicates potential of further artificial development) followed by sprawl of mineral extraction sites (19%) and commercial/industrial units (11%). Mostly agricultural areas (93%), with almost equal share of arable land and mosaics/pastures have been taken by artificial sprawl. Besides the formation and recycling of artificial areas, former artificial land has been also consumed by natural vegetation. This flow has been represented mostly by transitional woodland creation over former mineral extraction sites. Spatially, artificial sprawl focused mostly in surroundings of the capital city Vilnius as well as Kaunas, Klaipeda and other major cities.

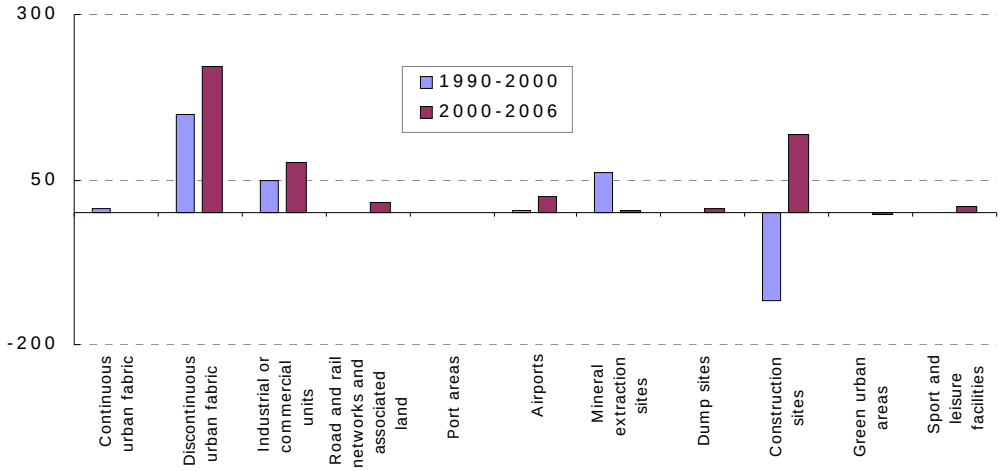
3.9. Artificial surfaces 2006 [% of total area]



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

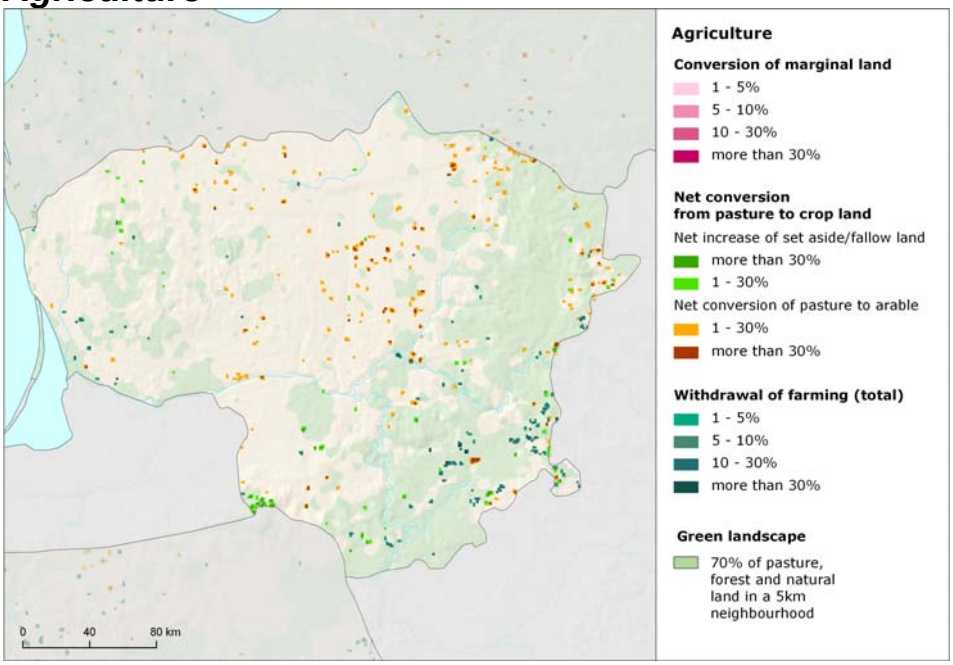


3.11. Mean annual artificial change by class [ha/year]



Lithuania

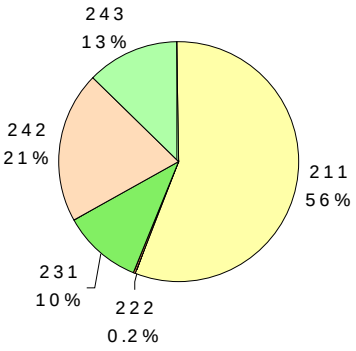
Agriculture

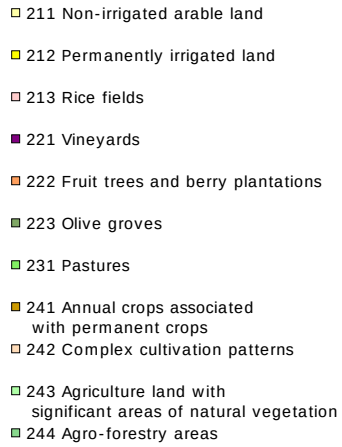


Rapid slowdown of internal agriculture conversions

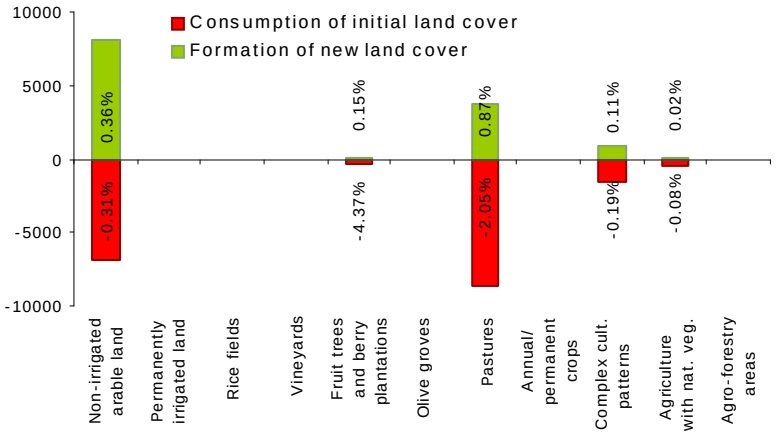
Agricultural land cover in Lithuania consists mainly of arable land (more than ½ of all agricultural land in the country) followed by complex cultivation patterns, agricultural areas with natural vegetation and pastures. Internal agriculture conversions, which were the main driver of change in Lithuania during the previous period 1990/2000, lost most of their intensity during 2000-2006. Conversion from pasture to arable and crop land still prevails over opposite flow represented by extension of pastures, however, the intensity of both conversions decreased significantly, compared to the previous period. To a lesser extent, the development of agricultural surfaces has been also influenced by external flows. In particular, agricultural areas have been consumed mostly by sprawl of economic sites and infrastructures (with prevailing share of construction sites) and also through withdrawal of farming with transitional woodland creation. Intensity of both artificial sprawl and woodland creation over former agricultural areas increased significantly, compared to the previous period. On the other hand, creation of new agricultural surfaces has been represented mostly by creation of pastures in the area of former water body.
Concerning the spatial distribution, areas converted from pasture to arable land are situated mostly in the northern part of central Lithuania, withdrawal of farming occurred mainly in the south-eastern part of the country.

4.12. Agricultural areas 2006 [% of total area]

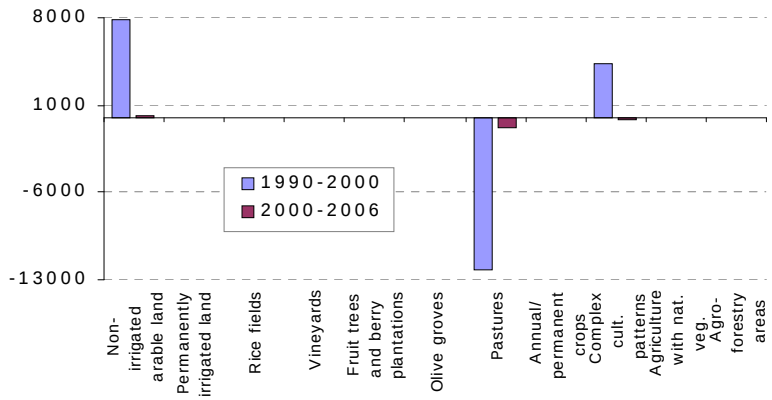




4.13. Development of agricultural areas 2000-2006 – detailed balance [ha]

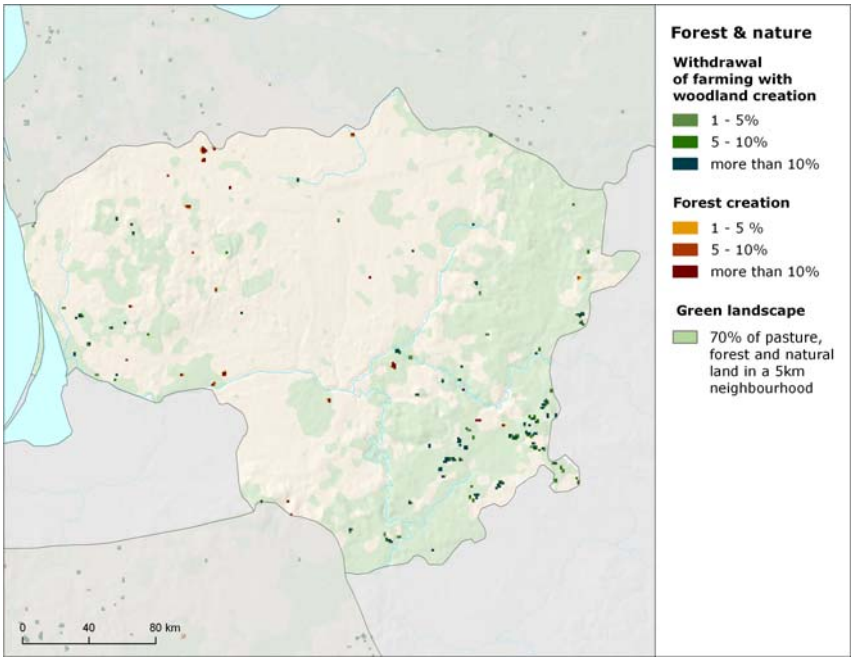


4.14. Mean annual agricultural change by class [ha/year]

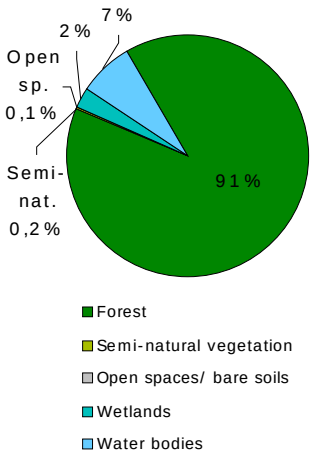


Lithuania

Forest & nature



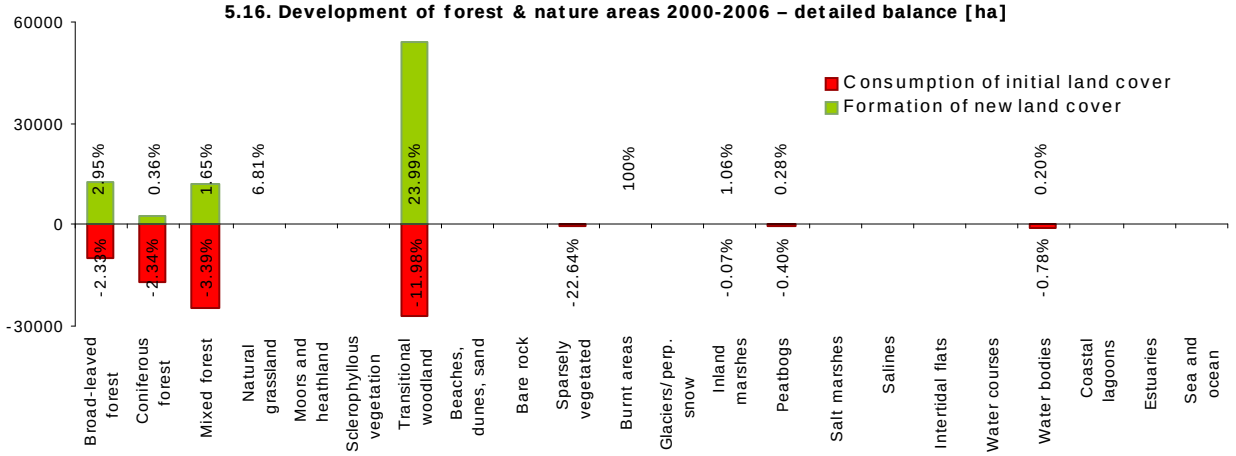
5.15. Forest & nature areas 2006 [% of total area]



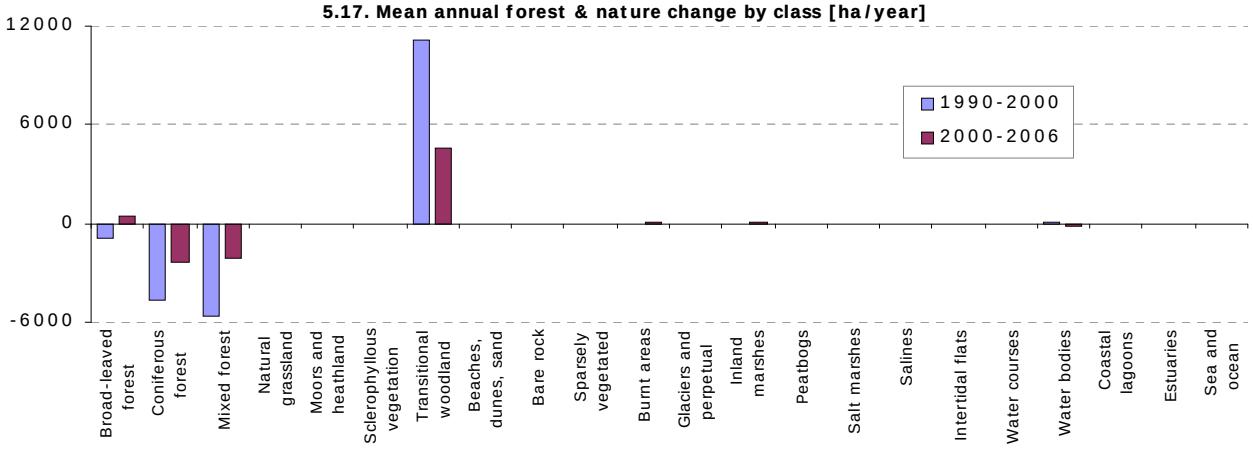
Internal conversions of natural land cover, withdrawal of farming with transitional woodland creation

Development of natural surfaces in Lithuania during 2000-2006 has been characterized mostly by internal forest conversions, with prevailing share of recent felling and transitions from forest to transitional woodland. Compared to forest conversions, extent of changes of all other natural land cover types is significantly lower.
External exchange of natural land cover with other land cover types has been represented mainly by withdrawal of farming with woodland creation (namely transitional woodland formation over former arable land). On the other hand, natural surfaces have been consumed mainly through conversion of areas of former water bodies to pastures. Also, the conversions between developed areas (mineral extraction and construction sites) and natural land cover took place due to restoration.
Internal changes of natural land in Lithuania have been represented by transitional woodland creation over peatbogs or sparsely vegetated areas (and opposite conversion from transitional woodland to peatbogs), coniferous forest consumption by forest and shrub fires and conversion of water bodies to inland marshes.

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



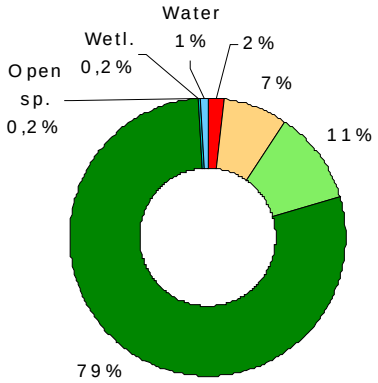
5.17. Mean annual forest & nature change by class [ha/year]



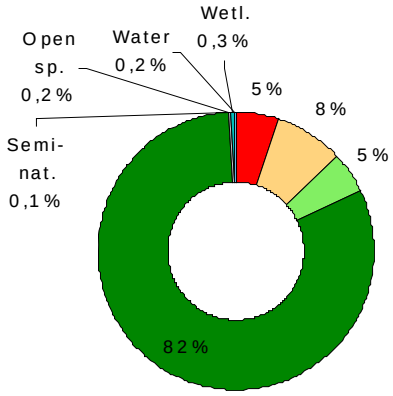
Annex: Land cover flows and trends

Land cover flows 2000-2006

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

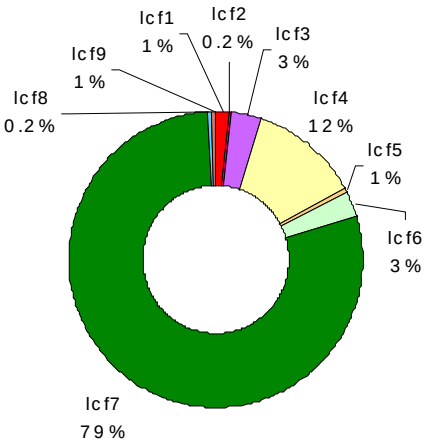


6.19. Formation of land cover 2000-2006 [% of total change area]



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]

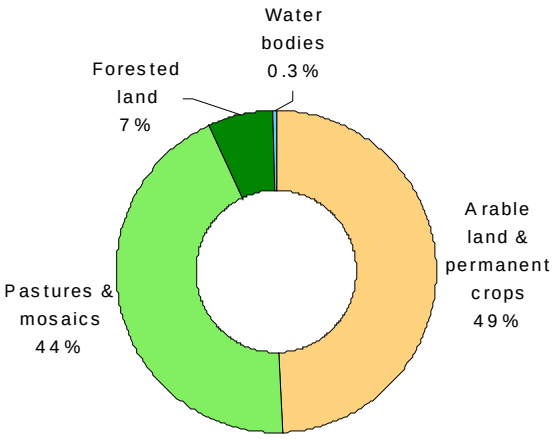


- lcf1 Urban land management
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf4 Agriculture internal conversions
- lcf5 Conversion from forested & natural land to agriculture
- lcf6 Withdrawal of farming
- lcf7 Forests creation and management
- lcf8 Water bodies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

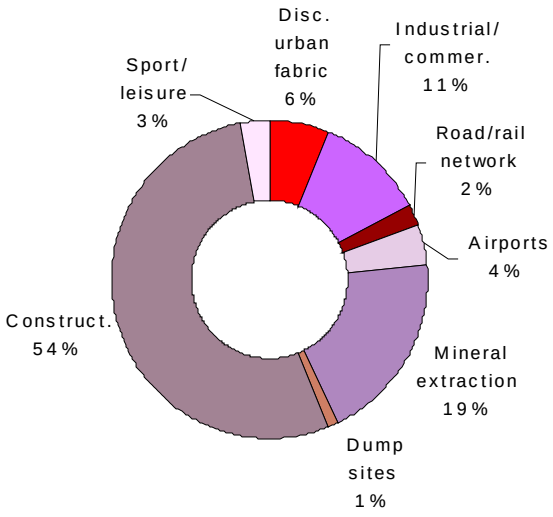
Lithuania

Artificial areas

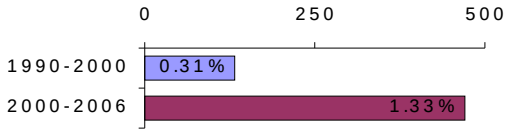
7.21. Consumption by artificial land take 2000-2006 [% of total]



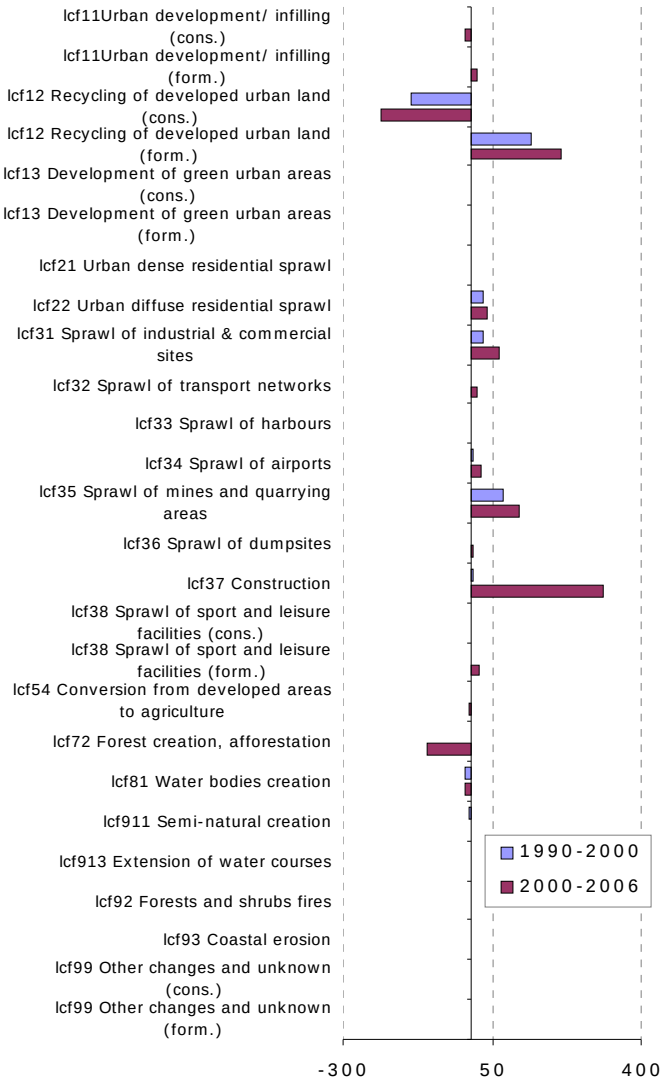
7.22. Formation by artificial land take 2000-2006 [% of total]



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



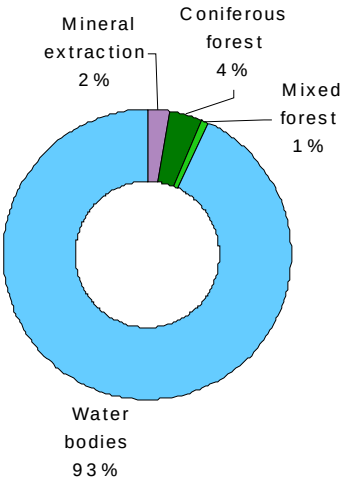
7.24. Artificial development by change drivers (LC FLOWS) [ha/year]



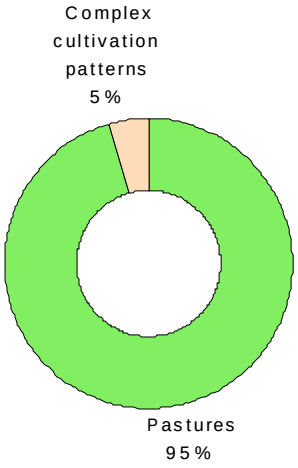
Lithuania

Agriculture

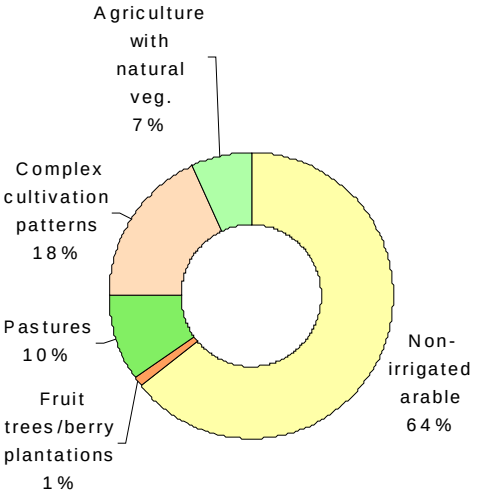
8.25. LC consumed by agriculture 2000-2006 [% of total]



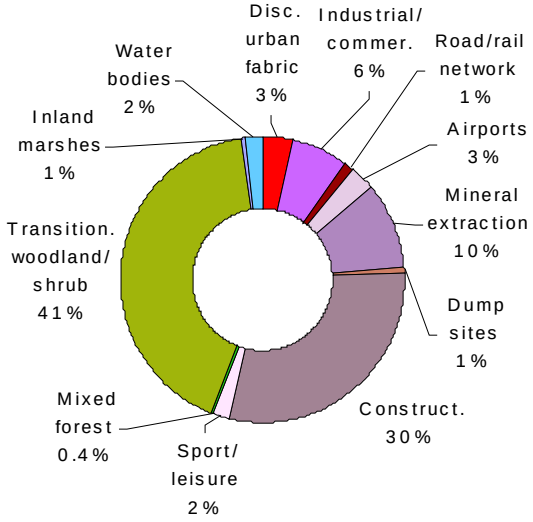
8.26. Formation of agricultural land from non-agriculture 2000-2006 [% of total]



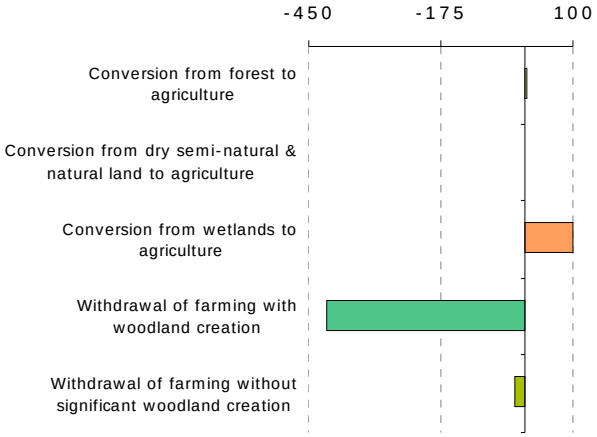
8.27. Consumption of agricultural land by non-agriculture 2000-2006 [% of total]



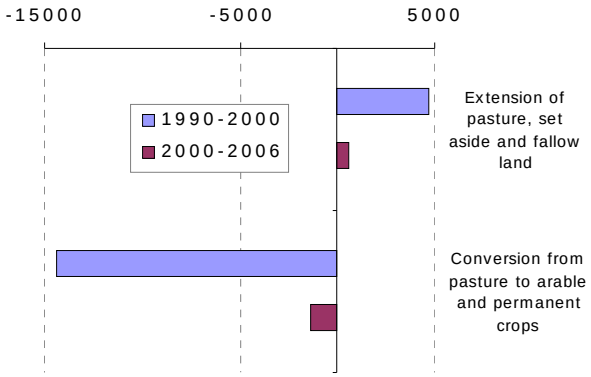
8.28. Formation of non-agricultural land from agriculture 2000-2006 [% of total]



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

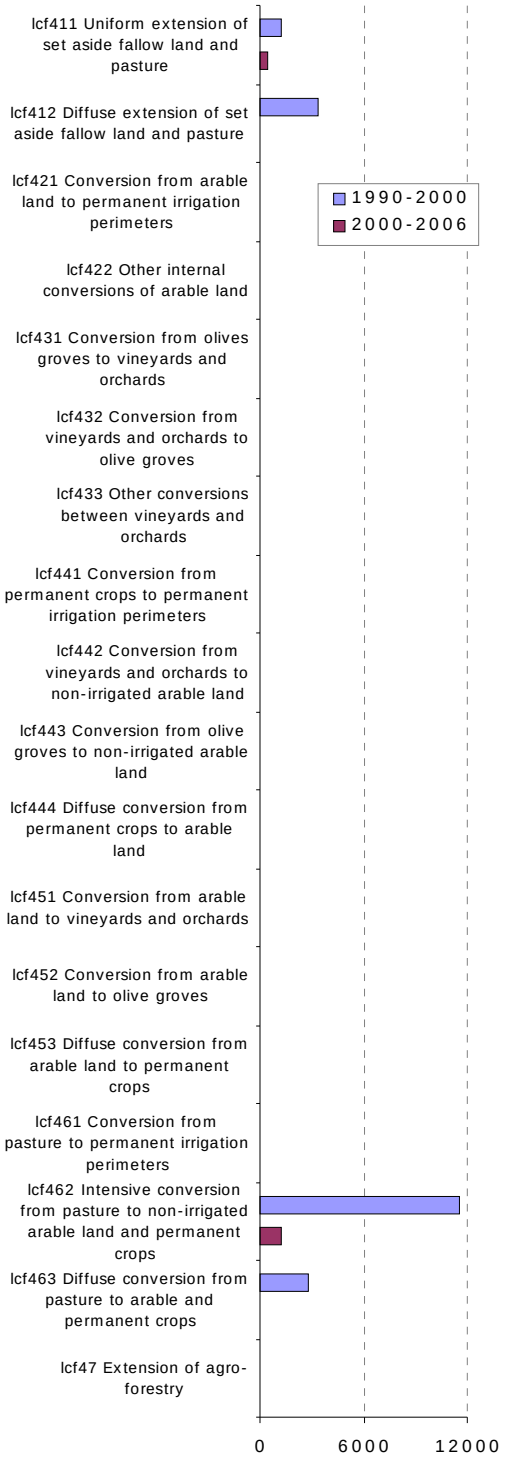


8.30. Mean annual conversion between arable land and pasture [ha/year]

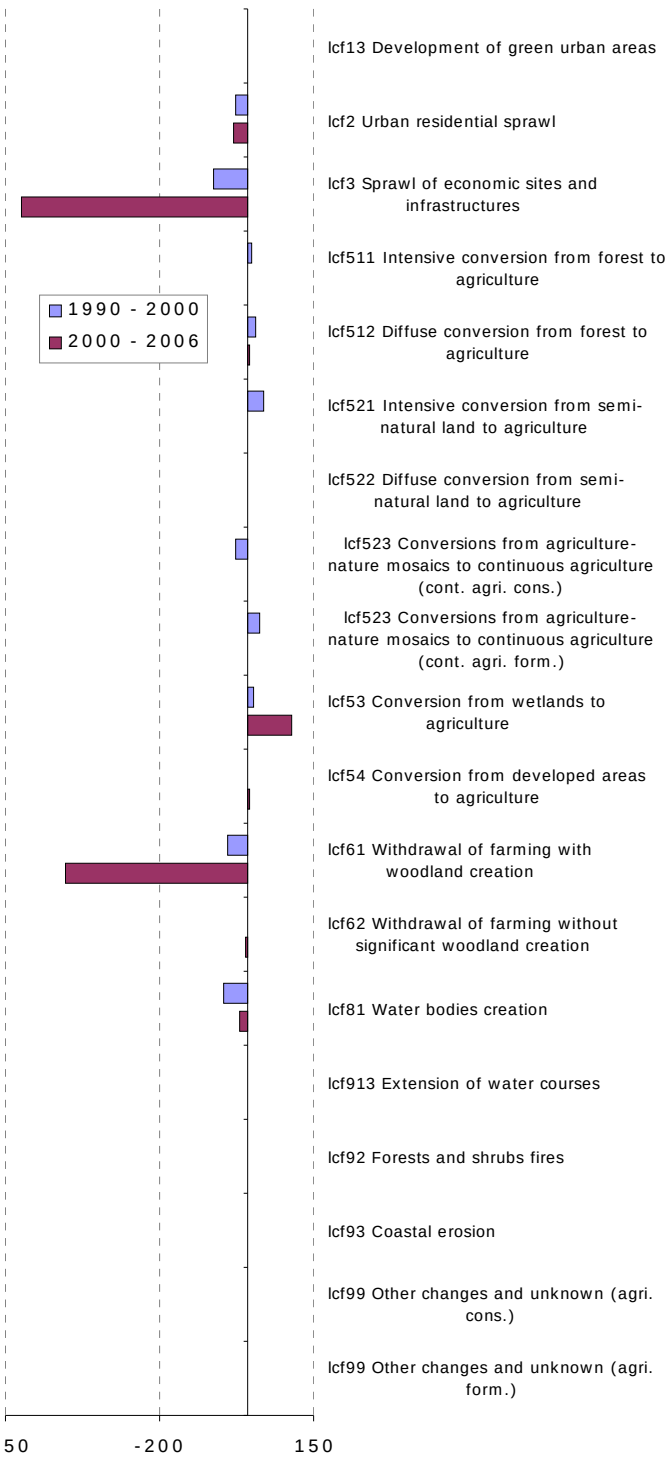


Lithuania

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



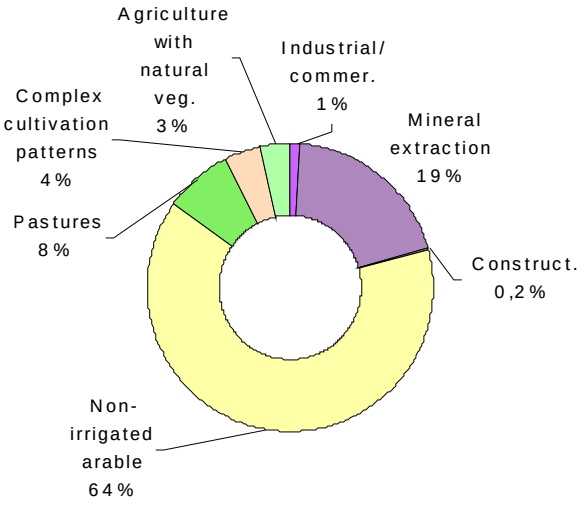
9.32. Mean annual conversions between agriculture and other LC types [ha/year]



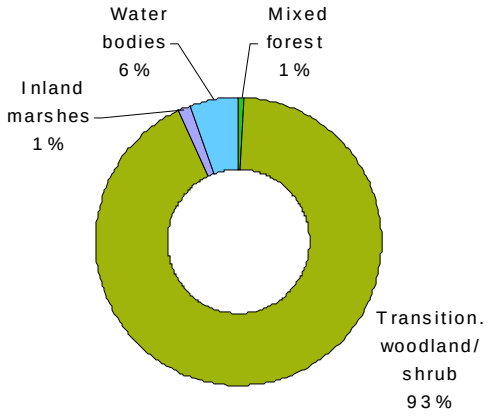
Lithuania

Forest & nature

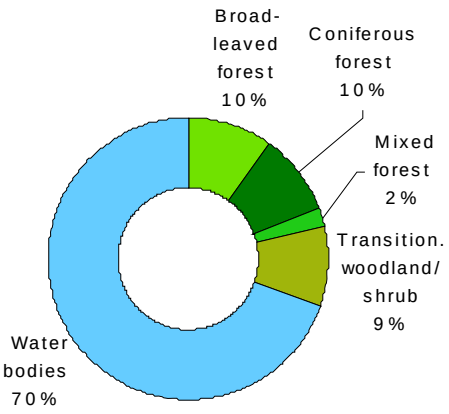
10.33. LC consumed by forest & nature 2000-2006 [% of total]



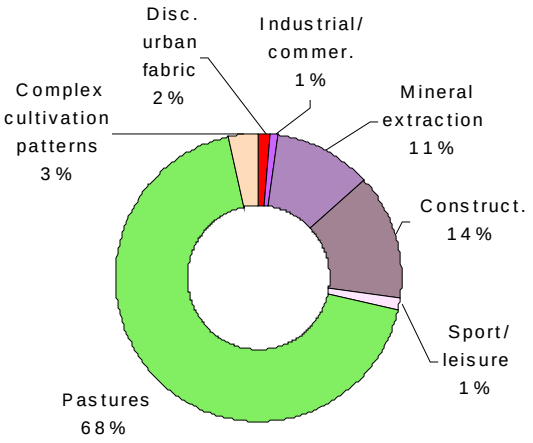
10.34. Formation of forest & nature land from non-forest /nature 2000-2006 [% of total]



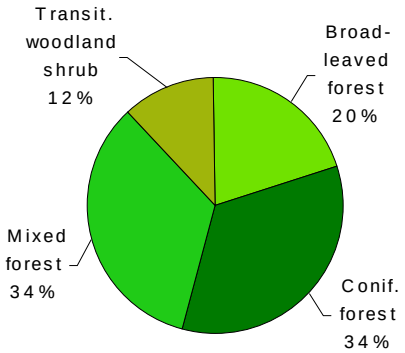
10.35. Consumption of forest & nature land by non-forest /nature 2000-2006 [% of total]



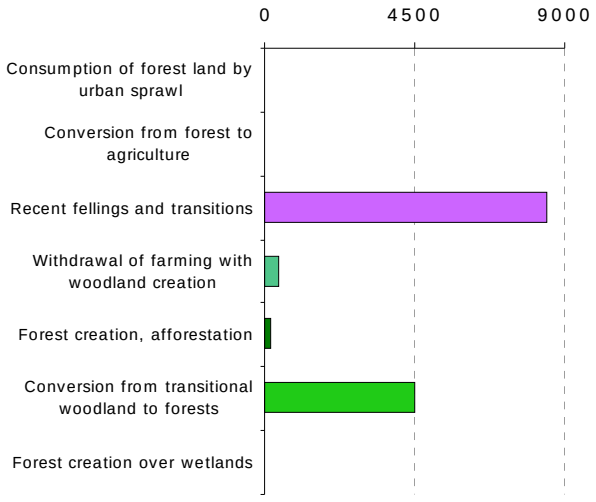
10.36. Formation of non-forest /nature land from forest & nature 2000-2006 [% of total]



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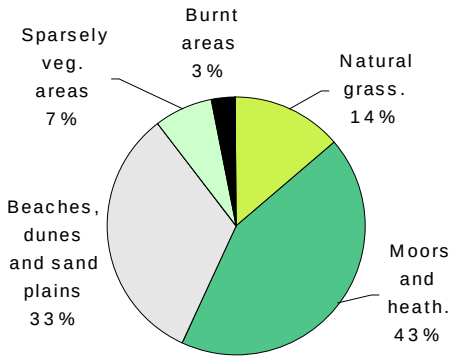
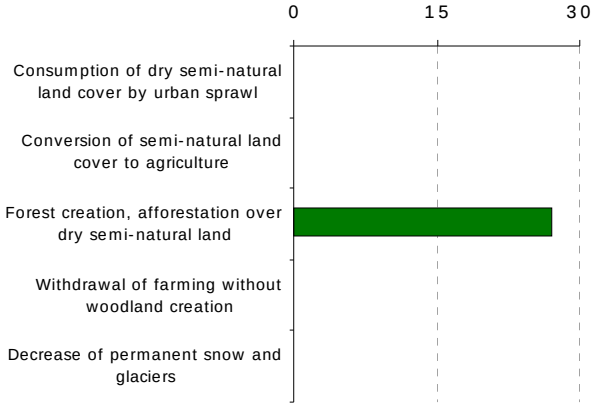
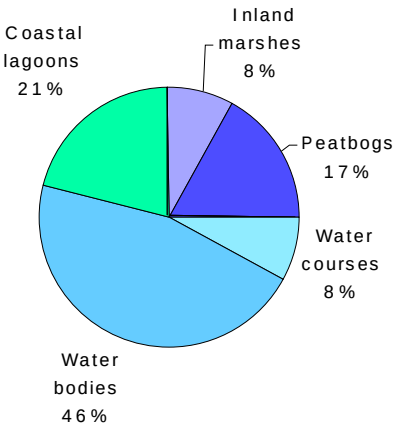
11.39. Dry semi-natural areas 2006 [% of total area]



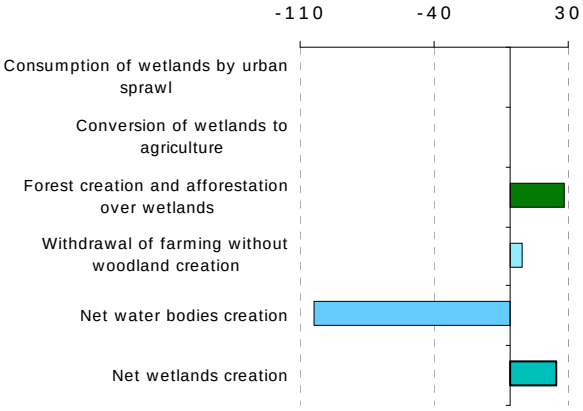
11.40. Main trends in dry semi-natural land consumption/formation 2000-2006 [ha/year]



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]

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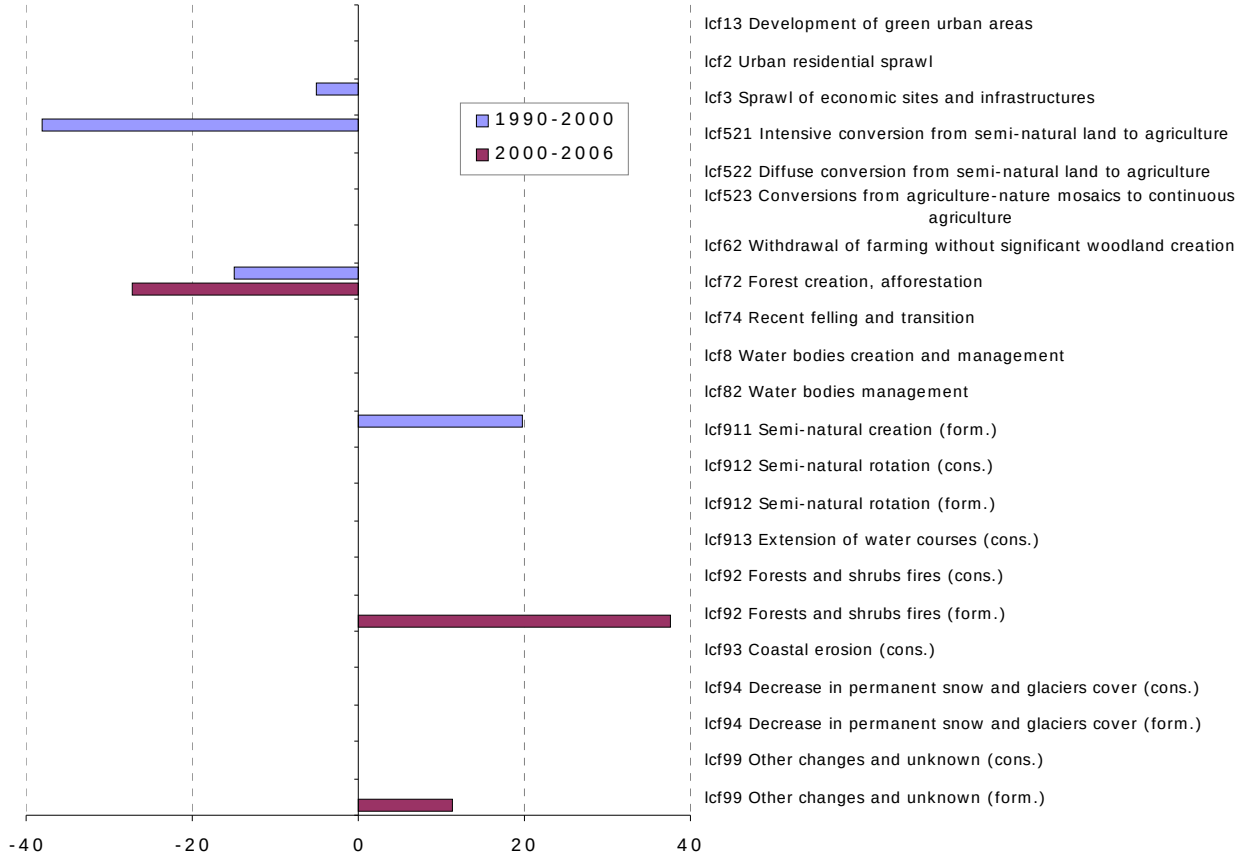
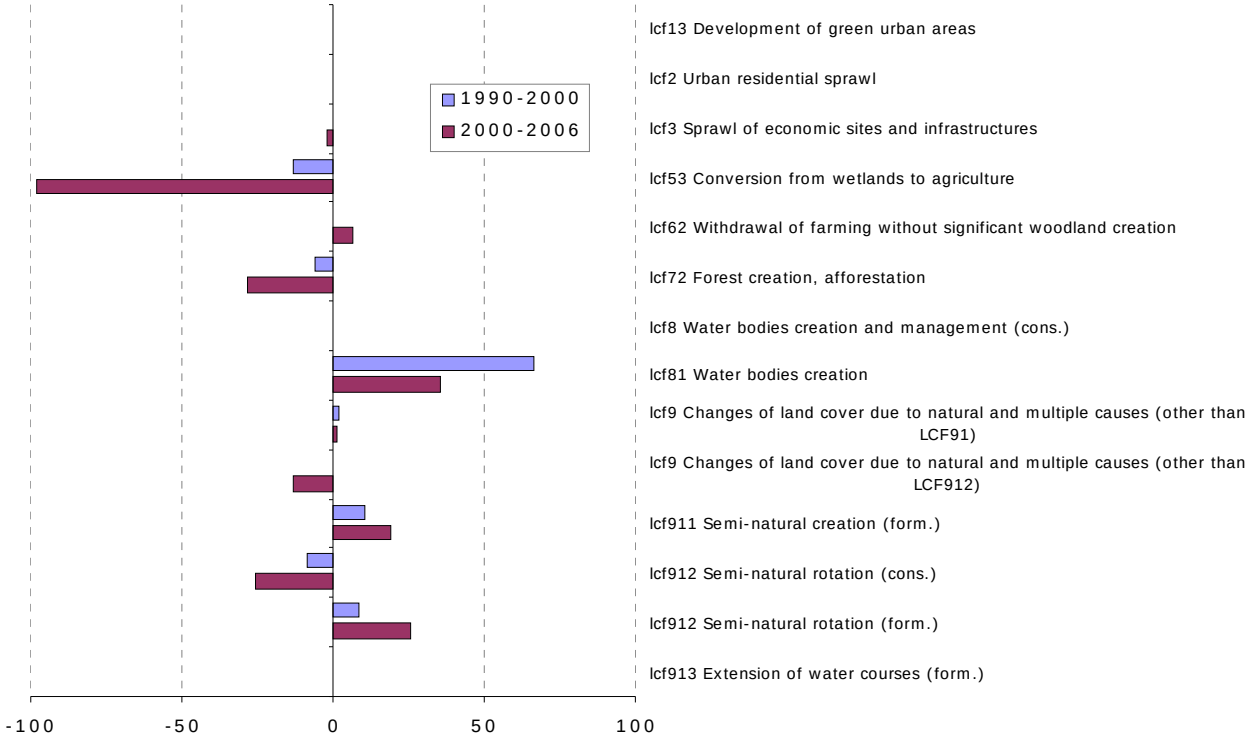
12.44. Mean annual conversions of dry semi-natural LC [ha/year]



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



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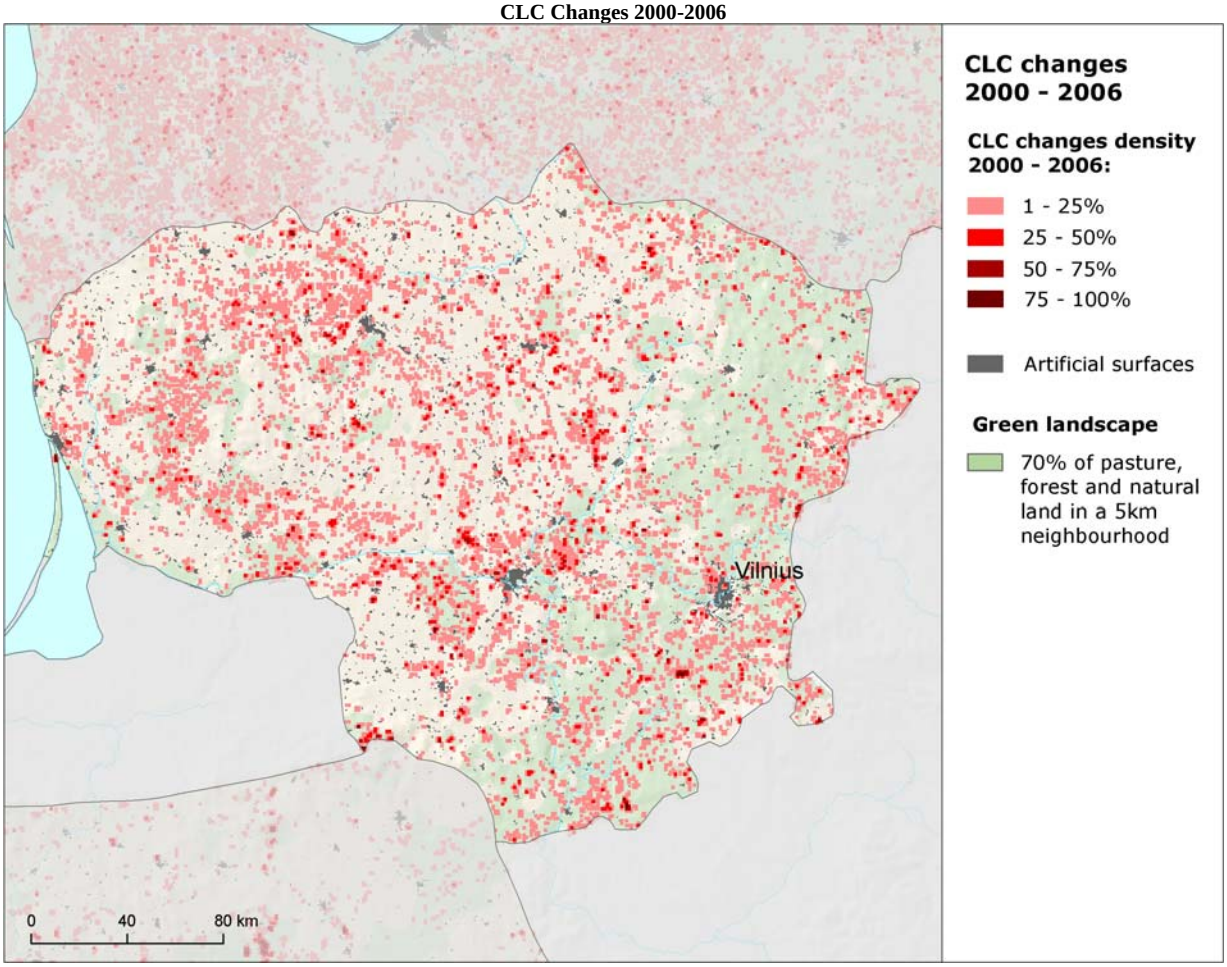
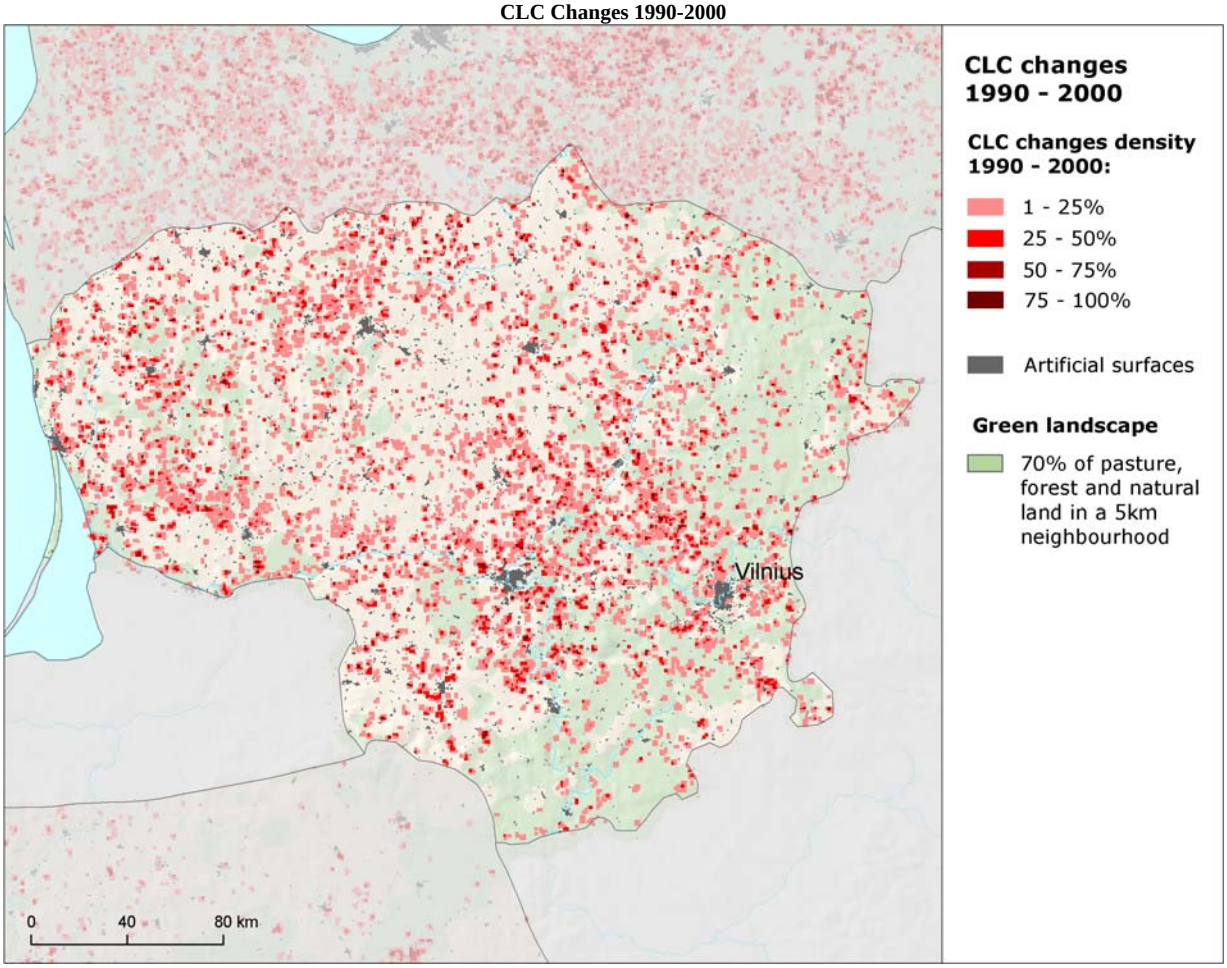
CLC Changes 2000-2006



CLC Changes 1990-2000



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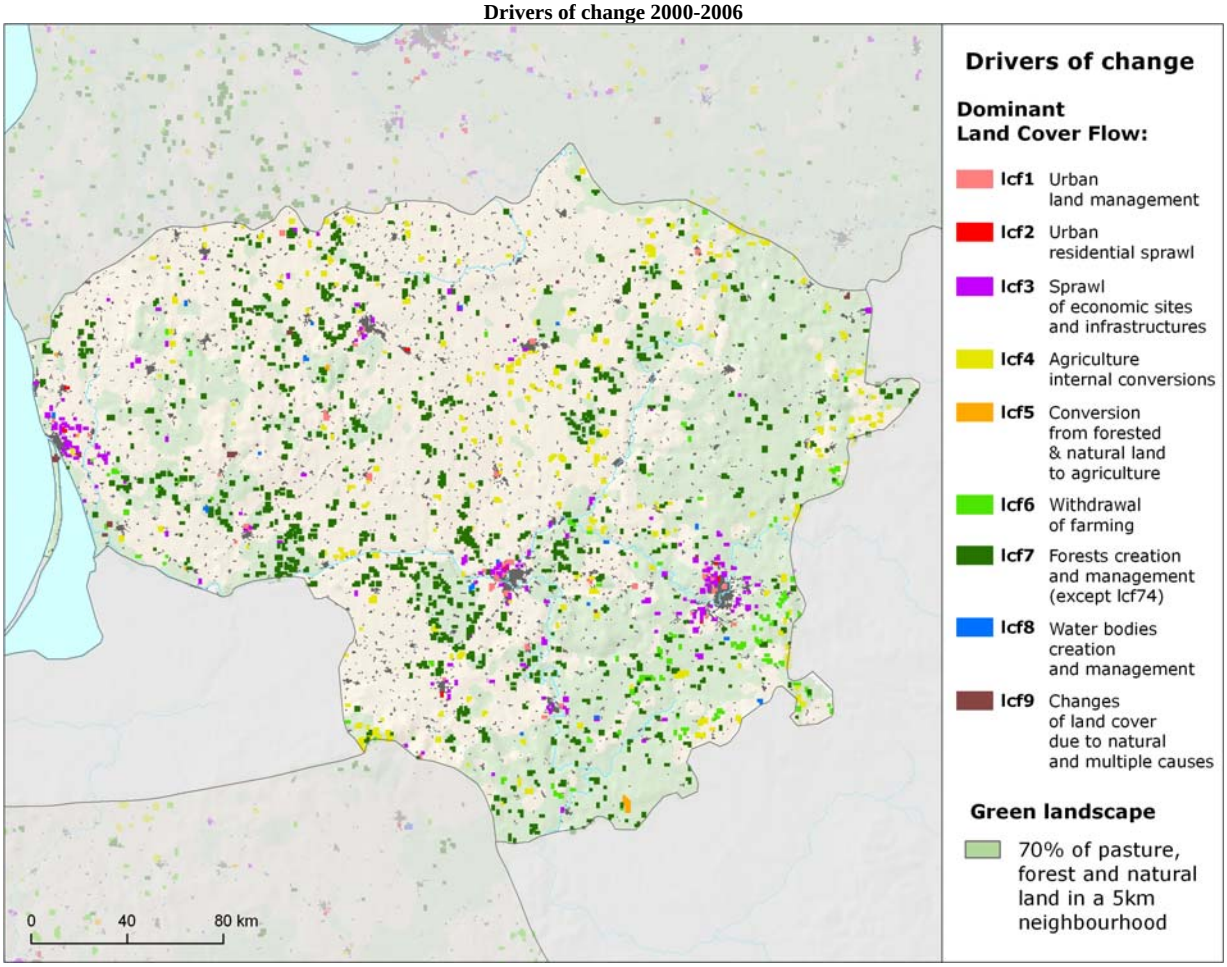
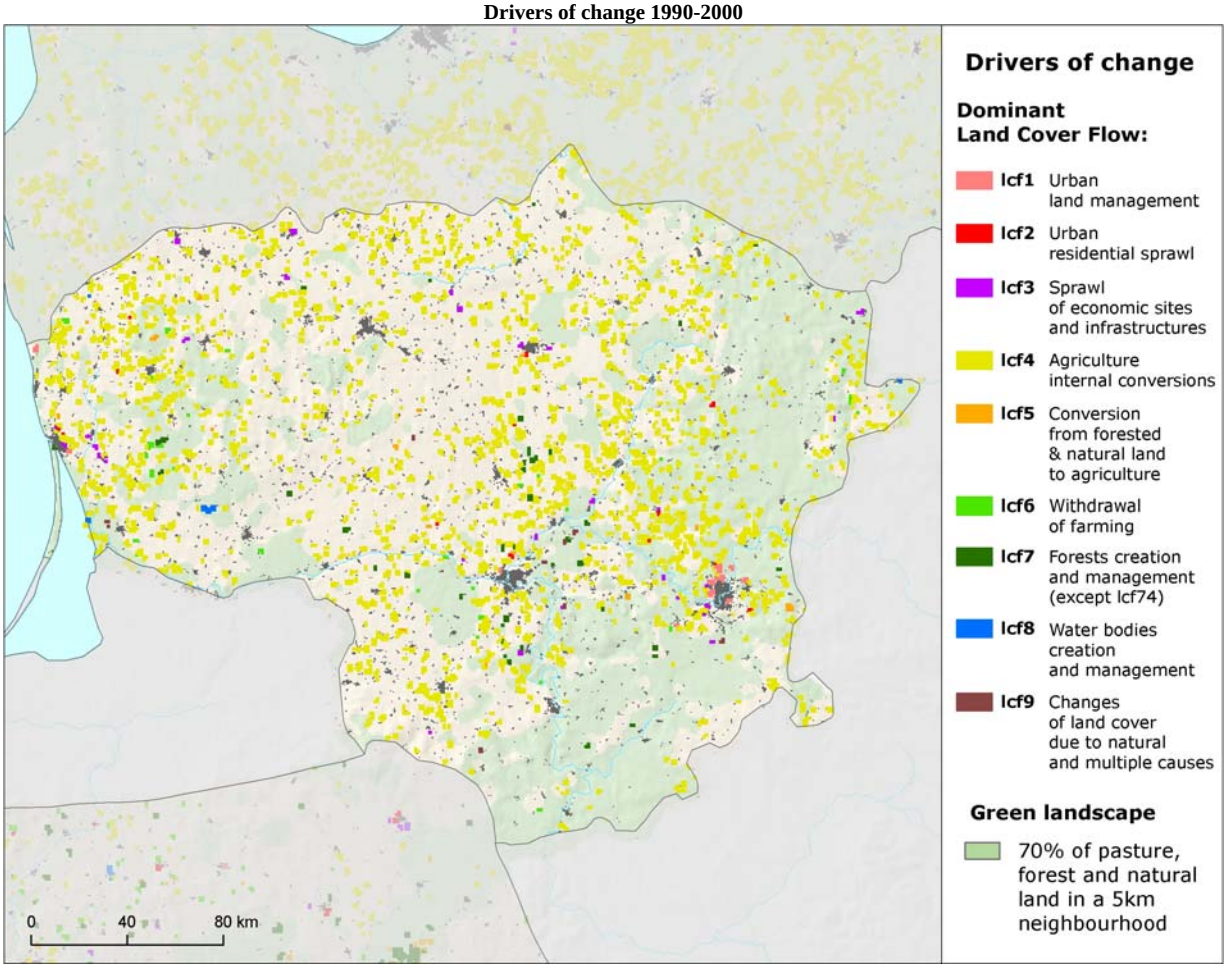
Drivers of change 2000-2006



Drivers of change 1990-2000



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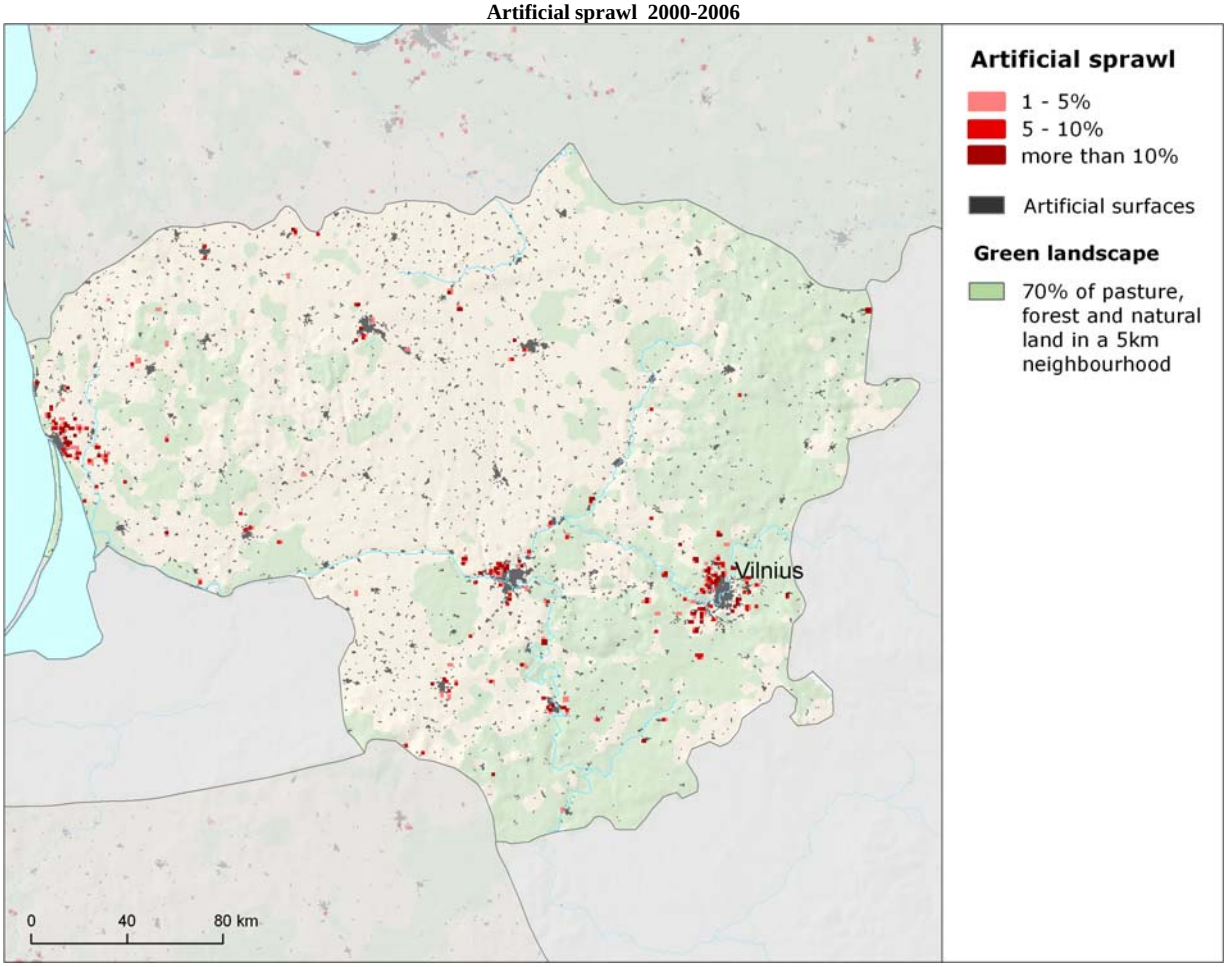
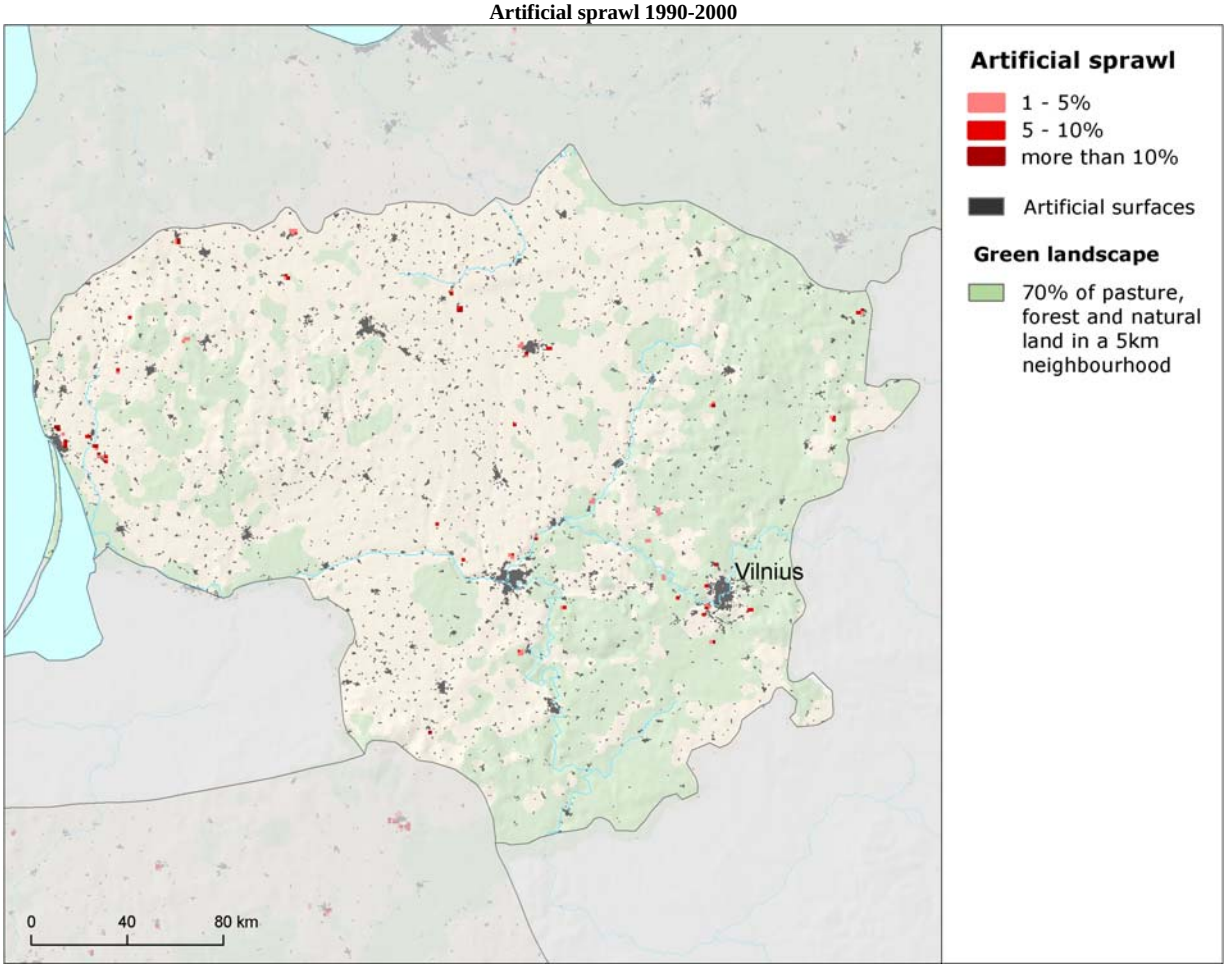
Artificial sprawl 2000-2006



Artificial sprawl 1990-2000



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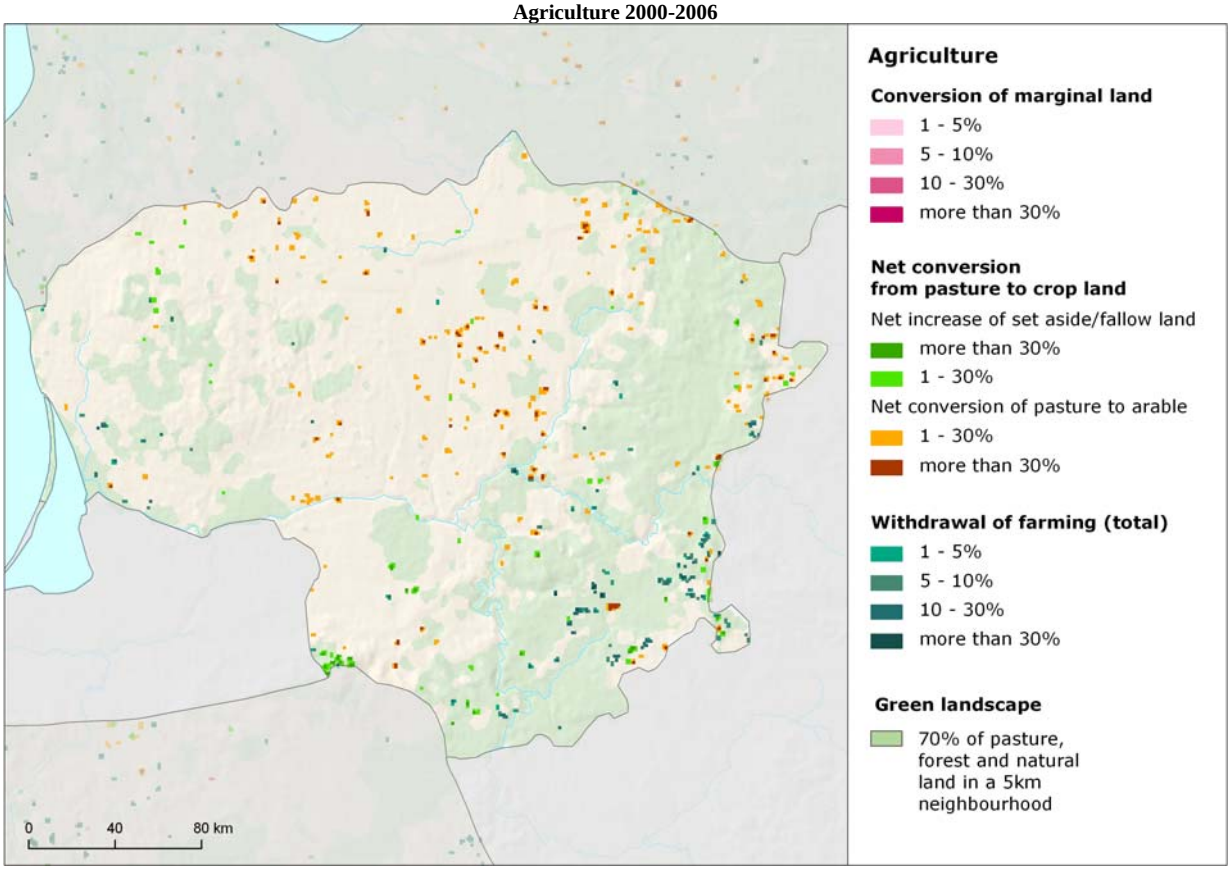
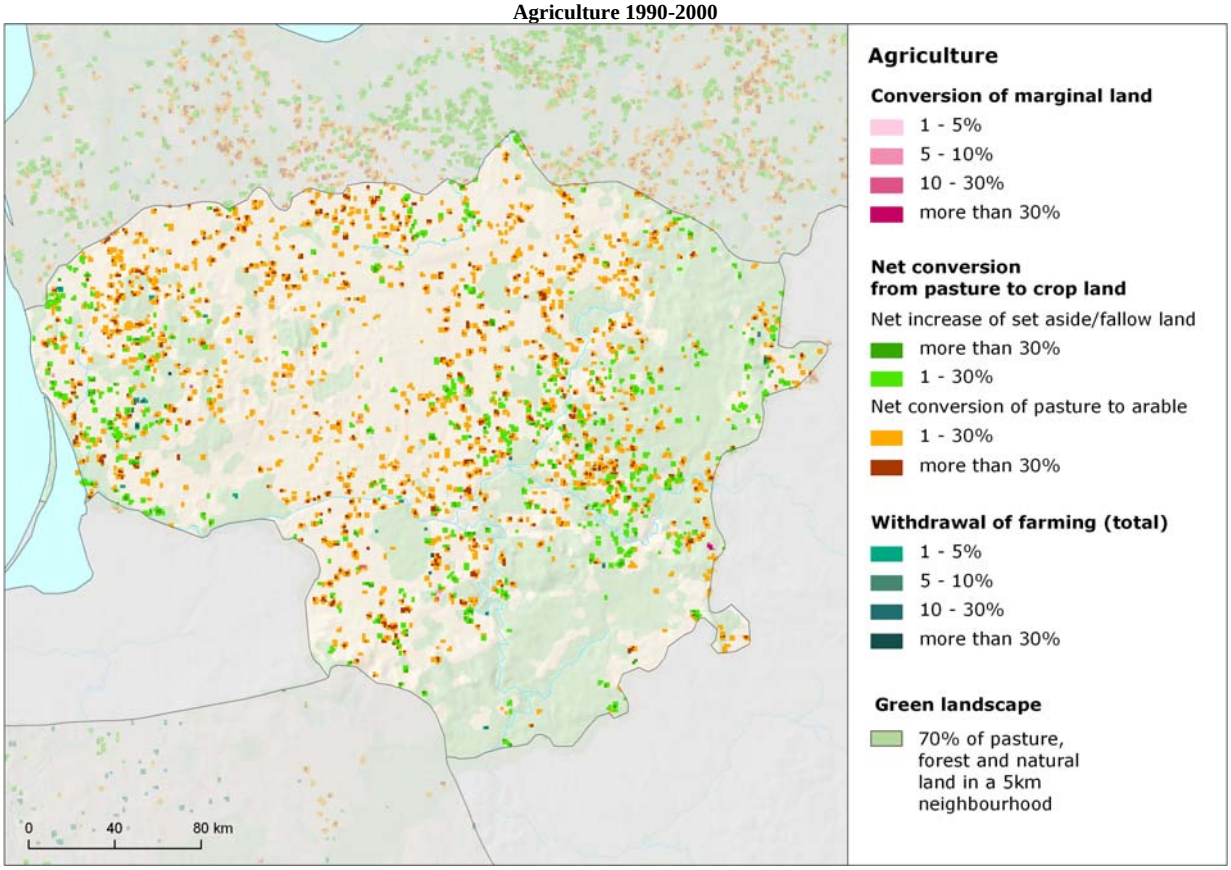
Agriculture 2000-2006



Agriculture 1990-2000



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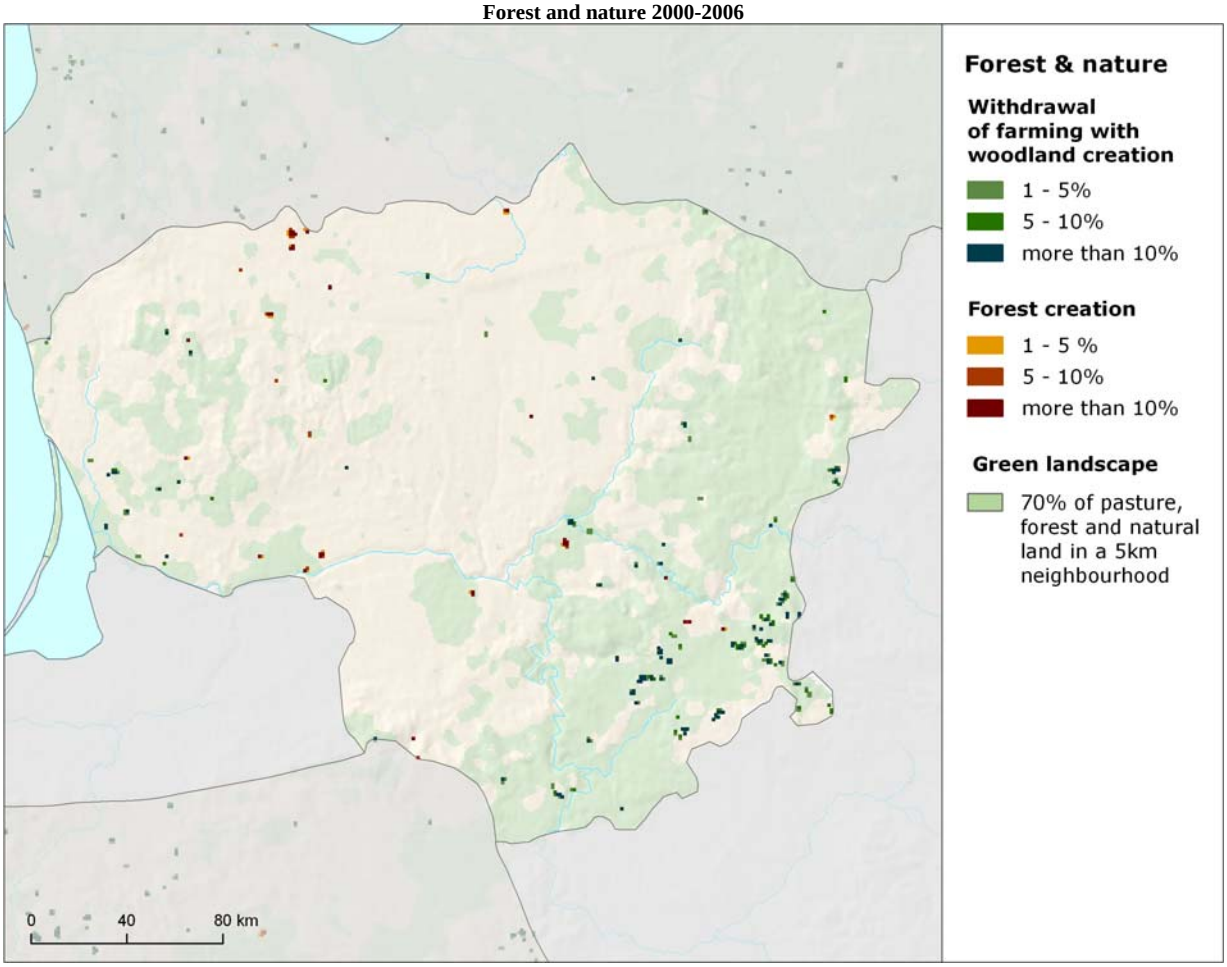
Forest and nature 2000-2006



Forest and nature 1990-2000