

Land cover 2012



Germany 

September 2017

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Germany

Land cover 2012

Overview of land cover & change 2006-2012

Characterized by the annual land cover change rate of 0,11%, the overall speed of land cover development in Germany is about half lower than the European average. This is comparable with the previous period 2000-2006, however, more than half lower than in the period 1990-2000. These numbers show stabilization of the land cover in the country in the long term.

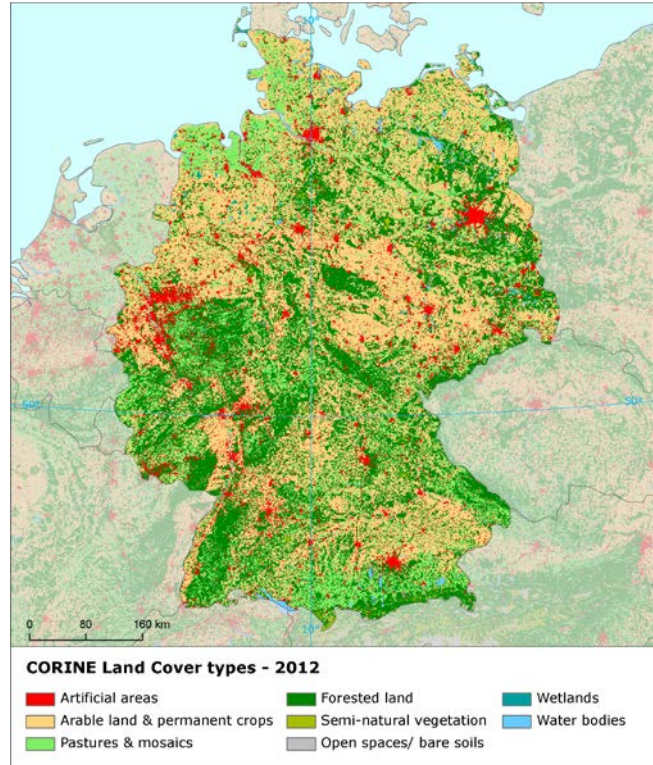
The most powerful drivers of change in the country are agriculture internal conversions, which shows a similar pattern to the period 1990-2000, however, the intensity of these flows was more than twice higher at that time. On the other hand, during the period 2000-2006, the internal agricultural flows experienced huge decline, which seems to be over recently, as their intensity is rapidly increasing again.

Forest creation and management is the second most extensive land cover flow in the country, with comparable intensity as in both previous periods. As usual in Europe, this flow is driven mainly by forest internal conversions, this time with prevailing share of recent felling and transition.

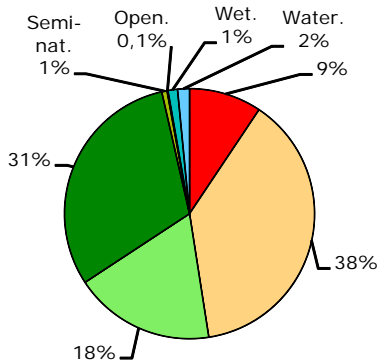
Thirdly, artificial development is present in the country, however, its intensity shows a continuously decreasing tendency from the period 1990-2000. The artificial development is driven mostly by the sprawl of economic sites and infrastructures in the period 2006-2012 – this flow has similar intensity as in the previous period. This is not the case of the residential sprawl, which is much lower, even compared to the period 2000-2006. The strongly decreasing intensity of artificial development in Germany is illustrated by the decrease of annual artificial land take rate – 0,74% in 1990-2000, 0,38% in 2000-2006 and 0,22% in 2006-2012. This means, that the sprawl in Germany reached only about one half of European average in the last period.

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 more than decade between 2000-2006-2012 - see Corine land cover (CLC) programme for details.

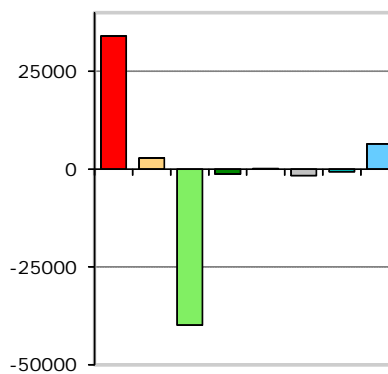
Number of years between CLC2006-CLC2012 data for Germany: 6



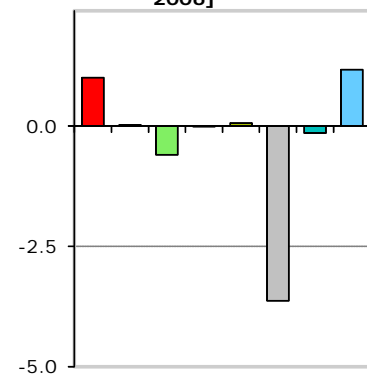
1.1. Land cover 2012 [% of total]



1.2. Net change in land cover 2006-2012 [ha]



1.3. Net change in land cover [% of initial year 2006]



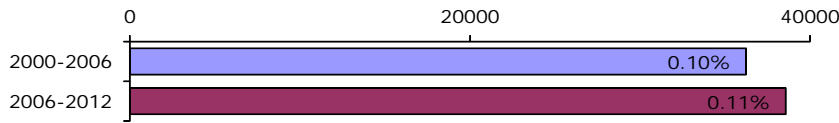
- Artificial areas
- Arable land & permanent crops
- Pastures & mosaics
- Forested land
- Semi-natural vegetation
- Open spaces/ bare soils
- Wetlands
- Water bodies

Summary balance table 2006-2012

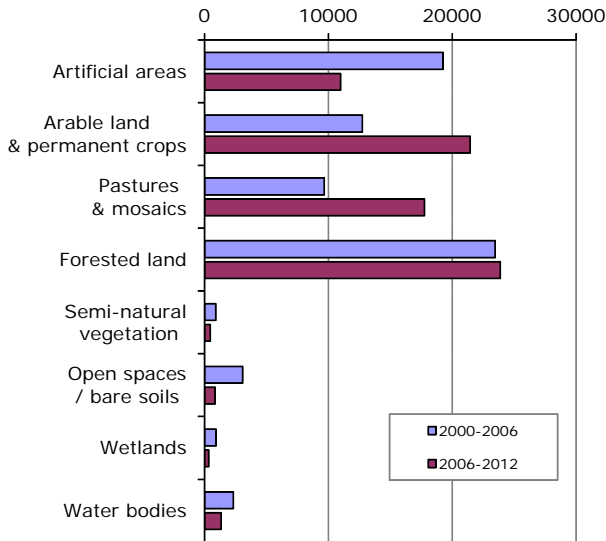
	Artificial areas	Arable land & permanent crops	Pastures & mosaics	Forested land	Semi-natural vegetation	Open spaces/ bare soils	Wetlands	Water bodies	TOTAL [hundreds ha]
Land cover 2006	33748	138617	66589	111480	2506	466	4464	5501	363372
Consumption of initial LC	159.7	629.1	732.7	723.0	13.4	34.1	13.6	8.4	2314
Formation of new LC	499.9	657.6	333.8	710.6	14.9	17.1	7.1	72.9	2314
Net Formation of LC	340.3	28.5	-398.9	-12.5	1.6	-16.9	-6.5	64.5	0
Net formation as % of initial year	1.0	0.0	-0.6	0.0	0.1	-3.6	-0.1	1.2	
Total turnover of LC	659.6	1286.8	1066.5	1433.6	28.3	51.2	20.8	81.3	4628
Total turnover as % of initial year	2.0	0.9	1.6	1.3	1.1	11.0	0.5	1.5	1.3
Land cover 2012	34088	138646	66191	111468	2508	449	4457	5565	363372

Land cover trends comparison 2000-2006 vs. 2006-2012

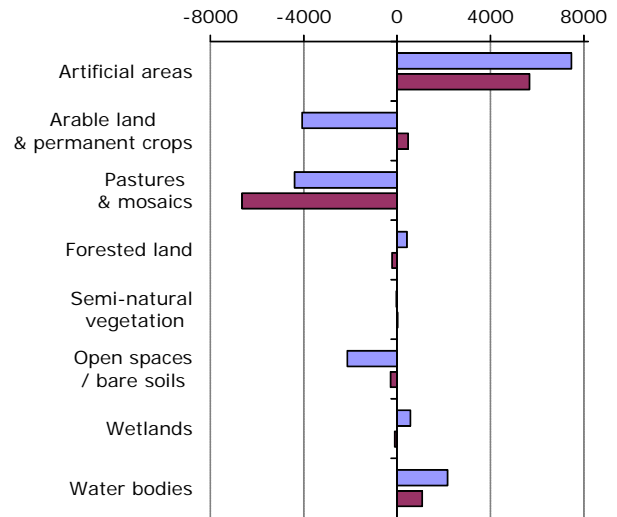
2.4. Annual land cover change
[ha/year, % of total area]



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

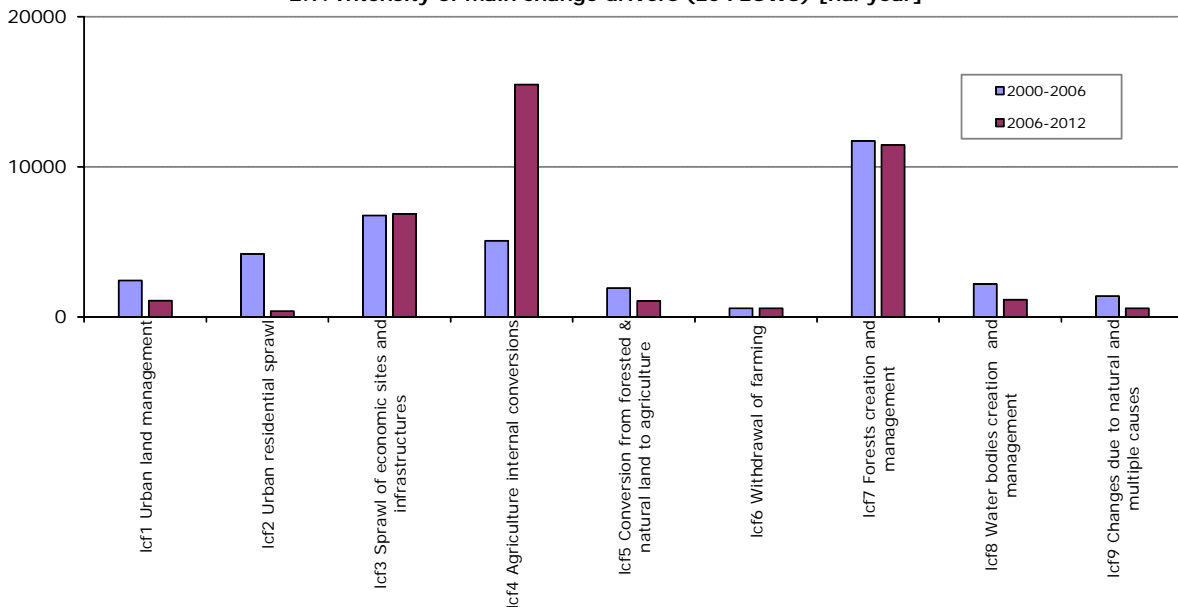


2.6. Net annual change of LC types [ha/year]

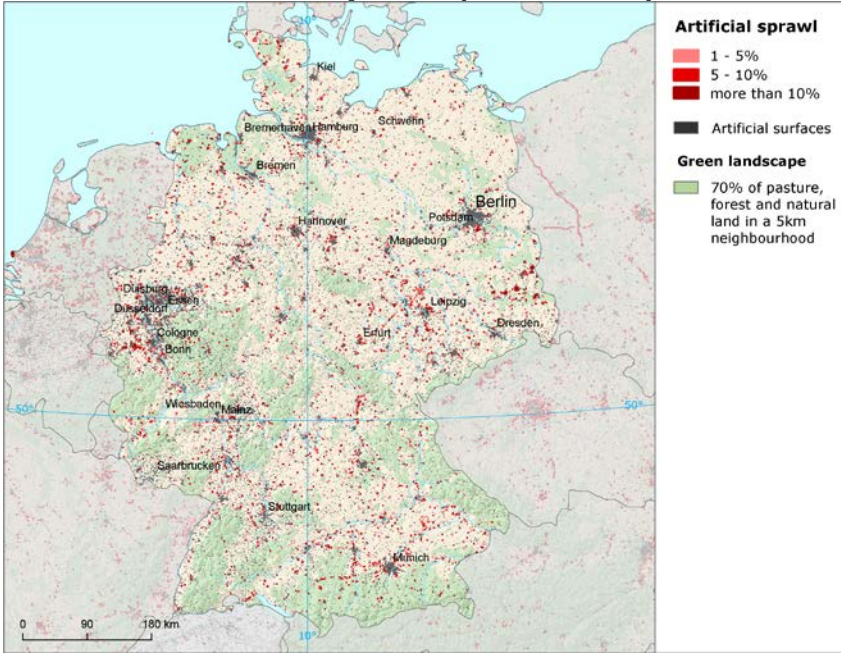


Summary trend figures		
	2000-2006	2006-2012
Annual land cover change [ha/year]	36221	38567
Annual land cover change as % of initial year	0.10%	0.11%
Land uptake by artificial development as mean annual change [ha/year]	10737	7224
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	9720	6603
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	128	-301
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	3122	5195
Forest & other woodland net formation as mean annual change [ha/year]	423	-208
Dry semi-natural land cover net formation as mean annual change [ha/year]	-1719	-184
Wetlands & water bodies net formation as mean annual change [ha/year]	2740	967

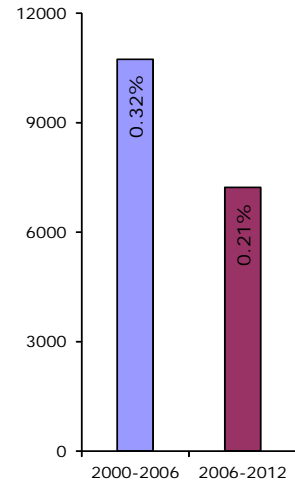
2.7. Intensity of main change drivers (LC FLOWS) [ha/year]



Artificial surfaces sprawl (2006-2012)



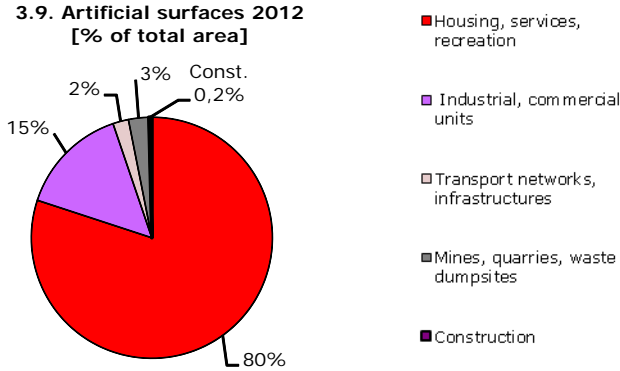
3.8. Artificial land take [ha/year, % of initial year]



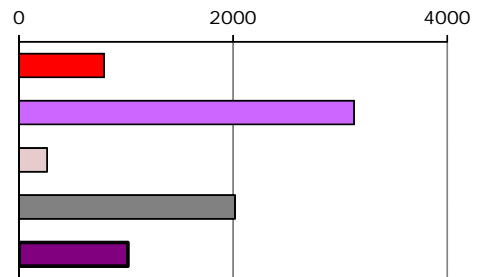
Rapid slowdown of residential sprawl

In the comparing periods 1990-2000, 2000-2006 and 2006-2012, artificial development in Germany shows a continuously decreasing tendency. This is valid in particular for diffuse residential sprawl, the major driver of artificial development in both previous periods, which is, however, getting slower. On the other hand, the sprawl of industrial and commercial sites shows significant increase, after major decline in the period 2000-2006, and became the most significant artificial flow in the period 2006-2012. Beside it, also sprawl of mines and quarrying areas occurs in the country, which, however, is compensated by the opposite conversion of former quarries into agricultural or natural land (all arable, pastures, shrubs and water bodies). The internal recycling of developed urban land has lower intensity as in the previous period and is represented mainly by conversion of construction sites into industrial or commercial units or discontinuous urban fabric. Geographically, the artificial development is densely scattered over the whole country, with major concentrations in North Rhine-Westphalia and in the surroundings of Leipzig and Munich. This spatial pattern is quite similar to the one from the period 2000-2006. The main difference is in the lower overall density of the scattered sprawl - this concerns in particular Bavaria, North Rhine-Westphalia and Lower Saxony.

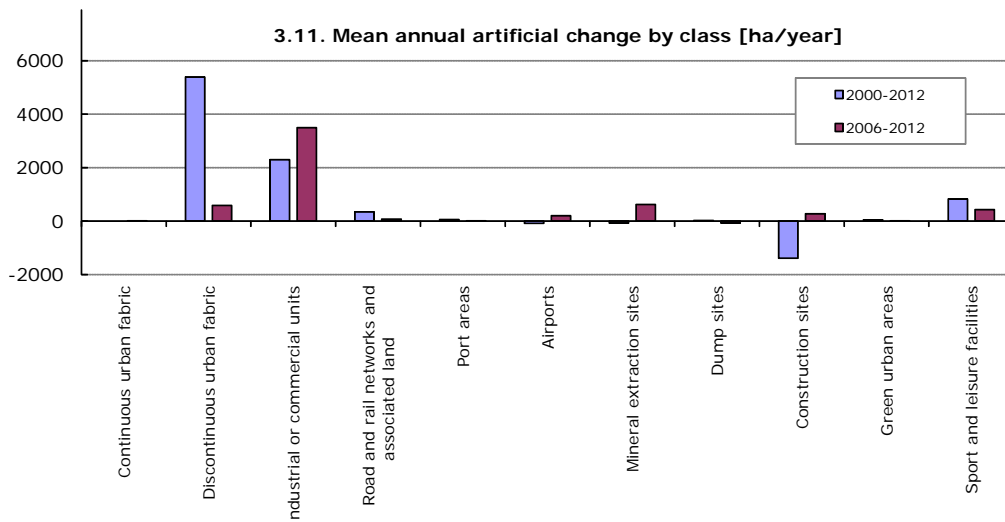
3.9. Artificial surfaces 2012 [% of total area]



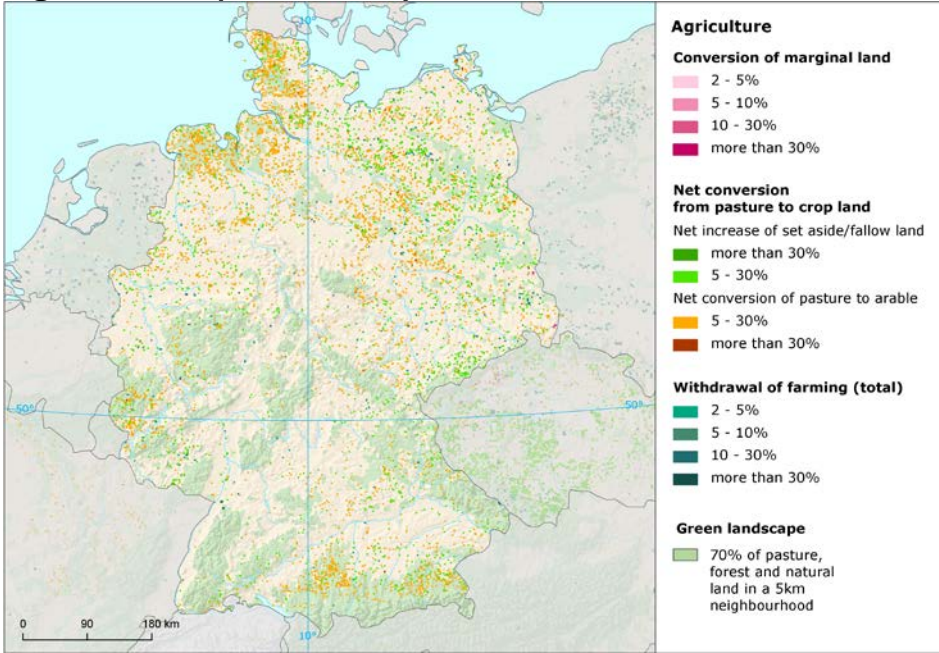
3.10. Artificial land take 2006-2012 [ha/year]



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

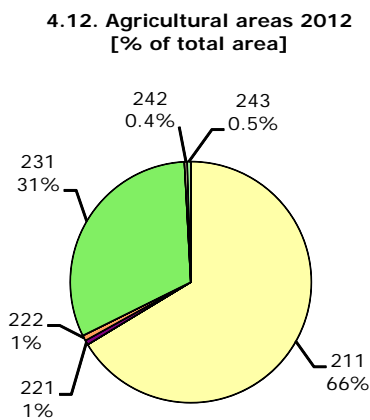


Agriculture (2006-2012)

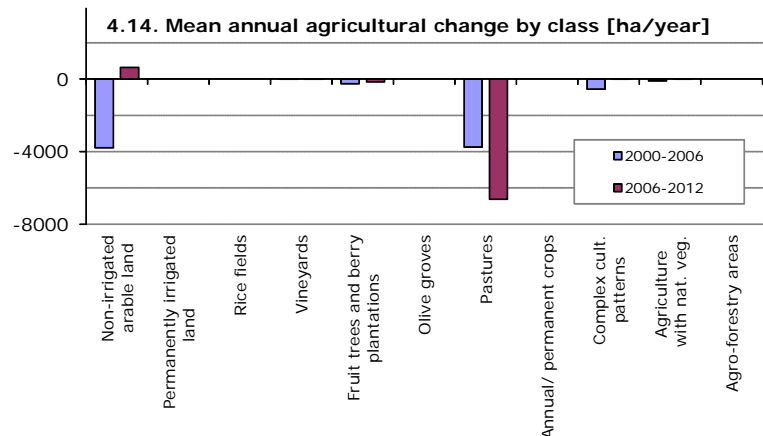
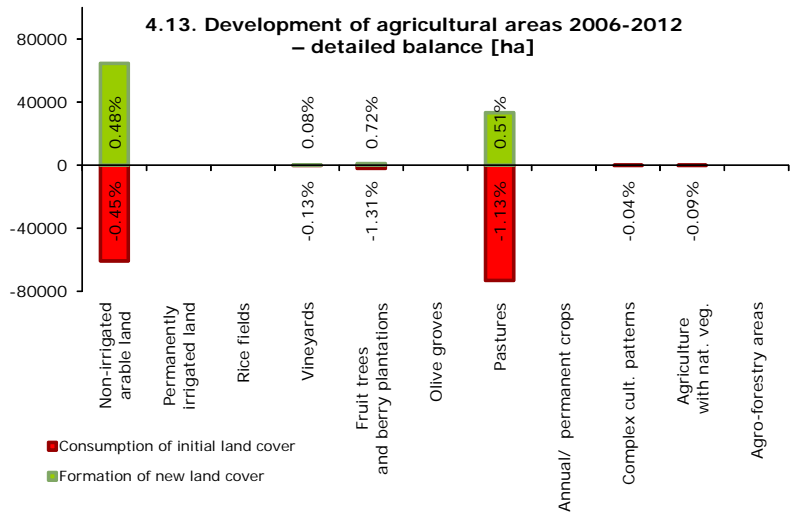


Agriculture internal conversions accelerate again

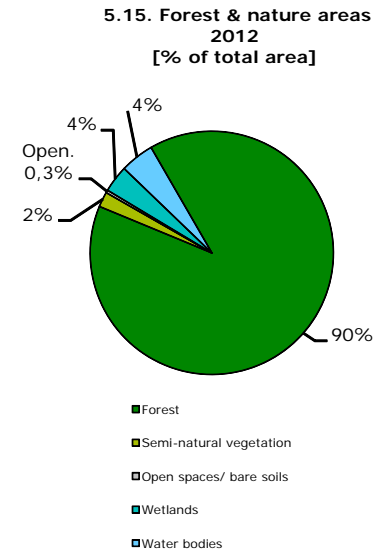
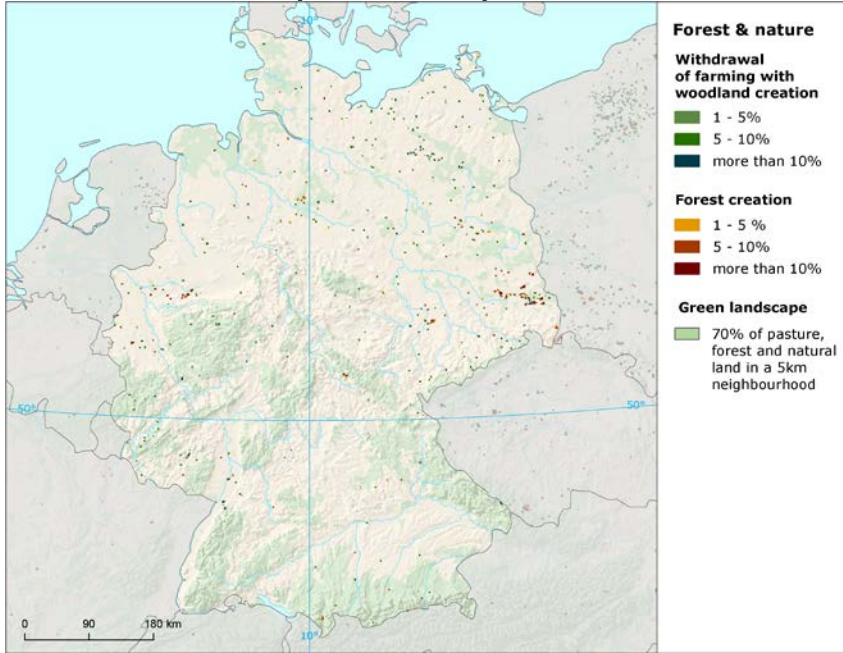
Agricultural internal flows are the most extensive drivers of landscape change in Germany. After significant decline, their intensity is about three times as higher recently than in the 2000-2006 period, which, however, is still only about one half of the intensity shown by these flows in the period 1990-2000. Conversion from pasture to arable land is more frequent than the opposite extension of pasture. Geographically, these flows are scattered mostly over the northern part of the country (with the highest density in the northwest, in particular along the North Sea shore) and also in southern Bavaria. From external flows, consumption of agricultural land by sprawl of economic sites and infrastructures (mainly commercial/industrial or mineral extraction sites) is most frequent, followed by opposite conversion from mineral extraction sites to agriculture. The exchange with natural land is realized mainly through withdrawal of farming with woodland and water bodies creation, which consume both arable and pasture land. As a result of all these exchanges, pastures show a negative net change balance and arable land a slightly positive one, which is a different situation when compared to the previous period, which was characterized by prevailing consumption of both pasture and arable land.



- 211 Non-irrigated arable land
- 212 Permanently irrigated land
- 213 Rice fields
- 221 Vineyards
- 222 Fruit trees and berry plantations
- 223 Olive groves
- 231 Pastures
- 241 Annual crops associated with permanent crops
- 242 Complex cultivation patterns
- 243 Agriculture land with significant areas of natural vegetation
- 244 Agro-forestry areas

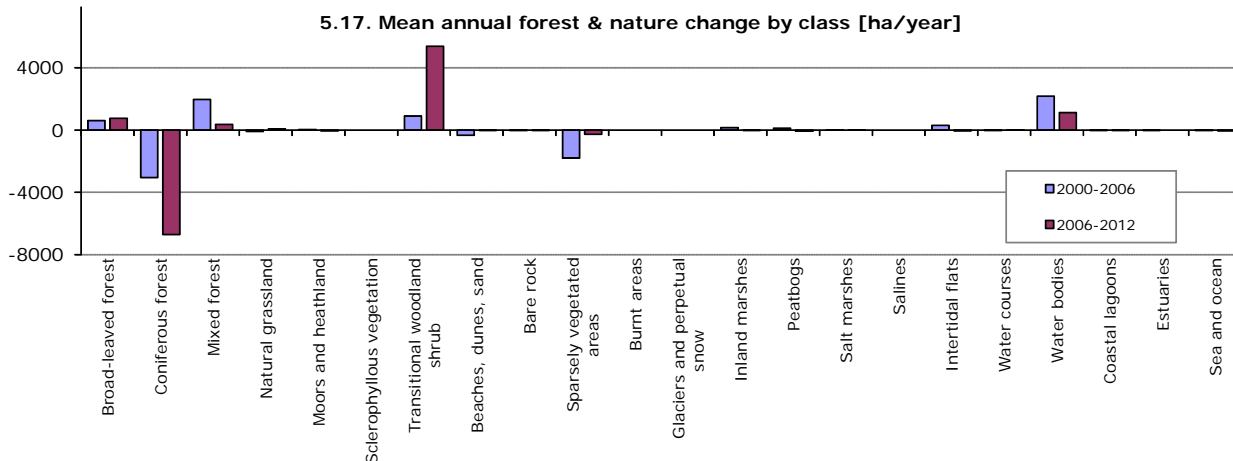
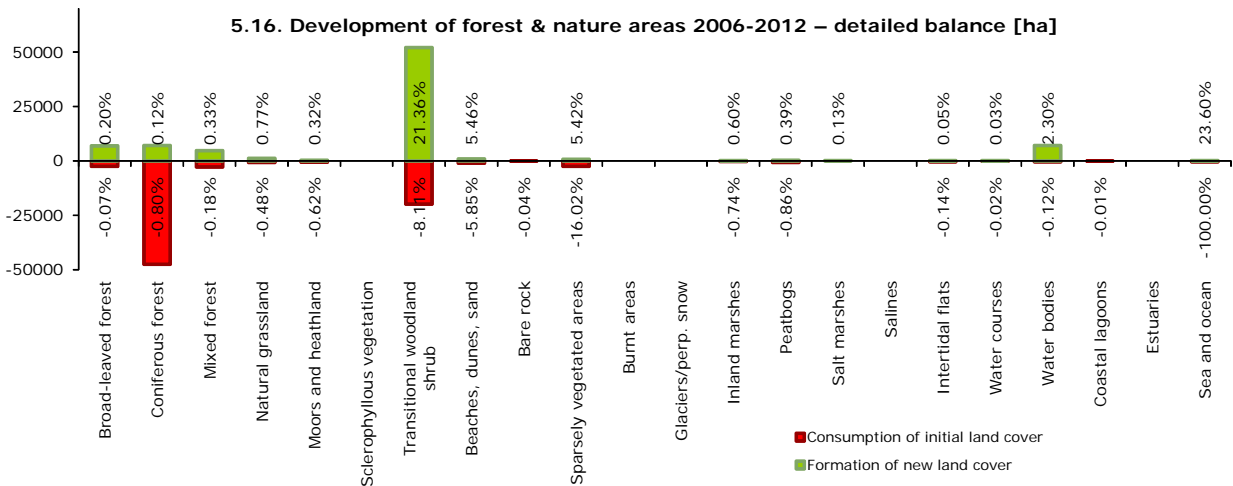


Forest & nature (2006-2012)



Internal forest conversions still strong

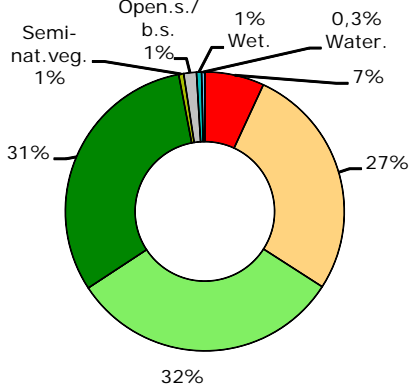
The exchange of natural land in Germany is driven mostly by forest creation and management, which is the second most powerful land cover flow in the country. The intensity of this flow is comparable with previous period 2000-2006, which is only slightly lower than in the period 1990-2000. As usual in Europe, this flow is driven mainly by internal forest conversions, this time with prevailing share of recent felling and transition. This is a similar situation as in the period 1990-2000, however, a bit different than in the period 2000-2006, during which opposite conversion from transitional woodland to forest was a bit more dominant. As a result, the transitional woodland area increased by about 15% in Germany between 2006 and 2012. Beside these conversions, natural land cover (with prevailing share of coniferous forest) is consumed mainly by sprawl of economic sites and infrastructures, in particular mineral extraction sites. Although it lost about half of its intensity, there still occurs significant amount of water bodies creation, mostly situated in the southern part of former Eastern Germany.



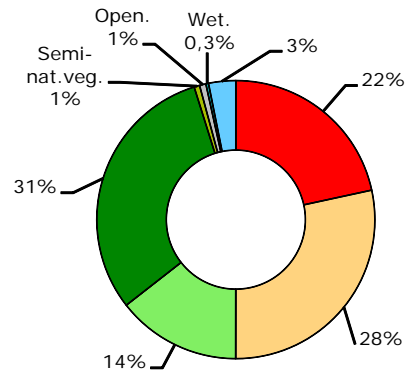
Annex: Land cover flows and trends

Land cover flows 2006-2012

6.18. Consumption of land cover 2006-2012 [% of total change area]

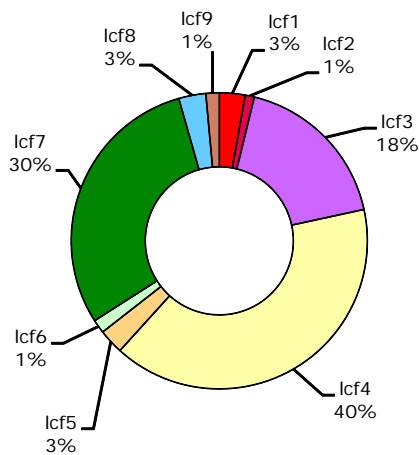


6.19. Formation of land cover 2006-2012 [% of total change area]



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

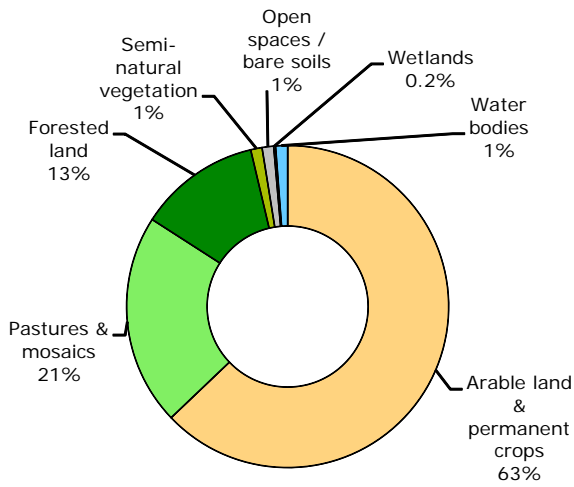
6.20. Drivers of change (LC FLOWS) 2006-2012 [% of total change area]



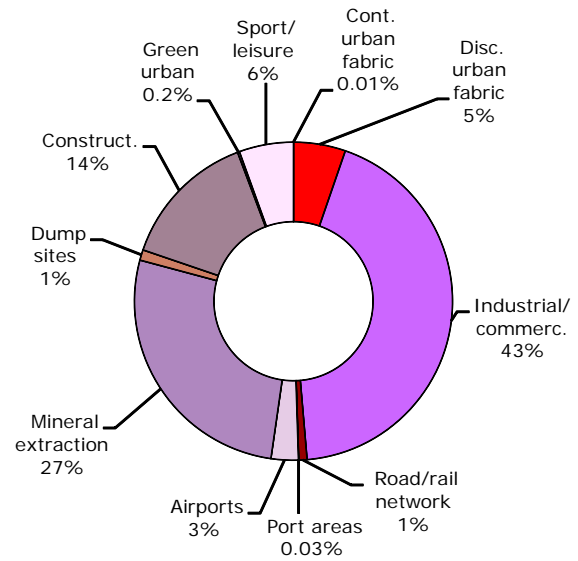
- Icf1 Urban land management
- Icf2 Urban residential sprawl
- Icf3 Sprawl of economic sites and infrastructures
- Icf4 Agriculture internal conversions
- Icf5 Conversion from forested & natural land to agriculture
- Icf6 Withdrawal of farming
- Icf7 Forests creation and management
- Icf8 Water bodies creation and management
- Icf9 Changes due to natural and multiple causes

Artificial areas

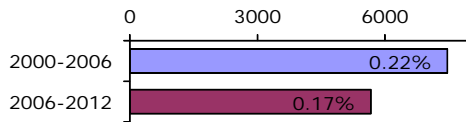
7.21. Consumption by artificial land take 2006-2012 [% of total]



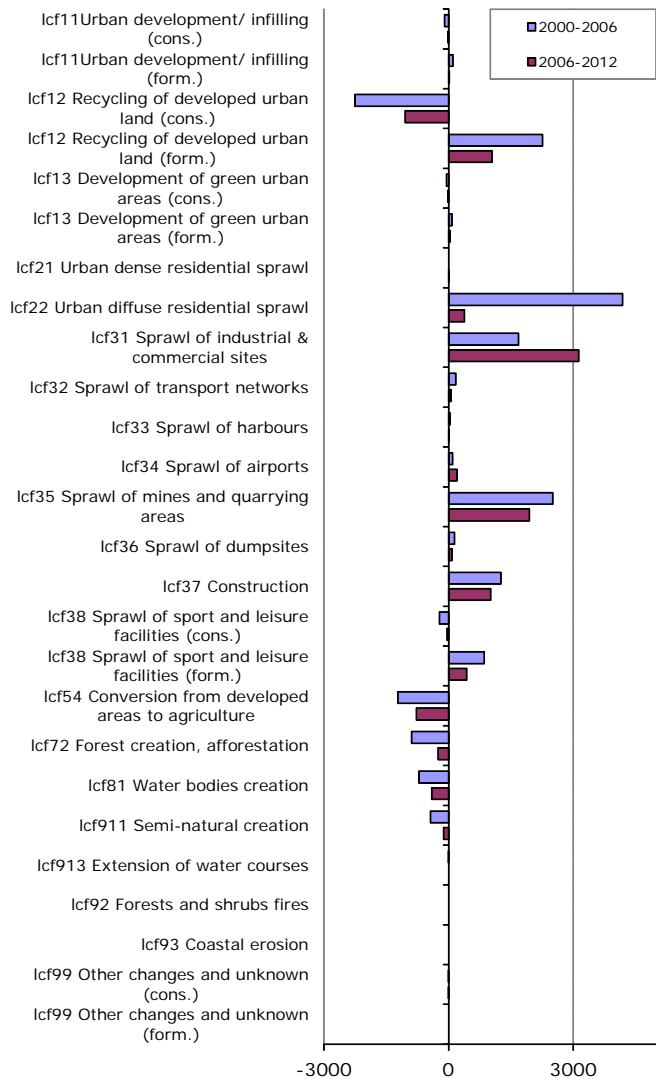
7.22. Formation by artificial land take 2006-2012 [% of total]



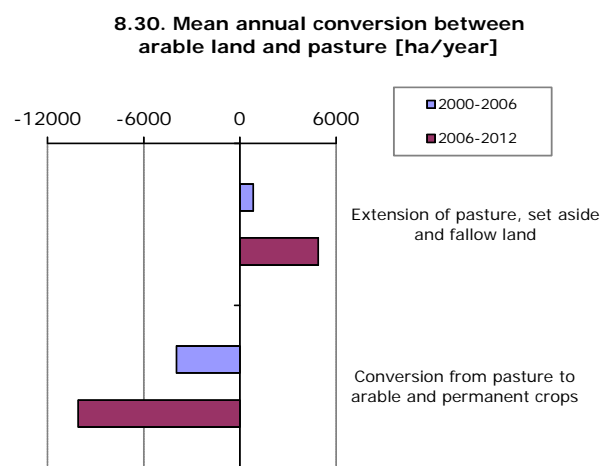
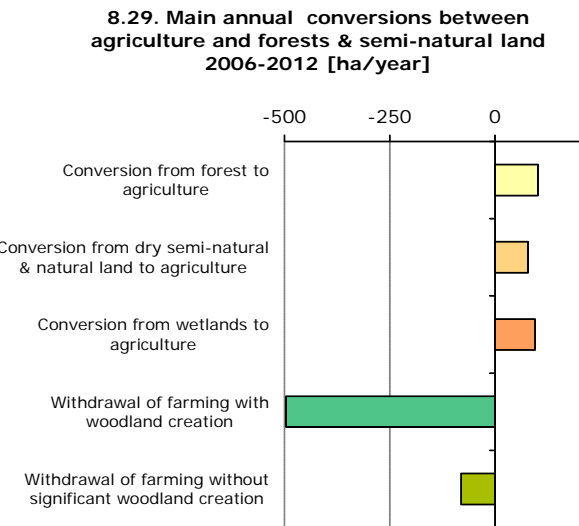
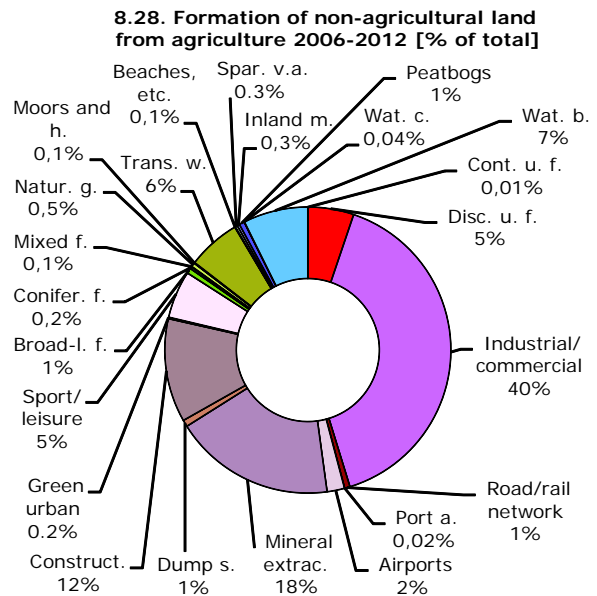
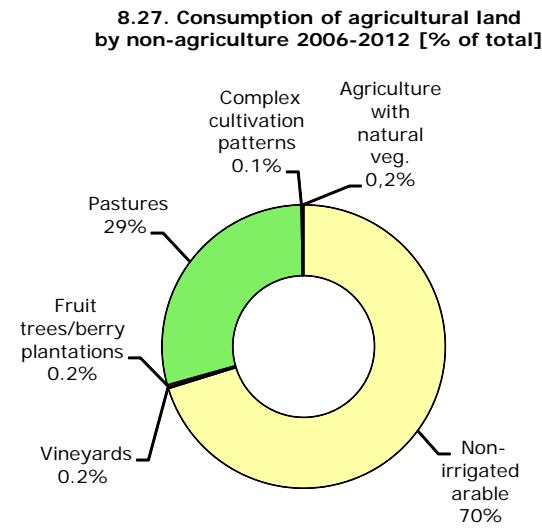
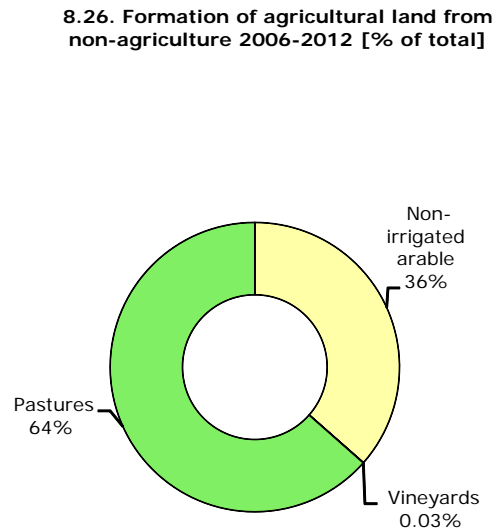
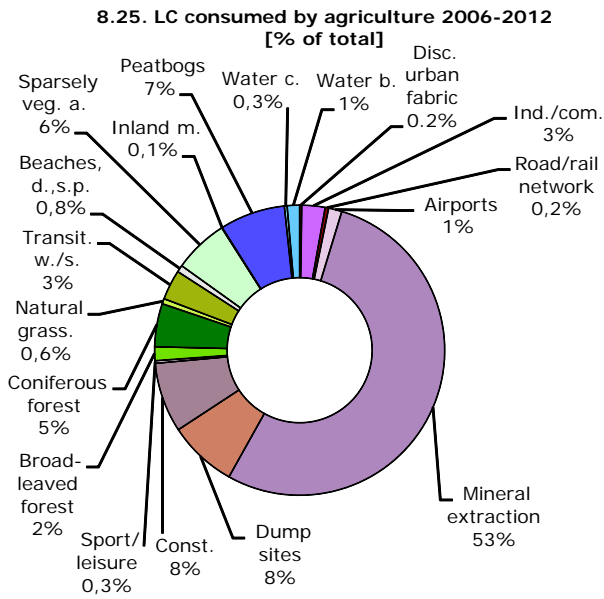
7.23. Net formation of artificial area [ha/year, % of initial year]



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

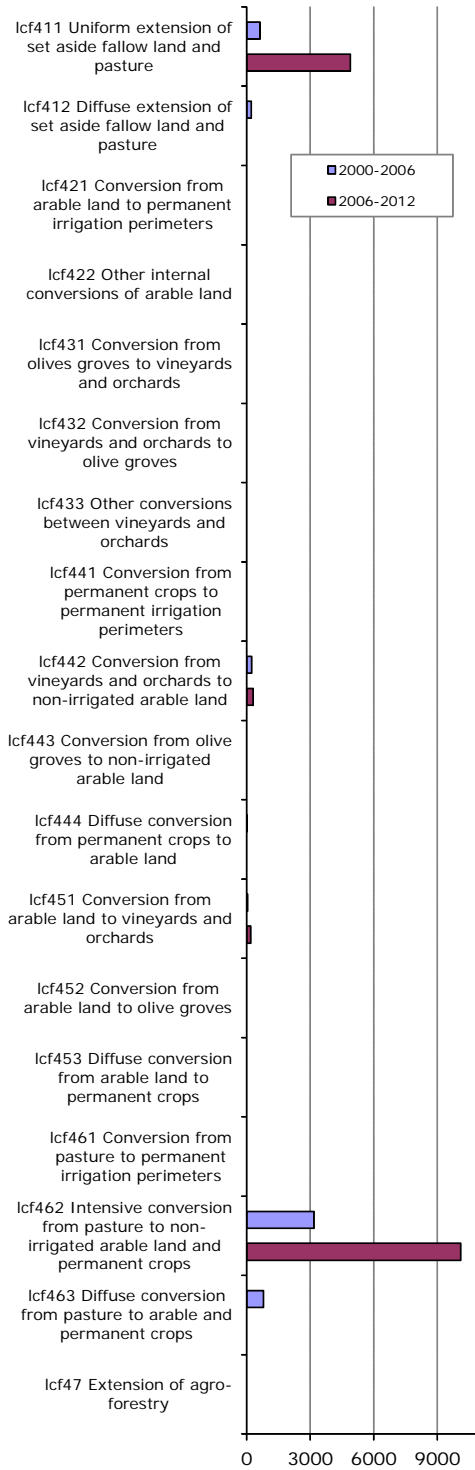


Agriculture

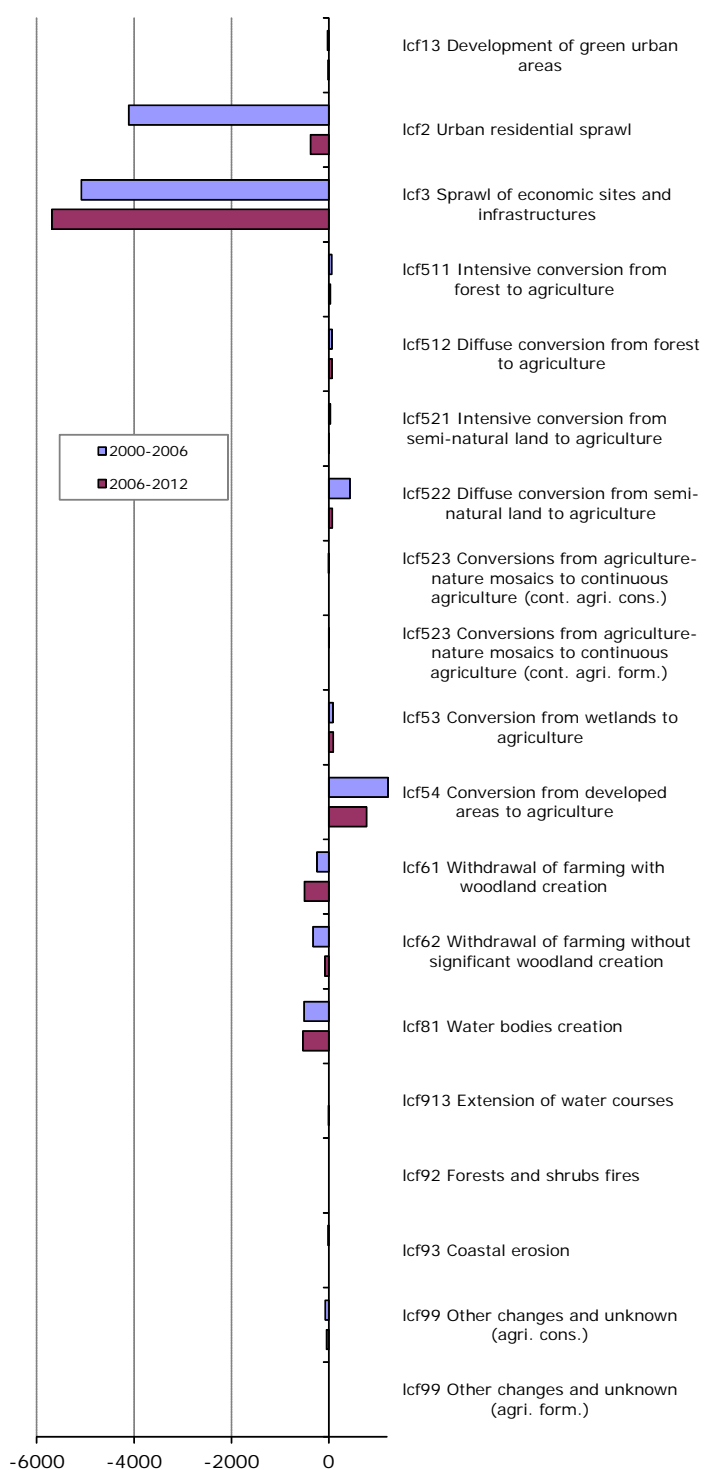


Germany

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

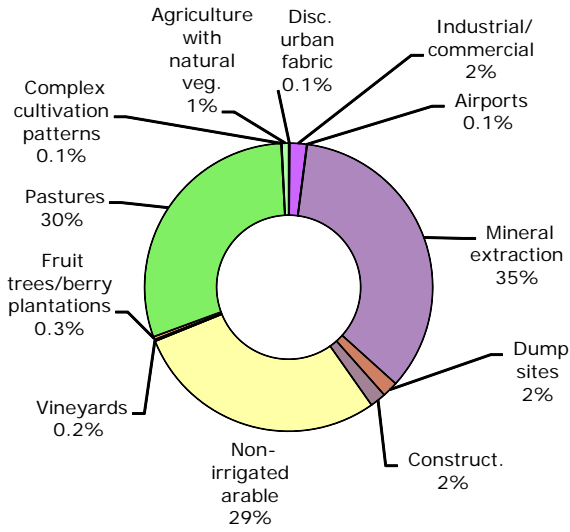


9.32. Mean annual conversions between agriculture and other LC types [ha/year]

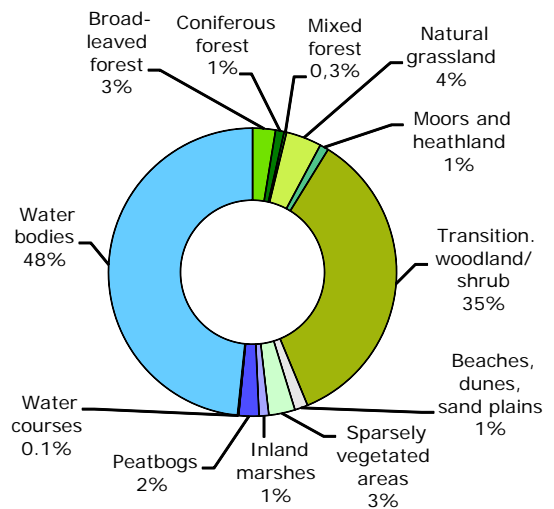


Forest & nature

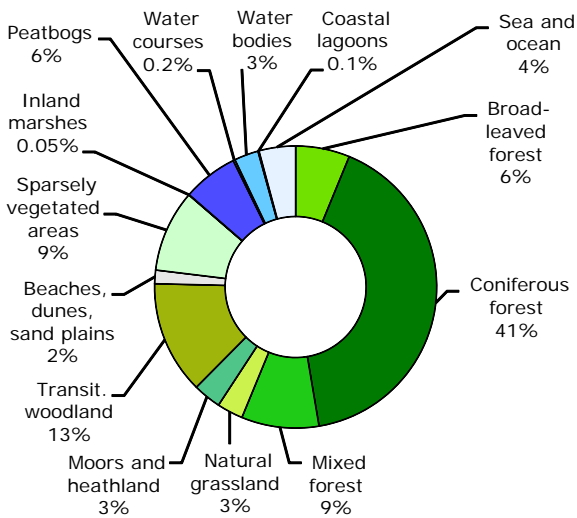
10.33. LC consumed by forest & nature 2006-2012 [% of total]



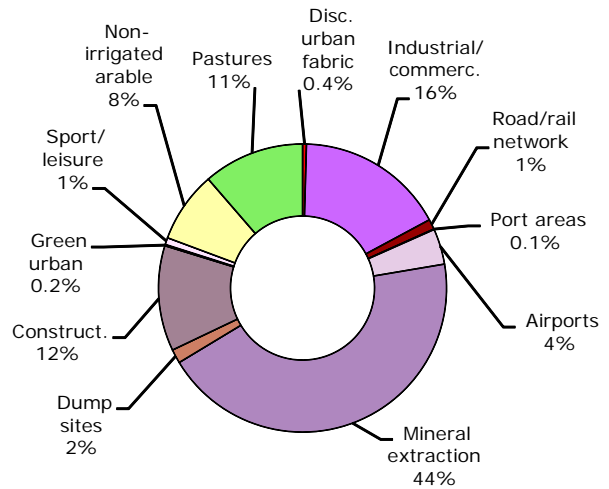
10.34. Formation of forest & nature land from non-forest /nature 2006-2012 [% of total]



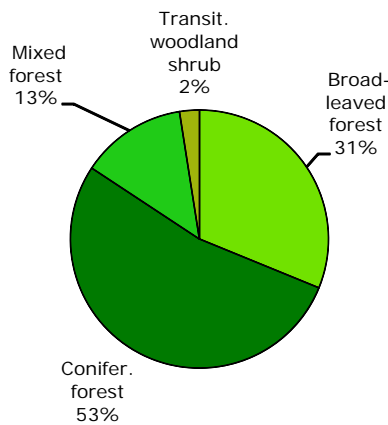
10.35. Consumption of forest & nature land by non-forest/nature 2006-2012 [% of total]



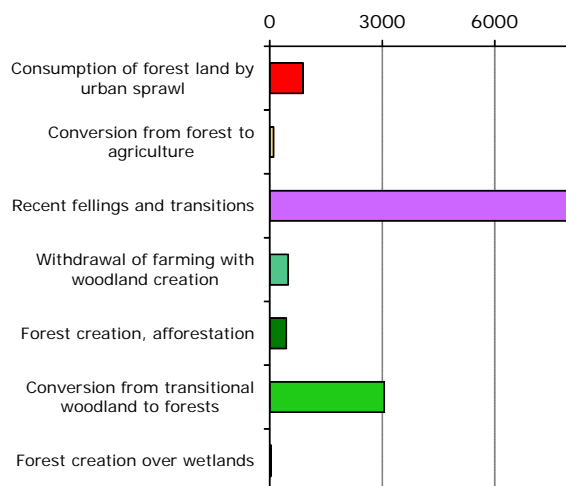
10.36. Formation of non-forest/nature land from forest & nature 2006-2012 [% of total]



10.37. Forested land 2012 [% of total area]

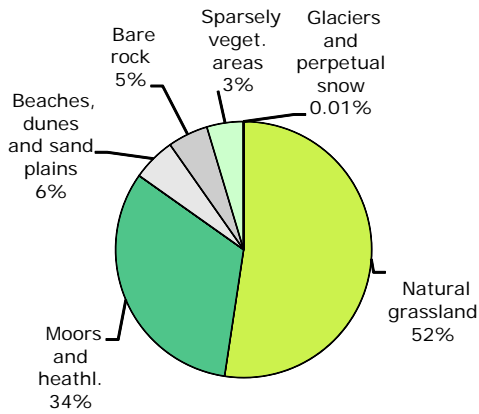


10.38. Main trends in woodland & forests consumption/formation 2006-2012 [ha/year]

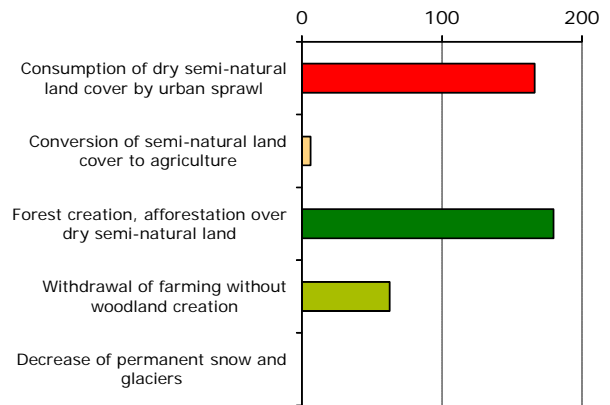


Germany

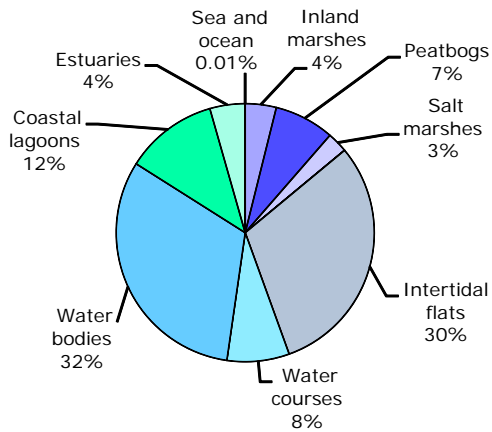
11.39. Dry semi-natural areas 2012
[% of total area]



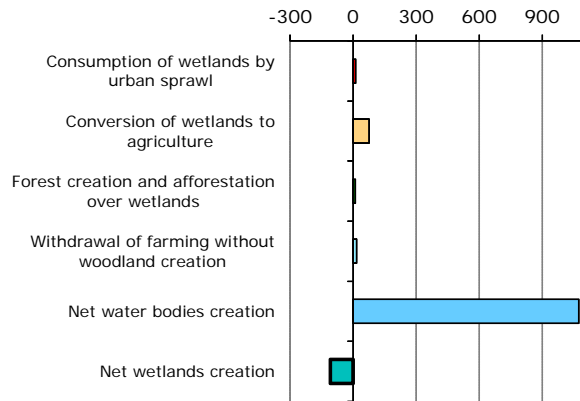
11.40. Main trends in dry semi-natural land consumption/formation 2006-2012
[ha/year]



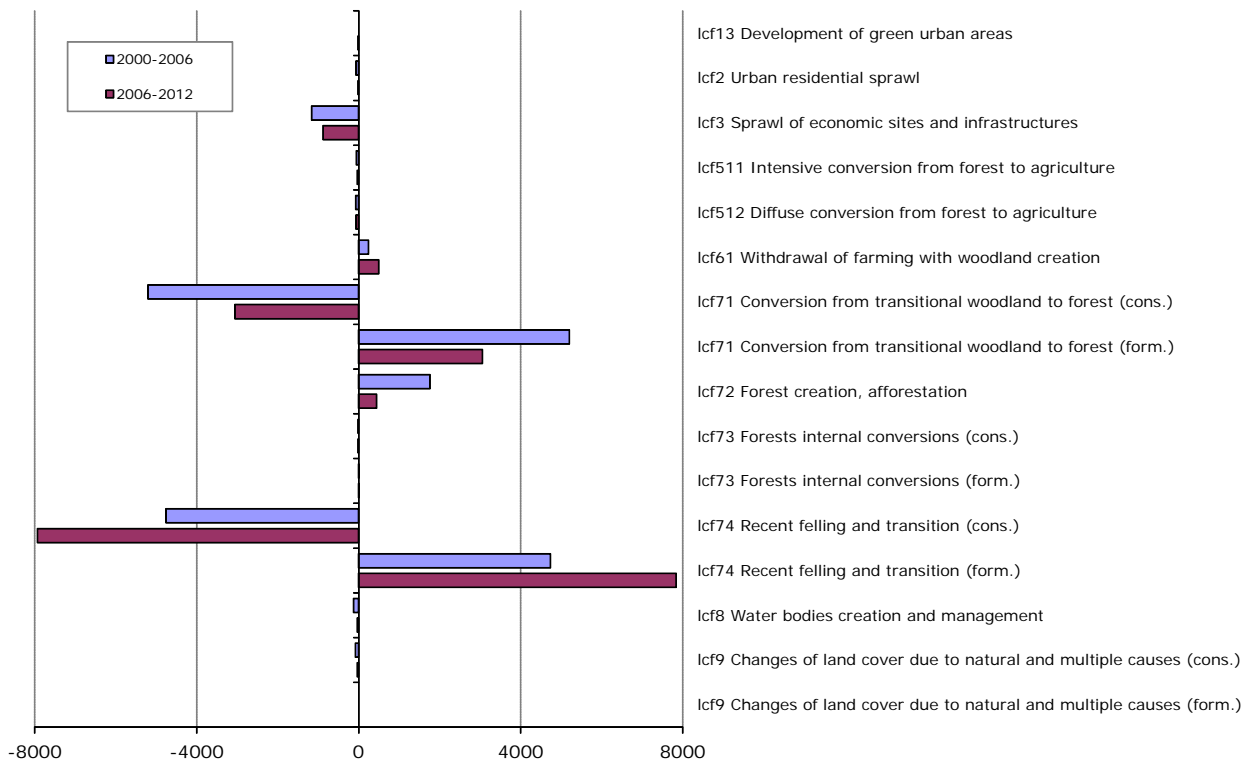
11.41. Wetlands & water 2012
[% of total area]



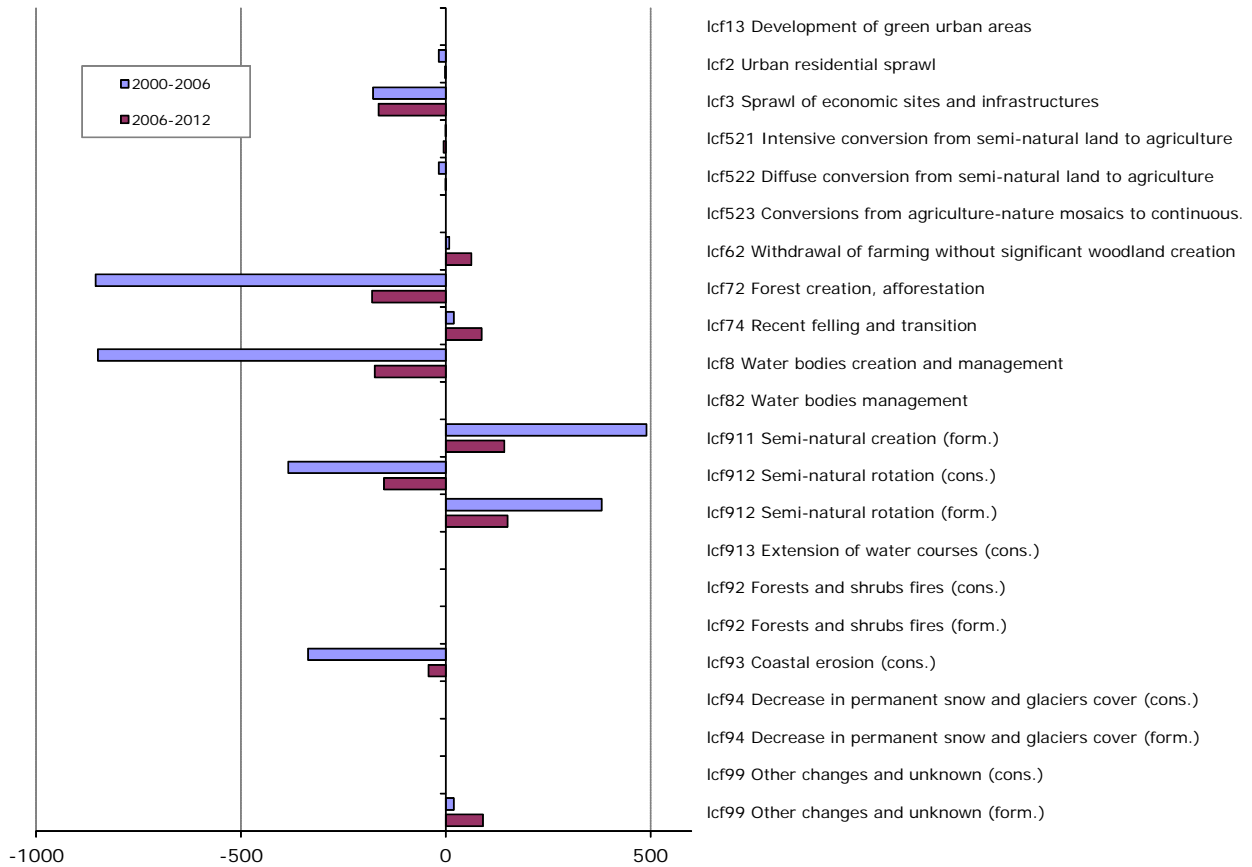
11.42. Main trends in wetlands & water consumption/formation 2006-2012
[ha/year]



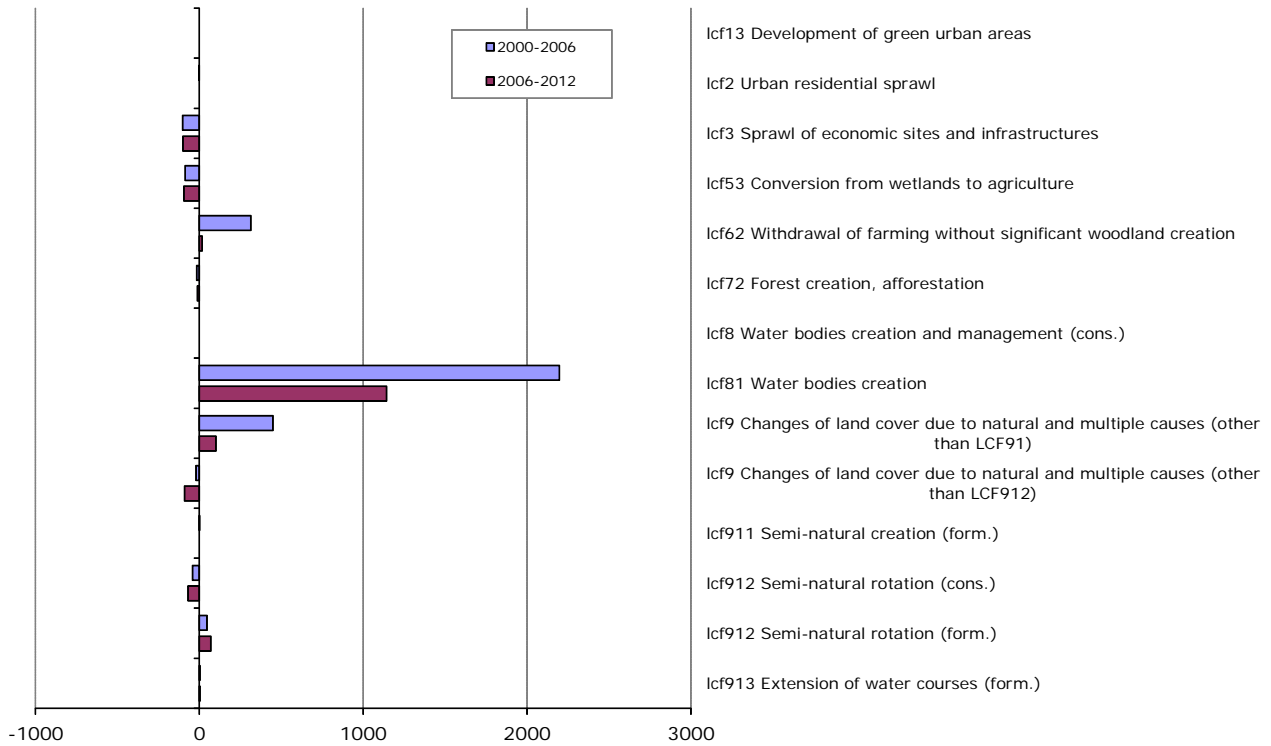
11.43. Mean annual conversions of forest & other woodland
[ha/year]



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

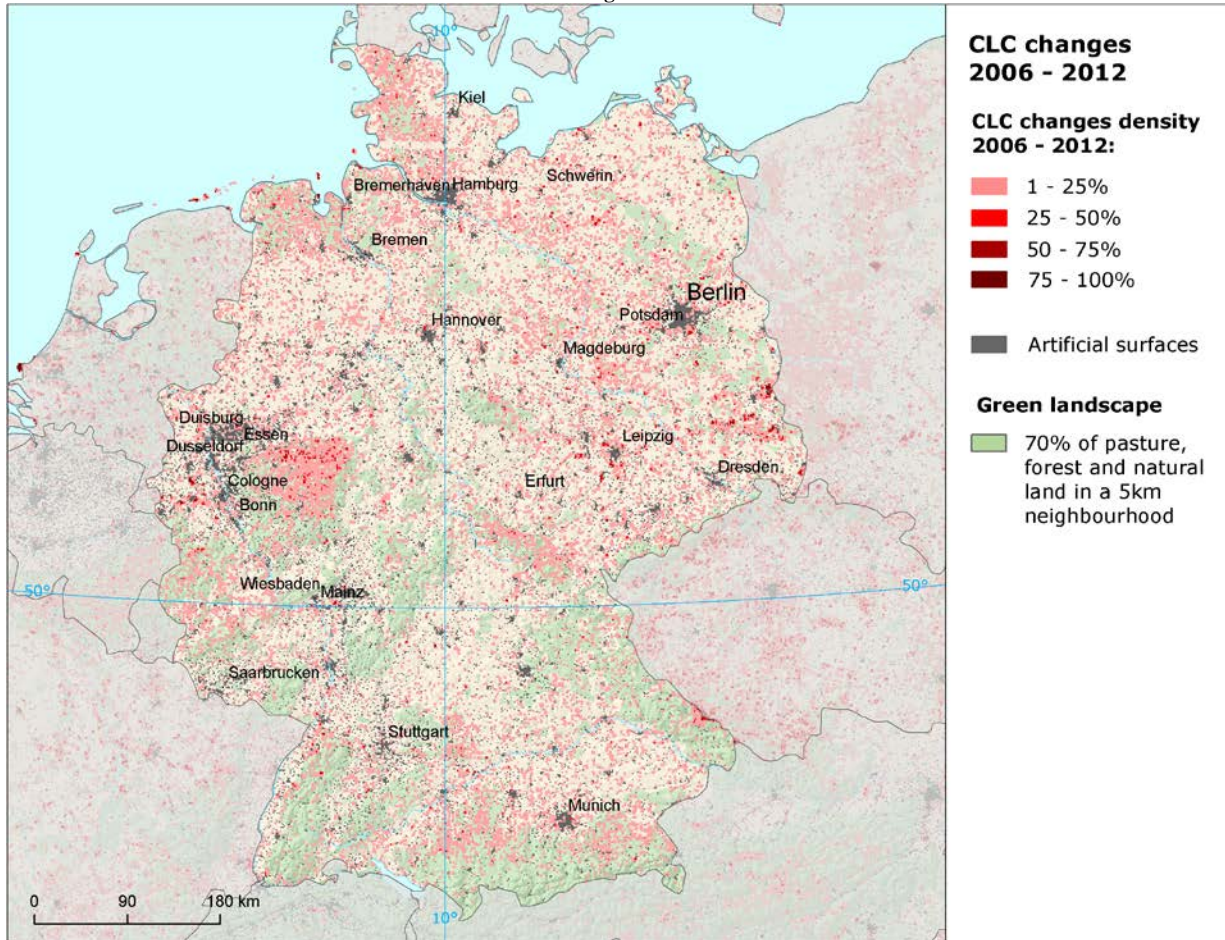


12.45. Mean annual conversions of wetlands and water LC [ha/year]

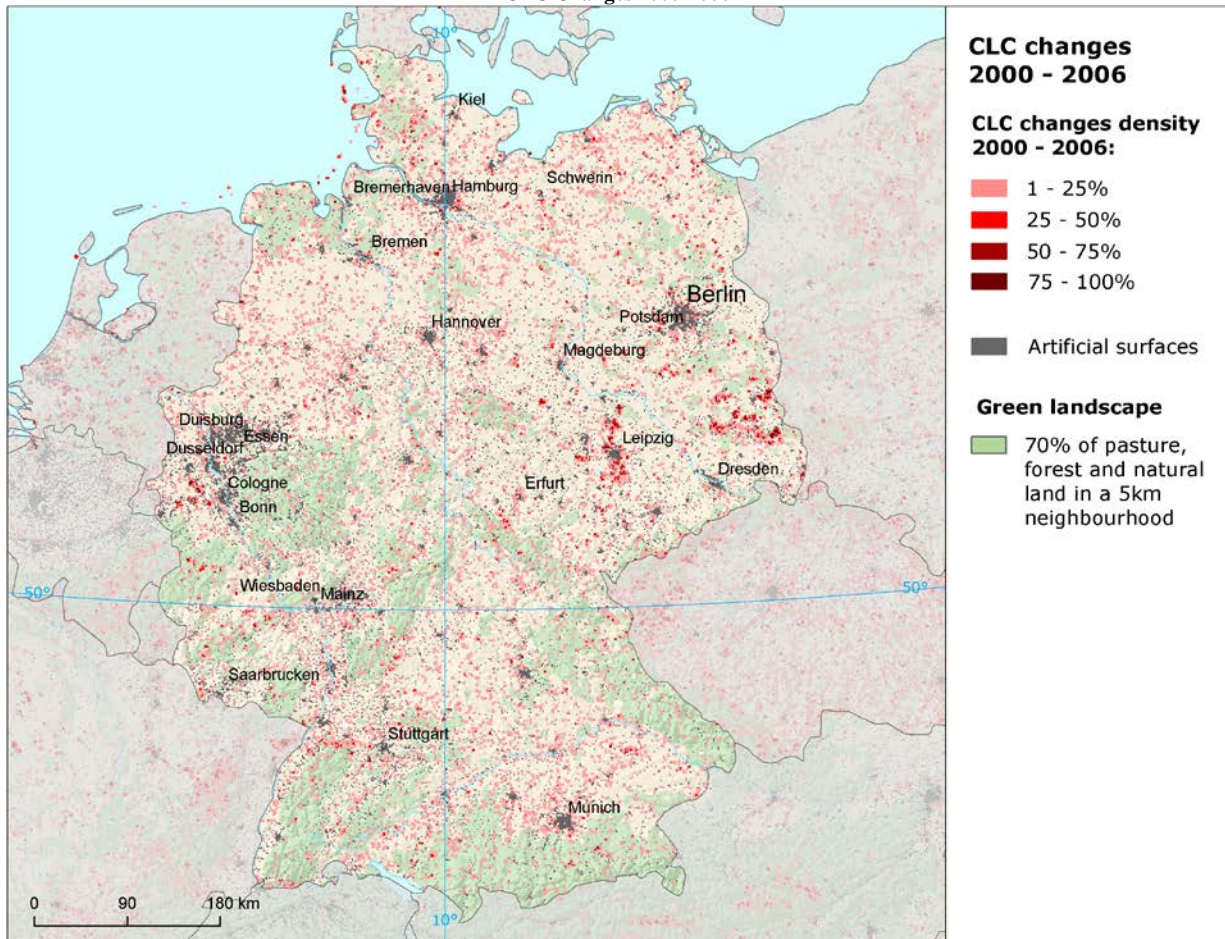


Germany

CLC Changes 2006-2012

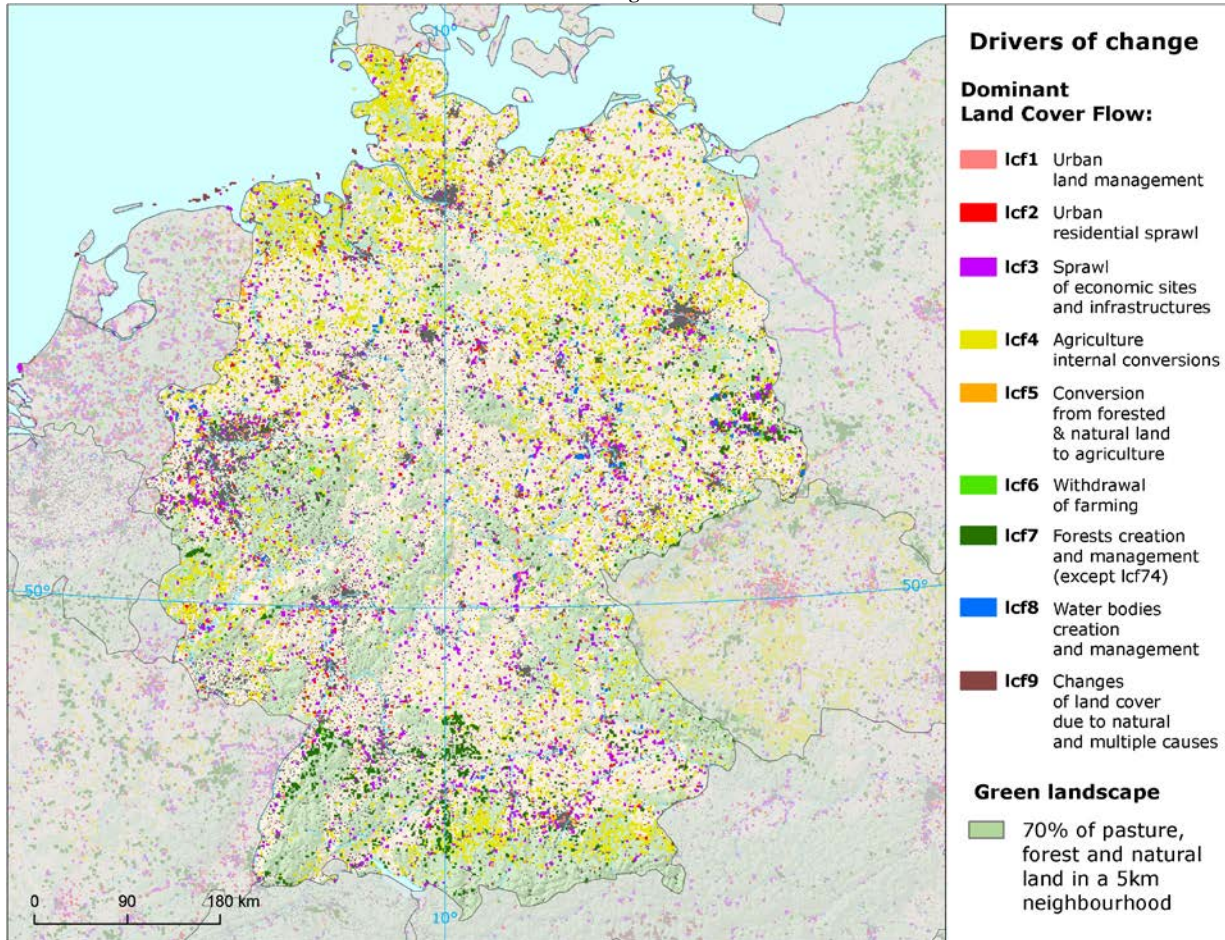


CLC Changes 2000-2006

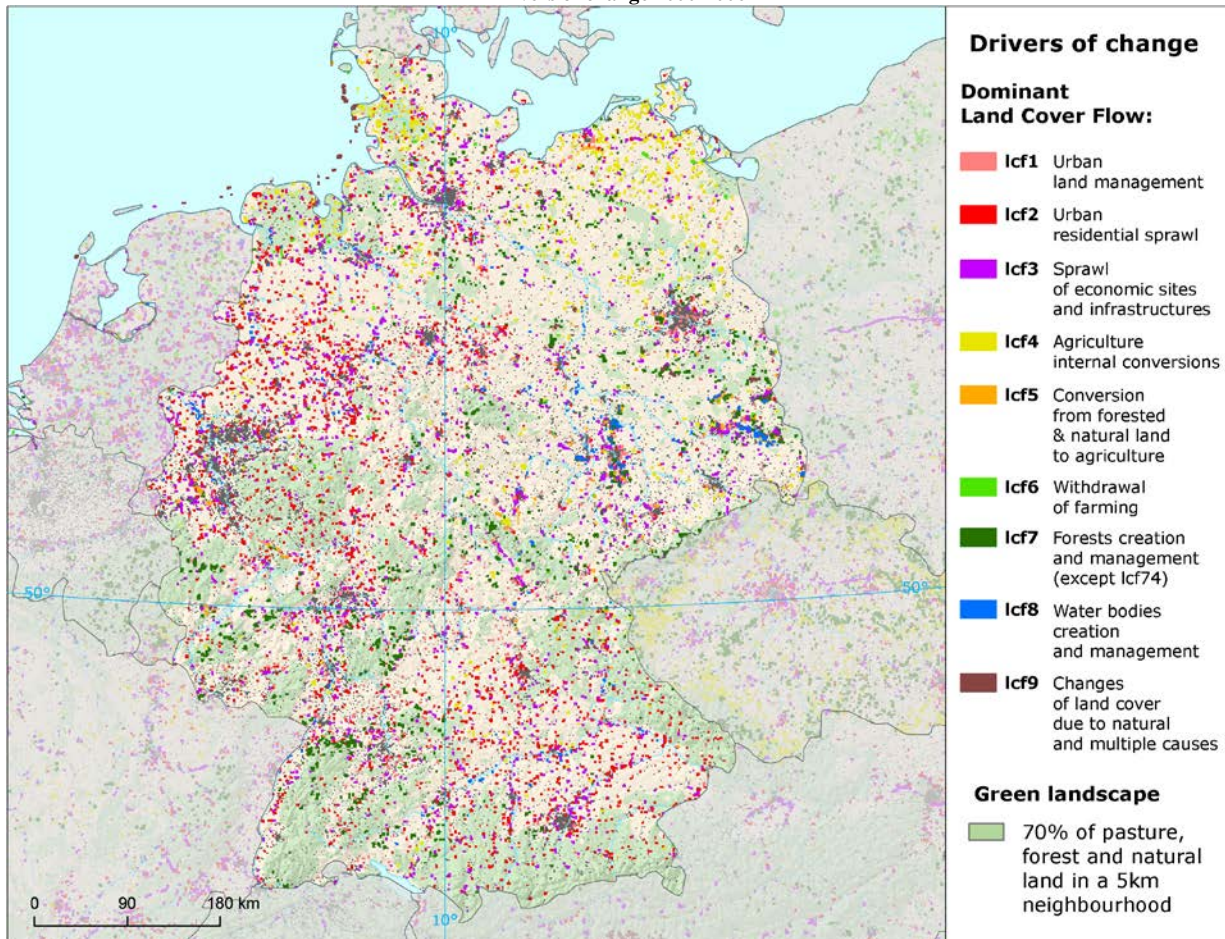


Germany

Drivers of change 2006-2012

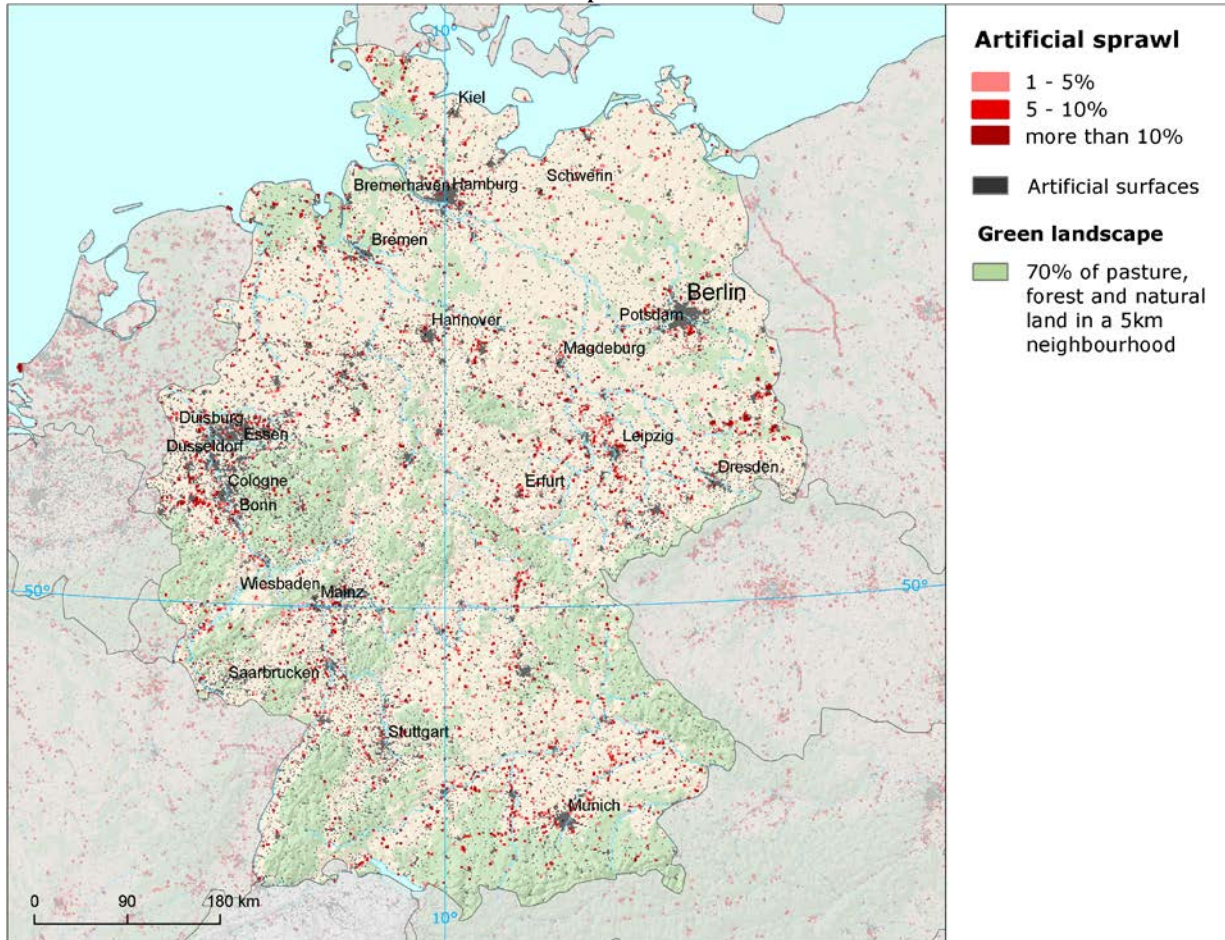


Drivers of change 2000-2006

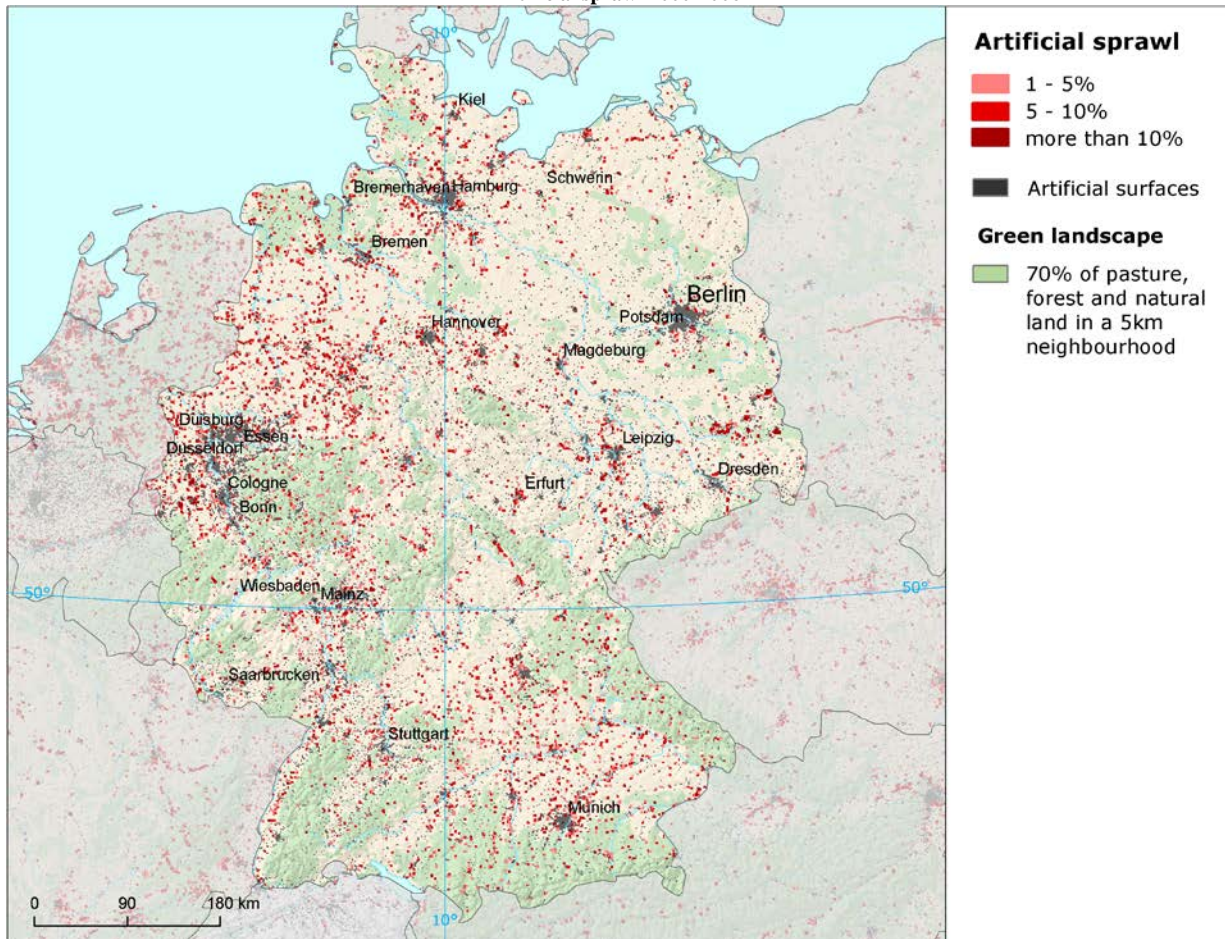


Germany

Artificial sprawl 2006-2012

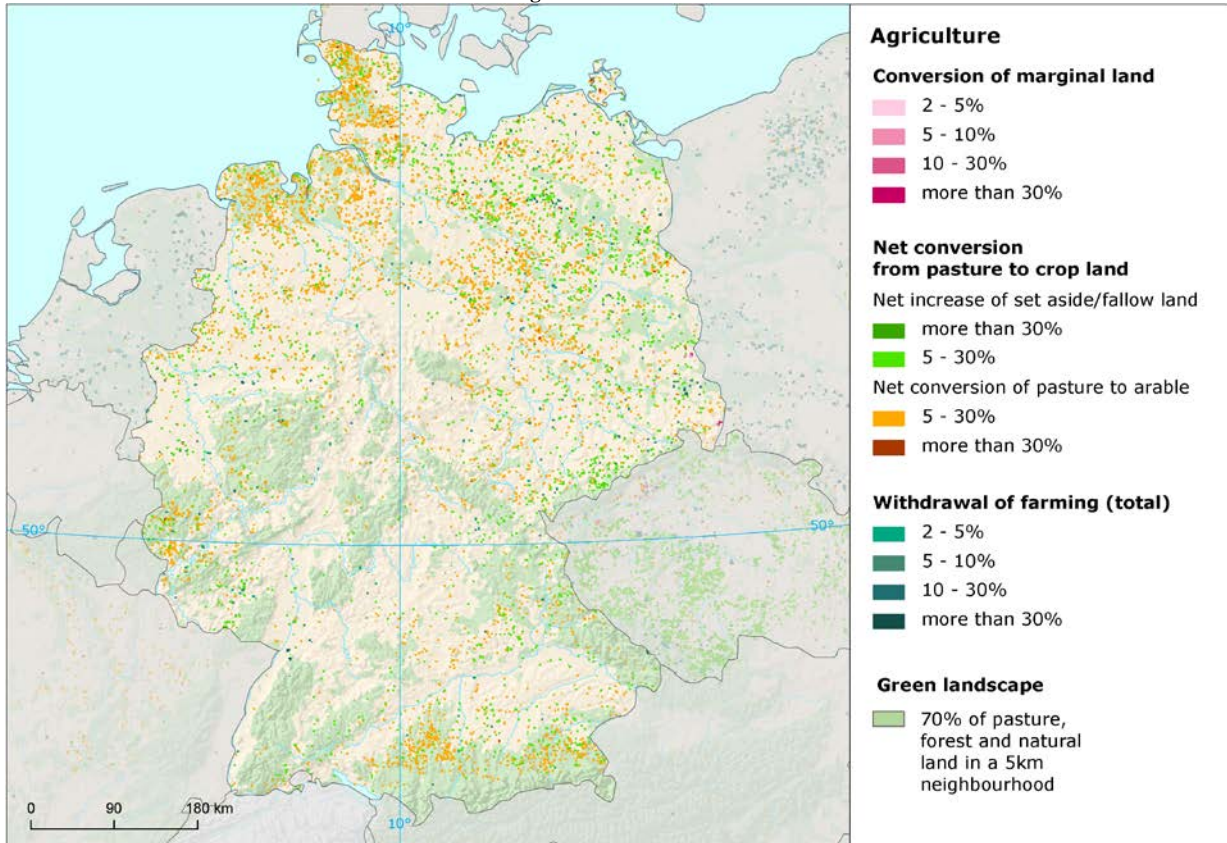


Artificial sprawl 2000-2006

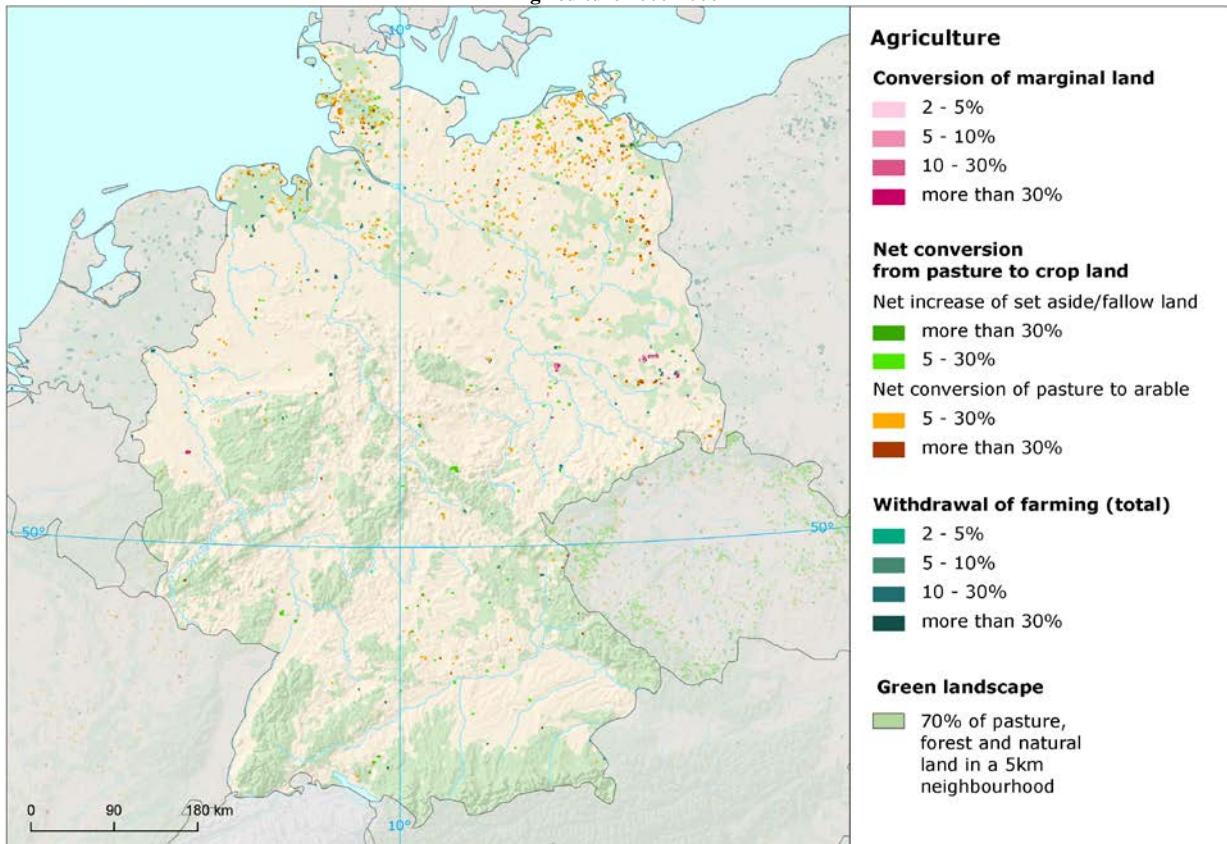


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Agriculture 2006-2012

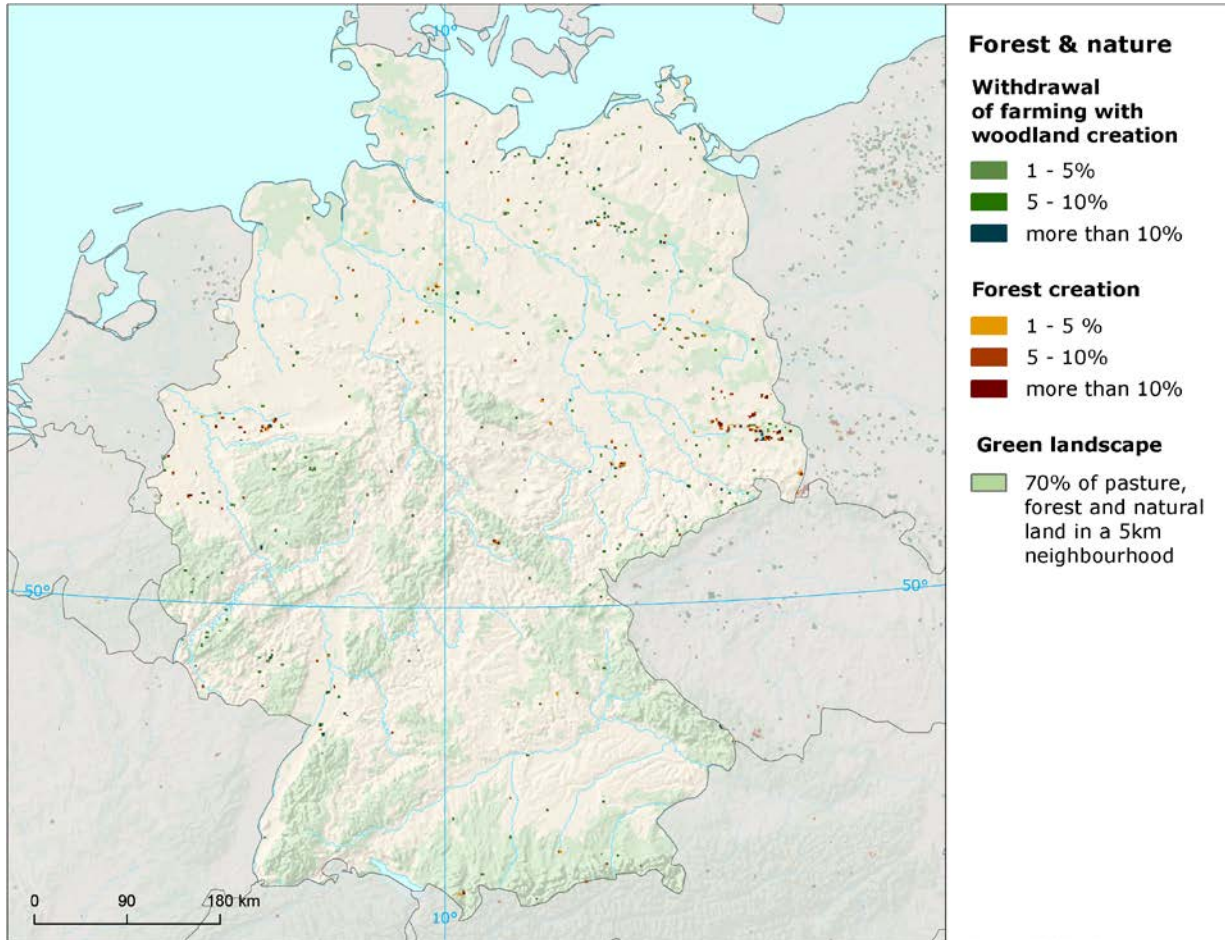


Agriculture 2000-2006



Germany

Forest and nature 2006-2012



Forest and nature 2000-2006

