Country fact sheet

Land cover 2012

Serbia

September 2017

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European Environment Agency

Serbia

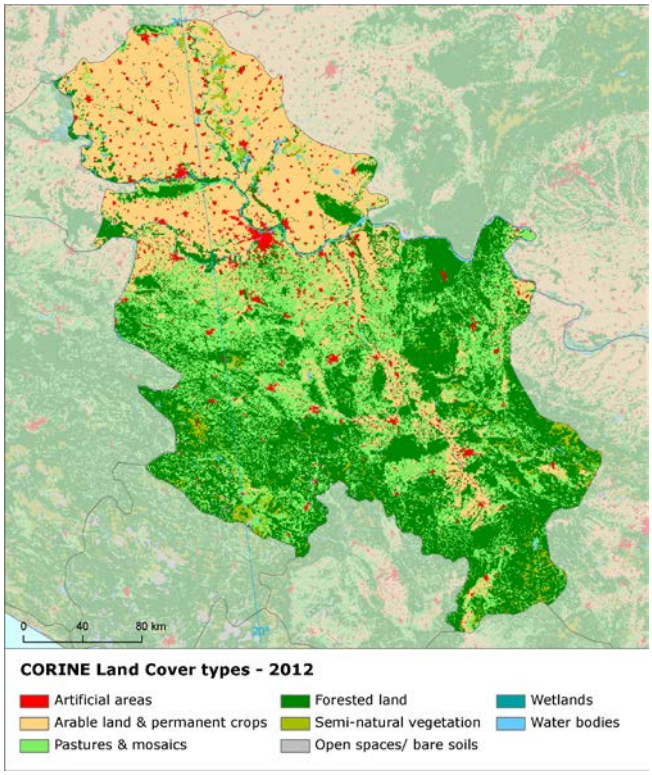
Land cover 2012

Overview of land cover & change 2006-2012

The development of the Serbian landscape seems to remain stable compared to previous period 2000-2006. The mean annual land cover change rate – 0.08% - is quite low, in comparison with other European countries – this illustrates low intensity of land cover development in the country. In the period 1990-2000, the pace of land cover change was a bit higher, with 0.11% annual change rate – it means that there even occurred a slight decrease of land cover development over time.

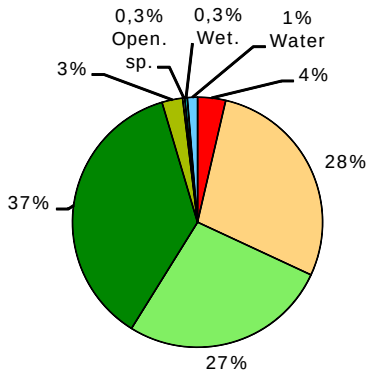
The internal structure of changes in Serbia shows very similar pattern as in previous periods. The landscape development is driven mainly by forest creation and management and also by internal conversions of agricultural land. The urban sprawl, mostly of economic sites and infrastructures, represents the third most powerful driver of change in the Serbian landscape. All these three most intensive land cover flows in the country have only slightly higher intensity, compared to the period 2000-2006. The overall mean annual artificial land take rate (0.25%) is comparable with both previous periods observed; this value is safely below the European average.

Similarly to the previous period, patches with land cover change are distributed more densely over the northern lowland region of Vojvodina, with the highest concentration around the capital city of Belgrade.

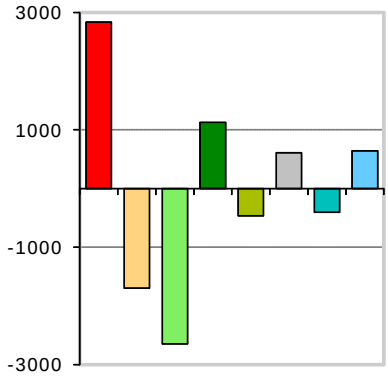


Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100.000 scale across Europe over more than decade between 2000-2006-2012 - see Corine land cover (CLC) programme for details.
Number of years between CLC2006-CLC2012 data for Serbia: 6

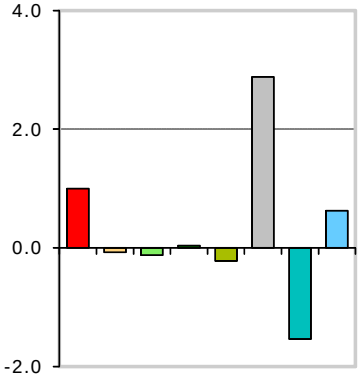
1.1. Land cover 2012 [% of total]



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

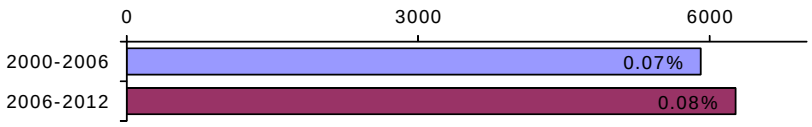
Summary balance table 2006-2012

	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	**2836**	**22315**	**21262**	**28806**	**2114**	**211**	**264**	**1020**	**78829**
Consumption of initial LC	15.8	70.5	53.7	219.0	5.1	2.4	4.6	4.8	376
Formation of new LC	44.1	53.5	27.3	230.3	0.5	8.5	0.6	11.2	376
Net Formation of LC	**28.3**	**-17.0**	**-26.5**	**11.3**	**-4.6**	**6.1**	**-4.1**	**6.4**	**0**
Net formation as % of initial year	*1.0*	*-0.1*	*-0.1*	*0.0*	*-0.2*	*2.9*	*-1.5*	*0.6*	
Total turnover of LC	**59.8**	**124.0**	**81.0**	**449.3**	**5.7**	**10.9**	**5.2**	**16.0**	**752**
Total turnover as % of initial year	*2.1*	*0.6*	*0.4*	*1.6*	*0.3*	*5.2*	*2.0*	*1.6*	*1.0*
Land cover 2012	**2864**	**22298**	**21236**	**28818**	**2109**	**217**	**260**	**1027**	**78829**

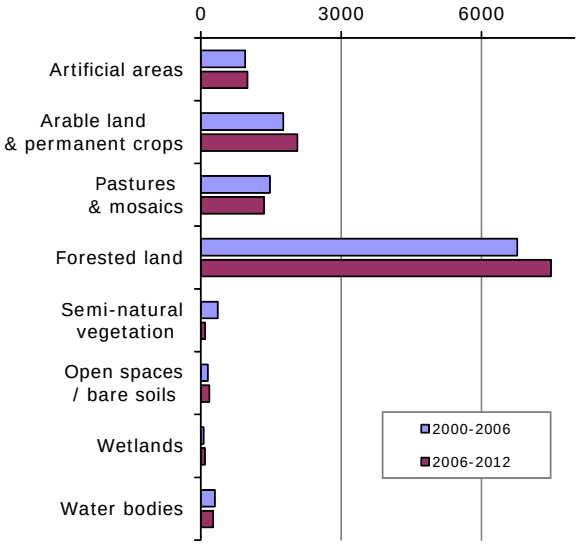
Serbia

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

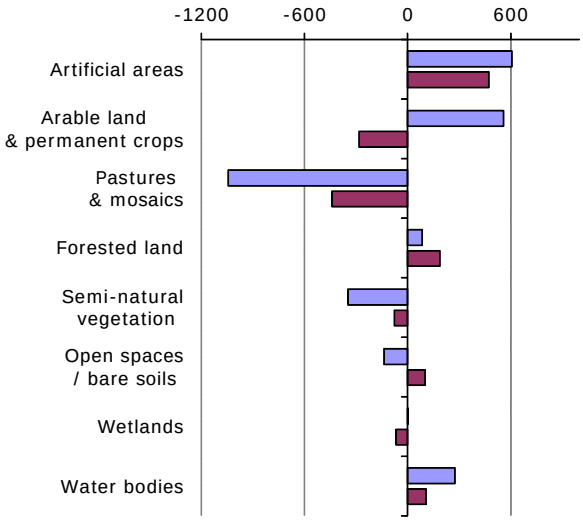
2.4. Annual land cover change [ha/year, % of total area]



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

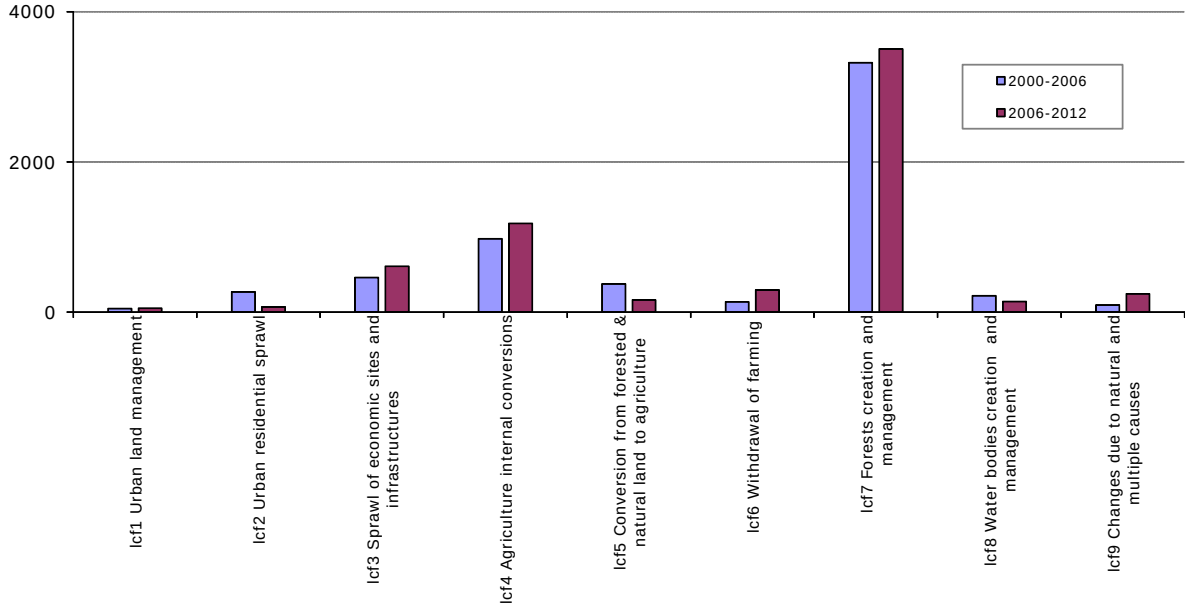


2.6. Net annual change of LC types [ha/year]



Summary trend figures	2000-2006	2006-2012
Annual land cover change [ha/year]	**5909**	**6266**
Annual land cover change as % of initial year	**0.07%**	**0.08%**
Land uptake by artificial development as mean annual change [ha/year]	731	685
Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]	717	591
Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]	222	-172
Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]	536	-121
Forest & other woodland net formation as mean annual change [ha/year]	85	188
Dry semi-natural land cover net formation as mean annual change [ha/year]	-484	24
Wetlands & water bodies net formation as mean annual change [ha/year]	278	39

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



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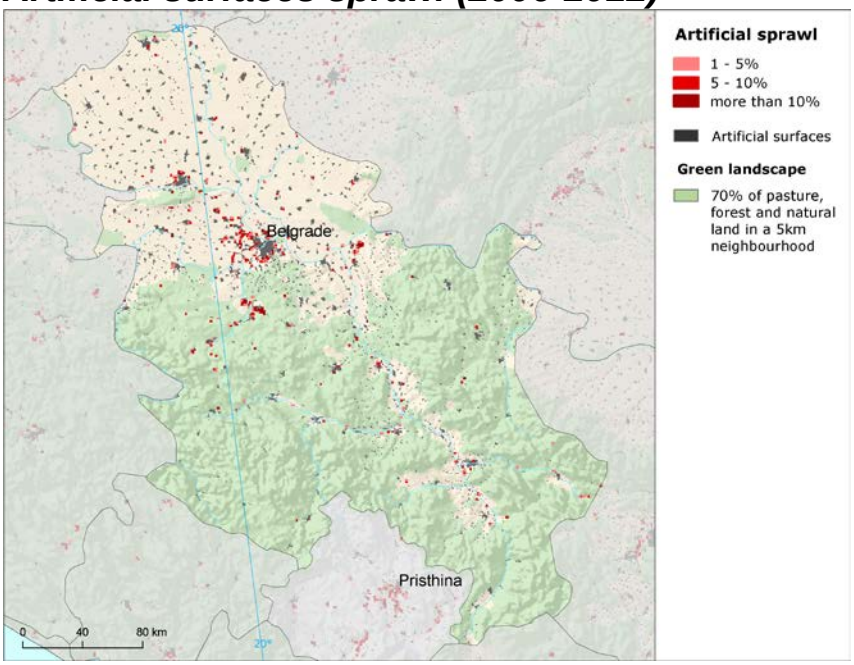
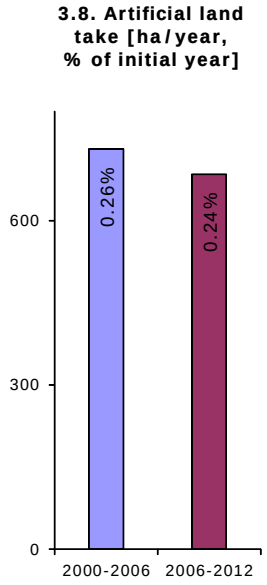
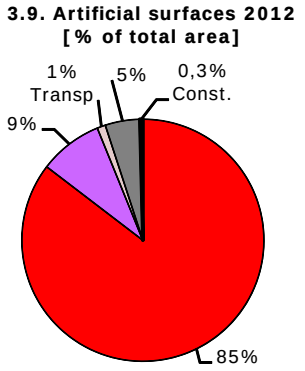
Artificial surfaces sprawl (2006-2012)

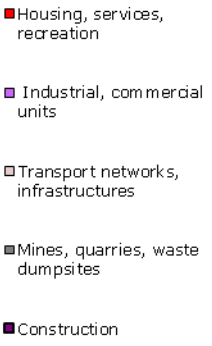


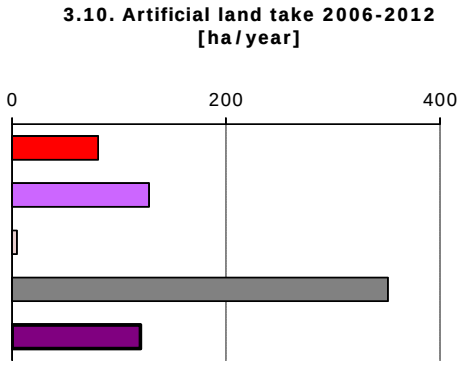


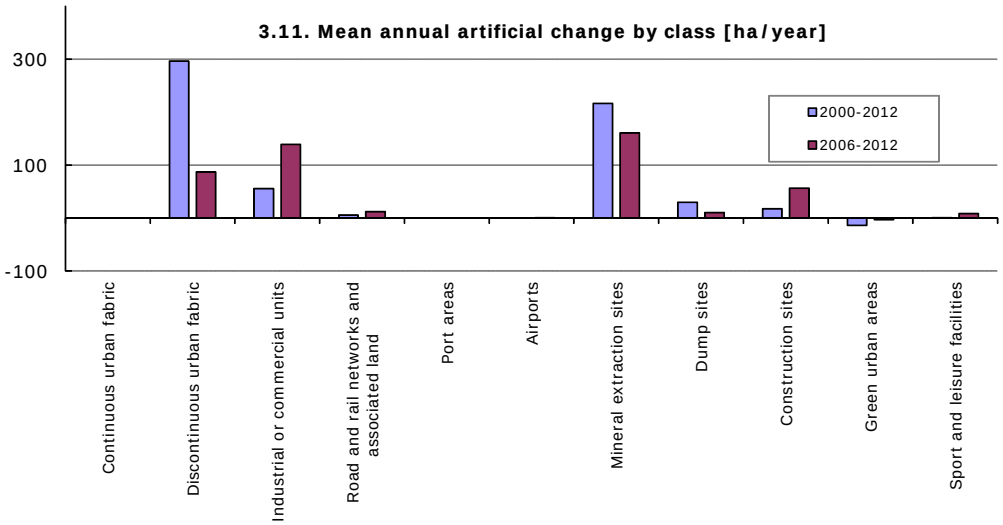
Development of mining resorts

Compared to other European countries, the pace of artificial development in Serbia is quite low and it remains stable, in comparison with previous periods 1990-2000 and 2000-2006. The sprawl is driven by extension of mines, quarries and dump sites, as well as industrial and commercial units. The diffuse residential sprawl, which was very intensive during both previous periods, became rather weak in the period 2006-2012. This extension of urban fabric is located almost exclusively in the surroundings of the capital city of Belgrade in this period. The artificial development around other cities is represented by sprawl of economic sites and infrastructures. Especially the sprawl of mining sites is significant, concentrated in the Drmno/Kostolac and Lazarevac (coal) mining resorts. On the other hand, it has to be mentioned, that this extension is compensated by abandonment of mining patches and their overgrowth by natural vegetation in the same resorts. The sprawl of commercial/industrial sites and construction occurs with higher intensity compared to both previous periods.



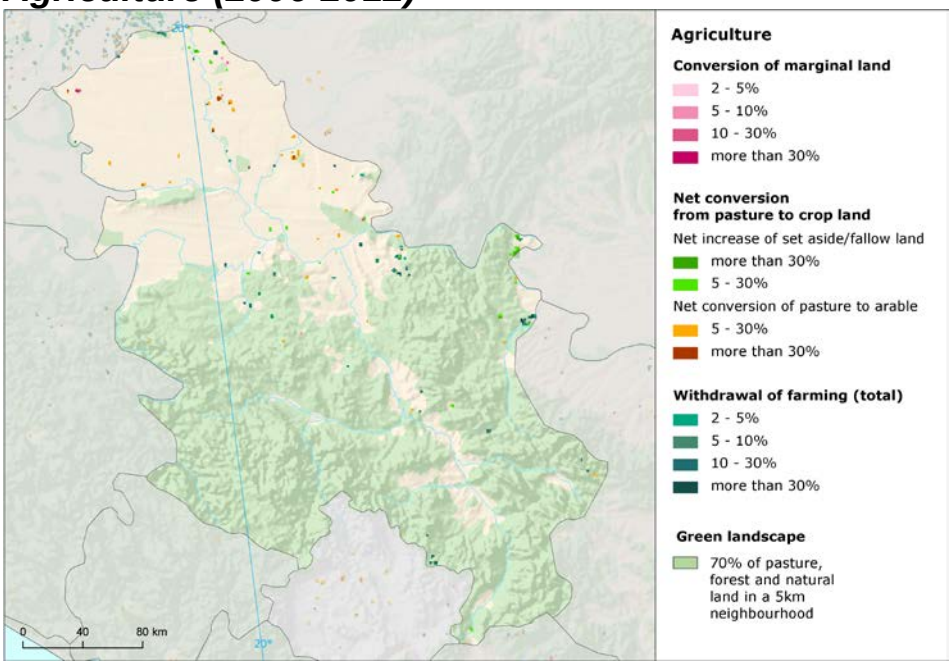






Serbia

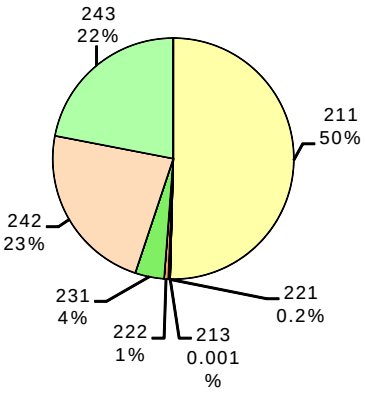
Agriculture (2006-2012)



Turnover of internal agricultural development

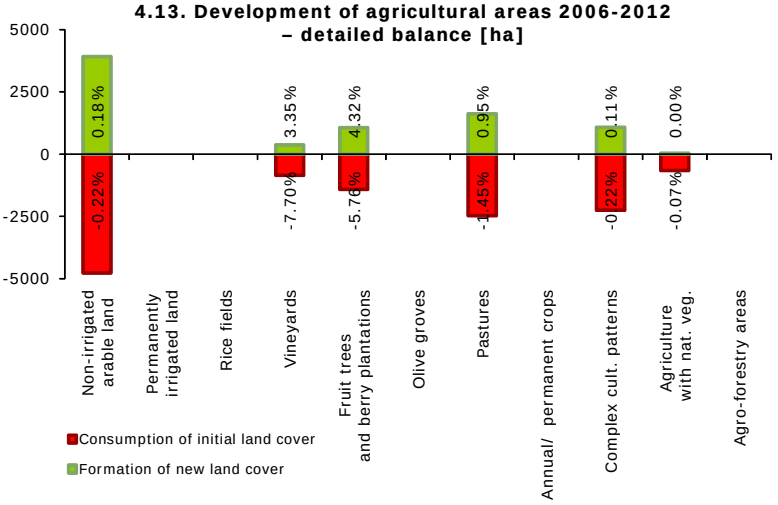
Agricultural internal conversions are the second most powerful driver of change in the Serbian landscape – this situation is stable in the long term, over the observed three periods. However, there are variations in the prevailing direction of these conversions. In the last period 2006-2012, the extension (especially the diffuse one) of pasture, set aside and fallow land predominates over the opposite conversion of pasture to arable. This is the same trend as in the period 1990-2000, however, inverse as in the period 2000-2006. The other strong drivers of internal agricultural development are the conversions between vineyards/orchards and arable land with still prevailing formation of arable. However, the intensity of consumption of arable land by vineyards/orchards increased strongly, compared to previous period. External exchange of agricultural land is represented mainly by consumption by the sprawl of economic sites and infrastructures and also by the withdrawal of farming with woodland creation. On the other hand, the intensive conversion from semi-natural land to agriculture, which was significant during the previous period, lost most of its intensity and became rather low in the last period.

4.12. Agricultural areas 2012 [% of total area]

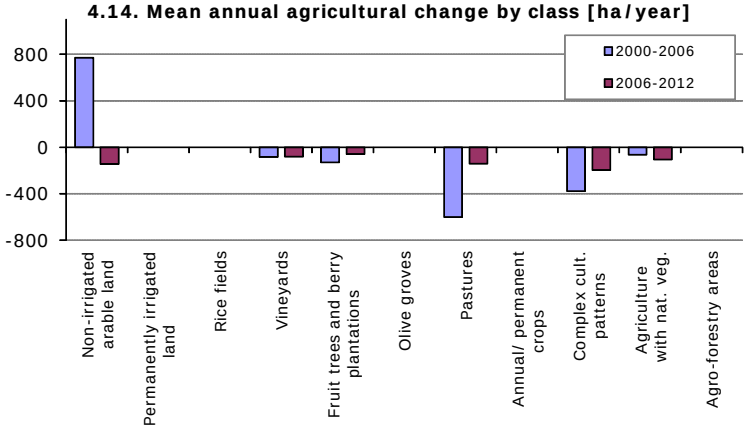


- 211 Non-irrigated arable land
- 212 Permanently irrigated land
- 213 Rice fields
- 221 Vineyards
- 222 Fruit trees and berry plantations
- 223 Olive groves
- 231 Pastures
- 241 Annual crops associated with permanent crops
- 242 Complex cultivation patterns
- 243 Agriculture land with significant areas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

4.13. Development of agricultural areas 2006-2012 – detailed balance [ha]

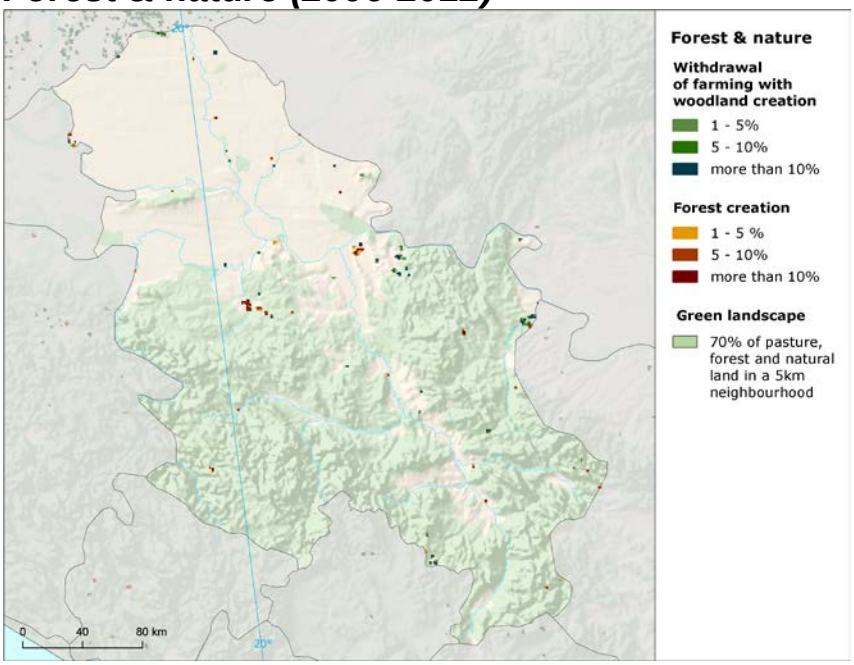


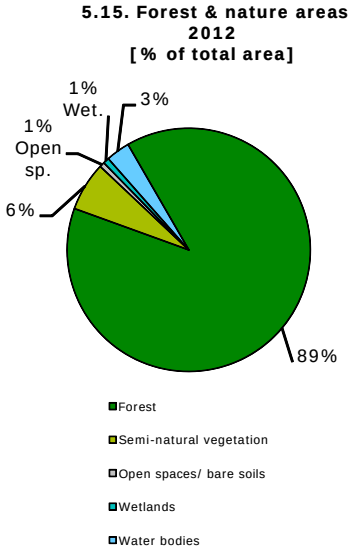
4.14. Mean annual agricultural change by class [ha/year]



Serbia

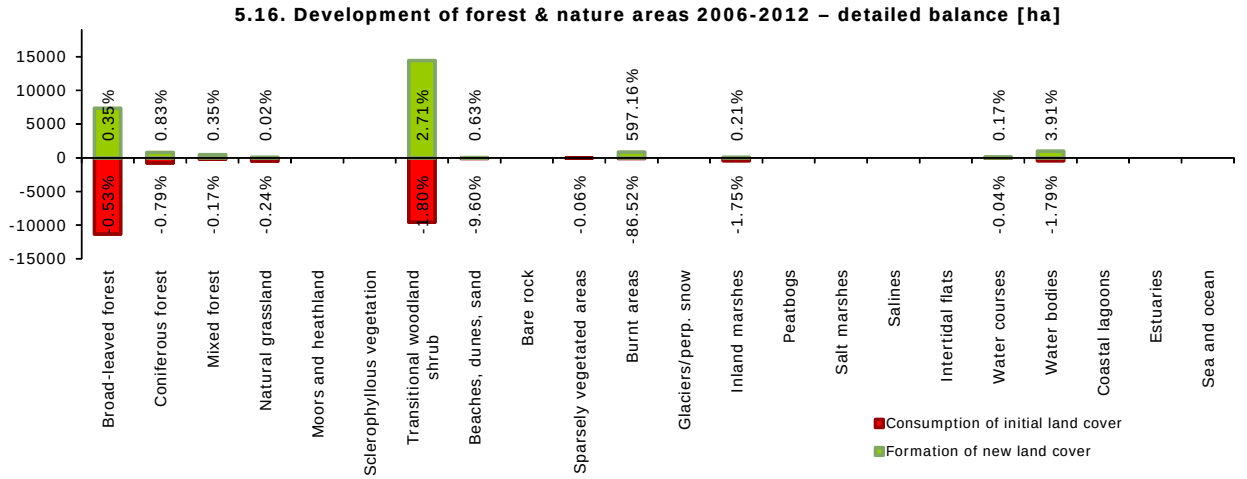
Forest & nature (2006-2012)

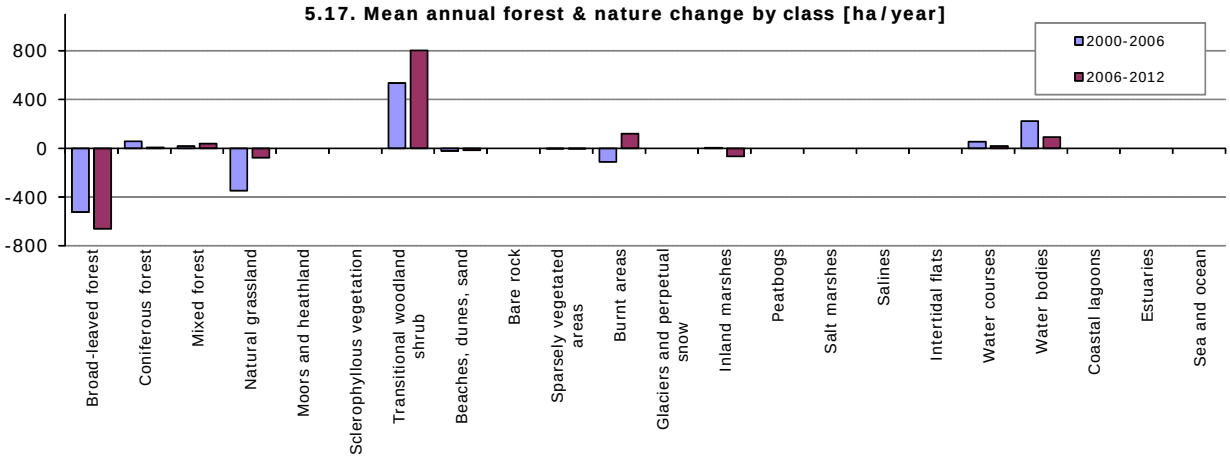




Forest and nature land development driven by internal flows

In the long term, forest creation and management is the most intensive land cover flow in the Serbian landscape. However, similarly to many other European countries, it is represented mostly by internal conversions between forest and transitional woodland (with prevailing share of recent felling and transition in both 2000-2006 and 2006-2012 periods). There also occurs significant amount of forest and shrub fires and water bodies' creation in the natural land cover exchange in the country. From external flows, withdrawal of farming with woodland creation and afforestation (mostly of former mining land) contributes significantly to creation of new forested land.

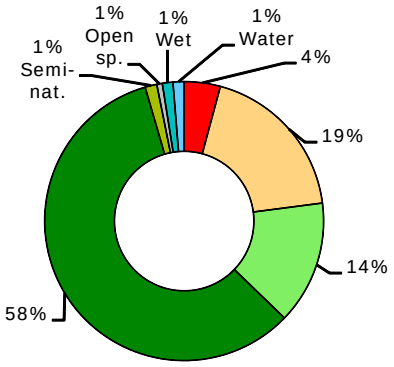




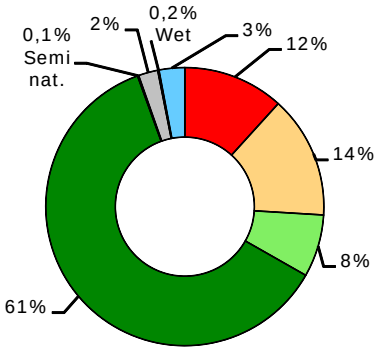
Annex: Land cover flows and trends

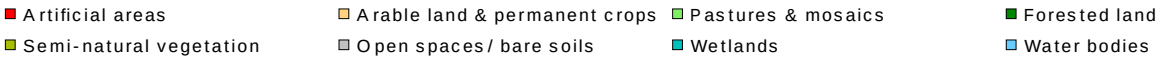
Land cover flows 2006-2012

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

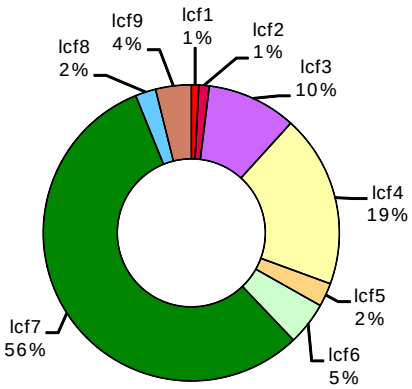


6.19. Formation of land cover 2006-2012 [% of total change area]





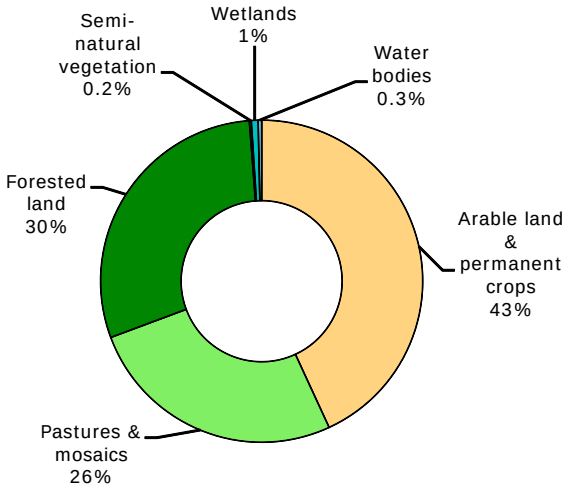
6.20. Drivers of change (LC FLOWS) 2006-2012 [% of total change area]



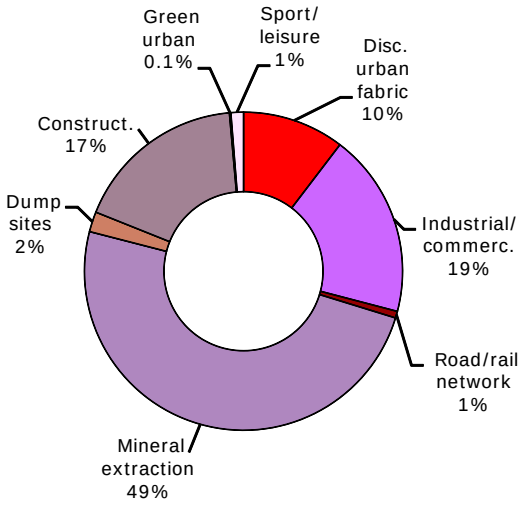
Serbia

Artificial areas

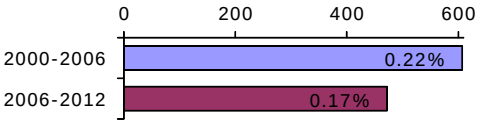
7.21. Consumption by artificial land take 2006-2012 [% of total]



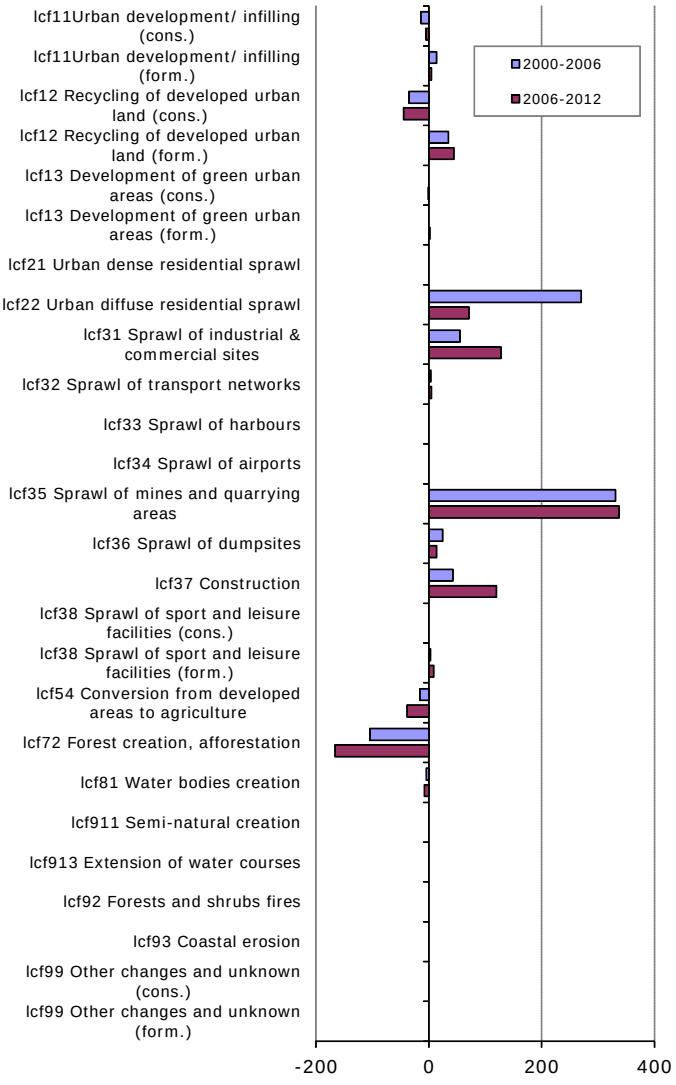
7.22. Formation by artificial land take 2006-2012 [% of total]



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



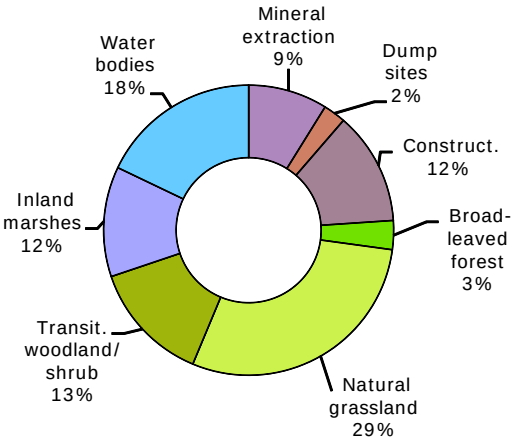
7.24. Artificial development by change drivers (LC FLOWS) [ha/year]



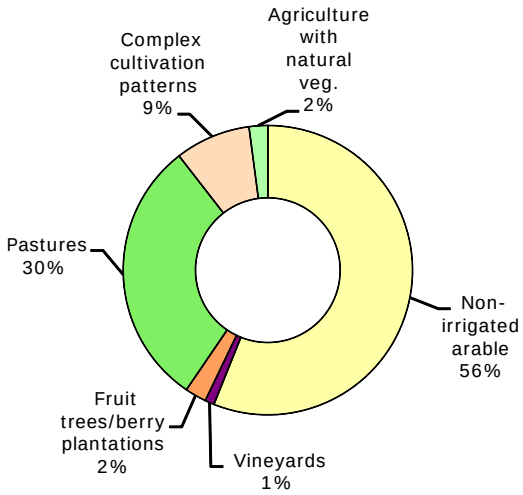
Serbia

Agriculture

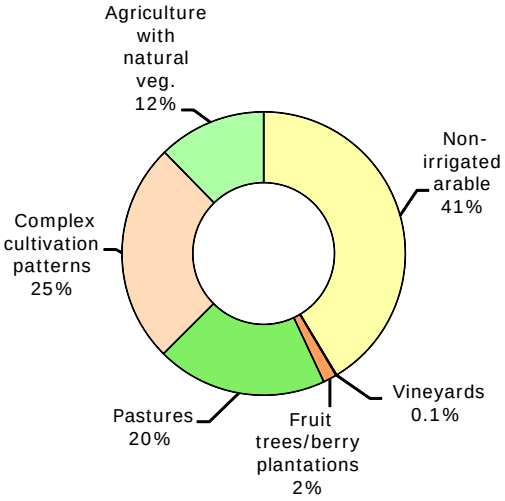
8.25. LC consumed by agriculture 2006-2012 [% of total]



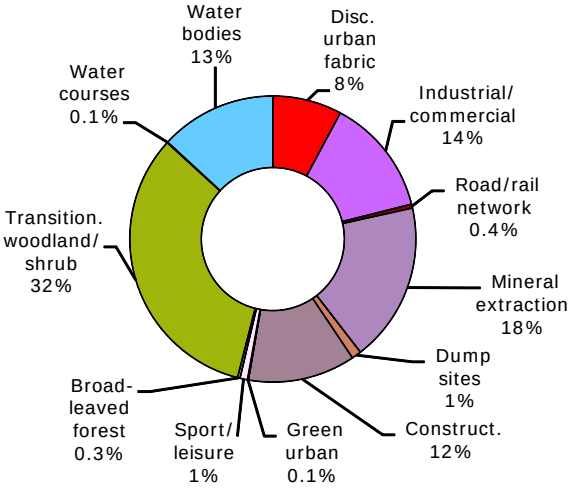
8.26. Formation of agricultural land from non-agriculture 2006-2012 [% of total]



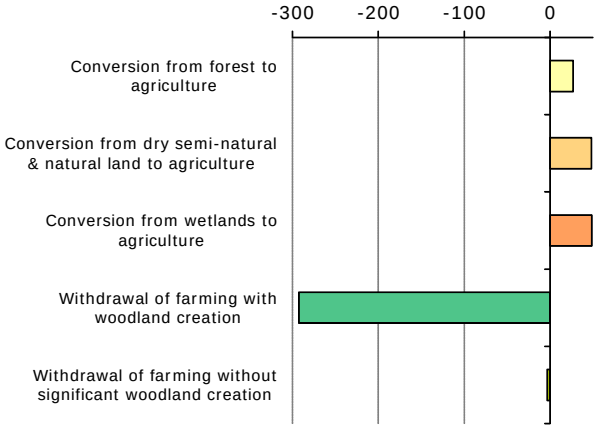
8.27. Consumption of agricultural land by non-agriculture 2006-2012 [% of total]



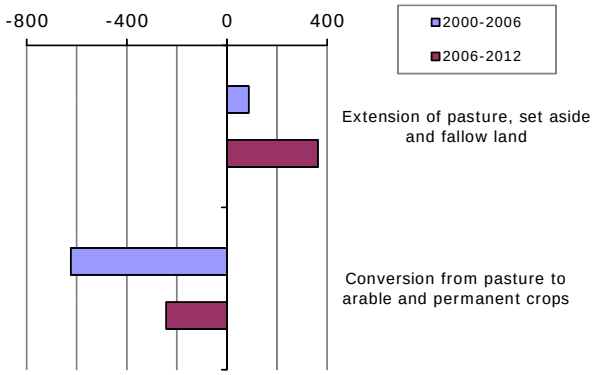
8.28. Formation of non-agricultural land from agriculture 2006-2012 [% of total]



8.29. Main annual conversions between agriculture and forests & semi-natural land 2006-2012 [ha/year]



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



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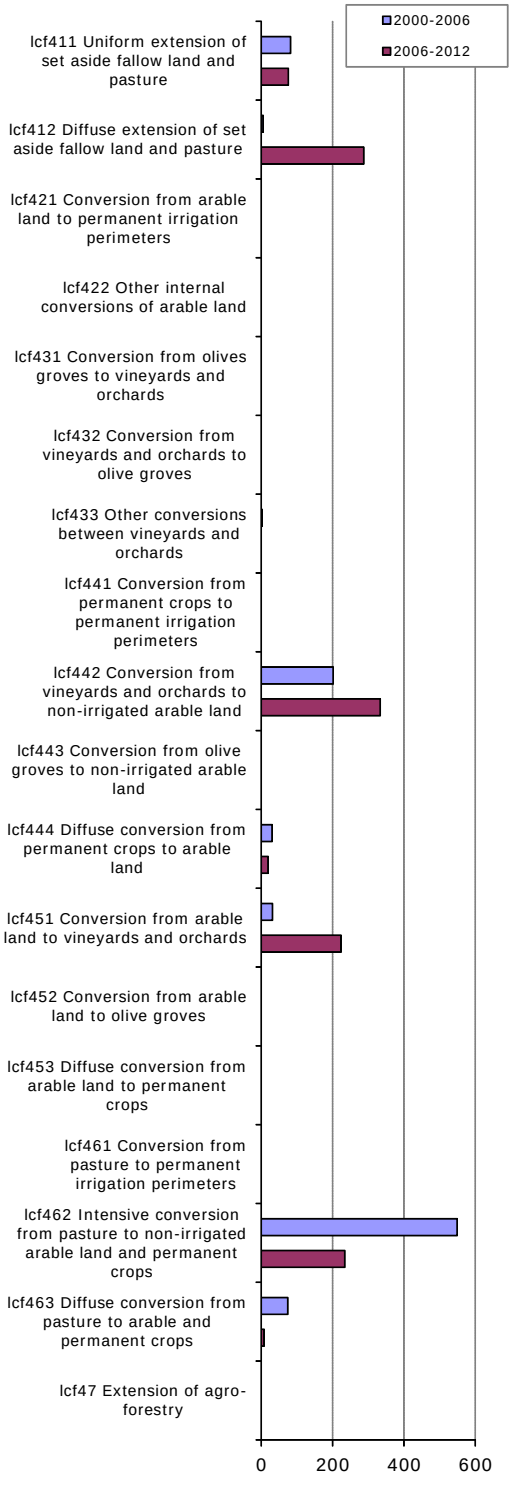
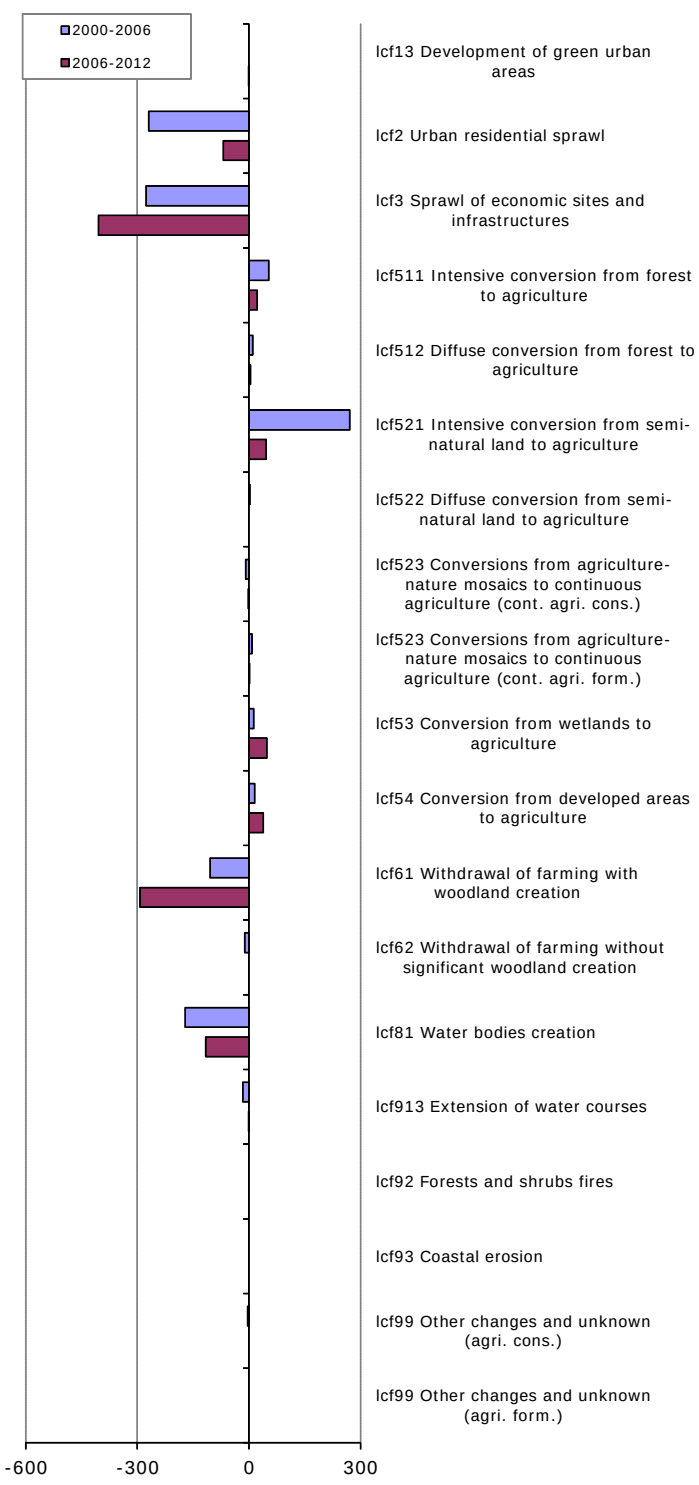
9.31. Mean annual agriculture internal conversions [ha / year]



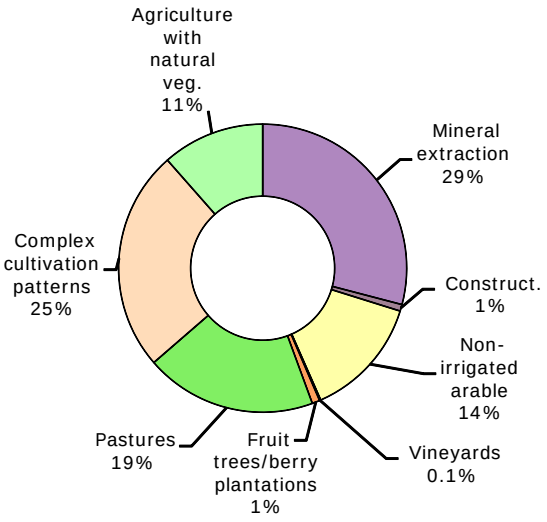
9.32. Mean annual conversions between agriculture and other LC types [ha / year]



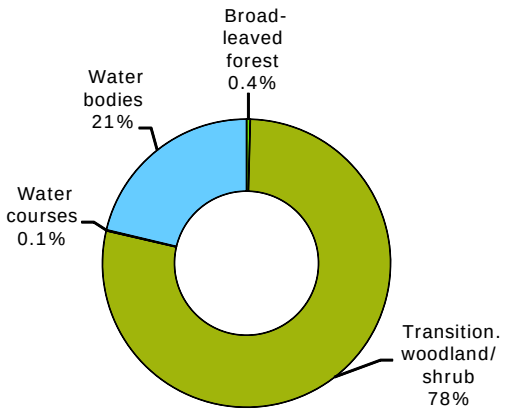
Serbia

Forest & nature

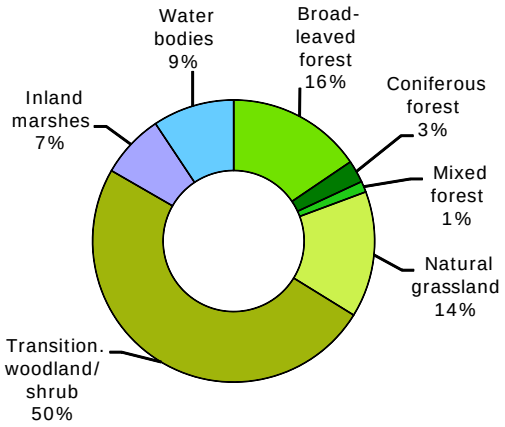
10.33. LC consumed by forest & nature 2006-2012 [% of total]



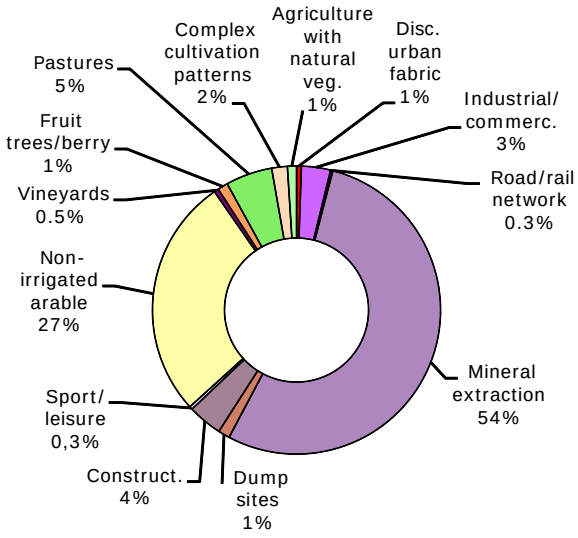
10.34. Formation of forest & nature land from non-forest /nature 2006-2012 [% of total]



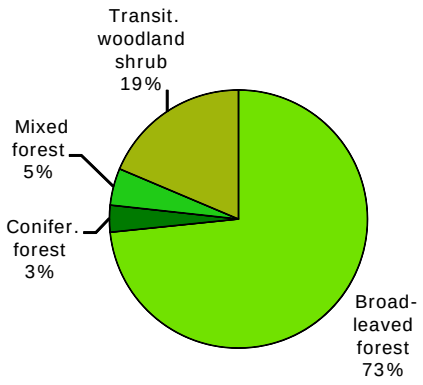
10.35. Consumption of forest & nature land by non-forest/nature 2006-2012 [% of total]



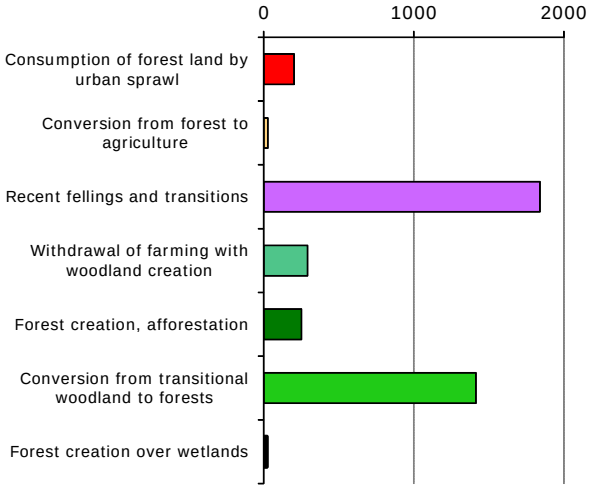
10.36. Formation of non-forest/nature land from forest & nature 2006-2012 [% of total]



10.37. Forested land 2012 [% of total area]



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



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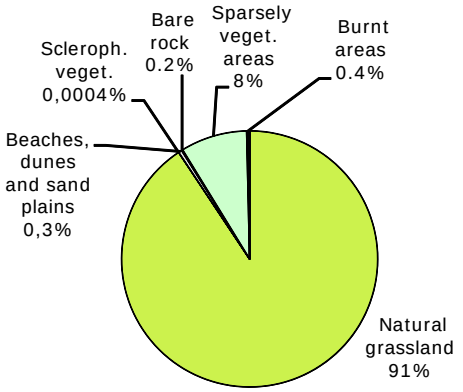
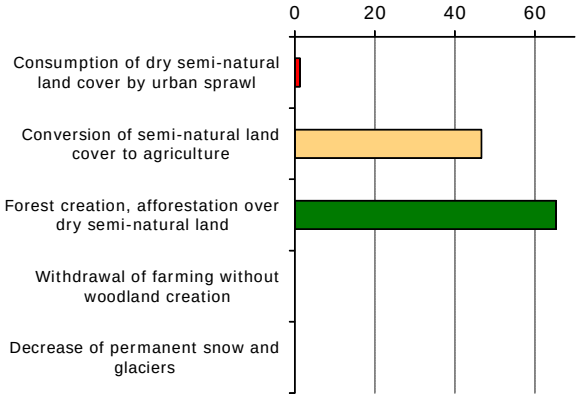
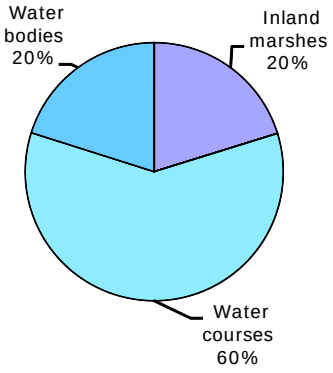
11.39. Dry semi-natural areas 2012 [% of total area]



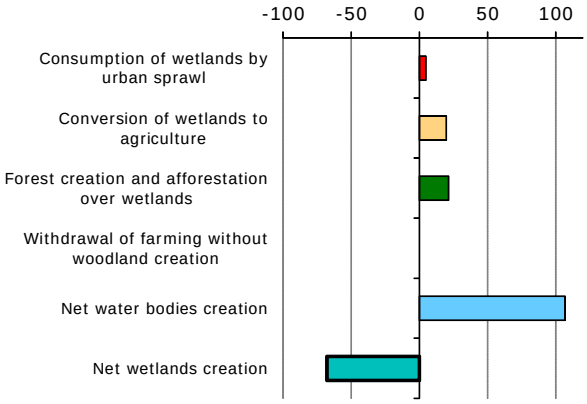
11.40. Main trends in dry semi-natural land consumption/formation 2006-2012 [ha/year]



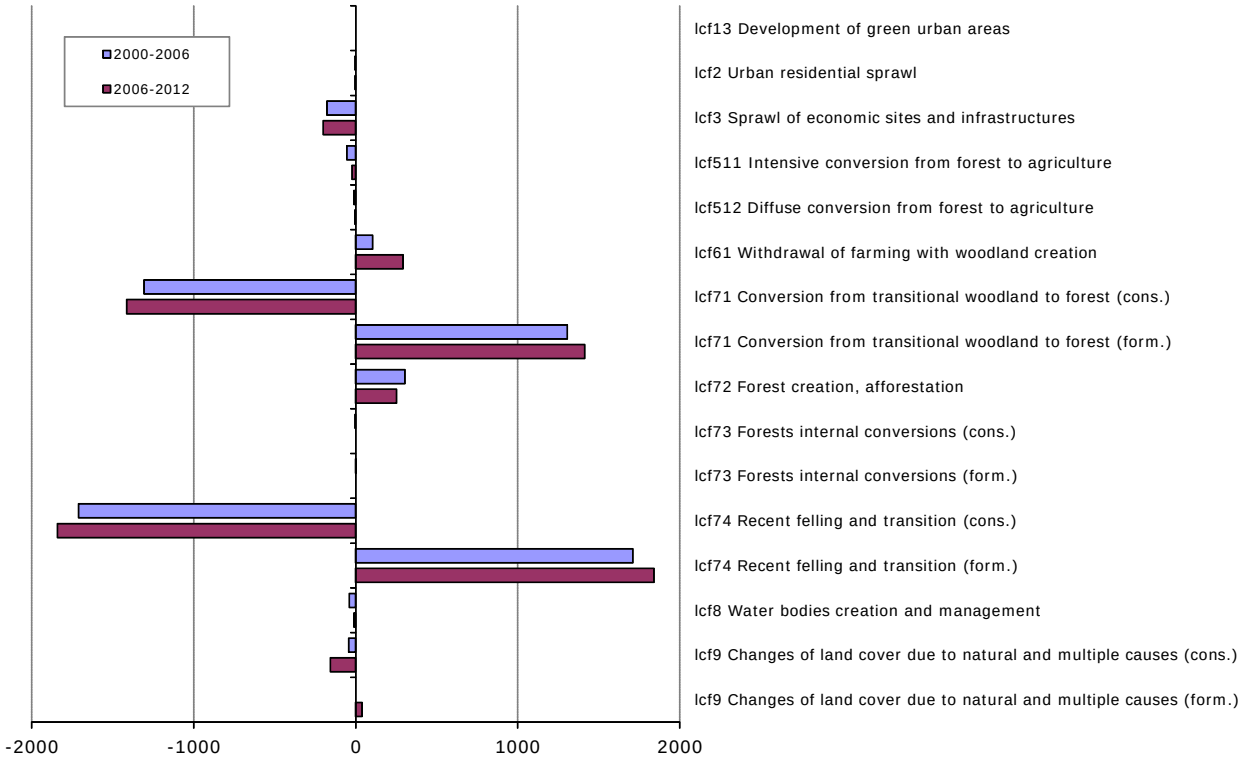
11.41. Wetlands & water 2012 [% of total area]



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



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



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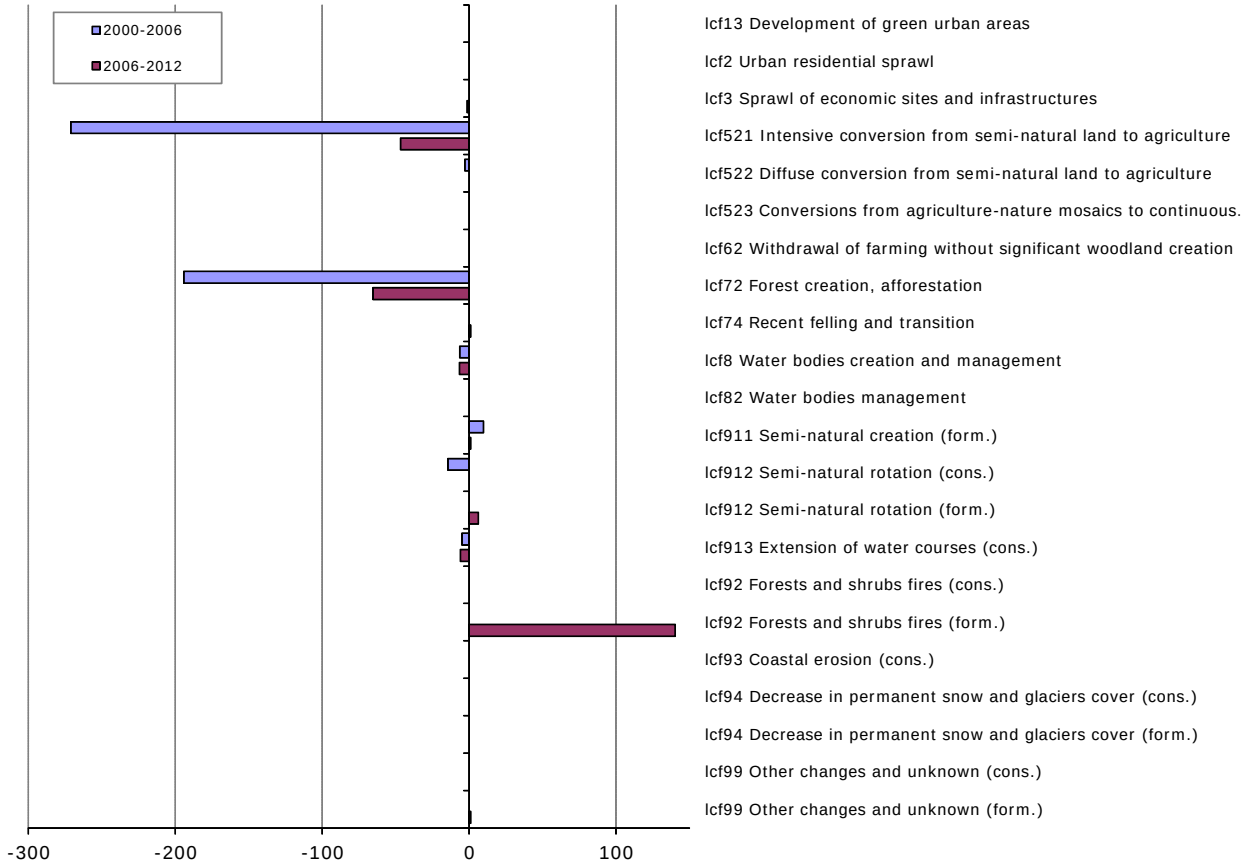
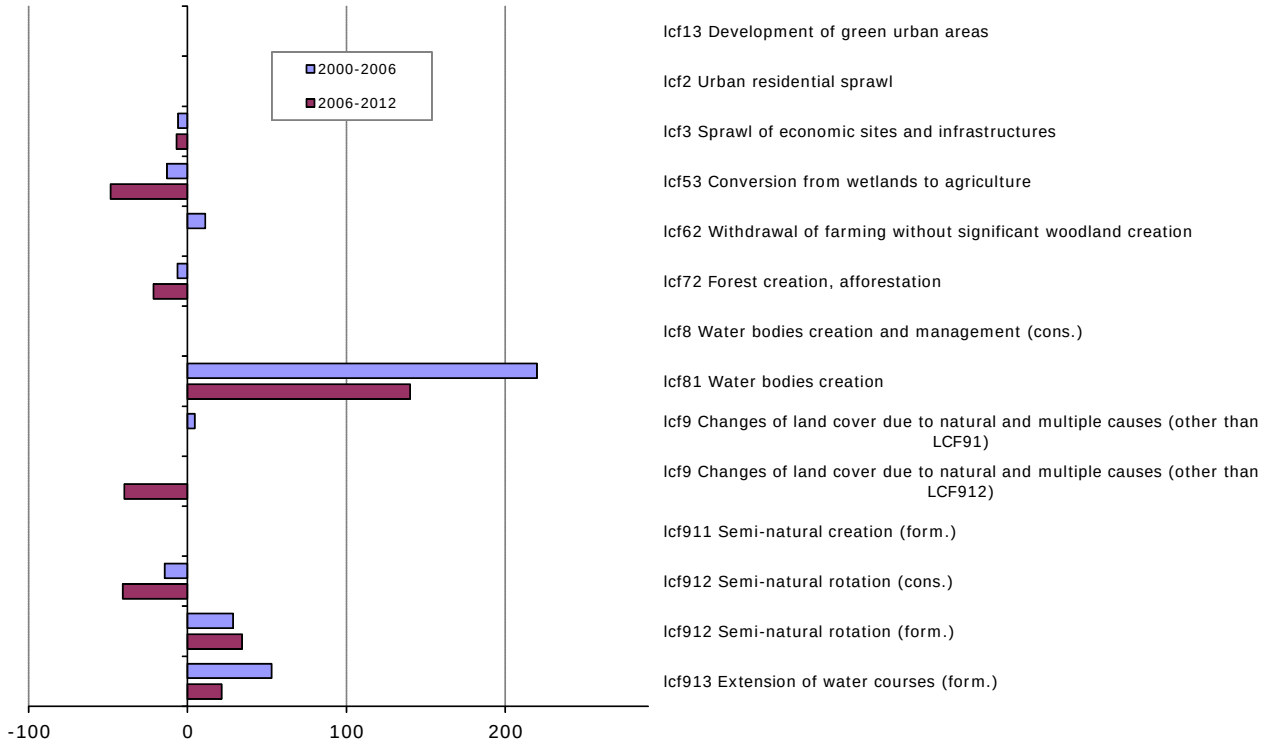
12.44. Mean annual conversions of dry semi-natural LC [ha/year]



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



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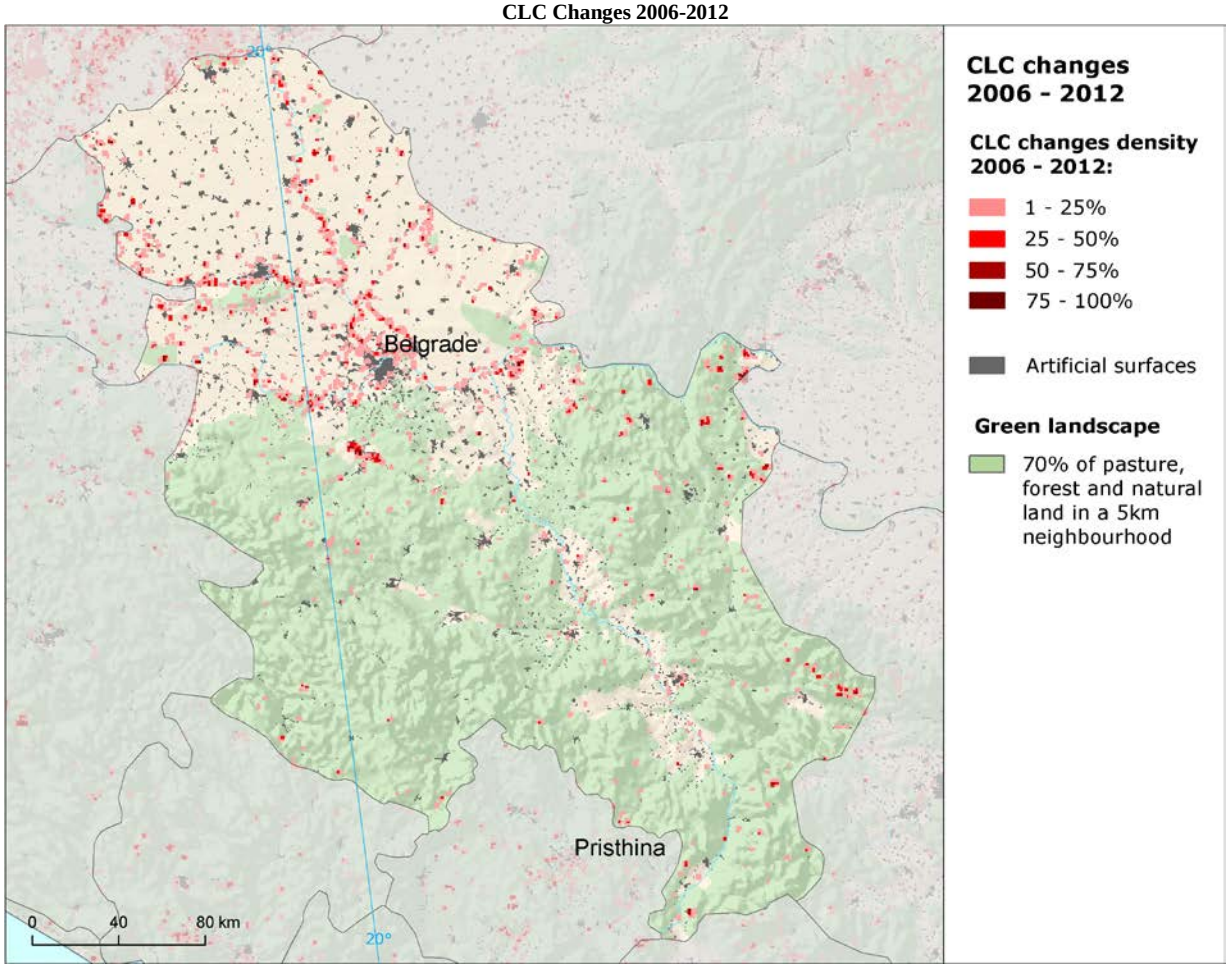
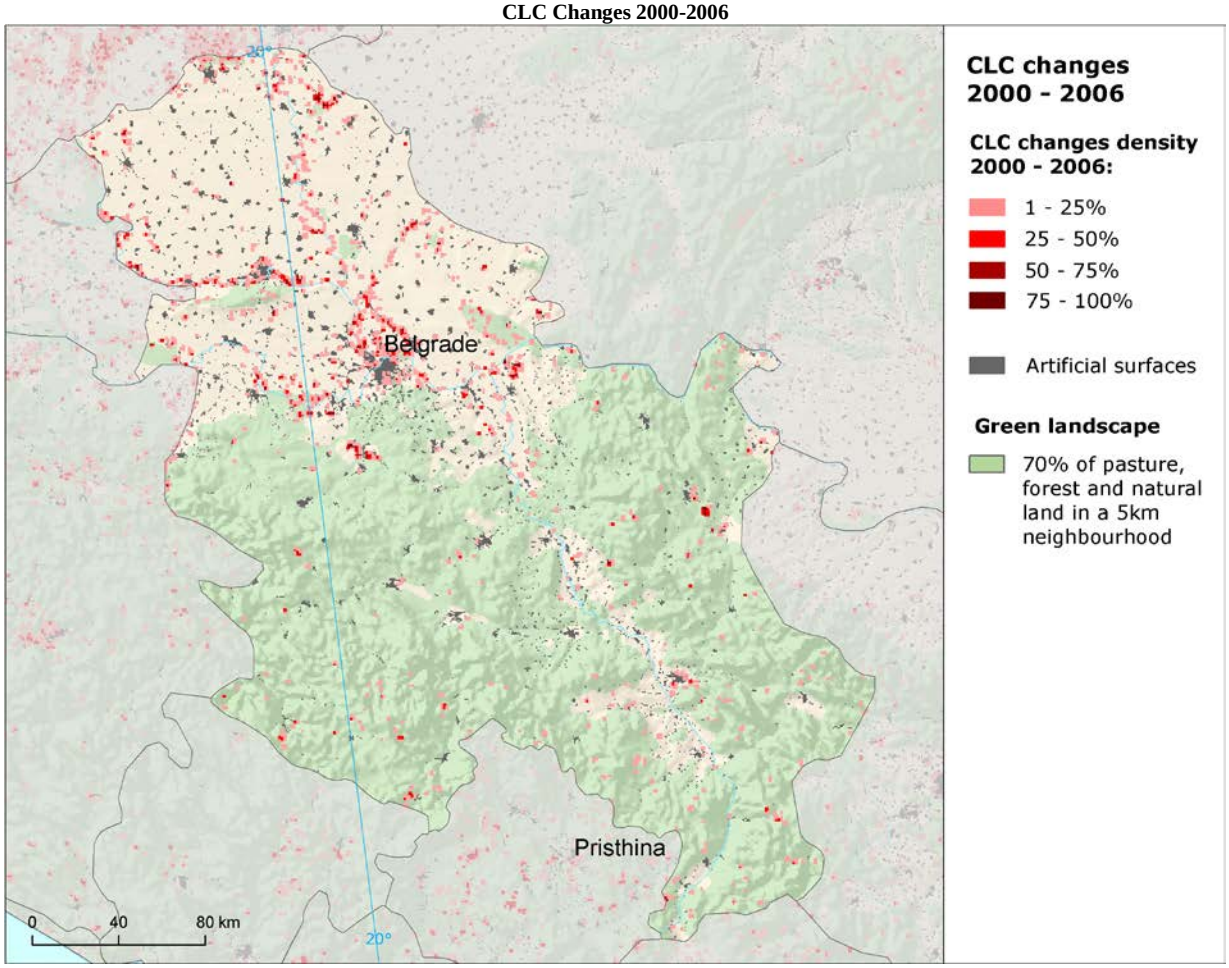
CLC Changes 2006-2012



CLC Changes 2000-2006



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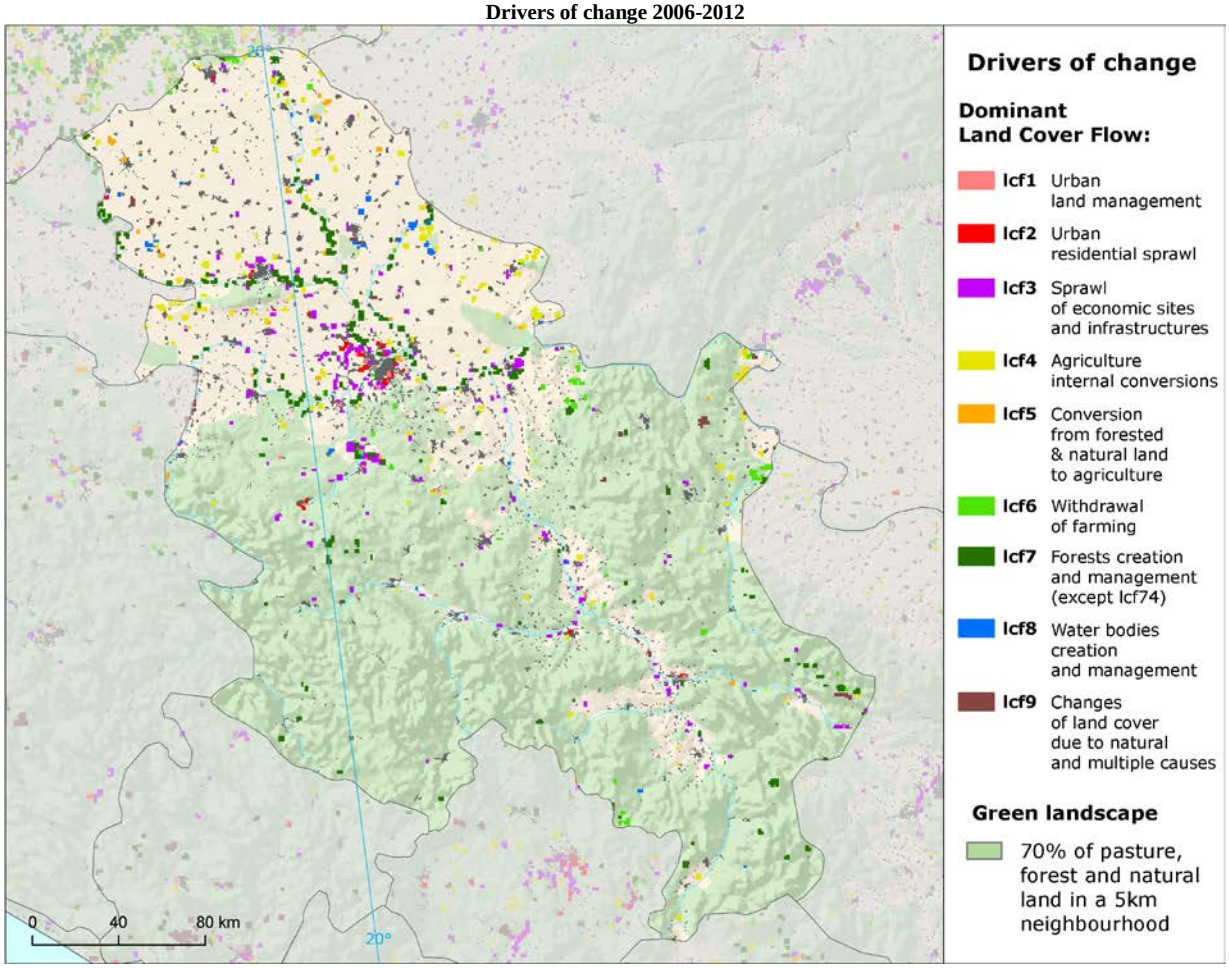
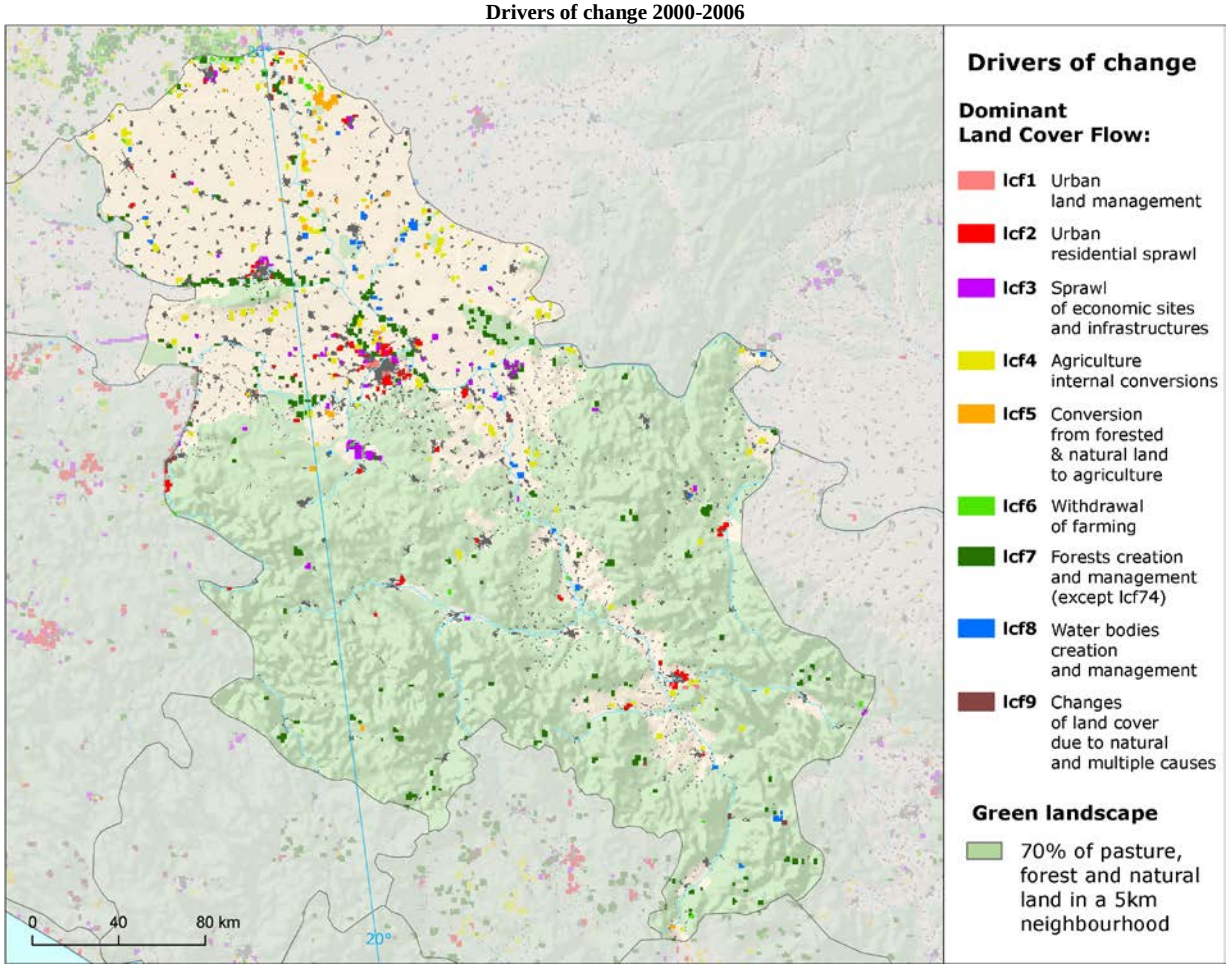
Drivers of change 2006-2012



Drivers of change 2000-2006



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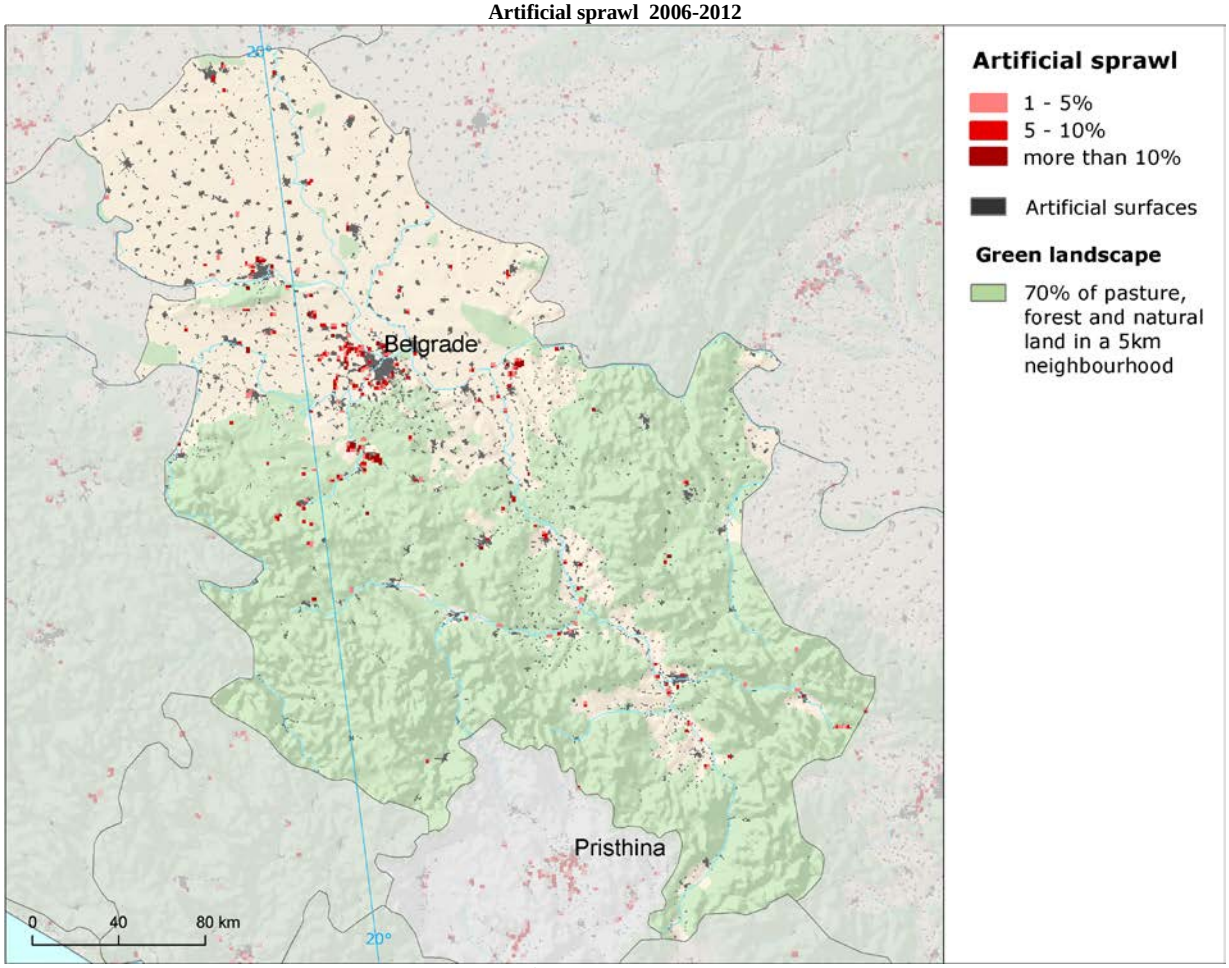
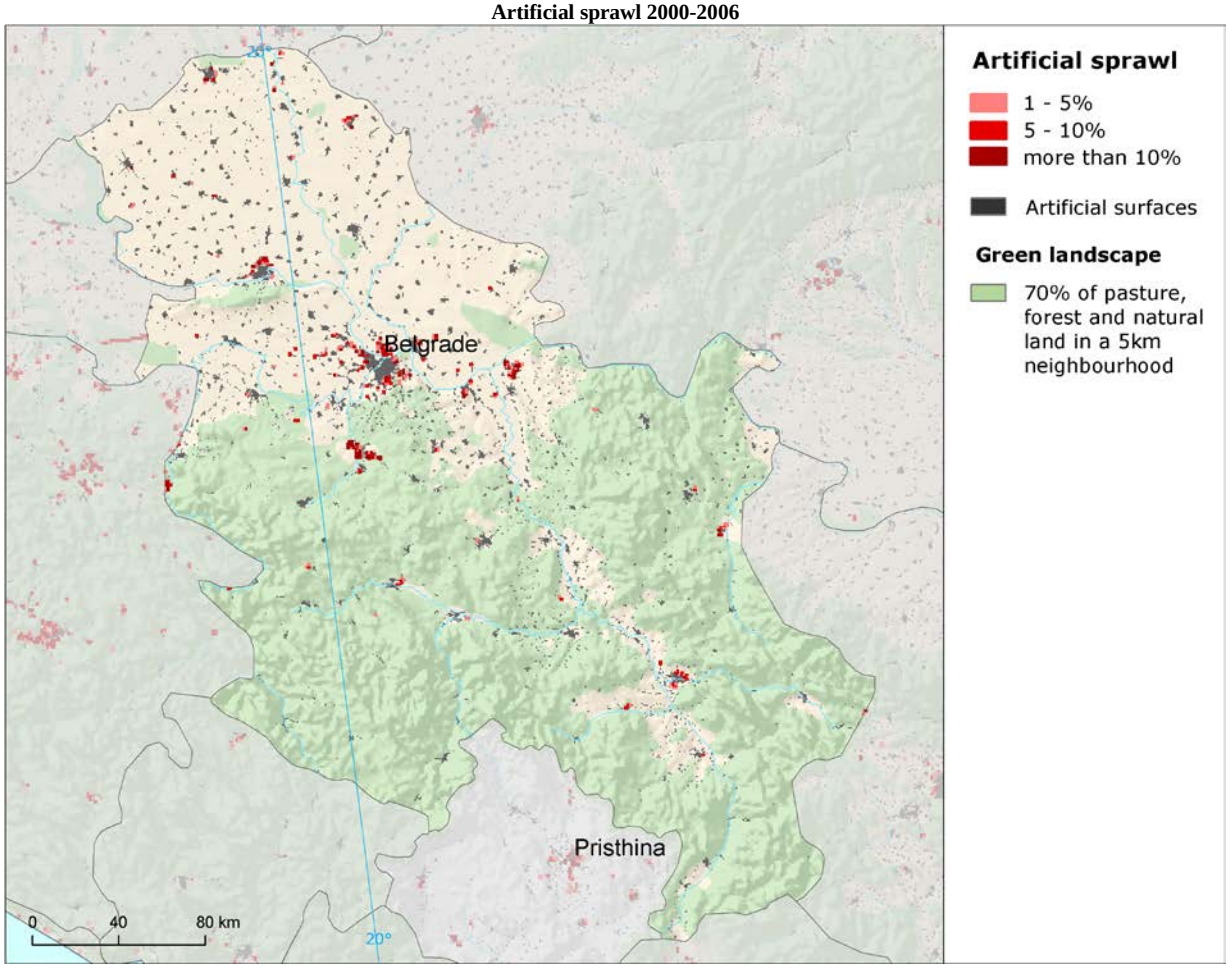
Artificial sprawl 2006-2012



Artificial sprawl 2000-2006



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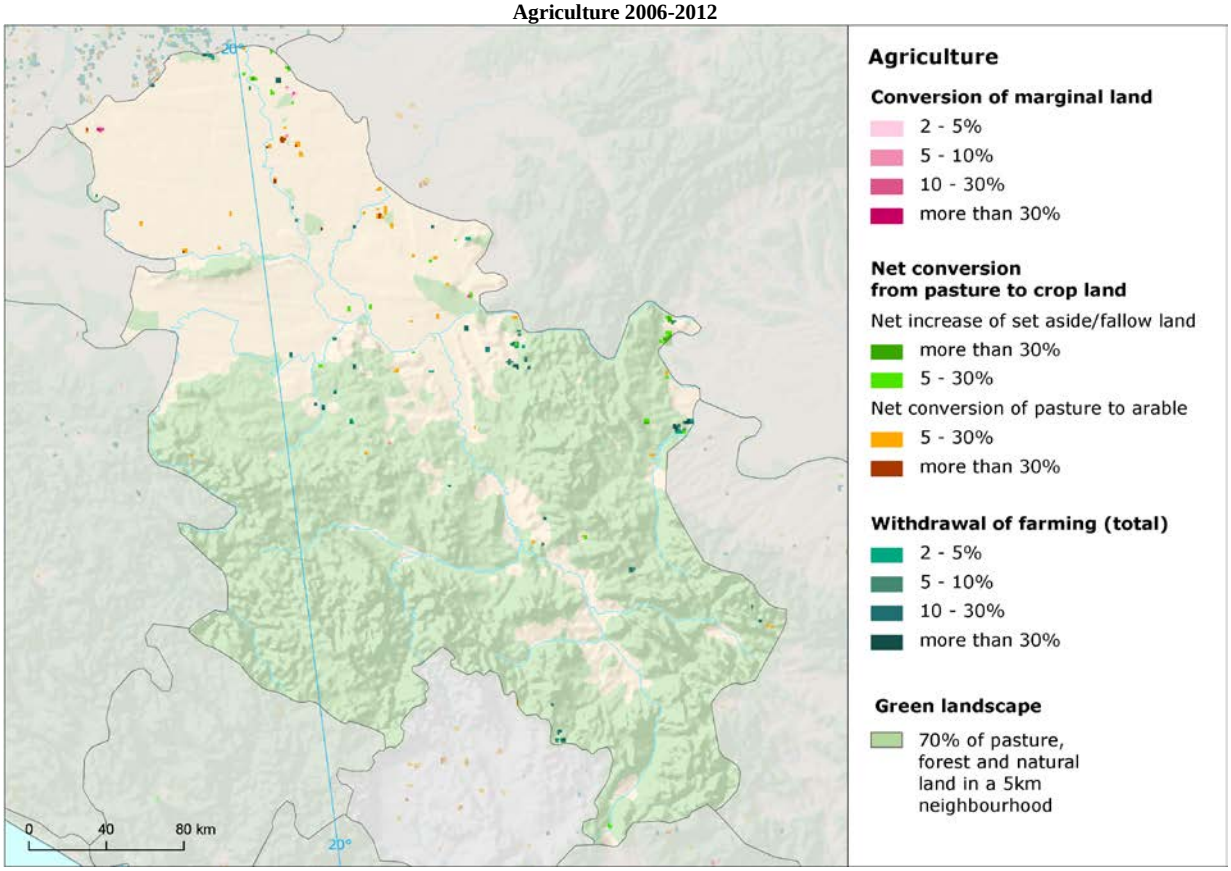
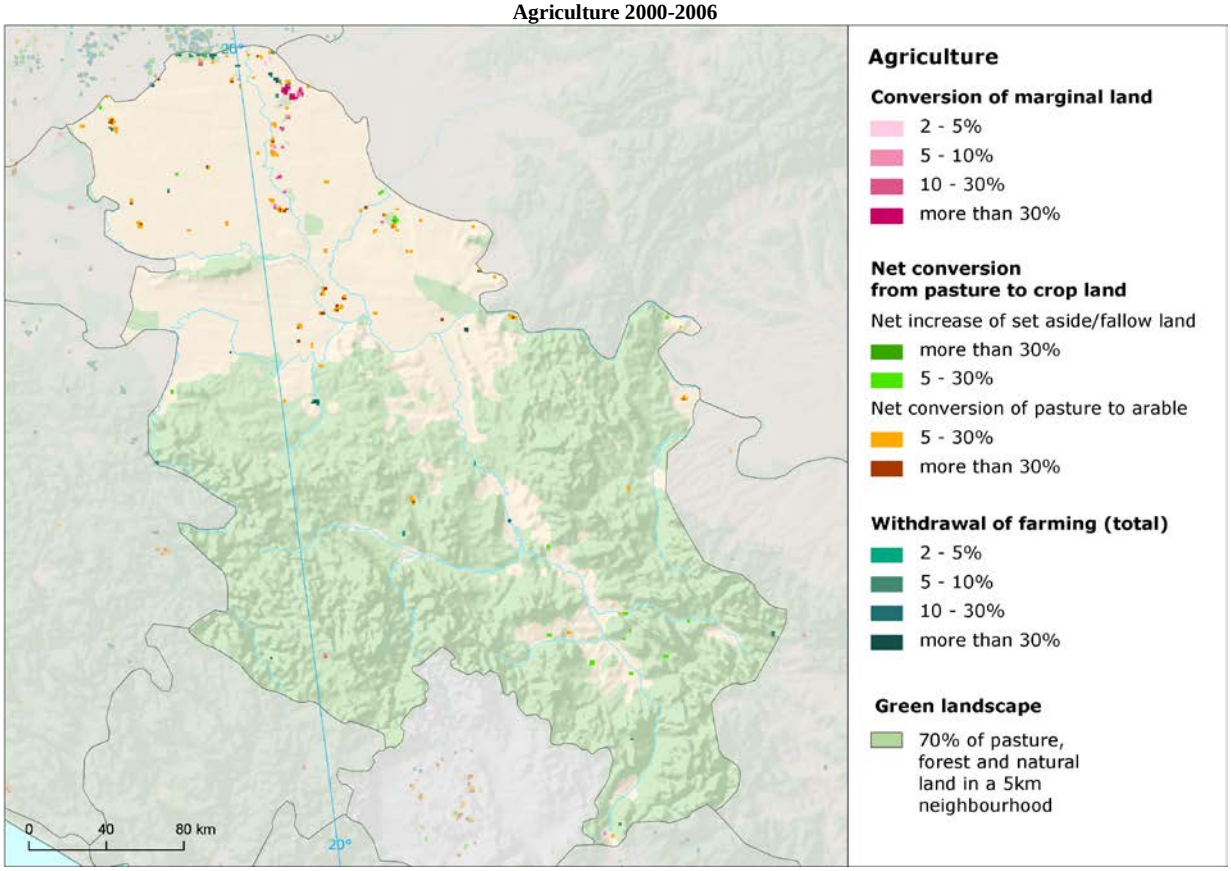
Agriculture 2006-2012



Agriculture 2000-2006



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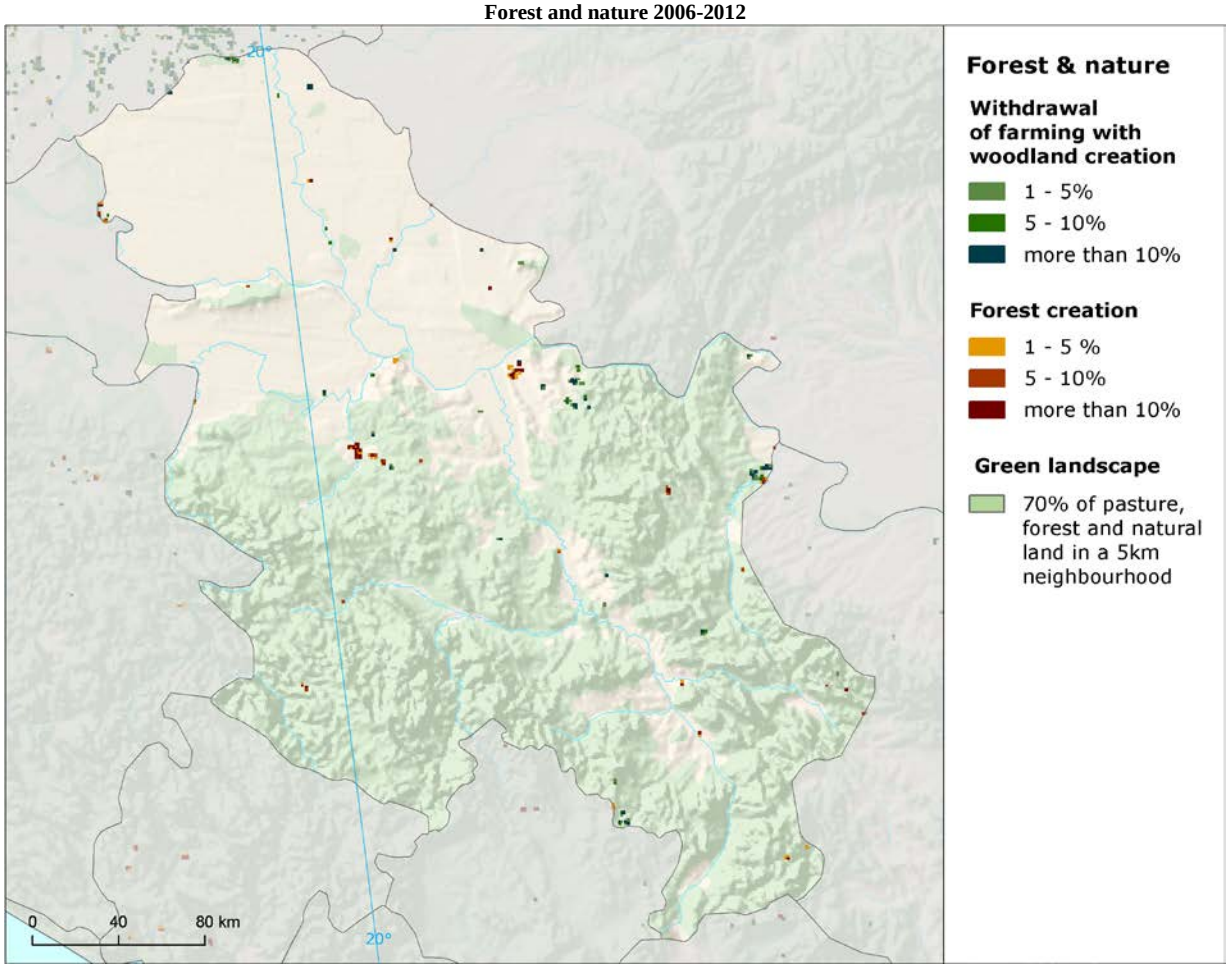
Forest and nature 2006-2012



Forest and nature 2000-2006