

Land cover 2012



Romania

September 2017

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Land cover 2012

Overview of land cover & change 2006-2012

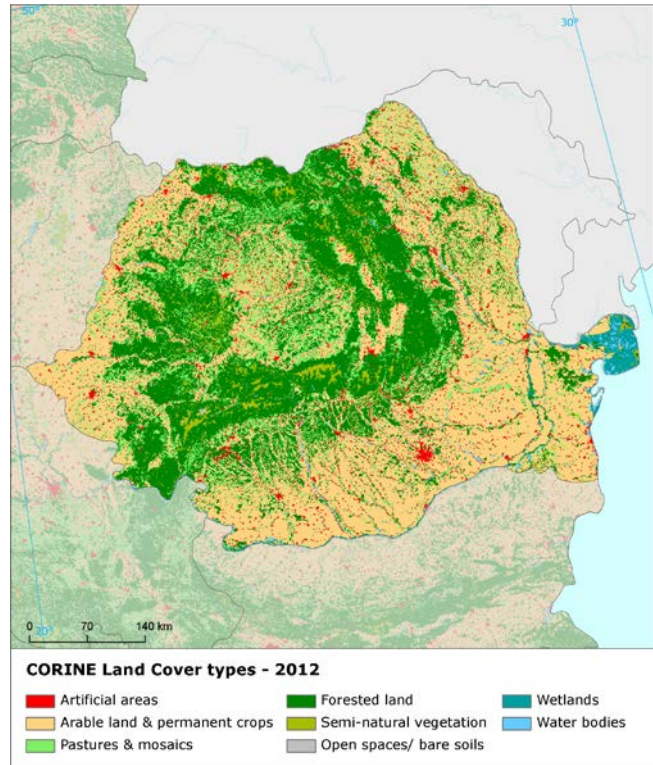
The Romanian landscape is characterised by its low dynamics of land cover change. The current annual change rate (0.05%) is one of the lowest in Europe. The situation was comparable in the previous period 2000-2006, but the pace of the development was significantly higher before, with 0.16% mean annual change rate in the 1990-2000 period. However, this was also significantly lower than the current European average.

The development of Romanian landscape is driven mostly by internal forest conversions; however, the intensity of this flow is continuously decreasing since 1990.

In the last period, the sprawl of economic sites and infrastructures became the second most significant driver of change in Romania. Although the annual land take rate (0.15% of initial artificial area) is one of the lowest among European countries, it is slowly getting higher between 1990 and 2012.

The intensity of the agricultural internal conversions, which were very powerful during the period 1990-2000, rapidly decreased already in the period 2000-2006 and is getting even lower in the period 2006-2012.

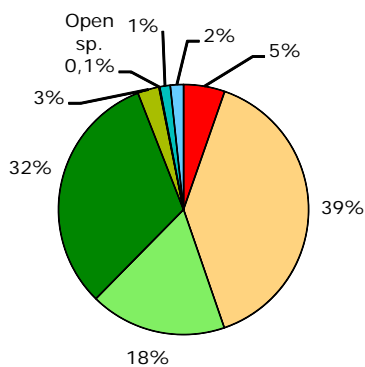
Beside these conversions, there also occurs a conversion of arable land into inland marshes, which was observed along the Danube river in the eastern part of the country.



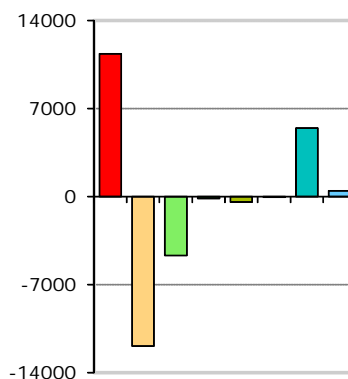
Note: The results presented here are based on a change analysis of 44 land cover types mapped consistently on a 1:100,000 scale across Europe over more than decade between 2000-2006-2012 - see Corine land cover (CLC) programme for details.

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

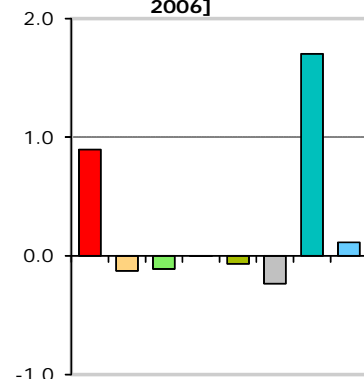
1.1. Land cover 2012 [% of total]



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



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



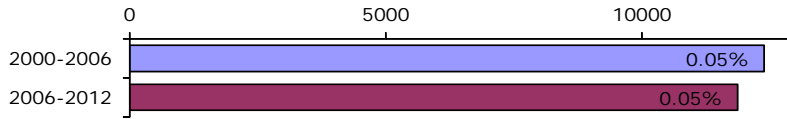
■ Artificial areas
 ■ Arable land & permanent crops
 ■ Pastures & mosaics
 ■ Forested land
■ Semi-natural vegetation
 ■ Open spaces/ bare soils
 ■ Wetlands
 ■ Water bodies

Summary balance table 2006-2012

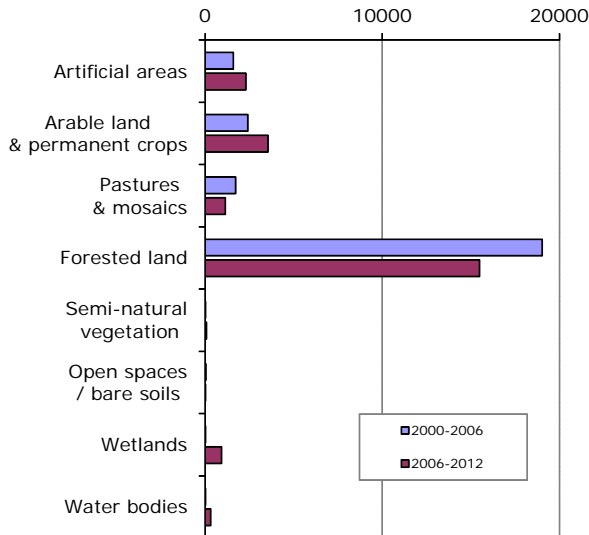
| | Artificial areas | Arable land & permanent crops | Pastures & mosaics | Forested land | Semi-natural vegetation | Open spaces/ bare soils | Wetlands | Water bodies | TOTAL [hundreds ha] |
|-------------------------------------|------------------|-------------------------------|--------------------|---------------|-------------------------|-------------------------|-------------|--------------|---------------------|
| Land cover 2006 | 12649 | 94117 | 42199 | 75650 | 6643 | 251 | 3188 | 4048 | 238745 |
| Consumption of initial LC | 11.8 | 165.5 | 57.4 | 465.5 | 4.4 | 0.6 | 0.1 | 6.6 | 712 |
| Formation of new LC | 125.2 | 46.6 | 10.5 | 464.0 | 0.0 | 0.0 | 54.4 | 11.2 | 712 |
| Net Formation of LC | 113.4 | -118.9 | -46.9 | -1.5 | -4.4 | -0.6 | 54.3 | 4.6 | 0 |
| Net formation as % of initial year | 0.9 | -0.1 | -0.1 | 0.0 | -0.1 | -0.2 | 1.7 | 0.1 | |
| Total turnover of LC | 137.1 | 212.0 | 67.9 | 929.5 | 4.4 | 0.6 | 54.5 | 17.7 | 1424 |
| Total turnover as % of initial year | 1.1 | 0.2 | 0.2 | 1.2 | 0.1 | 0.2 | 1.7 | 0.4 | 0.6 |
| Land cover 2012 | 12762 | 93998 | 42152 | 75649 | 6638 | 250 | 3242 | 4053 | 238745 |

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

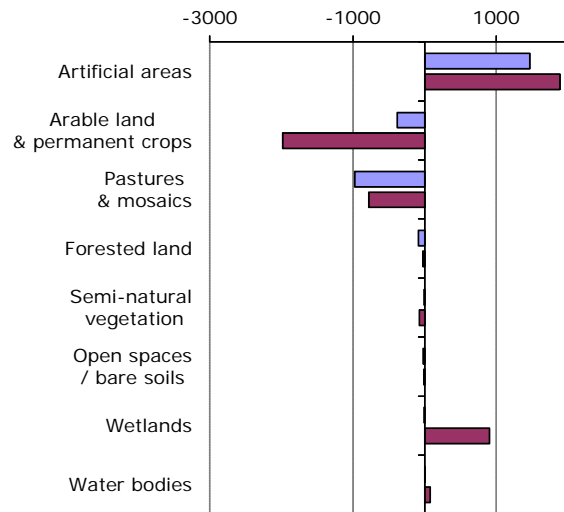
2.4. Annual land cover change
[ha/year, % of total area]



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

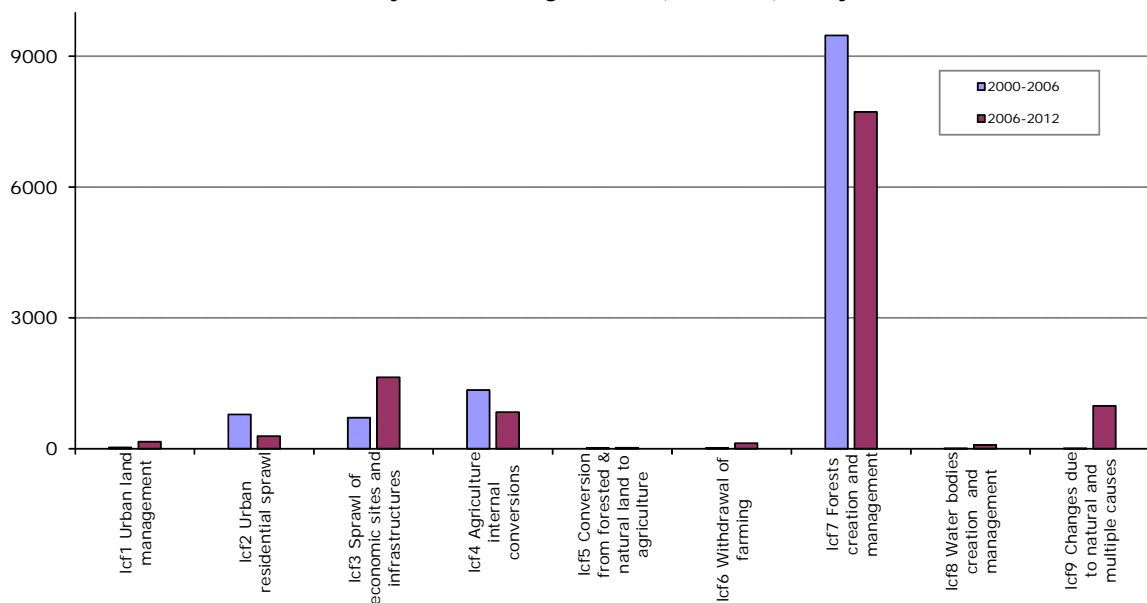


2.6. Net annual change of LC types [ha/year]

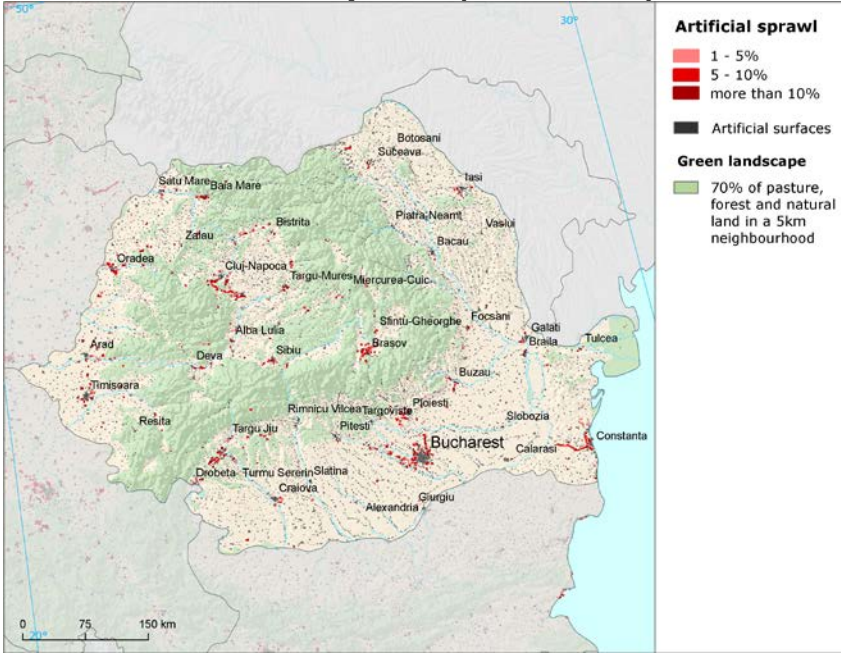


| Summary trend figures | | |
|---|--------------|--------------|
| | 2000-2006 | 2006-2012 |
| Annual land cover change [ha/year] | 12384 | 11864 |
| Annual land cover change as % of initial year | 0.05% | 0.05% |
| Land uptake by artificial development as mean annual change [ha/year] | 1489 | 1917 |
| Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year] | 1366 | 1867 |
| Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year] | -11 | -109 |
| Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year] | 618 | 288 |
| Forest & other woodland net formation as mean annual change [ha/year] | -87 | -25 |
| Dry semi-natural land cover net formation as mean annual change [ha/year] | -25 | -83 |
| Wetlands & water bodies net formation as mean annual change [ha/year] | -2 | 981 |

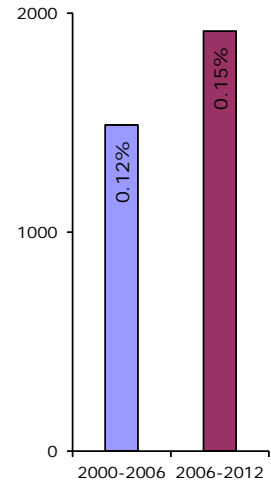
2.7. Intensity of main change drivers (LC FLOWS) [ha/year]



Artificial surfaces sprawl (2006-2012)



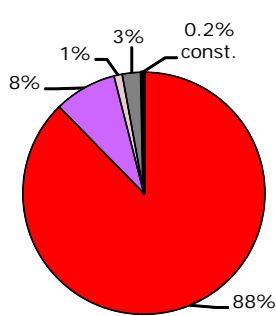
3.8. Artificial land take [ha/year, % of initial year]



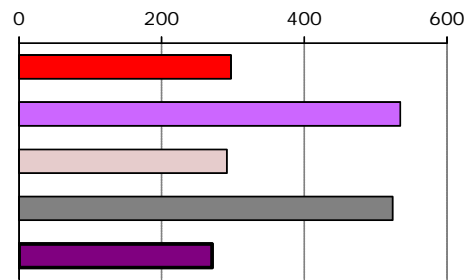
Slowdown of residential sprawl, increase of economic sites development

The annual land take rate in Romania is one of the lowest among European countries. However, compared to previous period, it shows a slightly increasing tendency. In comparison with the 2000-2006, there is an obvious shift in the structure of the artificial development in the period 2006-2012. The development on new transportation networks and extension of mines, quarries and dump sites are the main drivers of sprawl. The intensity of both these flows, together with the construction, shows increasing tendency. On the other hand, the intensity of residential sprawl significantly decreased, compared to previous period. Concerning the spatial distribution, the sprawl is situated in the surroundings of most Romanian cities; however, there are some differences in this pattern compared to the previous period. The artificial development is significantly lower in the north-eastern region of the country, in contrast to the neighbourhood of the capital city Bucharest, where the sprawl occurs with significantly higher intensity than in 2000-2006. The source for new artificial land is almost exclusively agricultural land, with predominance of arable (66% of total sprawl).

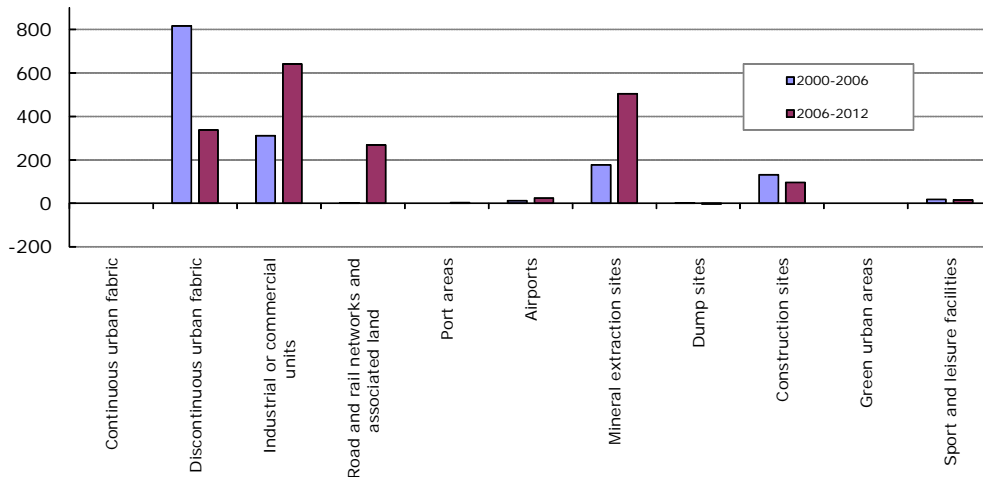
3.9. Artificial surfaces 2012 [% of total area]



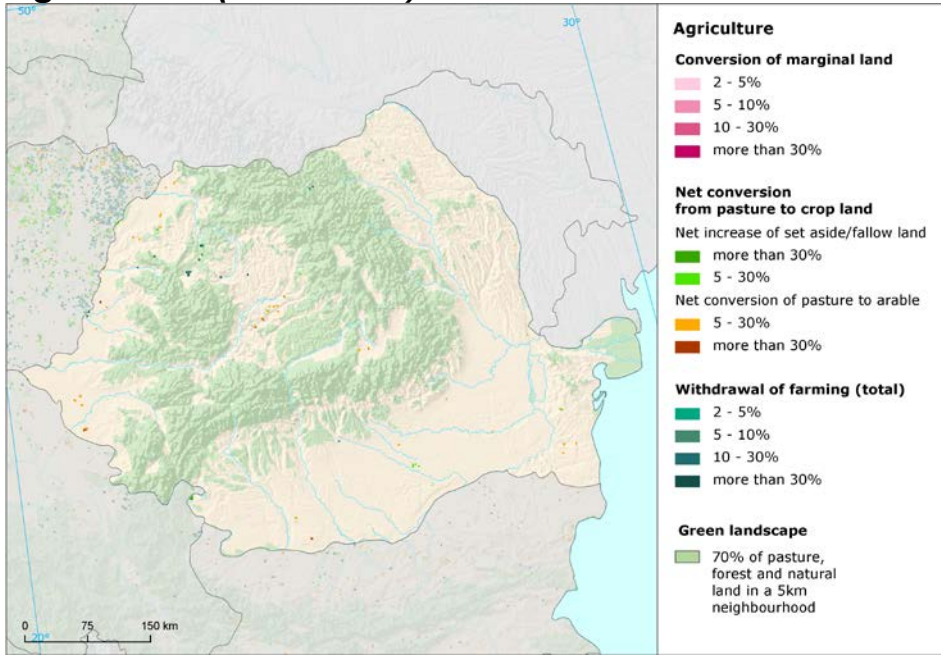
3.10. Artificial land take 2006-2012 [ha/year]



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



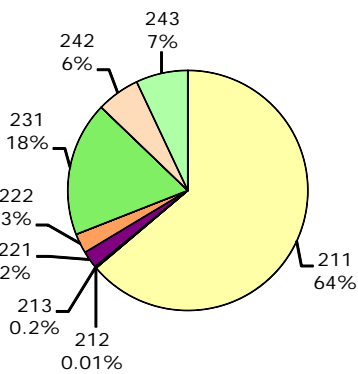
Agriculture (2006-2012)



Internal exchange between arable and pasture slows down

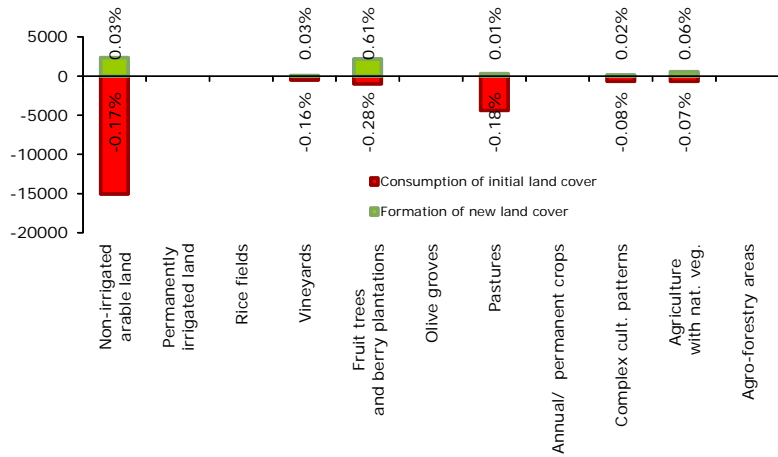
The intensity of the agricultural land internal exchange significantly decreased compared to the previous period 2000-2006. The conversion from pasture to arable or crop land continues with significantly lower intensity, while the opposite conversion from arable land to pasture almost disappeared from the Romanian landscape. This decrease is most obvious in the north-eastern region of the country, where the conversions from pasture to arable were most frequent during the previous period. On the other hand, there occurs higher amount of conversion from arable land to vineyards and orchards and also conversion from vineyards and orchards into agricultural land with natural vegetation, which were rather insignificant during 2000-2006. Concerning the external exchange, the agriculture land, with prevailing share of arable (66% of total sprawl) has been consumed mostly by the sprawl of economic sites and infrastructures and also, to a lesser extent, by residential sprawl. The other reason of arable land consumption was its conversion into inland marches, which was observed in eastern Romania, along the Danube river.

4.12. Agricultural areas 2012 [% of total area]

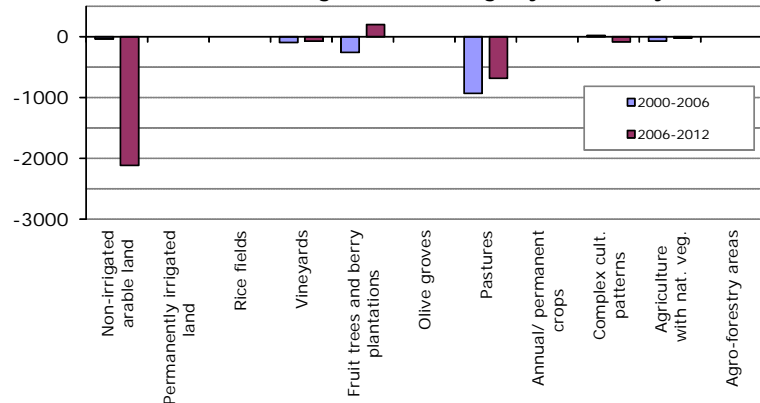


- 211 Non-irrigated arable land
- 212 Permanently irrigated land
- 213 Rice fields
- 221 Vineyards
- 222 Fruit trees and berry plantations
- 223 Olive groves
- 231 Pastures
- 241 Annual crops associated with permanent crops
- 242 Complex cultivation patterns
- 243 Agriculture land with significant areas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

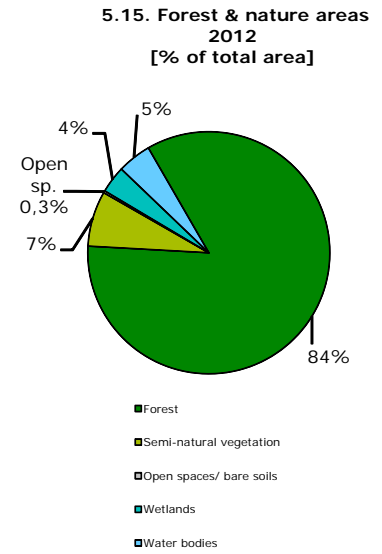
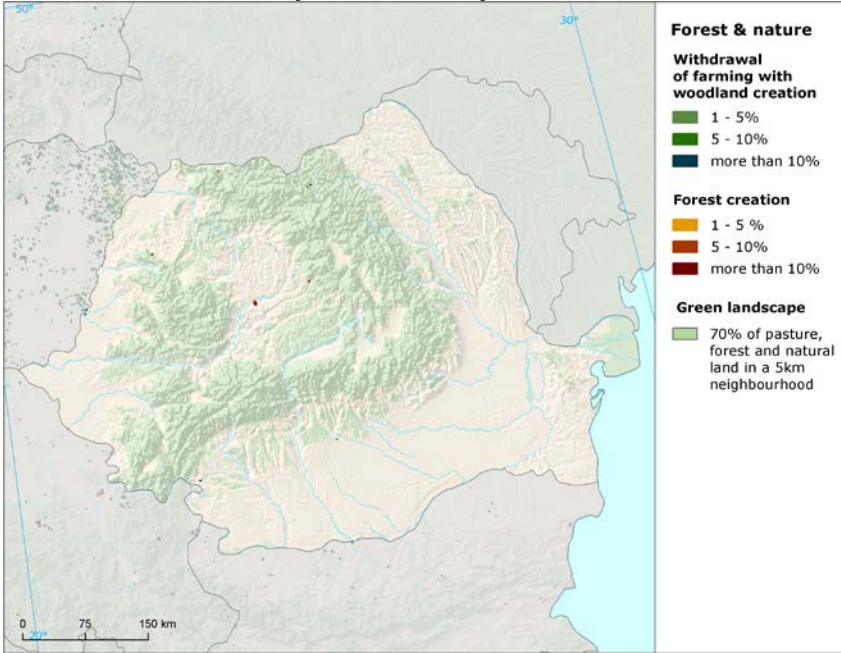
4.13. Development of agricultural areas 2006-2012 - detailed balance [ha]



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



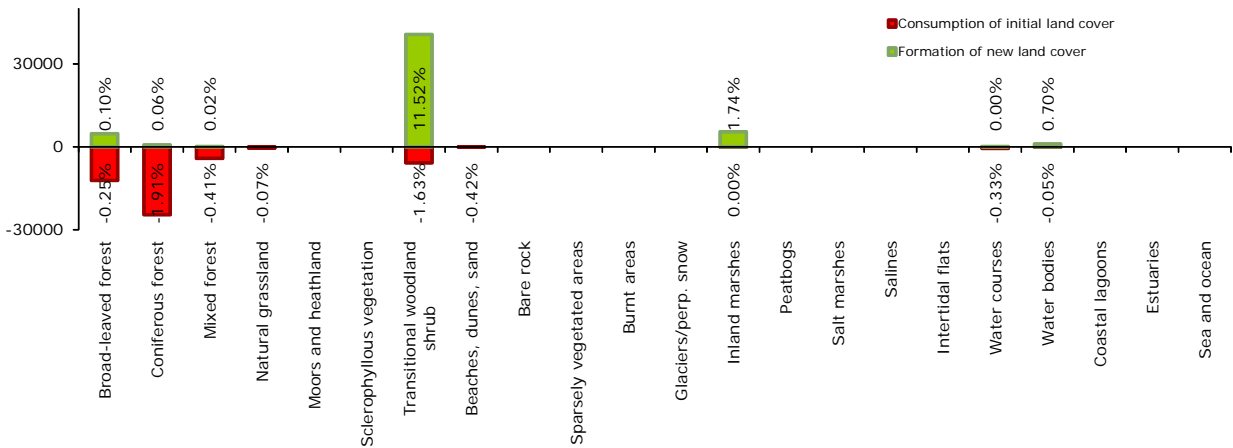
Forest & nature (2006-2012)



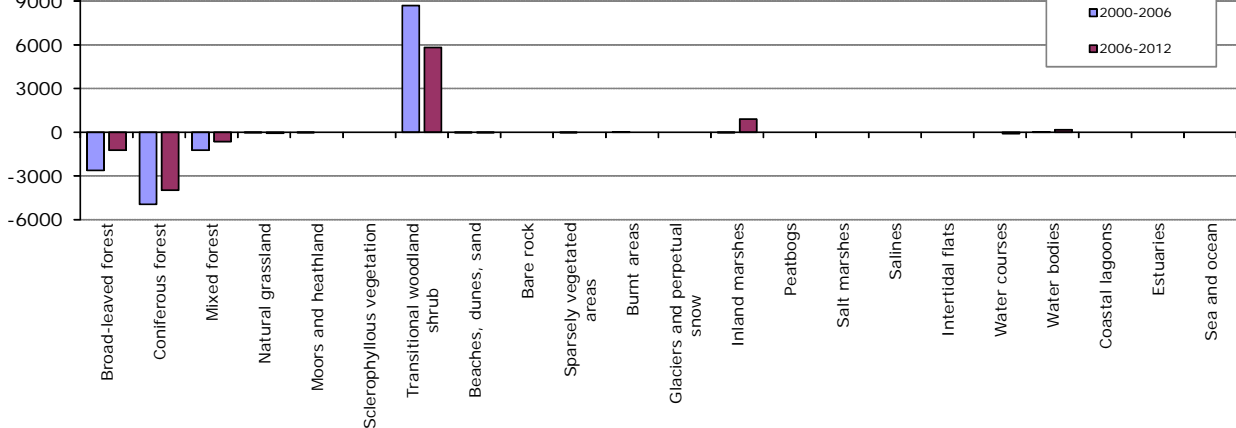
Forest and nature land development

Despite their decreasing intensity, the internal forested conversions remain by far the main driver of landscape development in Romania. Recent felling and transition strongly prevails over opposite flow of forest creation. As a result of these flows, all forest types show negative net change balance, in contrast to transitional woodland, with prevailing formation of area (about 10% of initial area). The other significant conversion in Romanian natural landscape was the formation of new wetlands, represented by inland marshes creation over former arable land, which was observed in the eastern part of the country, along the Danube river.

5.16. Development of forest & nature areas 2006-2012 – detailed balance [ha]



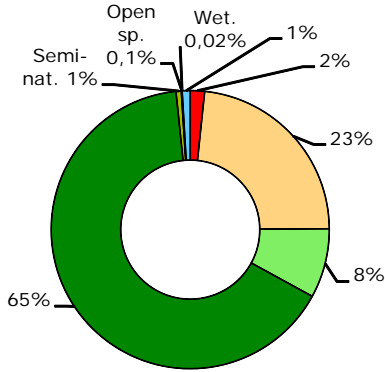
5.17. Mean annual forest & nature change by class [ha/year]



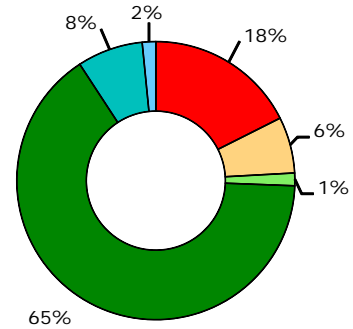
Annex: Land cover flows and trends

Land cover flows 2006-2012

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

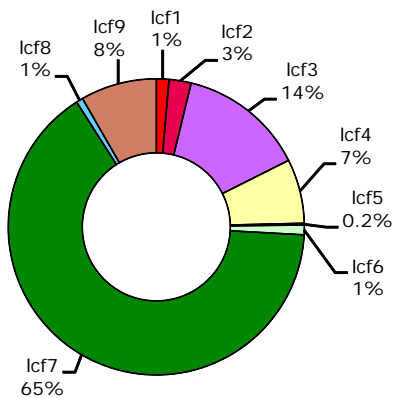


6.19. Formation of land cover 2006-2012 [% of total change area]



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

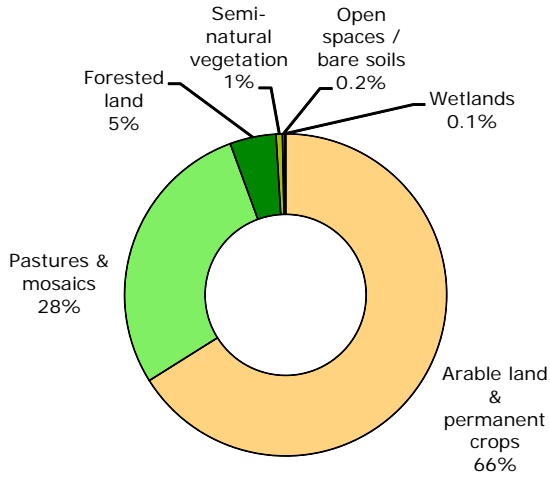
6.20. Drivers of change (LC FLOWS) 2006-2012 [% of total change area]



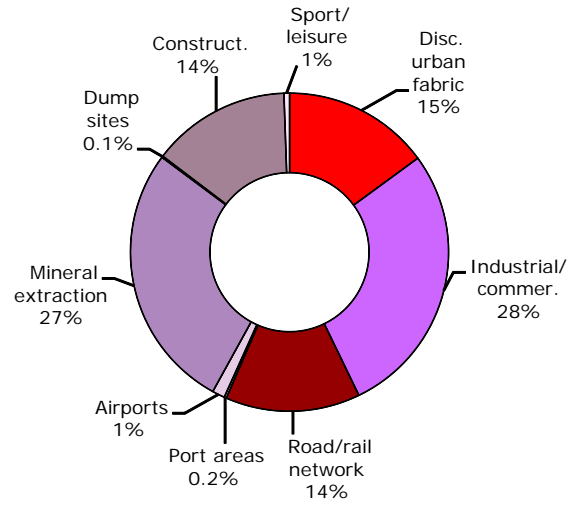
- lcf1 Urban land management
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf4 Agriculture internal conversions
- lcf5 Conversion from forested & natural land to agriculture
- lcf6 Withdrawal of farming
- lcf7 Forests creation and management
- lcf8 Water bodies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

Artificial areas

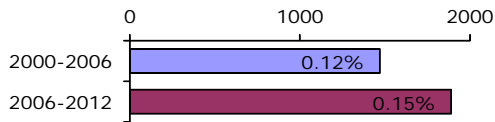
7.21. Consumption by artificial land take 2006-2012 [% of total]



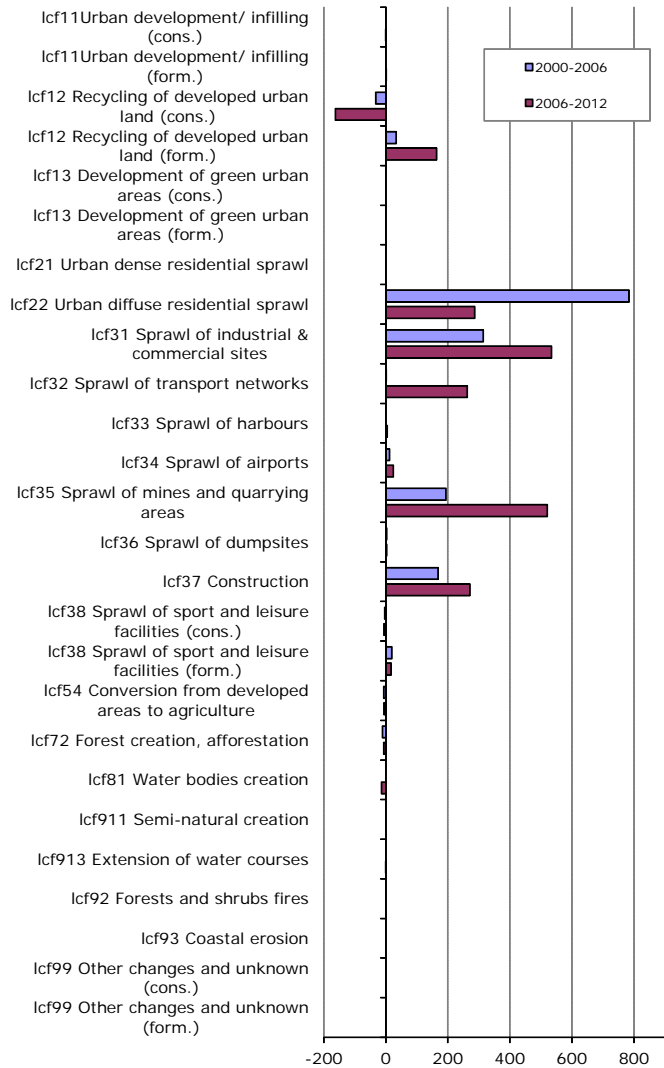
7.22. Formation by artificial land take 2006-2012 [% of total]



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

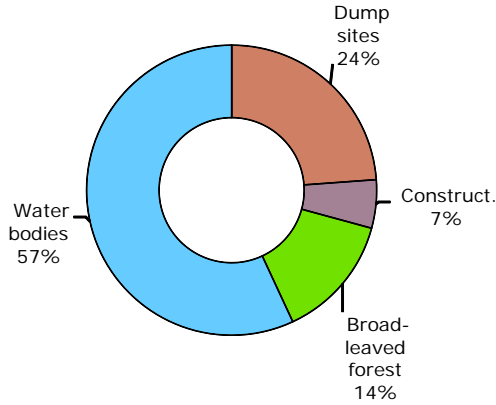


7.24. Artificial development by change drivers (LC FLOWS) [ha/year]

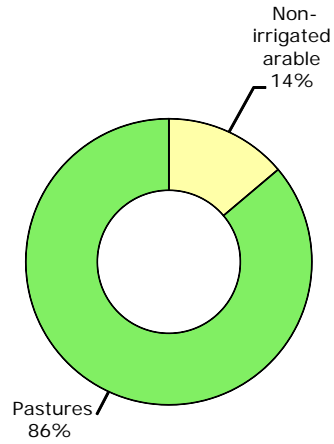


Agriculture

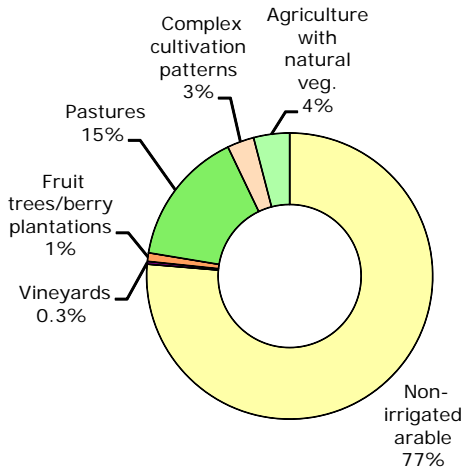
8.25. LC consumed by agriculture 2006-2012 [% of total]



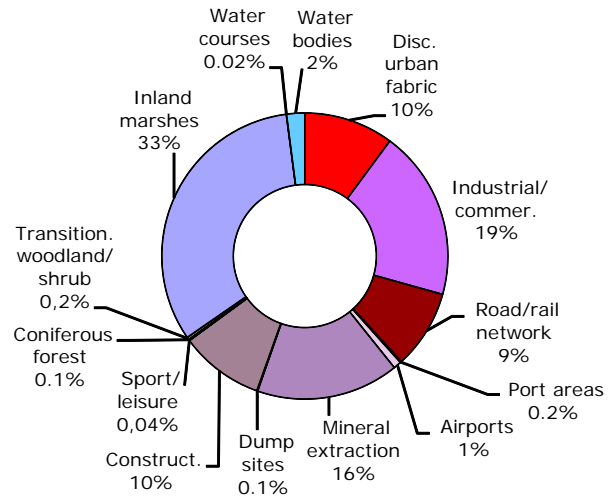
8.26. Formation of agricultural land from non-agriculture 2006-2012 [% of total]



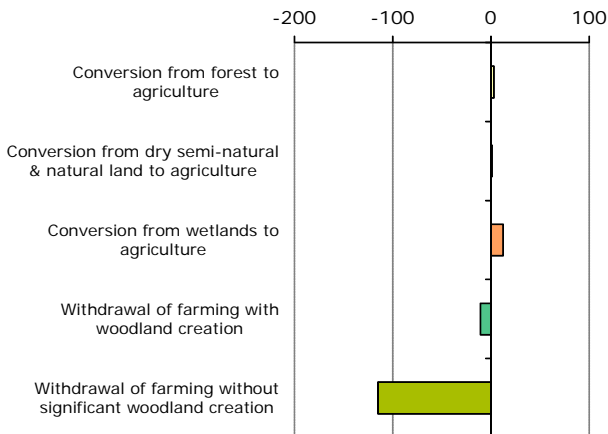
8.27. Consumption of agricultural land by non-agriculture 2006-2012 [% of total]



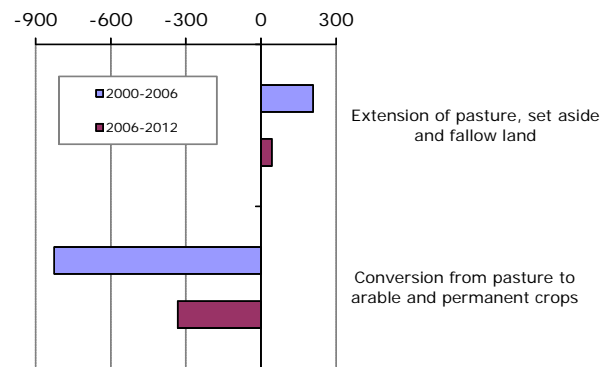
8.28. Formation of non-agricultural land from agriculture 2006-2012 [% of total]



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

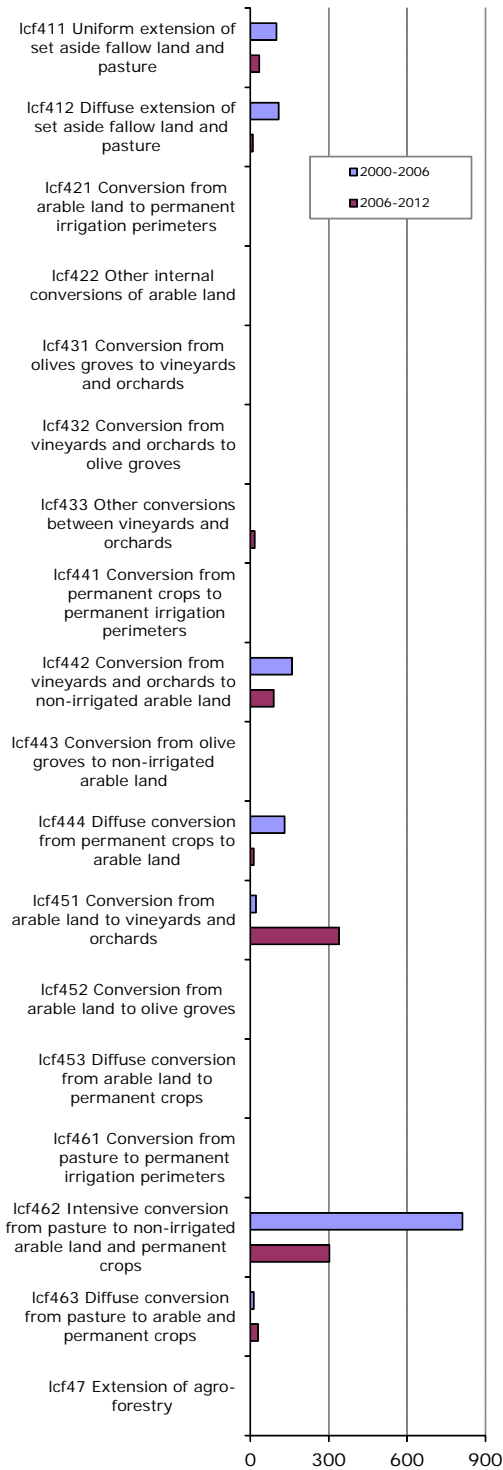


8.30. Mean annual conversion between arable land and pasture [ha/year]

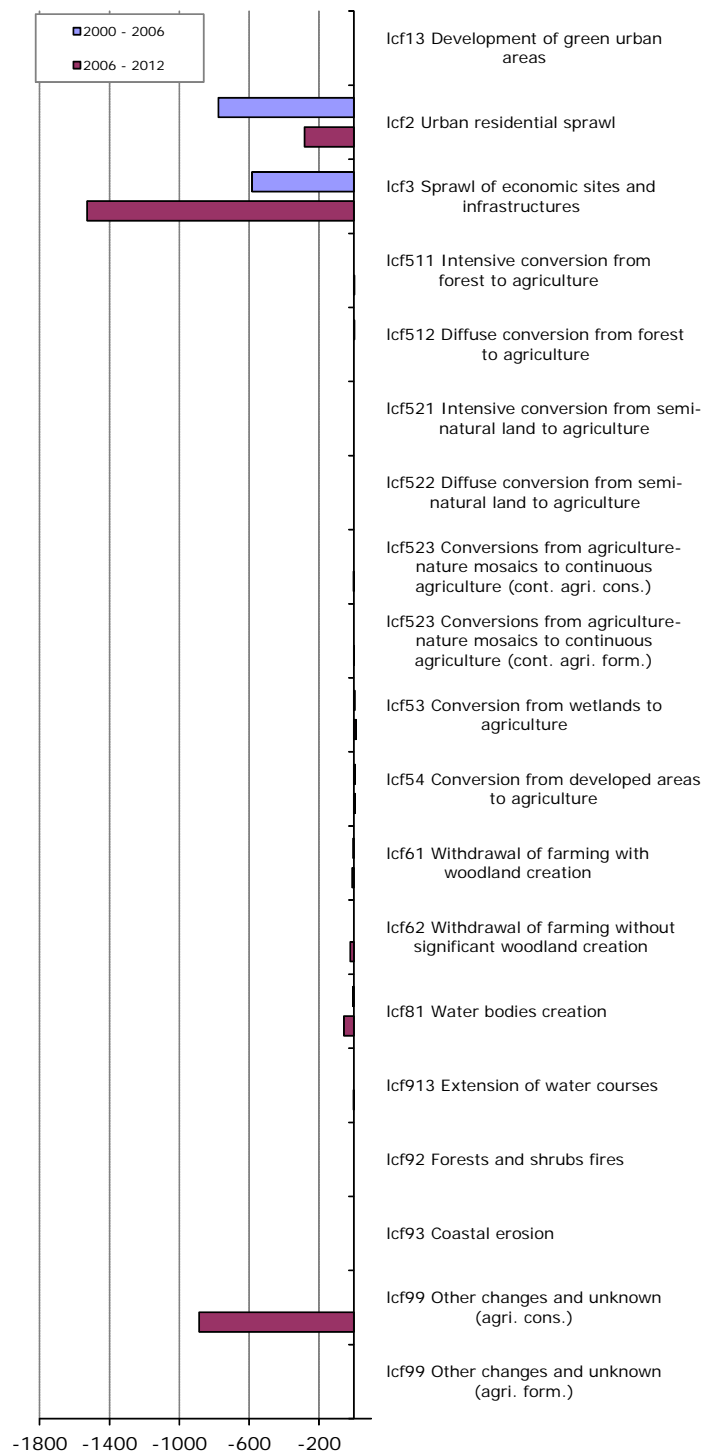


Romania

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

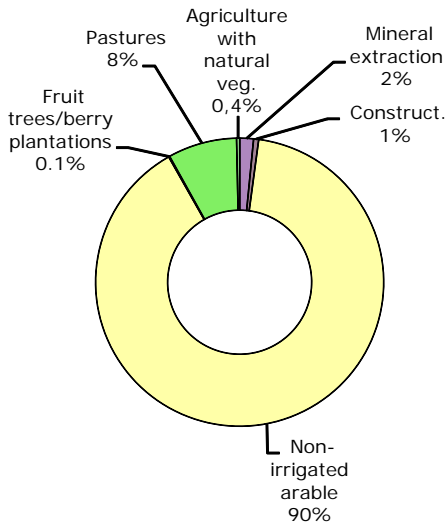


9.32. Mean annual conversions between agriculture and other LC types [ha/year]

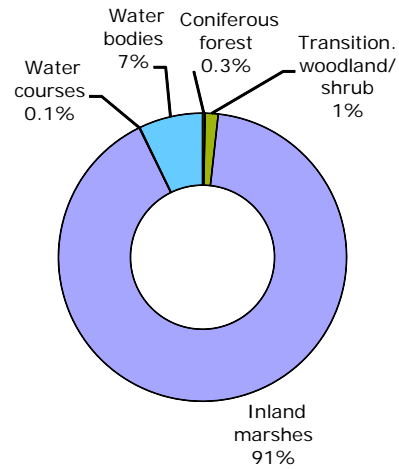


Forest & nature

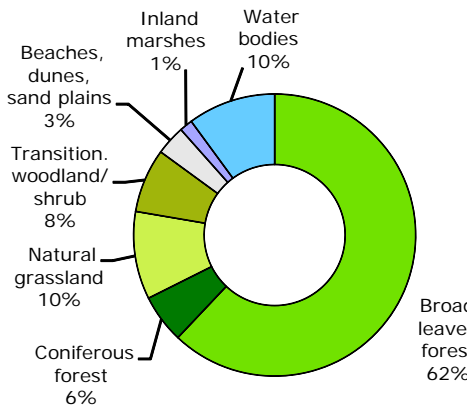
10.33. LC consumed by forest & nature 2006-2012 [% of total]



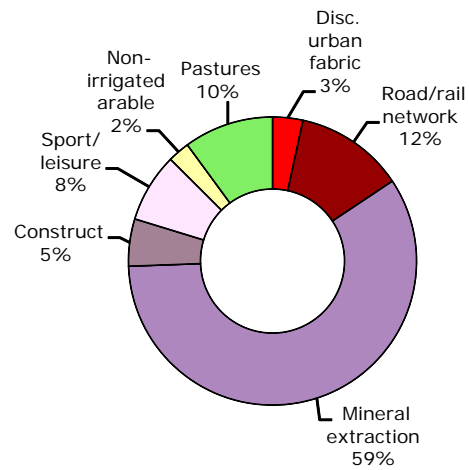
10.34. Formation of forest & nature land from non-forest /nature 2006-2012 [% of total]



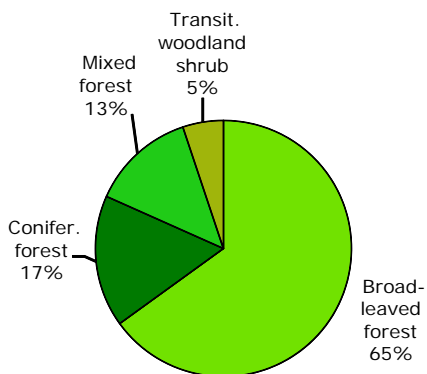
10.35. Consumption of forest & nature land by non-forest/nature 2006-2012 [% of total]



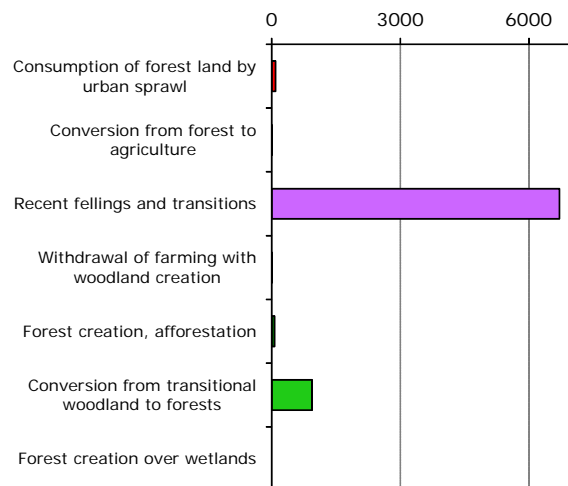
10.36. Formation of non-forest/nature land from forest & nature 2006-2012 [% of total]



10.37. Forested land 2012 [% of total area]

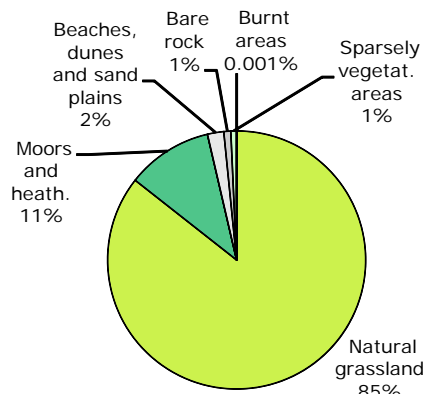


10.38. Main trends in woodland & forests consumption/formation 2006-2012 [ha/year]

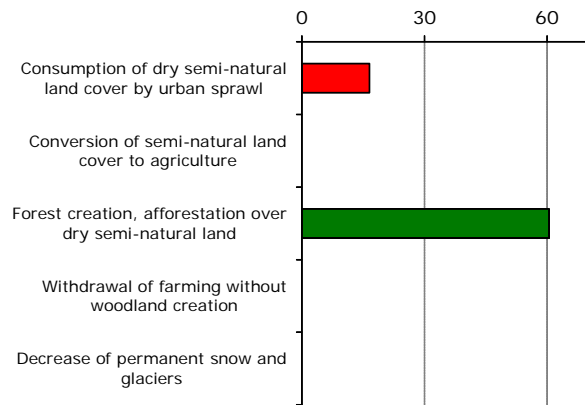


Romania

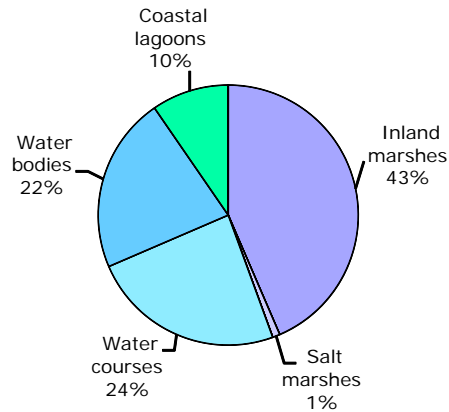
11.39. Dry semi-natural areas 2012
[% of total area]



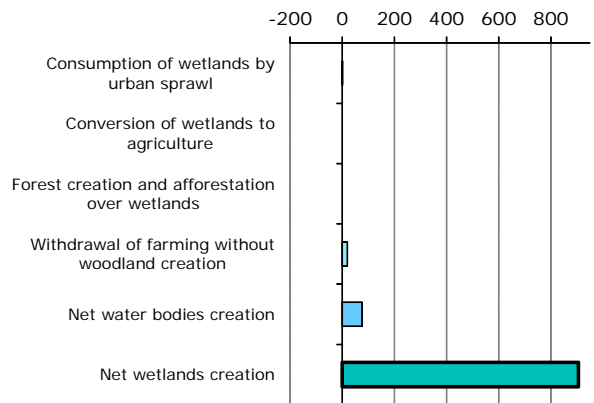
11.40. Main trends in dry semi-natural land consumption/formation 2006-2012
[ha/year]



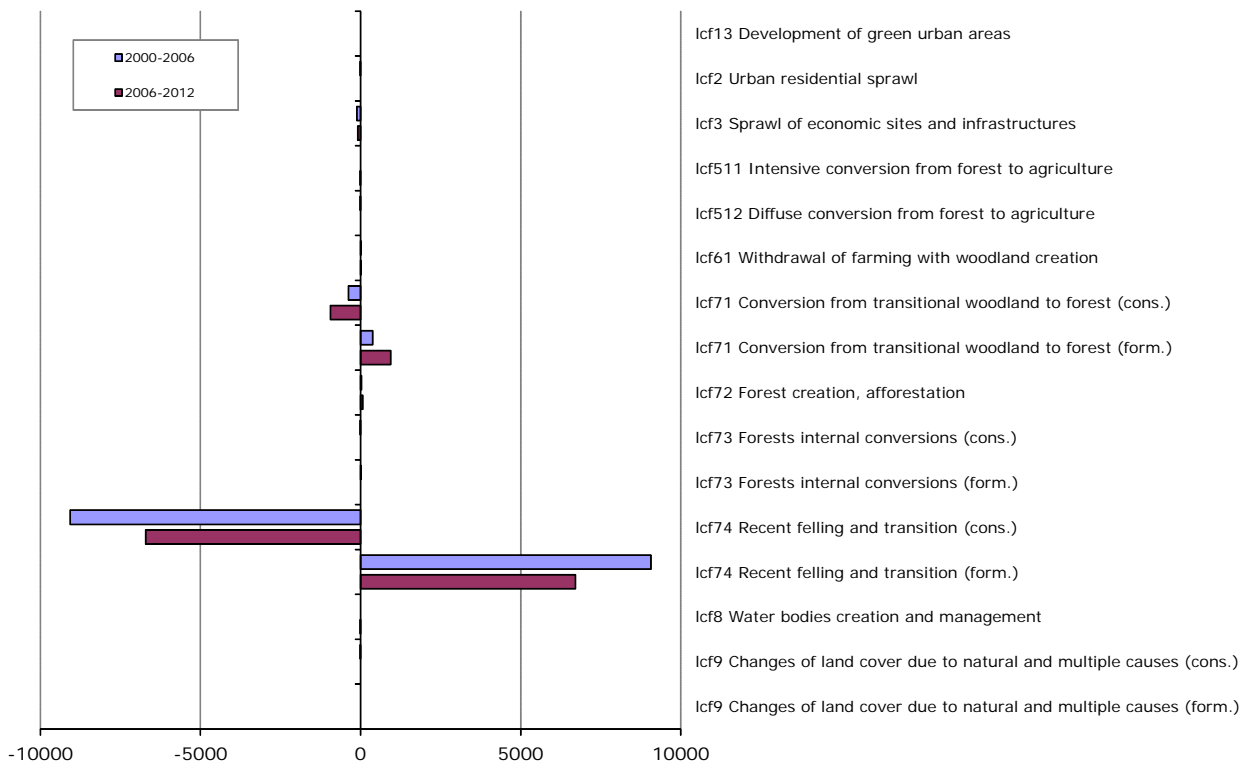
11.41. Wetlands & water 2012
[% of total area]



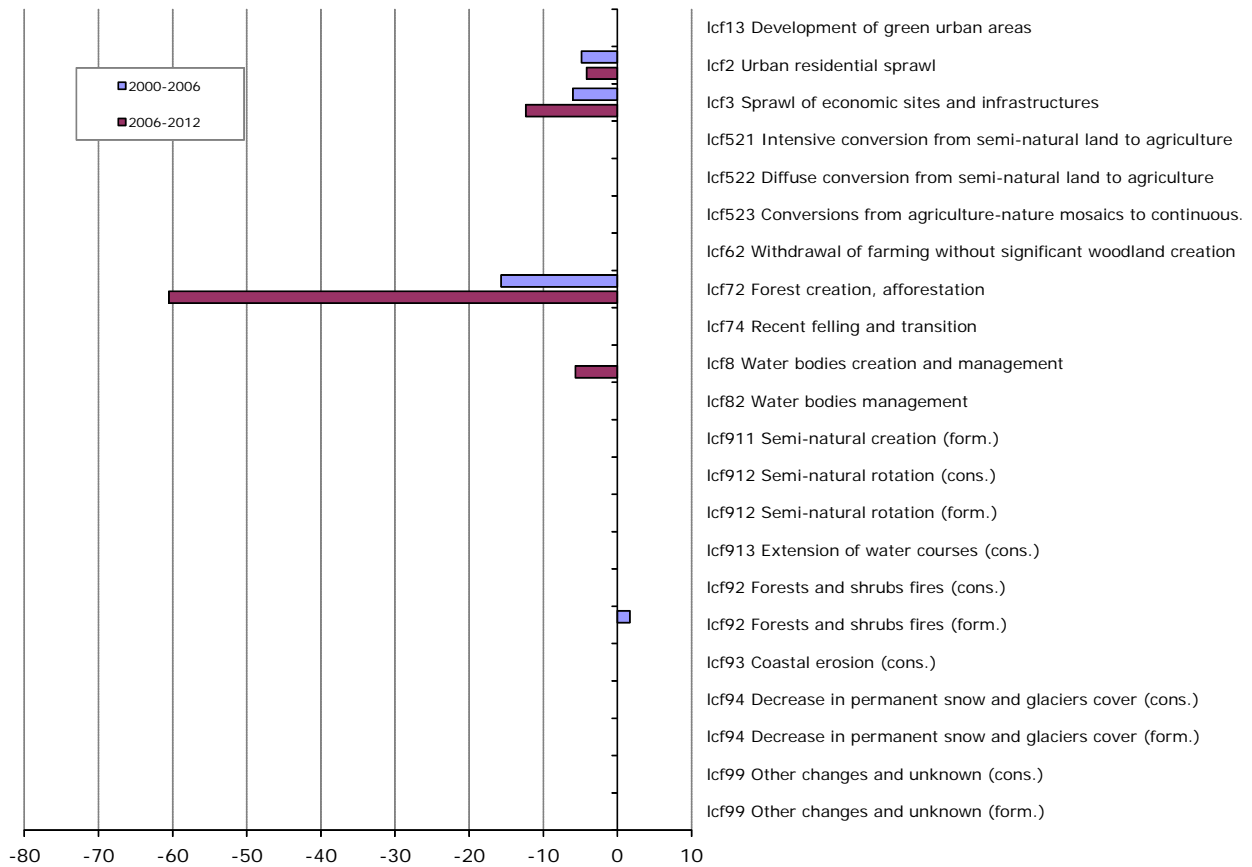
11.42. Main trends in wetlands & water consumption/formation 2006-2012
[ha/year]



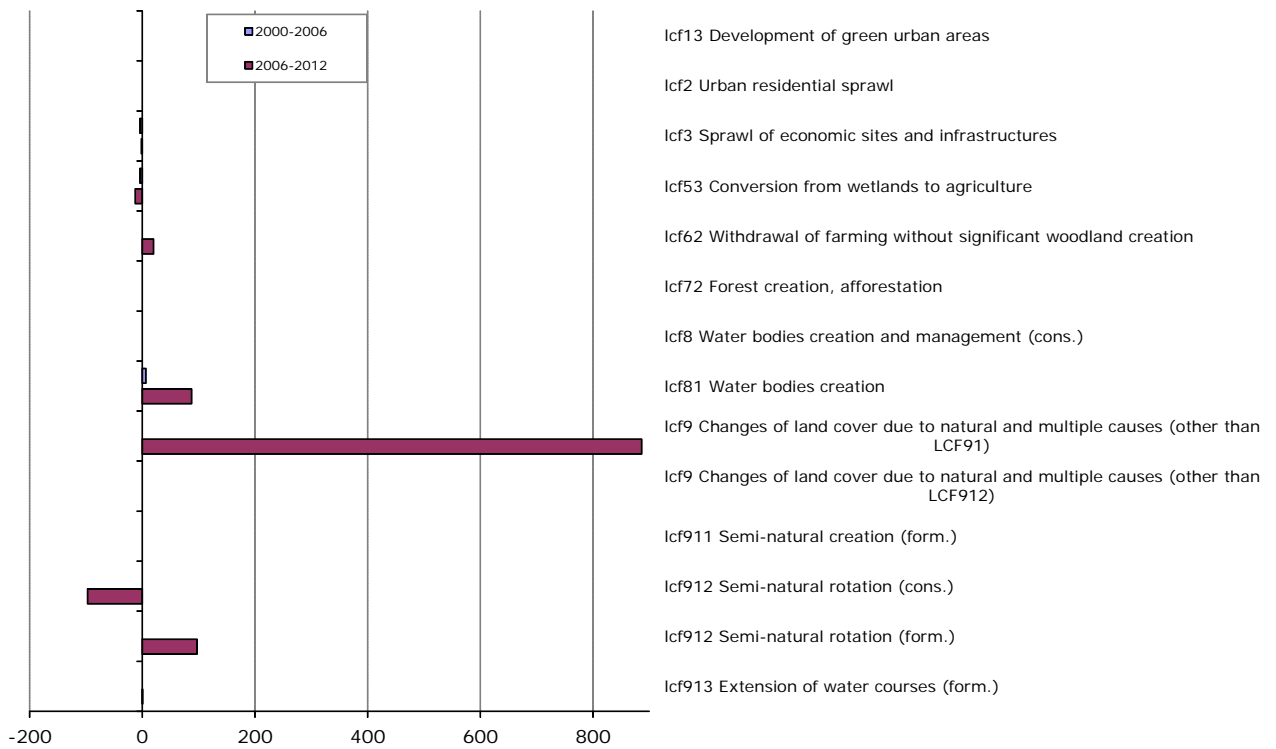
11.43. Mean annual conversions of forest & other woodland
[ha/year]



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

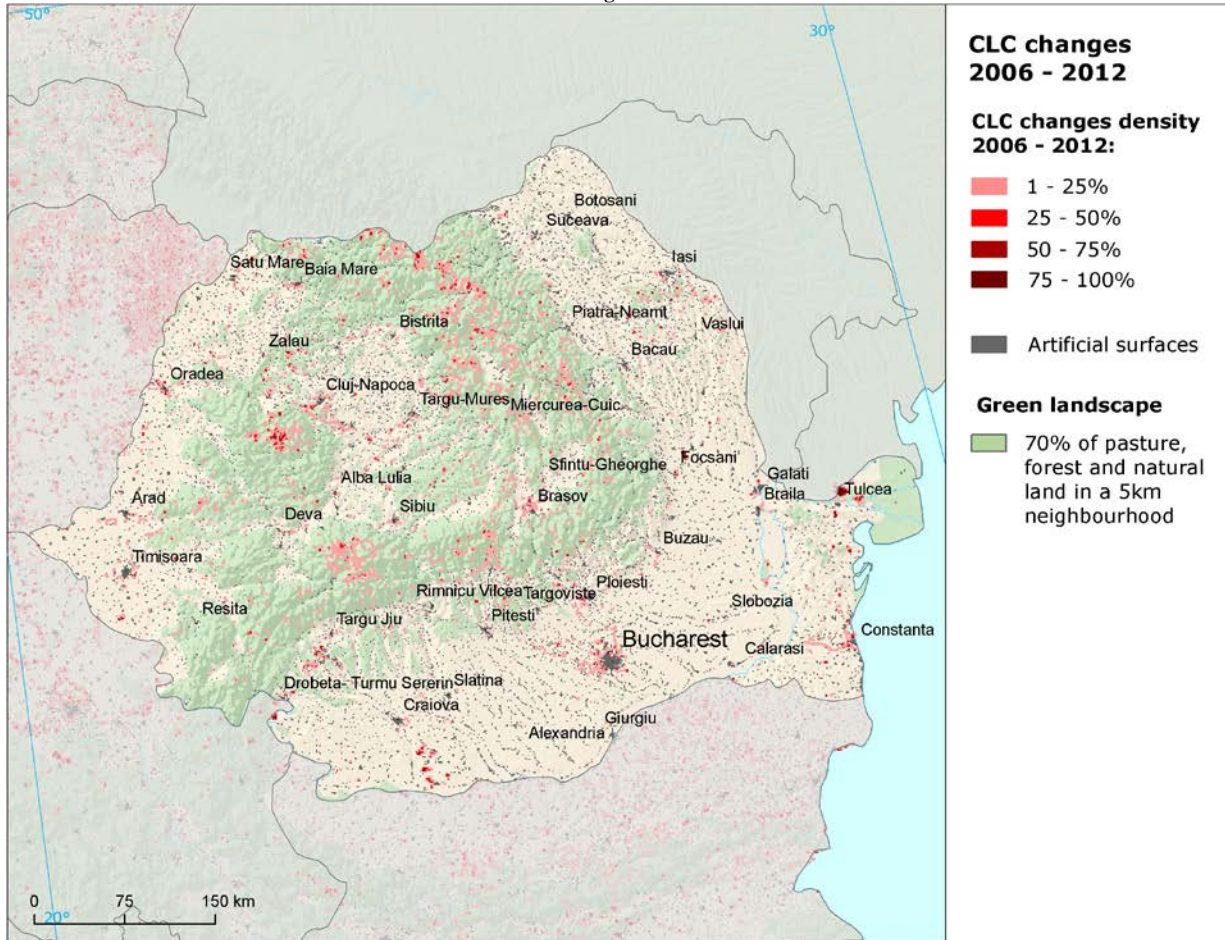


12.45. Mean annual conversions of wetlands and water LC [ha/year]

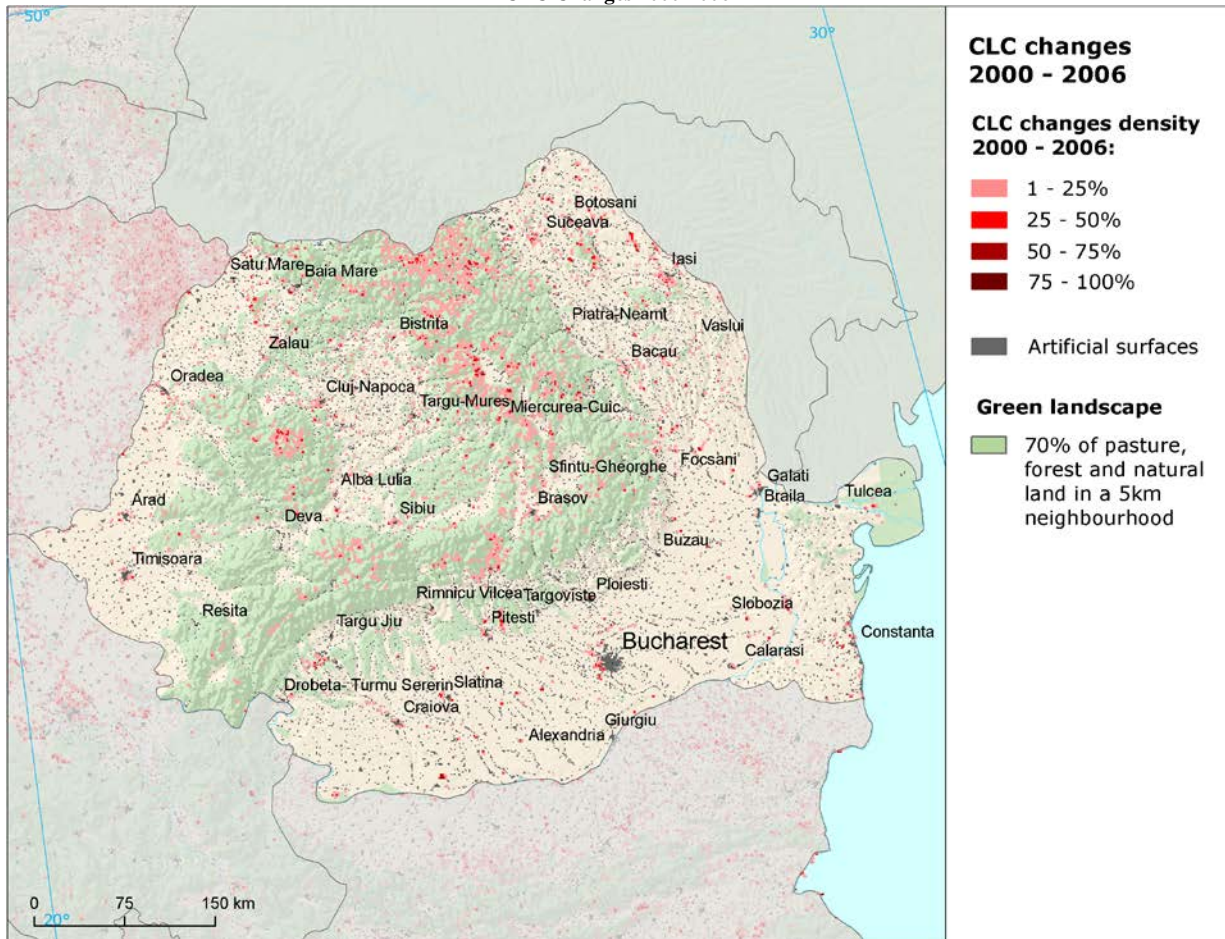


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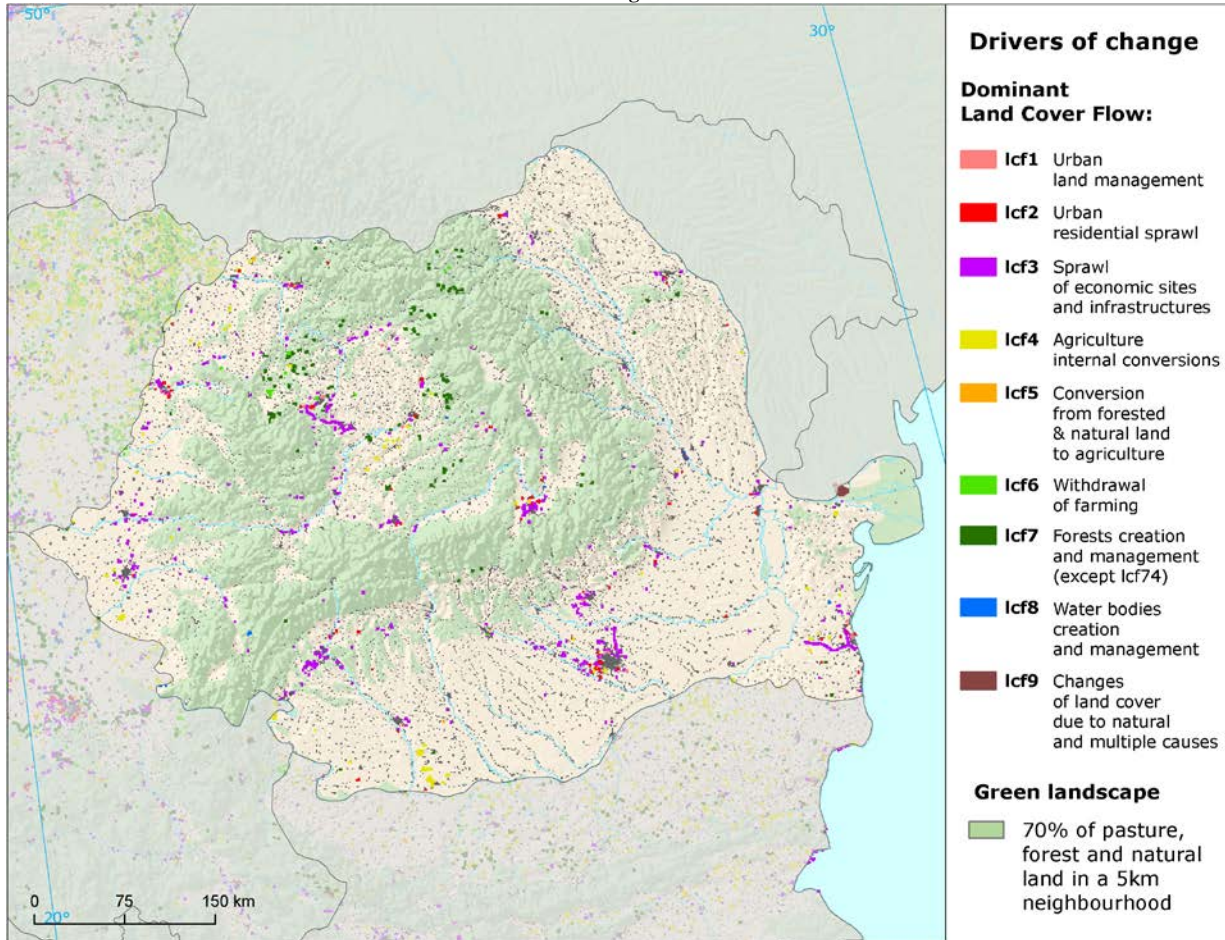
CLC Changes 2006-2012



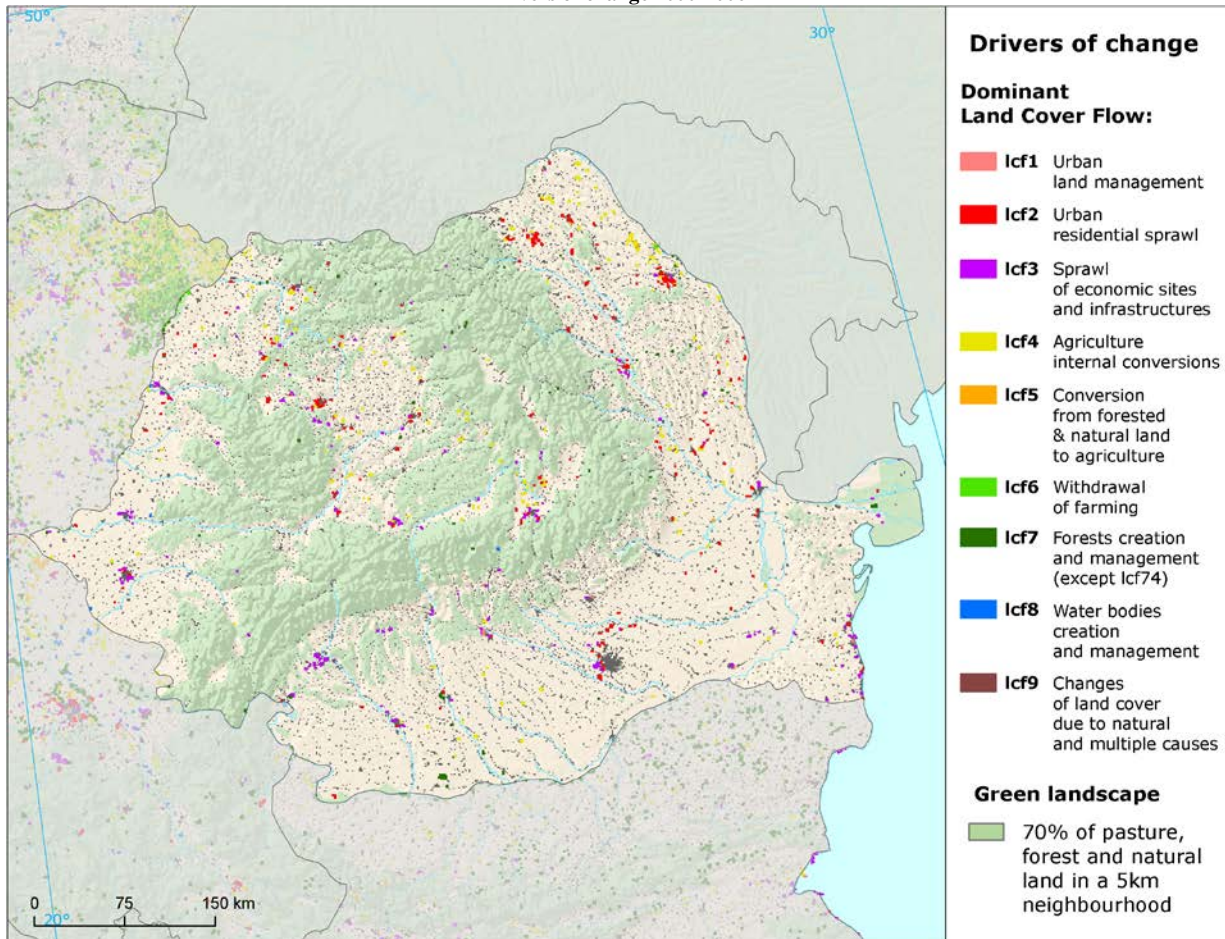
CLC Changes 2000-2006



Drivers of change 2006-2012

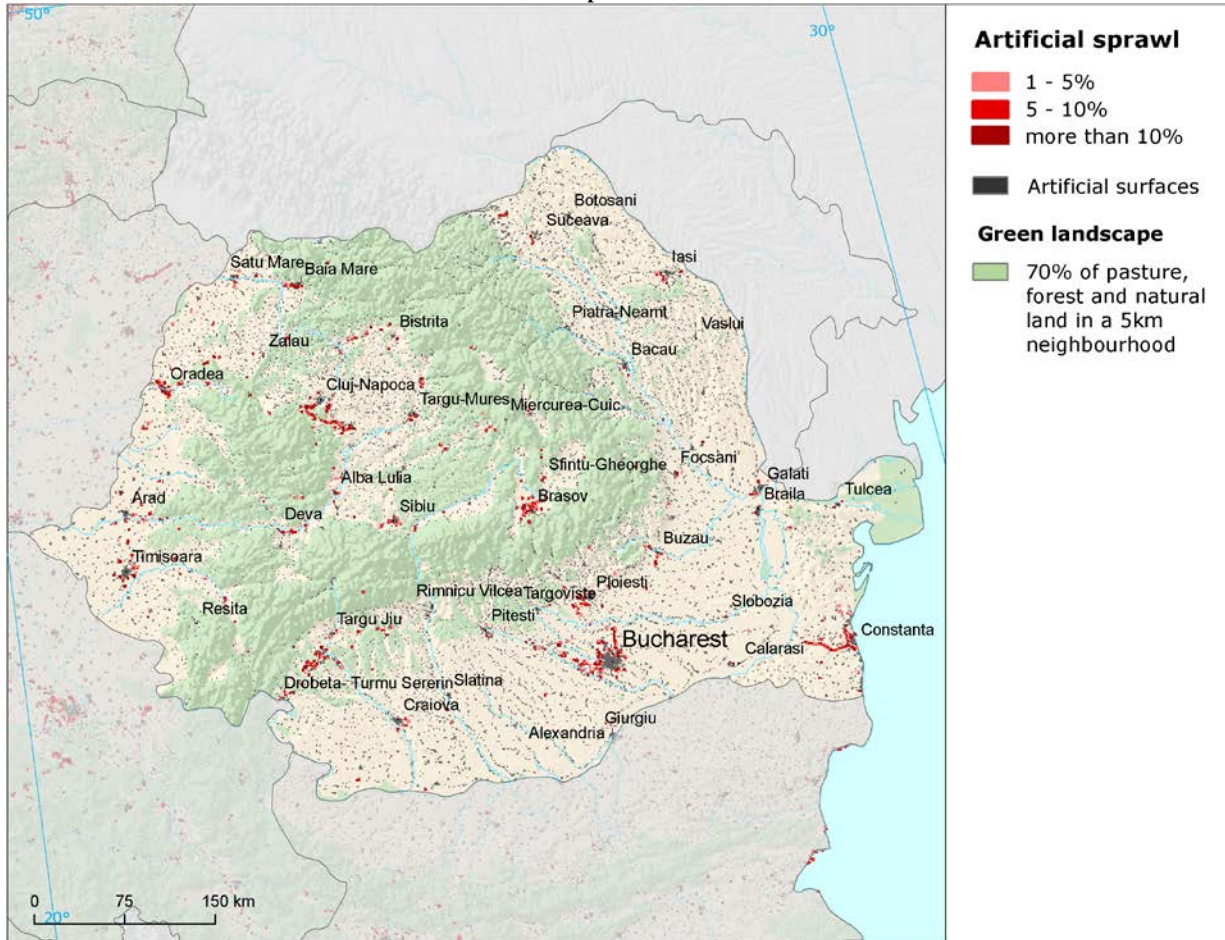


Drivers of change 2000-2006

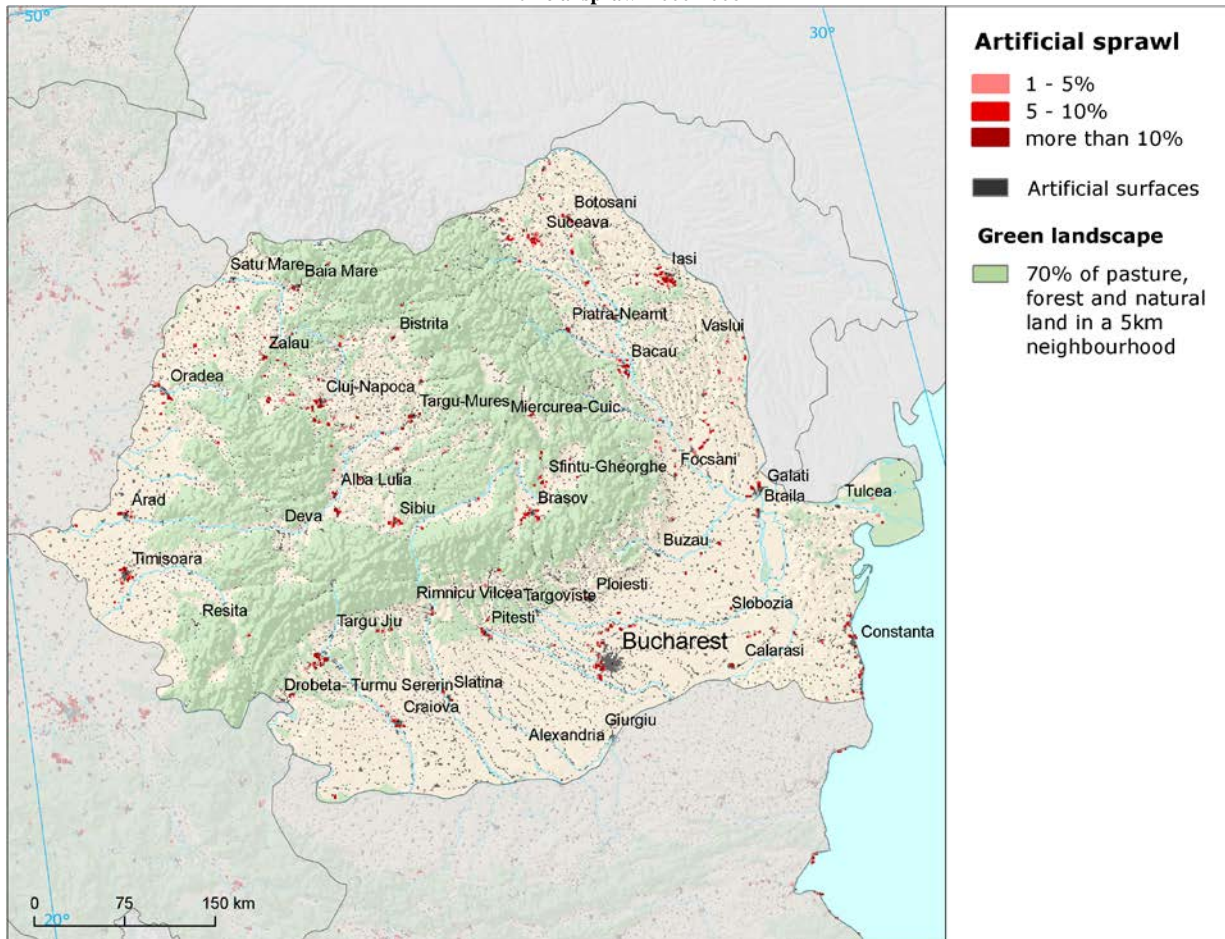


Romania

Artificial sprawl 2006-2012

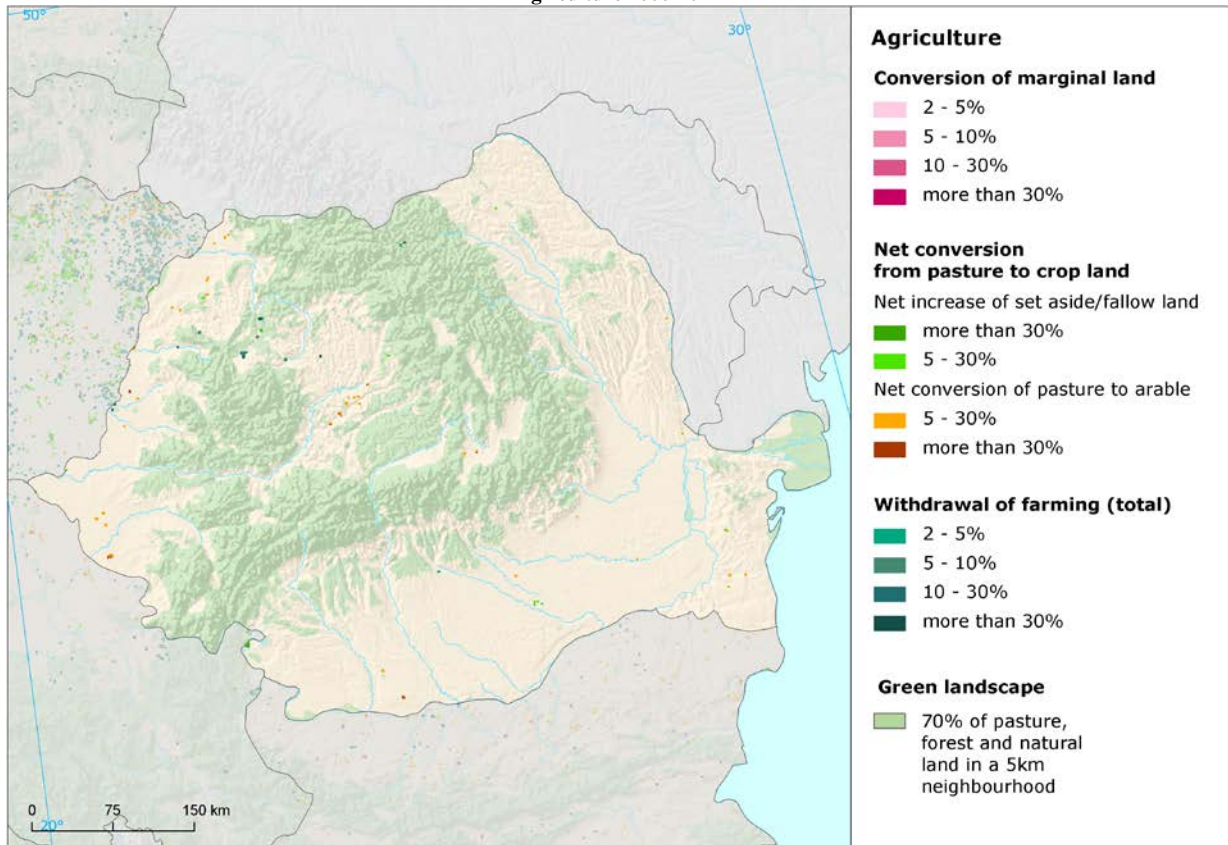


Artificial sprawl 2000-2006

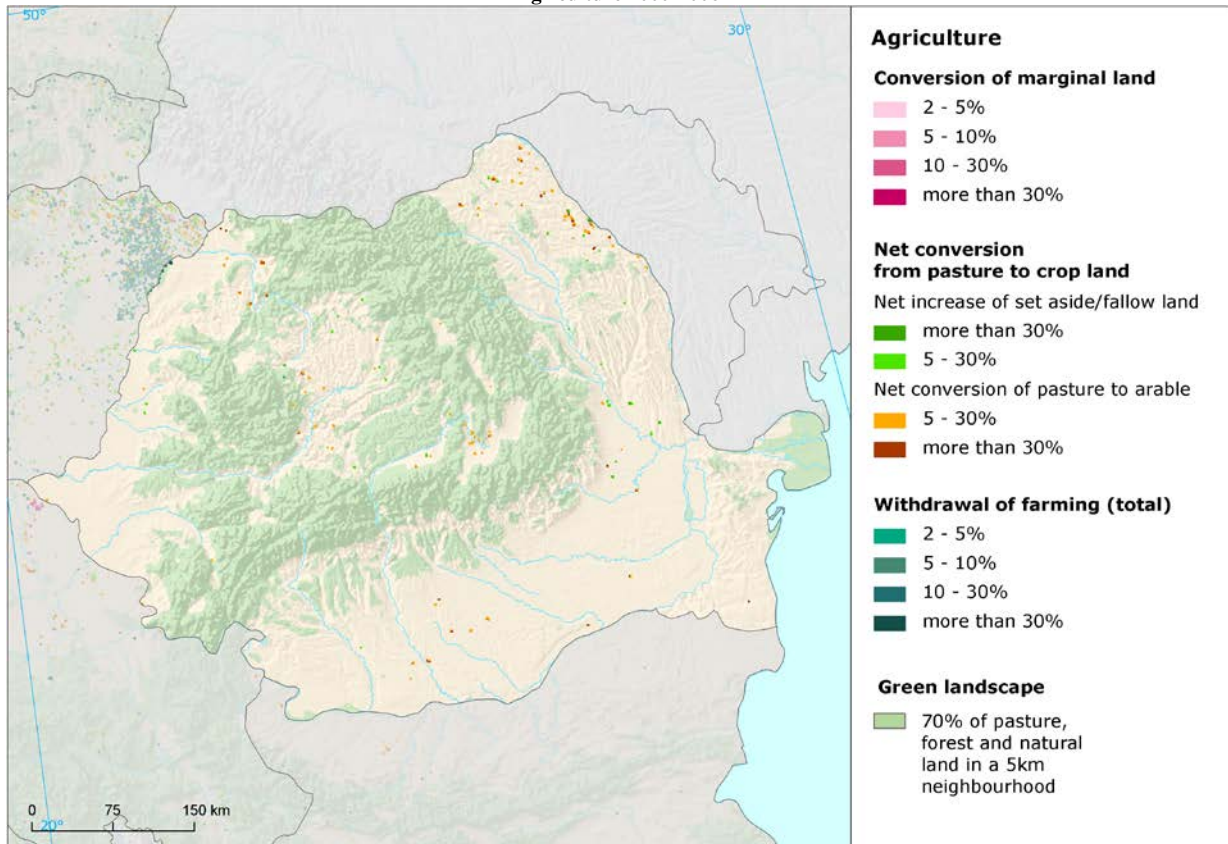


Romania

Agriculture 2006-2012

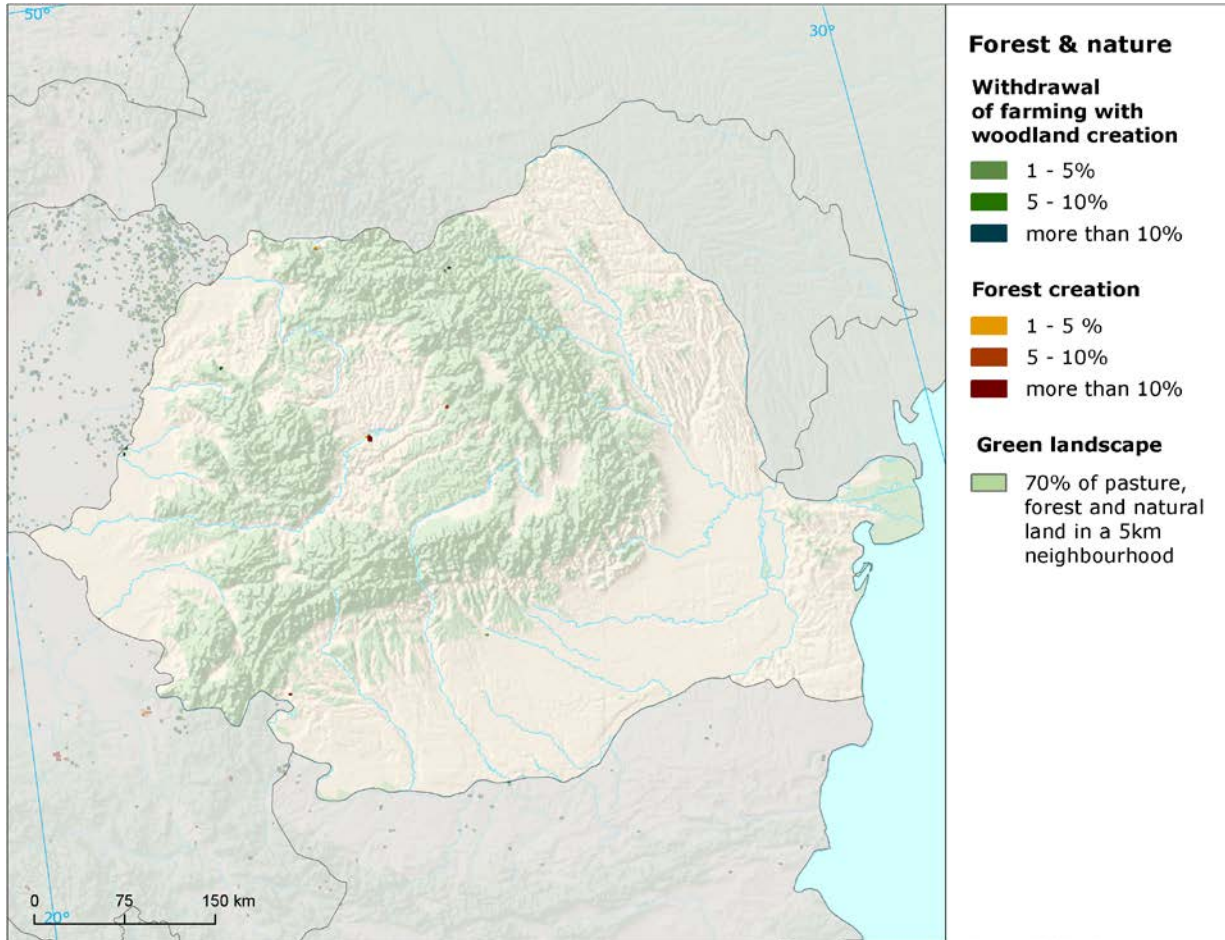


Agriculture 2000-2006



Romania

Forest and nature 2006-2012



Forest and nature 2000-2006

