Land cover 2012

Ireland

September 2017

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Ireland

Land cover 2012

Overview of land cover & change 2006-2012

The overall rate of land cover change in Ireland is safely above the European average, which indicates a dynamic development of the landscape in this country. However, a comparison with the previous periods shows a slightly decreasing tendency of this rate between the last two periods; also the rate is more than twice lower than in the period 1990-2000, which shows the overall stabilization of the Irish land cover development. This decrease is caused by significant slowdown of the internal forest conversions, withdrawal of farming and also of artificial sprawl.

The landscape development in the period 2006-2012 is driven mostly by forest and agricultural internal conversions, as well as by withdrawal of farming. In contrast to the previous periods, the agricultural internal conversion became the most extensive land cover flow in Ireland, which is a similar situation to the period 1990-2000.

The artificial development, which was extremely fast during both periods 1990-2000 and 2000-2006, shows rapid slowdown in 2006-2012. The current annual artificial land take rate (0.25%) is quite low, comparing with other European countries.

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 Ireland: 6

Summary balance table 2006-2012

<table>
<thead>
<tr>
<th></th>
<th>Artificial areas</th>
<th>Arable land &amp; permanent crops</th>
<th>Pastures &amp; mosaics</th>
<th>Forested land</th>
<th>Semi-natural vegetation</th>
<th>Open spaces/ bare soils</th>
<th>Wetlands</th>
<th>Water bodies</th>
<th>TOTAL [hundreds ha]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land cover 2006</td>
<td>1737</td>
<td>3641</td>
<td>43731</td>
<td>6731</td>
<td>1397</td>
<td>827</td>
<td>10911</td>
<td>1471</td>
<td>70445</td>
</tr>
<tr>
<td>Consumption of initial LC</td>
<td>57.8</td>
<td>335.6</td>
<td>367.3</td>
<td>522.7</td>
<td>2.2</td>
<td>0.5</td>
<td>37.5</td>
<td>0.3</td>
<td>1324</td>
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<tr>
<td>Formation of new LC</td>
<td>78.4</td>
<td>189.0</td>
<td>356.3</td>
<td>698.9</td>
<td>0.0</td>
<td>0.3</td>
<td>0.5</td>
<td>0.3</td>
<td>1324</td>
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<tr>
<td>Net Formation of LC</td>
<td>20.6</td>
<td>-146.6</td>
<td>-11.0</td>
<td>176.2</td>
<td>-2.2</td>
<td>-0.2</td>
<td>-36.9</td>
<td>0.1</td>
<td>0</td>
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<tr>
<td>Net formation as % of initial year</td>
<td>1.2</td>
<td>-4.0</td>
<td>0.0</td>
<td>2.6</td>
<td>-0.2</td>
<td>-0.3</td>
<td>-0.3</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Total turnover of LC</td>
<td>136.2</td>
<td>524.6</td>
<td>723.6</td>
<td>1221.6</td>
<td>2.2</td>
<td>0.8</td>
<td>38.0</td>
<td>0.6</td>
<td>2647</td>
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<tr>
<td>Total turnover as % of initial year</td>
<td>7.8</td>
<td>14.4</td>
<td>1.7</td>
<td>18.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.3</td>
<td>0.0</td>
<td>3.8</td>
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<td>Land cover 2012</td>
<td>1758</td>
<td>3494</td>
<td>43720</td>
<td>6907</td>
<td>1395</td>
<td>827</td>
<td>10874</td>
<td>1471</td>
<td>70445</td>
</tr>
</tbody>
</table>
Ireland

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

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

![Graph showing annual land cover change from 2000-2006 and 2006-2012]

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

![Bar chart showing annual turnover of land cover types]

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

![Bar chart showing net annual change of land cover types]

## Summary trend figures

<table>
<thead>
<tr>
<th></th>
<th>2000-2006</th>
<th>2006-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual land cover change</td>
<td>25735</td>
<td>22062</td>
</tr>
<tr>
<td>Annual land cover change as % of initial year</td>
<td>0.37%</td>
<td>0.31%</td>
</tr>
<tr>
<td>Land uptake by artificial development as mean annual change [ha/year]</td>
<td>3235</td>
<td>416</td>
</tr>
<tr>
<td>Agricultural land uptake by urban and infrastructures development as mean annual change [ha/year]</td>
<td>3095</td>
<td>382</td>
</tr>
<tr>
<td>Net uptake of forests and semi-natural land by agriculture as mean annual change [ha/year]</td>
<td>-3219</td>
<td>-2308</td>
</tr>
<tr>
<td>Net conversion from pasture to arable land and permanent crops as mean annual change [ha/year]</td>
<td>64</td>
<td>-2681</td>
</tr>
<tr>
<td>Forest &amp; other woodland net formation as mean annual change [ha/year]</td>
<td>8308</td>
<td>2937</td>
</tr>
<tr>
<td>Dry semi-natural land cover net formation as mean annual change [ha/year]</td>
<td>-255</td>
<td>-41</td>
</tr>
<tr>
<td>Wetlands &amp; water bodies net formation as mean annual change [ha/year]</td>
<td>-4938</td>
<td>-614</td>
</tr>
</tbody>
</table>

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

![Bar chart showing intensity of main change drivers]

- 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
Rapid slowdown of artificial development

The artificial sprawl rate in Ireland is rather low, in comparison with the European average. It has to be outpointed, that this rate rapidly decreased, compared to previous periods 1990-2000 and 2000-2006, which indicates rapid slowdown of the artificial land development in the country. Urban land recycling, represented by conversion of sites, which were under construction already during the previous period, into urban fabric, transportation or industrial/commercial units, is significantly stronger than the land take itself. All major compounds of sprawl from the 2000-2006 (with diffuse residential sprawl on the first place) lost most of its intensity. Concerning the geographical distribution of the sprawl, the pattern is similar to the previous period; however, the intensity is much lower. The sprawl is still located mainly in the surroundings of the capital city of Dublin, however, most of the sprawl of economic sites and infrastructures disappeared from this region and there only remained some amount of residential development. The only locations with still prevailing development of economic sites and infrastructures can be found around the cities of Galway and Limerick.
Rapid increase of agricultural development dynamics

In contrast to the artificial sprawl, the agricultural internal development is much more dynamic in the period 2006-2012 than in the previous one. Extension of pasture, set aside and fallow land dominates over the opposite conversion of pasture to arable land. These internal agricultural flows were in significant decline during the period 2000-2006; however, their intensity was even higher in the period 1990-2000 during which the conversion from pasture to arable was the dominant one. As a result of this internal development, the arable land shows negative net change balance in the 2006-2012, with circa 4% consumption of initial area. On the other hand, the consumption of pasture and agro-natural land is driven mainly by the withdrawal of farming with transitional woodland and shrub creation. This trend was significant already in the previous period, with even slightly higher intensity.
**Forest & nature development (2006-2012)**

The internal conversions of forested land represented the most frequent change in the frame of both previous periods 1990-2000 and 2000-2006; however, in recent years, they have in major decline and their intensity in the period 2006-2012 was comparable with the intensity of the second most powerful driver of change in the country – the agriculture internal conversions. Recent felling and transition still prevails over the opposite forest formation. Beside it, also withdrawal of farming with woodland creation can be observed in Ireland, represented mostly by the conversion of pastures to transitional woodland/shrub land. Although the intensity of this flow is lower, compared to the 2000-2006, it remains one of the most important drivers of the Irish landscape development. There also occurs significant amount of transitional woodland and shrub land creation over former peatbogs in Ireland. Changes of natural land are uniformly distributed over the whole country, with forest creation over peatbogs concentrated more along the western coastline.

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

- Consumption of initial land cover
- Formation of new land cover

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

- 2000-2006
- 2006-2012
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]
Ireland

Artificial areas

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

- Arable land & permanent crops: 7%
- Pastures & mosaics: 85%
- Forested land: 1%
- Wetlands: 6%
- Water bodies: 1%

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

- Sport/leisure: 7%
- Road/rail network: 26%
- Industrial/commer.: 21%
- Construct.: 13%
- Dump sites: 0.3%
- Mineral extraction: 12%
- Airports: 1%
- Port areas: 1%

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

- 2000-2006: 2.04%
- 2006-2012: 20%

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

- lcf11 Urban development/infilling (cons.)
- lcf11 Urban development/infilling (form.)
- lcf12 Recycling of developed urban land (cons.)
- lcf12 Recycling of developed urban land (form.)
- lcf13 Development of green urban areas (cons.)
- lcf13 Development of green urban areas (form.)
- lcf21 Urban dense residential sprawl
- lcf22 Urban diffuse residential sprawl
- lcf31 Sprawl of industrial & commercial sites
- lcf32 Sprawl of transport networks
- lcf33 Sprawl of harbours
- lcf34 Sprawl of airports
- lcf35 Sprawl of mines and quarrying areas
- lcf36 Sprawl of dumpsites
- lcf37 Construction
- lcf38 Sprawl of sport and leisure facilities (cons.)
- lcf38 Sprawl of sport and leisure facilities (form.)
- lcf54 Conversion from developed areas to agriculture
- lcf72 Forest creation, afforestation
- lcf81 Water bodies creation
- lcf911 Semi-natural creation
- lcf913 Extension of water courses
- lcf92 Forests and shrubs fires
- lcf93 Coastal erosion
- lcf99 Other changes and unknown (cons.)
- lcf99 Other changes and unknown (form.)
Ireland

**Agriculture**

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

- Natural grassland: 4%
- Industrial/commercial: 21%
- Dump sites: 49%
- Mineral extraction: 8%
- Construct.: 19%

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

- Pastures: 100%

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

- Pastures: 81%
- Agriculture with natural veg.: 15%
- Complex cultivation patterns: 1%
- Non-irrigated arable: 3%

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

- Transition. woodland shrub: 86%
- Airports: 0.1%
- Coniferous forest: 0.1%
- Sport/leisure: 1%
- Industrial/commer.: 3%
- Road/rail network: 4%
- Mineral extraction: 1%
- Construct.: 2%
- Disc. urban fabric: 3%

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

- Conversion from forest to agriculture
- Conversion from dry semi-natural & natural land to agriculture
- Conversion from wetlands to agriculture
- Withdrawal of farming with woodland creation
- Withdrawal of farming without significant woodland creation

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

- Extension of pasture, set aside and fallow land
- Conversion from pasture to arable and permanent crops
9.31. Mean annual agriculture internal conversions [ha/year]

- lcf411 Uniform extension of set aside fallow land and pasture
- lcf412 Diffuse extension of set aside fallow land and pasture
- lcf421 Conversion from arable land to permanent irrigation perimeters
- lcf422 Other internal conversions of arable land
- lcf431 Conversion from olives groves to vineyards and orchards
- lcf432 Conversion from vineyards and orchards to olive groves
- lcf433 Other conversions between vineyards and orchards
- lcf441 Conversion from permanent crops to permanent irrigation perimeters
- lcf442 Conversion from vineyards and orchards to non-irrigated arable land
- lcf443 Conversion from olive groves to non-irrigated arable land
- lcf444 Diffuse conversion from permanent crops to arable land
- lcf451 Conversion from arable land to vineyards and orchards
- lcf452 Conversion from arable land to olive groves
- lcf453 Diffuse conversion from arable land to permanent crops
- lcf461 Conversion from pasture to permanent irrigation perimeters
- lcf462 Intensive conversion from pasture to non-irrigated arable land and permanent crops
- lcf463 Diffuse conversion from pasture to arable and permanent crops
- lcf47 Extension of agroforestry

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

- lcf13 Development of green urban areas
- lcf2 Urban residential sprawl
- lcf3 Sprawl of economic sites and infrastructures
- lcf511 Intensive conversion from forest to agriculture
- lcf512 Diffuse conversion from forest to agriculture
- lcf521 Intensive conversion from semi-natural land to agriculture
- lcf522 Diffuse conversion from semi-natural land to agriculture
- lcf523 Conversions from agriculture-nature mosaics to continuous agriculture (cont. agri. cons.)
- lcf523 Conversions from agriculture-nature mosaics to continuous agriculture (cont. agri. form.)
- lcf53 Conversion from wetlands to agriculture
- lcf54 Conversion from developed areas to agriculture
- lcf61 Withdrawal of farming with woodland creation
- lcf62 Withdrawal of farming without significant woodland creation
- lcf81 Water bodies creation
- lcf913 Extension of water courses
- lcf92 Forests and shrubs fires
- lcf93 Coastal erosion
- lcf99 Other changes and unknown (agri. cons.)
- lcf99 Other changes and unknown (agri. form.)
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]
11.39. Dry semi-natural areas 2012
[% of total area]

- Natural grassland: 20%
- Moors and heathland: 43%
- Beaches, dunes, and sand plains: 5%
- Bare rock: 7%
- Sparsely vegetated areas: 25%
- Other: 0%

[ha/year]

- Consumption of dry semi-natural land cover by urban sprawl
- Conversion of semi-natural land cover to agriculture
- Forest creation, afforestation over dry semi-natural land
- Withdrawal of farming without woodland creation
- Decrease of permanent snow and glaciers

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

- Peatbogs: 82%
- Inland marshes: 2%
- Coastal lagoons: 0.2%
- Estuaries: 2%
- Intertidal flats: 4%
- Salt marshes: 0.4%
- Water bodies: 9%
- Water courses: 1%
- Water bodies: 0.003%
- Sea and ocean: 1%

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

- Consumption of wetlands by urban sprawl
- Conversion of wetlands to agriculture
- Forest creation and afforestation over wetlands
- Withdrawal of farming without woodland creation
- Net water bodies creation
- Net wetlands creation

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

- Development of green urban areas
- Urban residential sprawl
- Sprawl of economic sites and infrastructures
- Intensive conversion from forest to agriculture
- Diffuse conversion from forest to agriculture
- Withdrawal of farming with woodland creation
- Conversion from transitional woodland to forest (cons.)
- Conversion from transitional woodland to forest (form.)
- Forest creation, afforestation
- Forests internal conversions (cons.)
- Forests internal conversions (form.)
- Recent felling and transition (cons.)
- Recent felling and transition (form.)
- Water bodies creation and management
- Changes of land cover due to natural and multiple causes (cons.)
- Changes of land cover due to natural and multiple causes (form.)