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Central
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Ecosystem Services Accounts in the CSO

UNCEEA Webinar 2 - Implementation of
the SEEA Ecosystem Accounting

20 May 2024



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Ecosystem Accounts Division

- Two main goals:
 - National needs – national set of ecosystem accounts
 - Eurostat reporting requirements



Eurostat: Ecosystem Accounts

- Regulation No (EU) 691/2011 on European environmental economic accounts
 - Extent
 - Condition
 - Services



EUROPEAN COMMISSION
EUROSTAT

Directorate E: Sectoral and regional statistics
Unit E-2: Environmental statistics and accounts; sustainable development

ENV/EA-MESA/WG-03.7(2020)
Point 3.7 of the agenda

Proposal for new module: ecosystem accounts

Eurostat – Unit E2

Joint meeting of the working groups Environmental accounts and Monetary environmental statistics and accounts

Meeting of May 2020



Extent Accounts

- Mandatory reporting at Level 1 of EU Ecosystem Typology
 - Every three years
 - Extent accounts for accounting period
 - Conversion matrix

Category	Name of ecosystem type
1	Settlements and other artificial areas
2	Cropland
3	Grassland (pastures, semi-natural and natural grassland)
4	Forest and woodland
5	Heathland and shrub
6	Sparsely vegetated ecosystems
7	Inland wetlands
8	Rivers and canals
9	Lakes and reservoirs
10	Marine inlets and transitional waters
11	Coastal beaches, dunes and wetlands
12	Marine ecosystems (offshore coastal, shelf and open ocean)



Condition Accounts

Ecosystem	Condition variable	Reporting unit
Settlements and other artificial areas	Green areas in cities and adjacent towns and suburbs	% of total area
Cropland	Soil organic carbon in topsoil	Tonne/ha
Grassland	Soil organic carbon in topsoil	Tonne/ha
Cropland and grassland together	Common farmland bird index	National aggregate index
Forest and woodland	Deadwood	m ³ /ha
	Tree cover density	%
	<i>Forest bird index</i>	<i>National aggregate index</i>
Coastal beaches, dunes and wetlands	Share of artificial impervious area cover	%



Services Accounts - Provisioning

Service	Description	Reporting unit
Wood provision	Ecosystem contribution to the growth of trees and other woody biomass	Net increment in thousand m ³
Crop provision	Ecosystem contribution to plant growth as approximated by the amount of harvested crops for different uses	Tonnes of crops
Pollination	Ecosystem contribution by wild pollinators to the production of the crops above	Tonnes of pollinator-dependent crops that can be attributed to wild pollinators by type of crop.



Services Accounts – Regulating and Maintenance

Service	Description	Reporting unit
Air filtration	Ecosystem contribution to filtering air-borne pollutants through the deposition, uptake, fixing and storage of pollutants by ecosystem components (particularly trees)	Tonnes of particulate matter adsorbed
Global climate regulation	Ecosystem contribution to reducing concentrations of greenhouse gases in the atmosphere through the removal (net sequestration) of carbon from the atmosphere and the retention (storage) of carbon in ecosystems	Tonnes of net sequestration of carbon and tonnes of organic carbon stored, including above and below ground.
Local climate regulation	Ecosystem contribution to regulating ambient atmospheric conditions in urban areas through vegetation that improves the living conditions of people and supports economic production	Reduction of temperature in cities, due to the effect of urban vegetation, in degrees Celsius on days exceeding 25 degrees Celsius



Services Accounts - Cultural

Service	Description	Reporting unit
Nature-based tourism	Ecosystem contribution, in particular through the biophysical characteristics and qualities of ecosystems, that enable people to use and enjoy the environment through direct, in-situ, physical and experiential interactions with the environment	Number of overnight stays in hotels, hostels, camping grounds, etc. that can be attributed to visits to ecosystems



Eurostat Task Force on Ecosystem Accounting

Guidance note	Status
Extent accounts	Voluntary data collection transmitted to Eurostat
Condition accounts	Under development
Wood provision	Initial testing complete – feedback sent to Eurostat
Crop provision	Initial testing complete – feedback sent to Eurostat
Pollination	Testing to commence May 2024
Air filtration	Testing to commence May 2024
Global climate regulation	Initial testing complete – feedback sent to Eurostat
Local climate regulation	Testing to commence May 2024





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Intra-institutional Collaboration

- Raising awareness of Ecosystem Accounts and collaboration with other divisions, including:
 - Environment
 - Climate and Energy
 - Agriculture
 - Methodology
 - Data Science...
- Development of GIS capabilities
 - Targeted recruitment of GIS specialists
 - GIS Community of Practice
- Development of R and other skills for spatial analysis and modelling
 - R User Network



National Engagement



Ecosystem Accounts Stakeholder Forum



National Expert Groups

- Ecosystem Extent Accounts
- Forests and Woodlands
- Global Climate Regulation
- Terrestrial/transitional ecosystem boundary
- Marine extent
- Further planned for 2024



Further National Engagement

- Land Use Review
- National Biodiversity Action Plan
- Statistical Liaison Groups
 - Environmental Protection Agency
 - Agriculture Statistics Liaison Group
- Department of the Environment, Climate and Communications
- National Parks and Wildlife Service
- National Economic and Social Council
- NGOs (including Natural Capital Ireland)



Further National Engagement

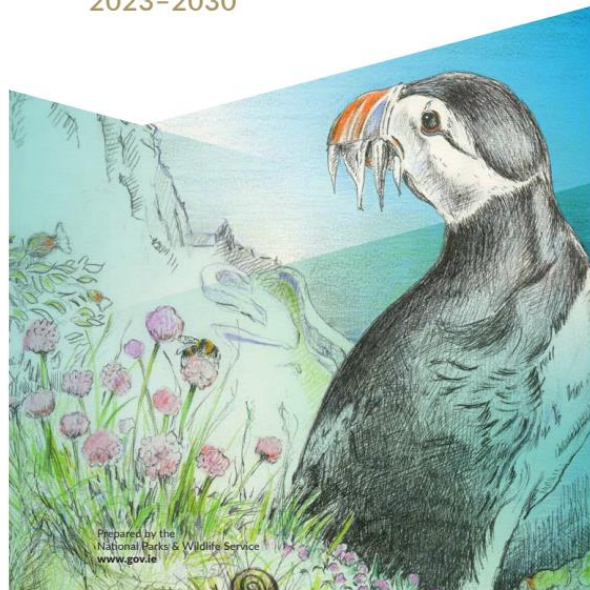
Outcome 4D: Ireland has prepared national assessments of ecosystem services

Target	Action number	Action	Partner(s)	Indicator
By 2027, systems and standards for natural capital accounting are being developed and implemented in Ireland	4D1	A network of experts in Natural Capital Accounting will be established for the island of Ireland	DECC, DHLGH and relevant stakeholders	Establishment of the network
By 2027, systems and standards for natural capital accounting are being developed and implemented in Ireland	4D2	The Central Statistics Office (CSO) will collaborate to advance ecosystem accounting and reporting methods and standards in Ireland, in line with the SEEA-EA framework	CSO	The ecosystem accounts of Ireland will be developed in line with the SEEA-EA framework
By 2027, mainstream the natural capital approach across sectors	4D3	Relevant bodies will develop appropriate guidance for key sectors on the use of Natural Capital Accounting.	Relevant bodies	Guidance developed
By 2027, first national ecosystem accounts completed	4D4	CSO will develop ecosystem accounts for Ireland	CSO	Ireland has prepared national ecosystems accounts
By 2027, first national assessment of ecosystem accounts is completed	4D5	Relevant organisations will conduct a national assessment of stocks, flows and trends in ecosystem services to identify priority ecosystems and threats to natural capital using appropriate tools, to be coordinated with relevant authorities in NI	Relevant organisations	Completed national assessment of ecosystem services



Rialtas na hÉireann
Government of Ireland

Ireland's 4th National Biodiversity Action Plan 2023–2030



Prepared by the
National Parks & Wildlife Service
www.gov.ie



Statistical Collaboration – Marine Accounts

- PhD project on Marine Ecosystem Accounts
- Co-managed



International Engagement

- Eurostat Task Force
- Study visits
- European Statistical Training Programme
- UNCEEA engagement – SEEA implementation meetings, webinars
- London Group



Data Sources

- Extent – Corine, National Land Cover Map, other spatial datasets
- National
 - Greenhouse Gas Inventory (Global Climate Regulation)
 - National Forest Inventory (Wood Provision, Condition)
- Earth Observation
 - Copernicus – e.g. Tree Cover Density (Condition)
- Survey data – e.g. forthcoming survey on recreation





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Ecosystem Accounts

Ecosystem Extent Accounts

- › Ecosystem Extent Accounts (National)
- › Ecosystem Accounts – Rivers and Lakes by Extent

Ecosystem Condition Accounts

- › Ecosystem Condition Accounts – Rivers and Lakes

Thematic Ecosystem Accounts

- › Ecosystem Accounts - Peatlands and Heathlands (extent and condition)
- › Ecosystem Accounts - Grasslands and Croplands (extent and condition)
- › Ecosystem Accounts - Forests and Woodlands

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Ecosystem Accounts

Ecosystem Extent Accounts

› Ecosystem Extent Accounts (National)

› Ecosystem Accounts –

Ecosystem Condition Accounts

› Ecosystem Condition Accounts – Rivers and Lakes

Thematic Ecosystem Accounts

› Ecosystem Accounts - Peatlands and Heathlands (extent and condition)

› Ecosystem Accounts - Grasslands and Croplands (extent and condition)

› Ecosystem Accounts - Forests and Woodlands

– A CSO Frontier Series Output

Extent Accounts

- Initial testing phase complete
- Voluntary data collection ended April 2024

Guidance note on ecosystem extent accounts

Technical Note

Version: December 2023





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Ecosystem Extent Accounts 2000–2018

16%



16% increase in **Settlements and Other Artificial Areas**

13%



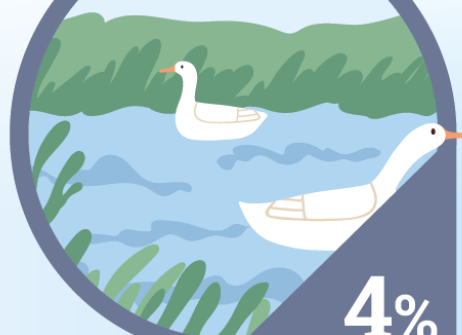
13% increase in **Forest and Woodlands**

5%



5% decrease in **Croplands**

4%



4% decrease in **Inland Wetlands**

Almost 70,000 hectares of **Inland Wetlands** and **Grasslands** converted into **Forests and Woodlands**

Almost 23,500 hectares of **Grasslands** and **Croplands** converted into **Settlements and Other Artificial Areas**

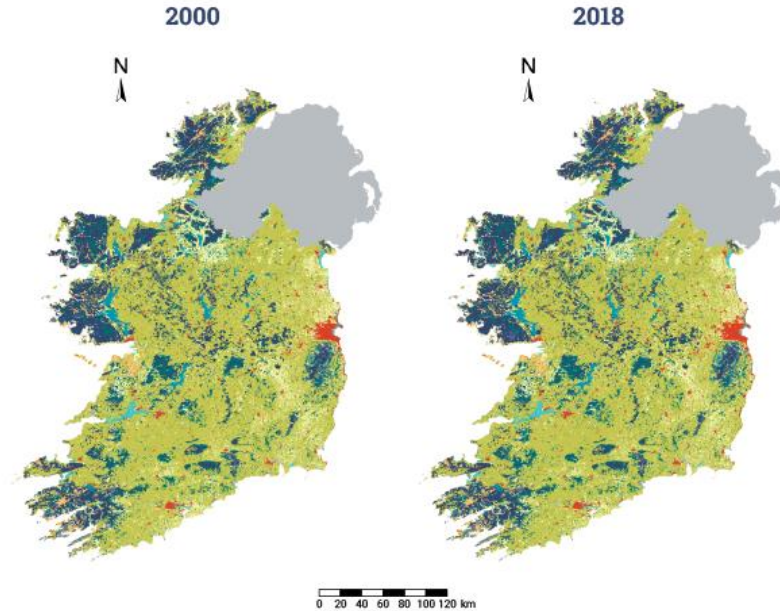
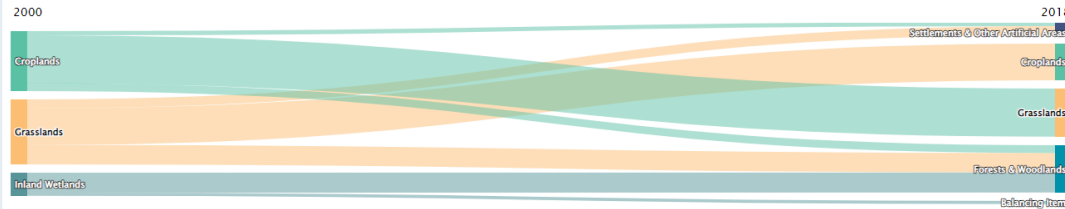
Based on Corine Land
Cover Accounting Layers





Extent Accounts

Figure 2.3 - Conversion in ecosystem types from 2000 (left) to 2018 (right) in hectares¹



Ecosystem Types

- Settlements & Other Artificial Areas
- Croplands
- Grasslands
- Forests & Woodlands
- Heathlands & Shrubs
- Sparsely Vegetated Ecosystems

- Inland Wetlands
- Rivers & Canals
- Lakes & Reservoirs
- Coastal Beaches, Dunes & Associated Habitats
- Marine Inlets, Transitional Waters & Wetlands
- Balancing Item





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Forests and Woodlands 2012-2022

Forests & Woodlands

covered almost 760,000 hectares in 2021 – an increase of almost 12% on 2012

Deadwood,

a resource for biodiversity, grew from 10.9m³/ha in 2012 to 14.1m³/ha in 2022

Between 2012 and 2021...

Coniferous forests increased by **more than 9%**

Broadleaved forests increased by **nearly 18%**

Mixed forests increased by **almost 20%**

Carbon

stored in **Harvested Wood Products** totalled more than **2.1 million tonnes** between 2012 and 2021



Wood provision service

Table 4.1 Supply and Use table for the Wood provision ecosystem service supplied by Forests & Woodlands in 2022

		Supply	Use	
Variable	Unit	Forests & Woodlands	Intermediate consumption by industries	Total use
Net annual increment in Forest Available for Wood Supply (FAWS)	'000 m ³	9,064	9,064	9,064



Global climate regulation service

Table 4.2 Supply and Use table for the Global climate regulation ecosystem service supplied by Forests & Woodlands in 2021

		Supply	Use	
Variable	Unit	Forests & Woodlands	Government final consumption	Total use
Net carbon sequestration	tonnes C	320,881	320,881	320,881
Carbon storage (closing stock)	tonnes C	322,657,119	323,171,119	323,171,119
Carbon stored in Harvested Wood Products (HWPs)	tonnes C	262,550	262,550	262,550





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Next steps

- Grasslands and Croplands publication, including Crop Provision ecosystem service
- Testing Guidance Notes for Air Filtration, Local Climate Regulation, and Pollination
- Further development of Extent Accounts (Level 2 of EU ecosystem typology)
- Participation in voluntary data collection for Global Climate Regulation, Wood Provision, Crop Provision, and Recreation ecosystem services
- Exploration of monetary valuation





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Take-homes

- Engagement and collaboration
 - Within organization
 - Nationally
 - Internationally
- Upskilling
 - Communities of Practice
- “Frontier Series”
 - Publish outputs flagged as under development.





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Thank you!
Go raibh maith agat!

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<https://www.csa.ie/en/statistics/ecosystemaccounts/>