Statistical bulletin

UK natural capital accounts: 2025

Estimates of the economic and social value of natural resources to the UK's economy and people.

Contact:
Natural Capital team
natural.capital.team@ons.gov.uk
+44 1633 580051

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Correction

19 May 2026 10:00

We have corrected an error affecting the country-level apportionment of the UK monetary values for the water provisioning ecosystem service. This affected Figure 2 in this bulletin and the detailed and summary data tables. The UK-level findings are not affected. We apologise for this error.

Table of contents

1 . Main points

- The total annual value of ecosystem services in the UK was £41 billion in 2023, with £34 billion from biotic (living) ecosystem services and £7 billion from abiotic (non-living) services.
- The total asset value of ecosystem services in the UK was £1.6 trillion in 2023, with £1.4 trillion (90%) of this asset value being from biotic sources and £0.2 trillion (10%) being from abiotic sources.
- Recreation and tourism (expenditure) was the ecosystem service that provided the largest contribution to the total annual value, at £10 billion in 2023.
- The health benefits from recreation ecosystem service provided the largest contribution to the total UK asset value, at £508 billion in 2023.
- The annual value of the renewable electricity provisioning ecosystem service was £3 billion in 2023, which was seven times higher than in 2014 (£0.4 billion).
- The net annual value of the greenhouse gas regulating ecosystem service was negative £330 million in 2023; this is because some habitats emit more greenhouse gases than they remove.
- The urban heat regulating ecosystem service accounted for £1 billion of the total annual value in 2023; this bulletin includes more granularity for this service for local authority areas in Great Britain.
- Enclosed farmland accounted for 52% of the total UK land area in 2024, while urban habitats accounted for 8%.

These are official statistics in development and all figures are estimates. We are constantly improving our methods and expanding our coverage of ecosystem services, and we apply our latest methods across all available years. We advise against any comparison with previous editions of these accounts. The latest changes in methods are detailed in Section 5: Changes and their effects on comparability over time of our UK natural capital accounts quality and methods guide.

2 . Understanding natural capital accounts

Any natural resource or process that supports human life, society, and the economy is an important part of our natural capital. Examples include the productivity of soils and access to clean water and recreational green space.

Natural capital includes both the biotic (living) and abiotic (non-living) aspects of nature that provide a range of services to our economy and society. More information is available in our UK natural capital quality and methods guide.

We define “ecosystem services” as all contributions of natural assets to the economy and society in the UK. Some of these contributions flow from biotic assets and some from abiotic assets. Abiotic assets are not produced by the living environment and are not technically defined as ecosystem services. However, we use a definition of ecosystem services to refer to any contribution of natural assets (biotic and abiotic) covered in this bulletin. This is in line with the United Nations System of Environmental-Economic Accounting Ecosystem Accounting (SEEA-EA) (PDF, 6.1MB). The SEEA-EA explains that since the definition of an ecosystem involves the interaction of biotic and abiotic components, a neat separation that treats ecosystem services as purely or mainly “biotic” is not appropriate.

Natural capital accounting

Our UK natural capital accounts estimate the:

- physical flows and annual value of ecosystem services, which are the benefits that nature gives to people and the economy in a given year
- value of natural assets, which is the stock, or expected value of the future supply of ecosystem services from a natural resource
- extent of different habitats in the UK

The natural capital accounts do not attempt to estimate an intrinsic value of nature. Instead, they allow us to better represent the importance of the value of nature in the wider economy and to assess positive and negative interactions between the state of the UK's natural environment and its economic activity. Tangible valuations help society to consider the scarcity of nature and the sustainability of its use.

Our monetary valuations of nature are based on the economic contributions it makes in each year (annual value) and into the future (asset value). They are a partial or minimum valuation of nature's services. This is because they do not include all services that nature provides. For example, flood protection from natural resources is not currently included. We aim to include as much of the economic value of nature as possible, which is challenging given its scale and complexity.

The accounts are critical to measures of inclusive income and wealth, as outlined in the Dasgupta Review of the Economics of Biodiversity. We publish our UK inclusive income and wealth accounts article as part of our Beyond GDP work.

3 . Ecosystem services

Annual value of ecosystem services for the UK

The total annual value of the 16 ecosystem services that we currently measure in the UK was £41 billion in 2023. Of this total, £34 billion was from biotic services and £7 billion was from abiotic services. All monetary values in this bulletin are in 2024 prices.

The annual value of abiotic services fell from £32 billion in 2022, to £7 billion in 2023. This was largely because of an increase in the value of the oil and gas provisioning service in 2022 owing to higher energy prices.

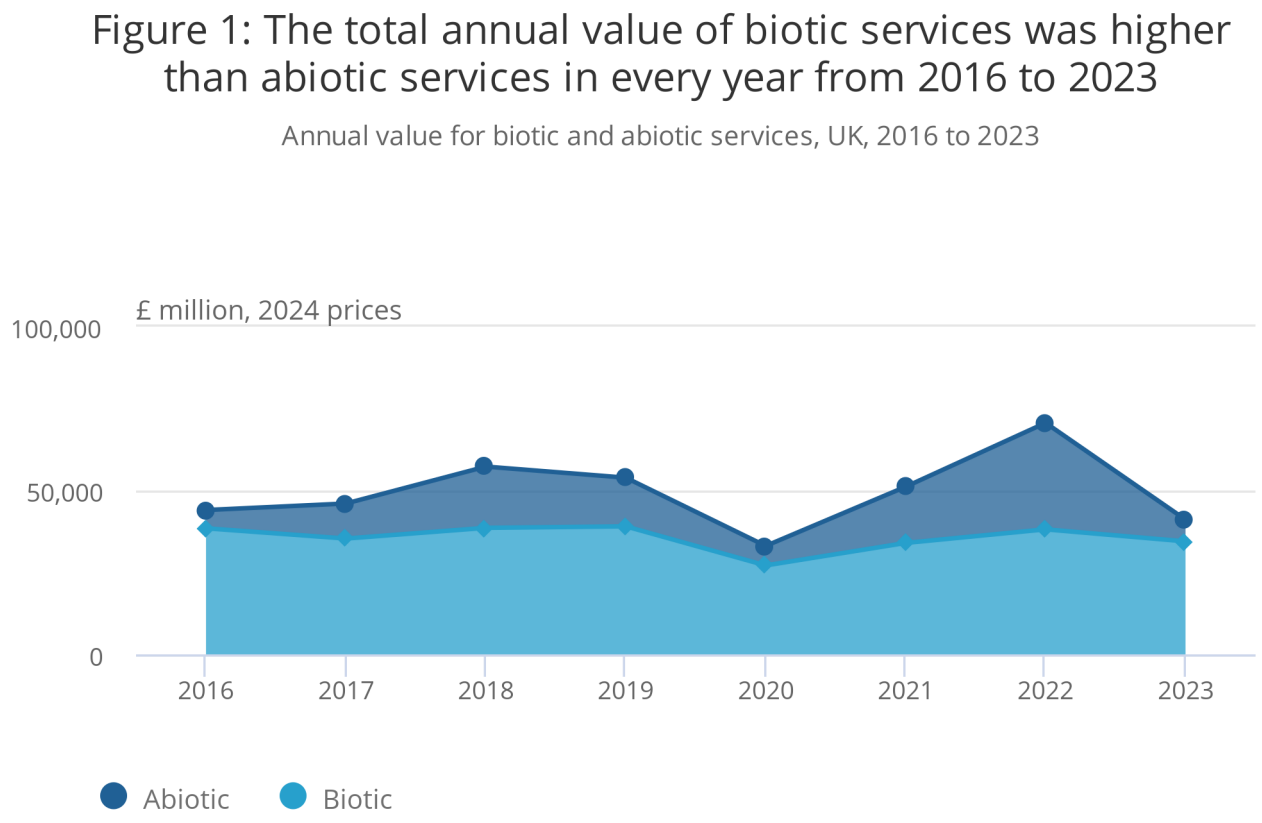
In this section, we highlight the trends in the:

- renewable electricity provisioning service
- greenhouse gas regulating service
- urban heat regulating service
- recreation (health benefits) service

Data on all 16 services are available in our UK natural capital accounts - detailed summary tables dataset.

Figure 1: The total annual value of biotic services was higher than abiotic services in every year from 2016 to 2023

Annual value for biotic and abiotic services, UK, 2016 to 2023



Source: UK natural capital accounts from the Office for National Statistics

Annual value of ecosystem services for UK constituent countries

The total annual value of ecosystem services we currently measure for each country in 2023 was:

- £31 billion for England
- £7 billion for Scotland
- £2 billion for Wales
- £0.6 billion for Northern Ireland

Figure 2: The total annual value of ecosystem services in the UK in 2023 was £41 billion, with £34 billion from biotic services and £7 billion from abiotic services

Annual value by biotic and abiotic ecosystem services, UK and constituent countries, 2023

Notes:

1. Coal provisioning had a negative annual value in 2023 because of low industry profit levels. Deducting the user cost of capital as part of our resource rent calculation produces negative natural capital annual values.

2. Water provisioning had a negative annual value in 2023 because the user cost of capital increased substantially, which reduced resource rent.

3. For more details on how annual value can be negative, please see our UK natural capital accounts quality and methods guide.

4. Comparable data for Northern Ireland are not available for urban heat regulating.

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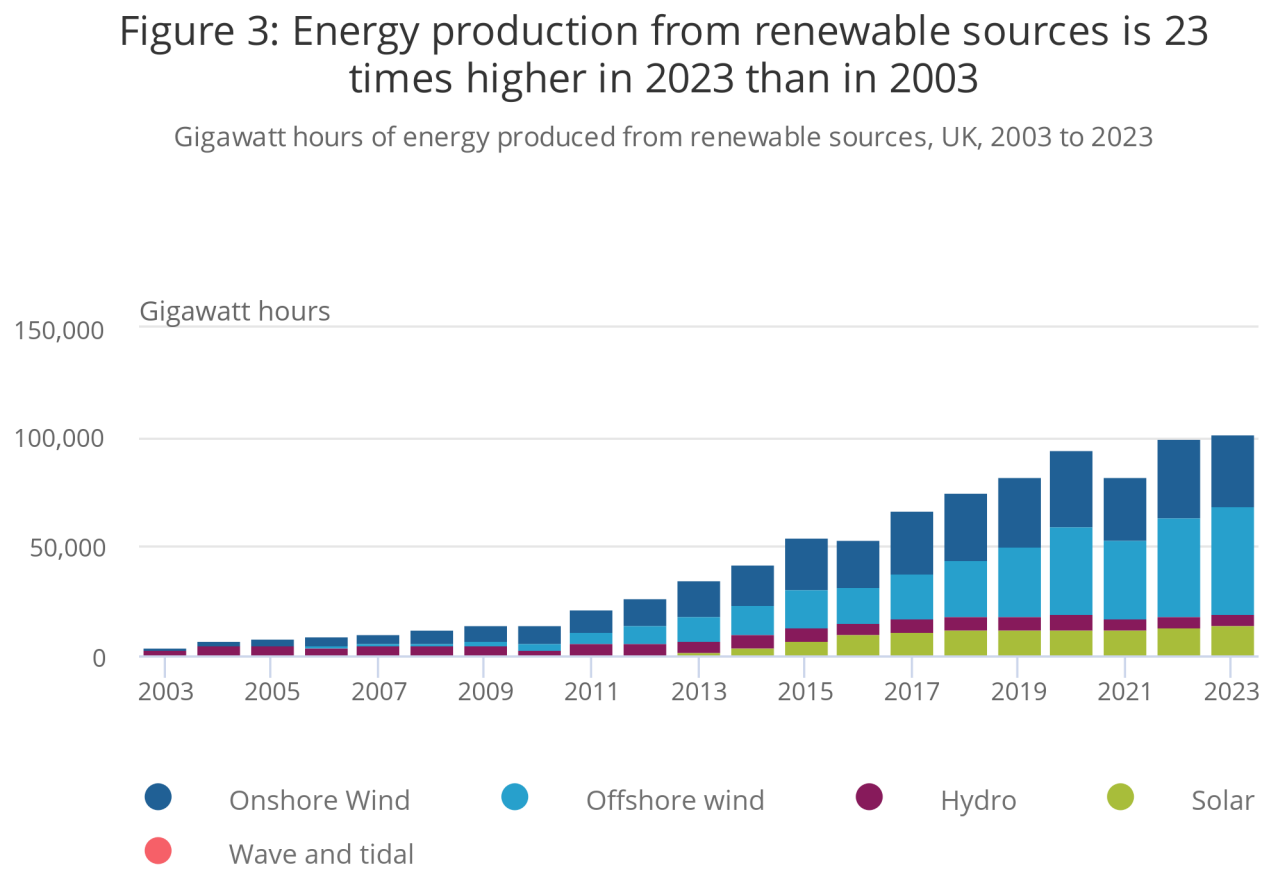
Renewable electricity provisioning service

The annual value of renewable electricity increased by seven times over the last decade, from £0.4 billion in 2014 to £3 billion in 2023.

Renewable electricity production increased by 24% between 2019 and 2023, from 82,200 gigawatt hours (GWh) to 101,742 GWh. It increased by 143% between 2014 and 2023, from 41,903 GWh to 101,742 GWh.

Figure 3: Energy production from renewable sources is 23 times higher in 2023 than in 2003

Gigawatt hours of energy produced from renewable sources, UK, 2003 to 2023



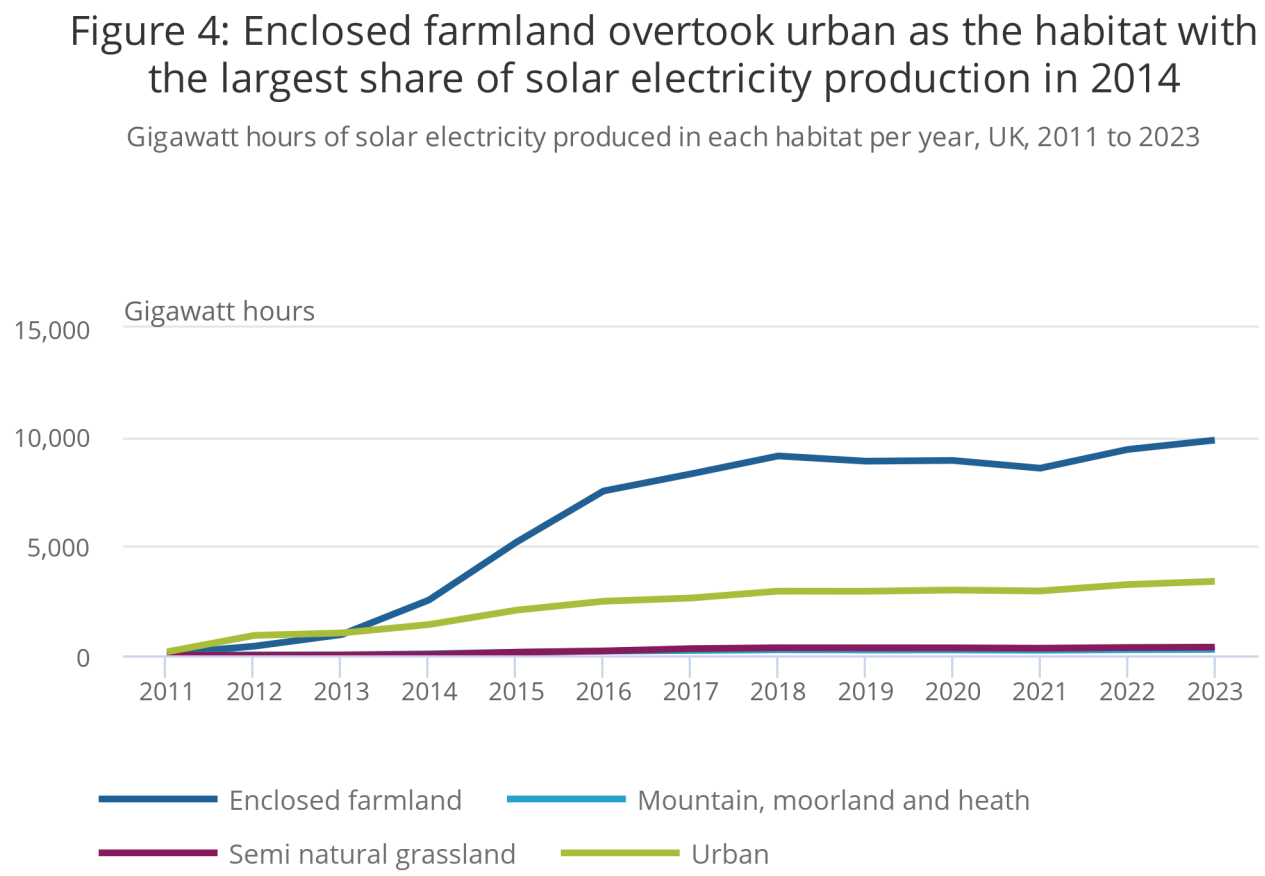
Source: The Department for Energy Security and Net Zero

Offshore and onshore wind were the two largest sources of renewable energy in 2023. Combined, they contributed similar proportions of renewable electricity generation, at 76% in 2014 and 81% in 2023.

Solar power was the third largest source of renewable electricity in 2023, at 14%. In 2011, most solar electricity (66%) was produced in urban habitats (162 GWh) and 32% (77 GWh) was produced in enclosed farmland habitats. By 2023, 71% of solar electricity was generated in enclosed farmland (9,851 GWh), while 24% (3,388 GWh) was produced in urban habitats. Solar electricity generated in enclosed farmland contributed £305 million to the annual value in 2023, compared with £105 million from solar electricity generated in urban habitats.

Figure 4: Enclosed farmland overtook urban as the habitat with the largest share of solar electricity production in 2014

Gigawatt hours of solar electricity produced in each habitat per year, UK, 2011 to 2023



Source: The Department for Energy Security and Net Zero

Much of the increase in renewable electricity production in 2023 was from increased offshore wind and solar output and capacity, according to the Department for Energy Security and Net Zero's (DESNZ's) Digest of UK Energy Statistics (DUKES) 2024. In 2003, 166 sites across the UK produced wind energy (onshore and offshore) and 184 sites produced solar energy. By 2023, there were 9,796 and 1.5 million sites, respectively. The share of renewable energy in the UK's total energy production increased from 47% in 2023 to 50% in 2024, according to DESNZ's DUKES 2025.

Greenhouse gas regulating service

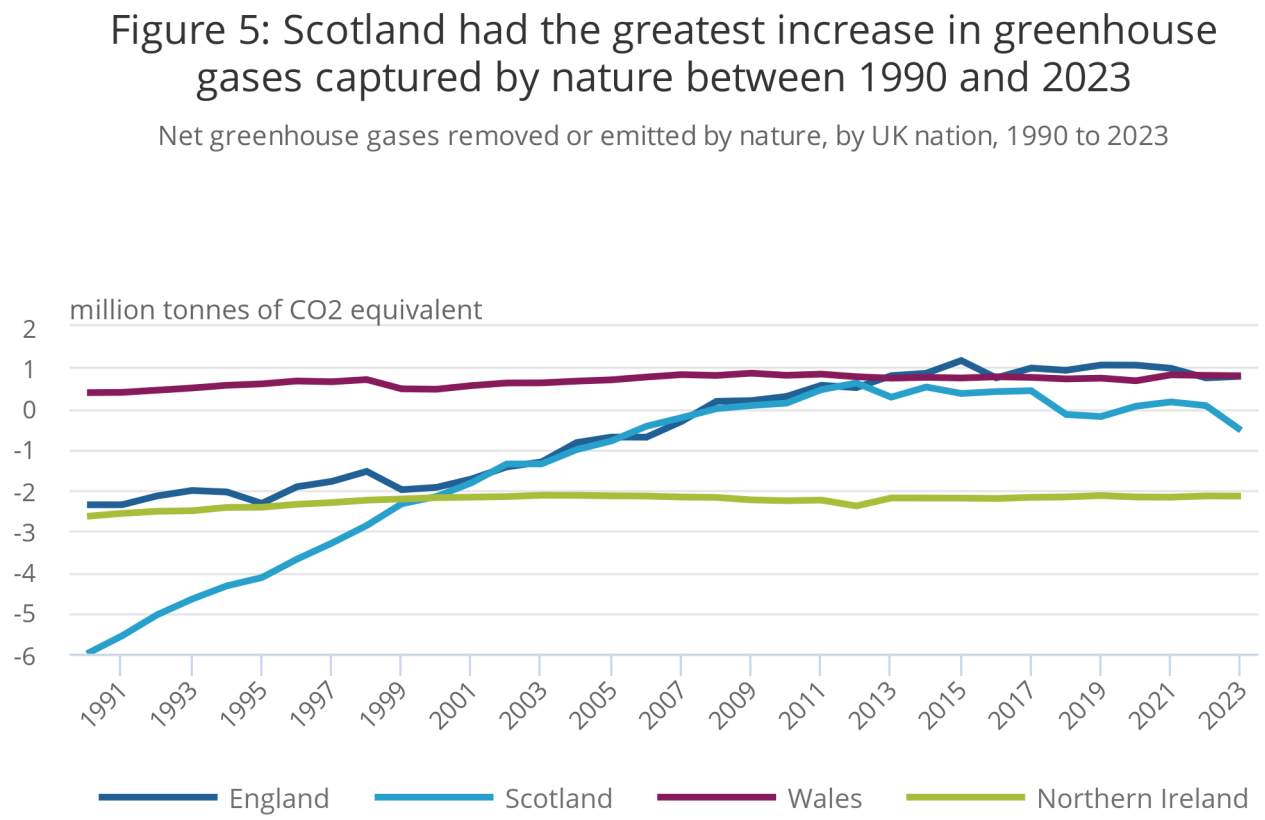
This service measures the ability of UK habitats to remove greenhouse gases (GHG) from the atmosphere. It measures net emissions, which capture the overall GHG sequestered, minus GHG emitted, by habitats.

The overall annual value of this service was negative £330 million in 2023. This is because of the net emission, rather than sequestration, of 1 million tonnes of carbon dioxide equivalent (CO_2e).

The net GHG sequestered by habitats in England increased by 3 million tonnes of CO_2e from 1990 to 2023. In Scotland, this increased by 6 million tonnes of CO_2e from 1990 to 2013, then decreased by 1 million tonnes of CO_2e between 2013 and 2023 (Figure 5).

Figure 5: Scotland had the greatest increase in greenhouse gases captured by nature between 1990 and 2023

Net greenhouse gases removed or emitted by nature, by UK nation, 1990 to 2023



Source: The Department for Energy Security and Net Zero, and the National Atmospheric Emissions Inventory

Notes:

1. Positive values refer to sequestration; negative values refer to emission.

2. Net refers to the overall greenhouse gases sequestered minus the greenhouse gases emitted by nature.

Most of the GHG emitted by natural habitats came from peatlands because of degradation, as described in our UK natural capital: peatland bulletin. Peatland emitted net 15 million tonnes of CO_2e in 2023 (Figure 6). In contrast, forestry sequestered the most GHG, at net 18 million tonnes of CO_2e across the UK in 2023.

Nature in Northern Ireland was a net GHG emitter because of peatland emissions and lower sequestration by forestry than other parts of the UK. Degraded peatland was a smaller proportion of the land area in Wales, so it emitted less GHG. This was offset by larger areas of forestry, resulting in net sequestration of GHG for Wales.

Habitat categories for the GHG regulating service are from the Land Use, Land Use Change and Forestry (LULUCF) Territorial Emission Statistics (TES) subsectors described by DESNZ's Mapping greenhouse gas emissions and removals for the LULUCF sector report (PDF, 6.4MB). We map these categories to our broad habitats, as explained in our UK natural capital accounts quality and methods guide.

Figure 6: Greenhouse gases were mainly captured by forestry and emitted by peatland in 2023

Net greenhouse gases removed or emitted by natural habitats, UK and constituent countries, 2023

Notes:

1. LUC refers to land use change.

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Sequestration by forestry in Scotland declined by 2.2 million tonnes of CO2e between 2003 and 2023 (Figure 7). This is partly because of the length of time involved in planting, growth and harvesting of timber. Tree planting also disturbs soil organic carbon. This can result in increased carbon emissions for decades until the GHG sequestered exceed those emitted, according to Friggens and others' Tree planting in organic soils does not result in net carbon sequestration on decadal timescales article.

Figure 7: Net greenhouse gases captured by forestry in Scotland declined by 2.2 million tonnes between 2003 and 2023

Net greenhouse gases removed or emitted by nature, by habitat and country, 1990 to 2023

Notes:

1. LUC refers to land use change.
2. LULUCF refers to Land Use, Land Use Change and Forestry.

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Urban heat regulating service

This service measures the ability of green and blue spaces, for example, parks and lakes, to cool urban environments on hot days (28 degrees Celsius and above). The average number of hot days over the latest decade (2015 to 2024) has nearly doubled compared with the previous decade (2005 to 2014) in the UK.

The annual value of the urban heat regulating service calculates the avoided costs of hot days that nature provides by cooling urban areas. This service's annual value depends on both the annual number of hot days in an area and the area's level of economic production (gross value added (GVA)). This is because nature provides more cost savings in areas with more economic production through reduced productivity losses and air conditioning costs. For example, London has higher annual values because it has both a relatively high number of hot days (Figures 8 and 9) and relatively high GVA, compared with other local authority areas.

The annual value of urban heat regulating was £1,016 million in Great Britain in 2023. We have an additional year of data for this service, with an annual value of £486 million in 2024. This decrease in annual value between 2023 and 2024 was influenced by the decrease in hot days, as shown in Figure 9.

This year, we have added coverage of urban heat regulating for local authority areas in Great Britain for the first time.

Figure 8: Westminster had the highest annual value from the urban heat regulating service, and West Devon had the lowest, in 2024

Number of hot days, annual value, and asset value for the urban heat regulating service, by local authority area, 2024

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Figure 9: Interactive time series tool showing hot days, annual value, and asset value for urban heat regulating by local authority area

Number of hot days, annual value, and asset value for urban heat regulating, by local authority area, 1998 to 2024

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For each country, the local authority areas with the highest annual value from urban heat regulating in 2024 (Figures 10 and 11) were:

- Westminster in England
- Glasgow City in Scotland
- Cardiff in Wales

Figure 10: Westminster was the local authority area with the highest value of urban heat regulating in England in 2024

Annual value of urban heat regulating by local authority area, England, 2024

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Figure 11: Glasgow City and Cardiff were the local authority areas with the highest values of urban heat regulating in Scotland and Wales, respectively, in 2024

Annual value of urban heat regulating by local authority area, Scotland and Wales, 2024

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More information on the methodology used to estimate this service is available in our UK natural capital accounts quality and methods guide.

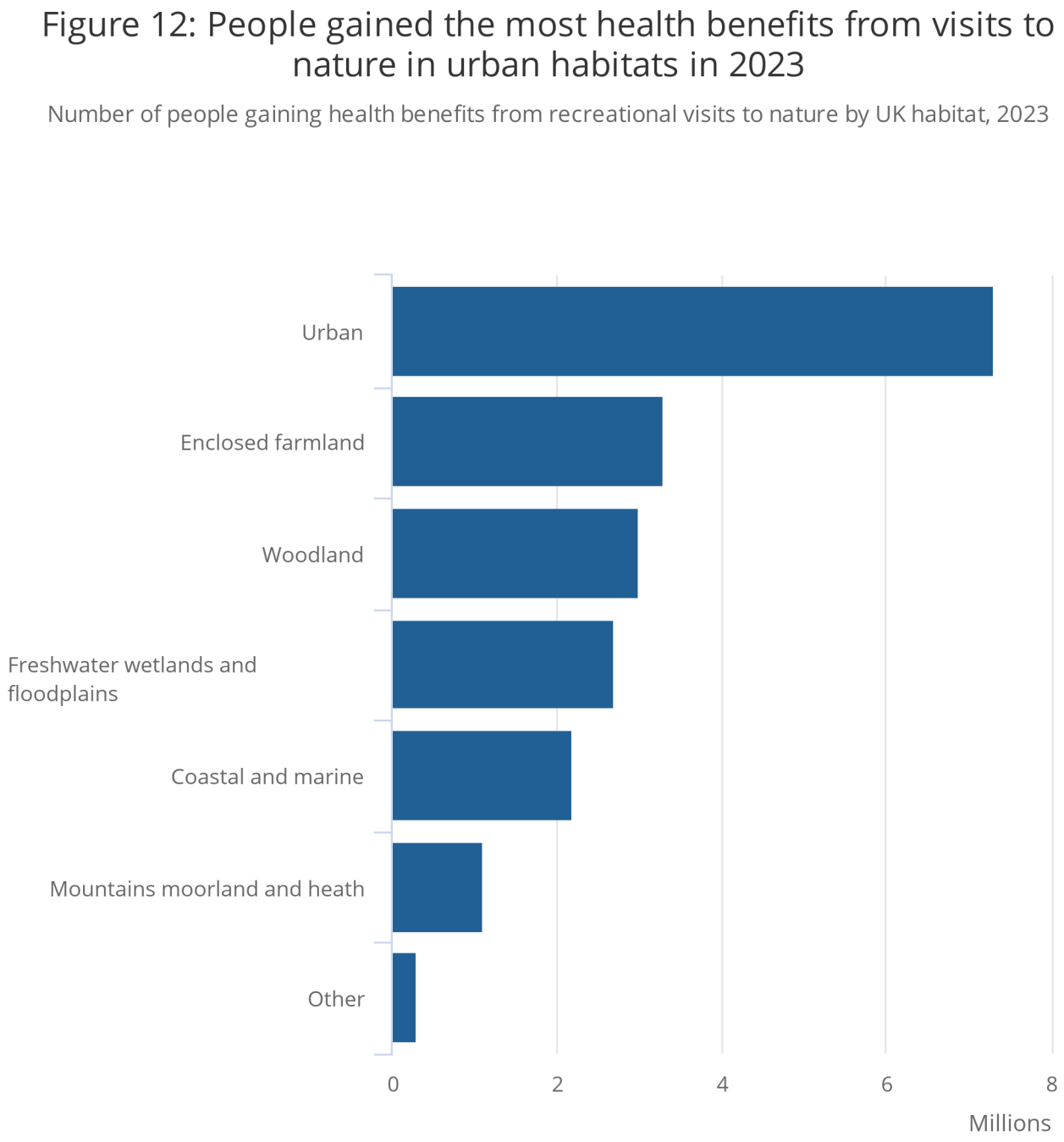
Recreation (health benefits) service

This service values the benefits from people visiting nature for at least 120 minutes a week.

We valued these health benefits at £7.9 billion in 2023, with 19.9 million people gaining benefits.

Figure 12: People gained the most health benefits from visits to nature in urban habitats in 2023

Number of people gaining health benefits from recreational visits to nature by UK habitat, 2023



Source: Office for National Statistics, the Monitor of Engagement with the Natural Environment Survey and the People and Nature Survey from Natural England, the Welsh Outdoor Recreation Survey from Natural Resources Wales (NRW), the People and Nature Survey Wales from NRW and Natural England, the Scottish Recreation Survey and Scotland's People and Nature Survey from NatureScot, and the People in the Outdoors Monitor for Northern Ireland from Outscape

Notes:

1. The “Other” category is where we cannot match the survey data to one of our broad habitats.

4 . Asset values

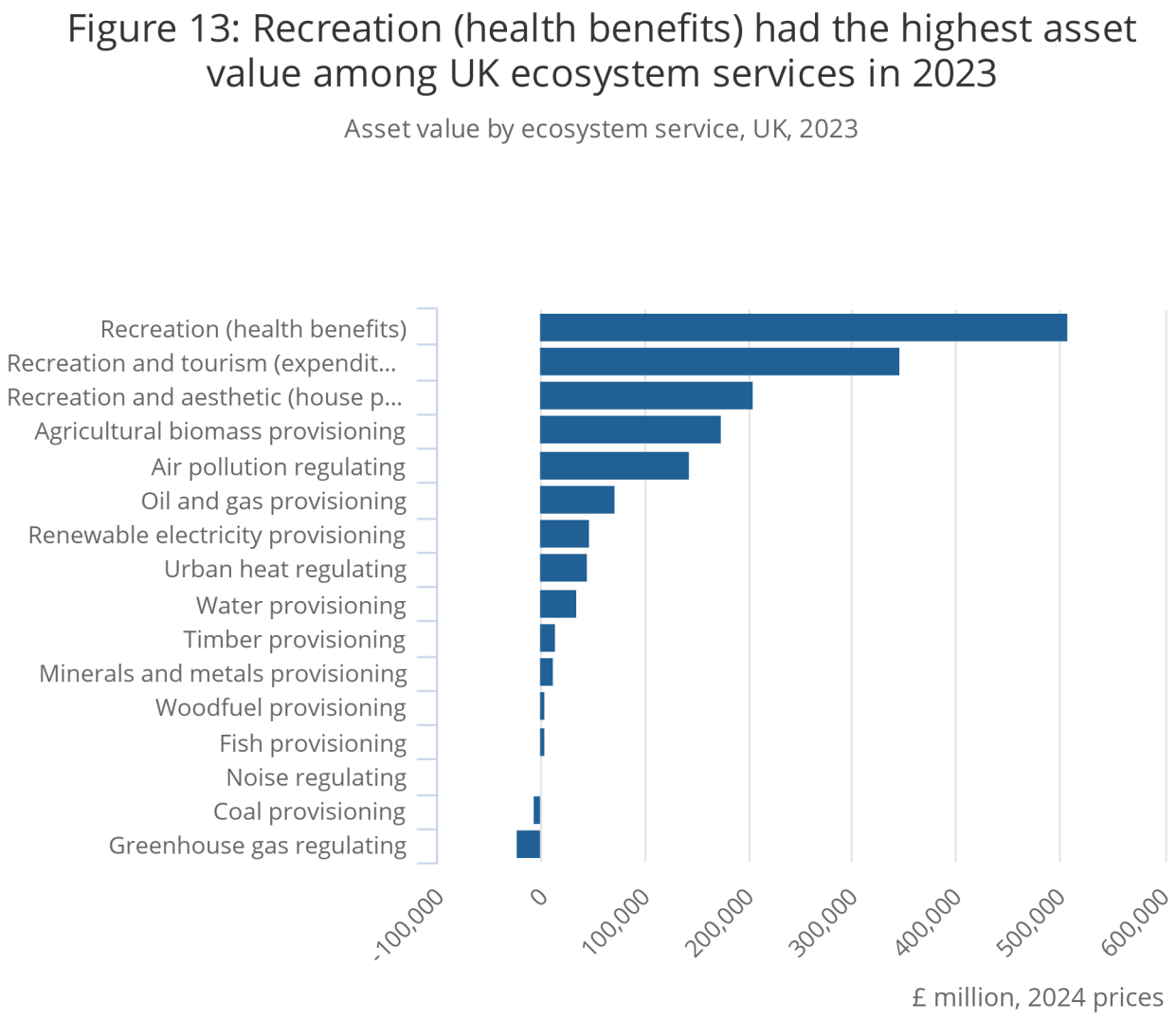
While annual valuations look at a given year, asset values measure the stream of services from, or stock of, natural resources in terms of the future expected supply and use over a reasonably predictable time horizon.

The total asset value of UK natural capital in 2023 was £1.6 trillion, with £1.4 trillion from biotic services and £162 billion from abiotic services.

Health benefits from recreation in nature was the service with the highest asset value in 2023, at £508 billion (Figure 13).

Figure 13: Recreation (health benefits) had the highest asset value among UK ecosystem services in 2023

Asset value by ecosystem service, UK, 2023



Source: UK natural capital accounts from the Office for National Statistics

5 . Extent of UK habitats

The UK area covered by woodland habitat increased from 10% to 13% of total land area between 1990 and 2024, from 2.5 million hectares (Mha) to 3.3 Mha. Urban habitat area increased from 6% (1.4 Mha) of the total land area to 8% (1.9 Mha).

Enclosed farmland is the UK habitat with the highest area of land cover. This accounted for 54% (13.4 Mha) of the land area in 1990 and declined to 52% (12.9 Mha) in 2024 (Figure 14). Over the same period, the mountains, moorland and heath habitat declined from 14% (3.3 Mha) of the UK's land area to 9% (2.3 Mha).

Figure 14: Enclosed farmland decreased from 54% of land area in the UK in 1990 to 52% in 2024

Change in extent of UK habitats,1990 to 2024

Notes:

1. Totals for each habitat do not equal habitat totals in the bulletin. This is because there is a further category where the land cover mapping was unable to identify what habitat was in an area for either 1990 or 2024. This covers less than 0.1% of the UK in both years.

2. Raster data are from Great Britain and Northern Ireland land cover maps for 1990 and 2024 from UKCEH.

3. Land Cover Map (LCM) 1990 25-metre raster data for Great Britain by Rowland and others (2020), version 2, are from the Natural Environment Research Council (NERC) Environmental Information Data Centre.

4. LCM2024 25-metre rasterised land parcels data for Great Britain by Rowland and others (2025) are from the NERC Environmental Information Data Centre.

5. LCM1990 25-metre raster data for Northern Ireland by Rowland and others (2020), version 2, are from the NERC Environmental Information Data Centre.

6. LCM2024 25-metre rasterised land parcels data for Northern Ireland by Rowland and others (2025) are from the NERC Environmental Information Data Centre.

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The increasing area of woodland and declining area of enclosed farmland follows previously observed trends, as described in Martay and others' Monitoring landscape-scale environmental changes with citizen scientists: Twenty years of land use change in Great Britain article. The increase in urban habitat also follows previously observed trends, as discussed in the UK Centre for Ecology and Hydrology's press release. The decreasing area of moorlands has been similarly observed by the Heather Trust in their Change in the Extent of Moorland Habitat in the UK report (PDF, 5.8MB).

6 . Glossary

Asset

A natural asset is a resource that can generate goods or services to humans into the future.

Asset valuation estimates the stream of services that are expected to be produced by the natural resource over a reasonably predictable time horizon.

Ecosystem services

Ecosystem services estimate the contribution of natural assets to the economy and society in the UK.

This includes provisioning services (such as food and water), regulating services (such as flood protection and pollution removal), and cultural services (such as recreation). More detail on how we define “ecosystem services” is provided in Section 2: Understanding natural capital accounts.

Physical flow

The physical flow of a natural asset is the measure of its output in units appropriate to the goods or services.

This differs from the annual value and asset value, which measure the monetary value of a natural resource.

Biotic

Ecosystem services that are produced by the living environment are referred to as biotic.

Abiotic

Services that are not produced by the living environment are referred to as abiotic. In some cases, these were produced by the living environment, but this is no longer the case (for example, oil and gas or some minerals).

Gross value added

Gross value added is value generated by any unit engaged in production and the contributions of individual sectors or industries to gross domestic product. It is measured at basic prices, excluding taxes, less subsidies on products.

7 . Data on natural capital accounts

UK natural capital accounts - summary tables
Dataset | Released 5 December 2025
Summary data breakdowns of the economic and social value of natural resources to the UK’s economy and people.

UK natural capital accounts - detailed summary tables
Dataset | Released 5 December 2025
Detailed data breakdowns of the economic and social value of natural resources to the UK’s economy and people.

8 . Data sources and quality

More information on strengths, limitations, appropriate uses, and how the data were created is available in our UK natural capital accounts quality and methods guide.

We use a wide variety of sources to create our estimates of UK natural capital.

These accounts have been compiled in line with the guidelines in the United Nations (UN) System of Environmental-Economic Accounting (SEEA) Central Framework and the UN SEEA Ecosystem Accounting Framework. These relate to the wider framework of the system of national accounts. We have published our interpretation of the UN guidance used to produce our natural capital accounts in our Principles of UK natural capital accounting: 2023 methodology.

9 . Related links

Marine and coastal margins natural capital accounts, UK: 2025
Bulletin | Released 8 August 2025
Natural capital accounts estimating the extent, condition, and annual and asset value of biotic (living) and abiotic (non-living) ecosystem services for marine and coastal margins habitats in the UK.

Urban natural capital accounts, UK: 2023
Bulletin | Released 7 September 2023
Natural capital accounts estimate habitat extent, condition indicators, ecosystem services and asset value of urban areas in the UK.

Woodland natural capital accounts, UK: 2024
Bulletin | Released 15 May 2024
Natural capital accounts containing information on the extent, condition and ecosystem services for woodlands in the UK.

Health benefits from recreation, natural capital, UK: 2022
Bulletin | Released 27 May 2022
Further development of the UK recreation natural capital ecosystem service accounts, including specific methods used to estimate the health benefits gained from nature-based recreational activities.

Habitat extent and condition, natural capital, UK: 2022
Bulletin | Released 3 May 2022
The size of area and condition indicators for eight natural UK habitats, including woodland, enclosed farmland, semi-natural grasslands, and coastal margins. Uses the System of Environmental-Economic Accounting framework for Ecosystem Accounting. Official statistics in development.

10 . Cite this statistical bulletin

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