

Statistical bulletin

Habitat extent and condition, natural capital, UK: 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. Experimental estimates.

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1 . Main points

- This bulletin brings together a range of statistics on extent and condition of nature in the UK for the first time within the United Nations System of Environmental-Economic Accounting Ecosystem Accounting Framework.
- The extent of UK urban environments increased 30% between 1990 and 2019.
- The extent of enclosed farmland in the UK decreased 5% between 1990 and 2019.
- The extent of UK farmland that is woodland has increased from 2% in 1984 to 6% in 2020.
- Land used for organic farming in the UK decreased 32% between 2010 and 2020.
- Bird species abundance is in long-term decline in woodland, enclosed farmland and freshwater habitats.
- Non-native freshwater species more than doubled from 21 in the 1960s to 46 in the 2010s.

2 . Extent

UK extent

The Office for National Statistics (ONS) uses the broad habitat classifications from the [UK National Ecosystem Assessment \(PDF, 2.09MB\)](#) with summary area statistics from UK Centre for Ecology and Hydrology (UKCEH) [Land Cover Maps](#).

There are seven broad terrestrial habitats in the UK in 2019.

Enclosed farmland

12,694,693 hectares being 52% of UK land cover.

Woodland

3,268,707 hectares being 13% of UK land cover.

Mountain, moorland and heath

2,584,348 hectares being 11% of UK land cover.

Semi-natural grasslands

2,493,388 hectares being 10% of UK land cover.

Urban

1,843,901 hectares being 7% of UK land cover.

Freshwater, wetlands and floodplain

1,330,499 hectares being 5% of UK land cover.

Coastal margins

390,796 hectares being 2% of UK land cover.

Enclosed farmland covered 13,426,415 hectares of land area in the UK in 1990; by 2019 this area had decreased by around 5% to 12,694,693 hectares. Over the same period, urban areas increased from 1,418,964 hectares by around 30% to 1,843,901 hectares. Woodland habitats grew by 29%, from 2,540,272 hectares in 1990 to 3,268,707 hectares in 2019.

The area of mountain, moorland and heath decreased by 22% from 3,330,138 hectares in 1990 to 2,584,348 hectares in 2019.

The extent of freshwater, wetlands and floodplains across the UK increased by 25% between 1990 and 2019, increasing from 1,061,140 hectares to 1,330,499 hectares. Many former quarries have been converted into artificial lakes. Such [re-purposing of former extraction sites can provide many benefits](#) including [new habitats for wildlife](#).

Land use change in Great Britain

Figure 1: The combined extent of woodland, urban habitats and coastal have increased by at least a third between 1990 and 2019

Change of broad habitat extent in Great Britain, 1990 to 2019

Notes:

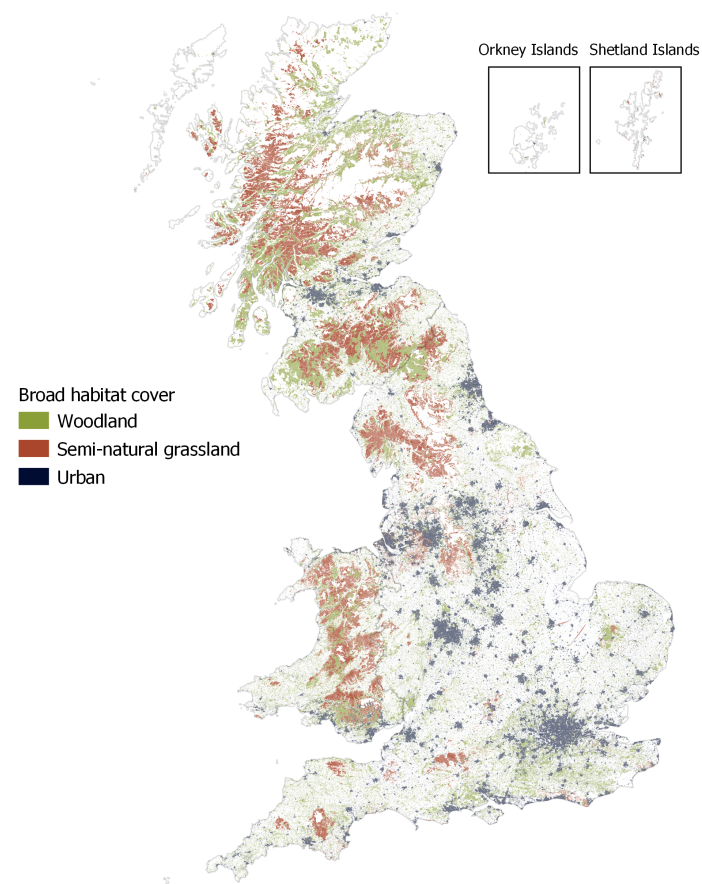
1. Raster data were used from UKCEH Great Britain land cover maps for 1990 and 2019.
2. The marine and coastal habitats have been merged in this diagram.
3. Digital Object Identifier (DOI) for LCM1990 Raster data for Great Britain. Rowland, C. S., Marston, C. G., Morton, R. D., and O'Neil, A. W. (2020). Land Cover Map 1990 (25 metre raster, Great Britain) v2 [Dataset]. NERC Environmental Information Data Centre.
4. Digital Object Identifier (DOI) for LCM2019 Raster data for Great Britain. Morton, R. D., Marston, C. G., O'Neil, A. W., and Rowland, C. S. (2020). Land Cover Map 2019 (25 metre rasterised land parcels, Great Britain) [Dataset]. NERC Environmental Information Data Centre.

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Figure 2: Map of woodland, urban, and semi-natural grassland broad habitats, Great Britain, 2019

Woodland, urban, and semi-natural grassland cover, Great Britain, 2019



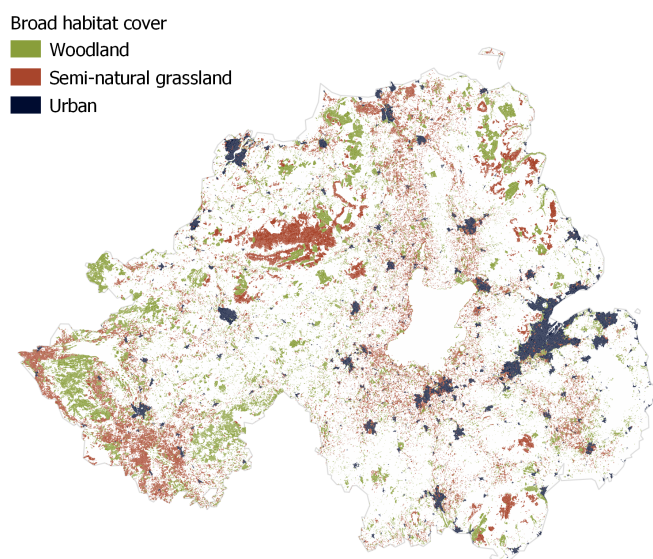
Source: Based upon Land Cover Map (LCM) 2019 © UK Centre for Ecology and Hydrology (UKCEH)

Notes:

1. Digital Object Identifier (DOI) for LCM2019 Vector data for Great Britain. Contains Ordnance Survey data © Crown Copyright 2022, Licence number 100017572. Morton, R. D., Marston, C. G., O'Neil, A. W., and Rowland, C. S. (2020). Land Cover Map 2019 (land parcels, Great Britain) [Dataset]. NERC Environmental Information Data Centre.
2. Woodland includes coniferous and deciduous woodland habitats. Semi-natural grassland includes acid grassland, neutral grassland, and calcareous grassland. Urban includes urban and suburban habitats.

Figure 3: Map of woodland, urban, and semi-natural grassland broad habitats, Northern Ireland, 2019

Woodland, urban, and semi-natural grassland cover, Northern Ireland, 2019



Source: Based upon Land Cover Map (LCM) 2019 © UK Centre for Ecology and Hydrology (UKCEH)

Notes:

1. Digital Object Identifier (DOI) for LCM2019 Vector data for Northern Ireland. All rights reserved. Land and Property Services © Crown Copyright and database right (2015) VARCA 100513. Based upon LCM2019 © UK Centre for Ecology and Hydrology. Contains Ordnance Survey data © Crown Copyright 2022. Contains public sector information licensed under the terms of the Open Government Licence v3.0. Morton, R. D., Marston, C. G, O'Neil, A. W., and Rowland, C. S. (2020). Land Cover Map 2019 (land parcels, N. Ireland) [Dataset]. NERC Environmental Information Data Centre.
2. Woodland includes coniferous and deciduous woodland habitats. Semi-natural grassland includes acid grassland, neutral grassland, and calcareous grassland. Urban includes urban and suburban habitats.

Because of different data sources, woodland extent values here differ from National Forest Inventory statistics in [our Woodland natural capital account](#) bulletin. This bulletin uses the UKCEH Land Cover Map as it covers all the broad habitats.

3 . Condition

The [United Nations System of Environmental-Economic Accounting – Ecosystem Accounting \(SEEA EA\)](#) is an integrated spatial statistical framework for organising biophysical information about ecosystems. It was developed to make the contributions of nature to the economy and people more visible and adopted by the United Nations Statistical Commission in March 2021.

SEEA EA:

- measures ecosystem services
- tracks changes in ecosystem extent and condition
- values ecosystem services and asset
- links this information to measures of economic and human activity

Condition indicators help us to understand the relationship between ecosystem condition and the ecosystem services they deliver. The SEEA [definition of ecosystem condition \(PDF, 605KB\)](#) is "the overall quality of an ecosystem asset in terms of its characteristics".

Figure 4 summarises the condition and long-term trends of physical, chemical, compositional, structural and landscape indicators for each broad UK habitat. A more detailed analysis for each habitat follows, including environmental pressure indicators. See our methodology publication for further details on condition indicators.

Figure 4: Summary long-term trend of condition indicators by broad habitat

Notes:

1. The condition indicators have varying geographies: UK, Great Britain, Scotland or England.

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4 . Woodland

Physical state indicator: Soil

Soil is important in woodlands for providing a [fertile topsoil for trees and plants to grow their roots \(PDF, 1.42MB\)](#). The [Countryside Survey](#) showed a [decrease in soil acidity \(increase in pH value, Table 1\) of broadleaf woodland between 1978 and 2007 \(PDF, 5.01MB\)](#), this is consistent with the decrease of acidity of soils across Great Britain, an expected benefit from sulphur emissions reductions in the 1980s. Coniferous woodland shows a much smaller decrease in acidity.

Table 1: Soil indicators for woodland, Great Britain, 1978, 1998 and 2007

Woodland	Indicator	1978	1998	2007
Broadleaf, mixed, and yew woodland	pH	5.1	5.5	5.8
Coniferous woodland		4.3	4.4	4.5
Broadleaf, mixed, and yew woodland	Carbon concentrate (g C kg ⁻¹)	62.4	102.2	88.7
Coniferous woodland		203.7	222.0	197.8
Broadleaf, mixed, and yew woodland	Loss of ignition (%)	11.4	18.6	16.1
Coniferous woodland		37.0	40.4	36.0
Broadleaf, mixed, and yew woodland	Soil bulk density	0.8		
Coniferous woodland		0.5		

Source: UK Centre for Ecology and Hydrology – Countryside Survey

Compositional species indicators for woodland

Species indicators are a useful indicator of wider habitat ecological health. Both the bees and the bats indicators have shown an increase in their indexes. The [common pipistrelle \(PDF, 6.95MB\)](#) is one of the three bat species in the bat index and their population in Great Britain is considered to have increased since 1999.

Species indicators in decline include those for butterflies, falling to an all-time low in 2012, and moths, in long-term decline from 1996. Woodland birds saw their greatest decline in the early 1980s to the early 1990s, driven by [woodland specialist decline in willow tits, tree pipits, spotted flycatchers and lesser redpolls \(PDF, 4.85MB\)](#).

Figure 5: The smoothed butterfly index declined by 44% between 1990 and 2020

Compositional woodland species for bats, bees, birds, butterflies and moths, Great Britain or UK

Notes:

1. Provisional index for bats for 2019 and 2020.
2. Bats species in index: common pipistrelle, soprano pipistrelle, and noctule.
3. The Rothamsted Insect Survey, a National Capability, is funded by the Biotechnology and Biological Sciences Research Council under the Core Capability Grant BBS/E/C/000J0200.

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National Forest Inventory

The National Forest Inventory (NFI) samples ecological data from over 15,000 woodland sites. Table 2 shows that no sites classed as favourable for the indicators for veteran trees – those of interest biologically, culturally or aesthetically – and the proportion of open space. Environmental and structural heterogeneity is improved with areas of open space in woodlands.

Table 2: Summary of National Forest Inventory compositional and structural state condition indicators, Great Britain, 2010 to 2015 survey cycle

Condition indicator	Unfavourable		Intermediate		Favourable	
	Area (hectares)	Percentage	Area (hectares)	Percentage	Area (hectares)	Percentage
Compositional state						
Tree health – Pests and diseases	73,692	2	326,408	11	2,547,733	86
Invasive species	220,494	7	23,855	1	2,703,484	92
Regeneration at component group level	0	0	2,628,638	89	319,196	11
Structural state						
Number of native tree and/or shrub species	1,402,259	48	585,098	20	960,477	33
Deadwood volume (m3 per ha)	2,250,883	76	515,164	17	181,787	6
Vertical structure	633,582	21	1,211,071	41	1,103,182	37
Veteran trees	2,928,501	99	5,645	0	13,688	0
Age distribution of tree species	1,189,376	40	1,421,369	48	337,089	11
Proportion of open space	2,419,080	82	525,399	18	3,354	0

Source: Forest Research – National Forest Inventory

Landscape level indicator: Habitat connectivity

Habitat connectivity is a measure of how well different species can move between habitats in the landscape. The [mean connectivity values \(PDF, 4.85KB\)](#) for broadleaf, mixed and yew woodlands in England went from 0.0923 in 1990 to 0.0868 in 2007, having fallen as low as 0.0695 in 1998.

A different method is used in Scotland to calculate connectivity, and this provides river catchment-level statistics. Connectivity varies considerably across Scotland and between each catchment area for semi-natural woodland (Table 3). A higher value for the Equivalent Connected Area (Probability of Connectivity) or ECA(PC), shows greater connectivity, and is calculated as a percentage of total area of habitat in the region.

Table 3: Scottish Equivalent Connected Area (Probability of Connectivity) values for catchment areas for semi-natural woodland, Scotland, 2017

Catchment	Area of habitat (hectares)	Number of patches	Equivalent Connected Area (Probability of Connectivity) (hectares)	Percentage Equivalent Connected Area (Probability of Connectivity) of total habitat
Argyll	96,068	10,429	5,552	5.8
Clyde	91,665	16,356	3,421	3.7
Forth	50,498	10,887	2,259	4.5
Orkney and Shetland	255	67	110	43.1
North East Scotland	71,851	13,475	2,455	3.4
North Highland	93,187	12,618	4,164	4.5
Solway	90,922	12,327	4,770	5.2
Tay	58,861	11,181	2,341	4
Tweed	33,450	6,393	2,836	8.5
West Highland	33,786	4,462	3,200	9.5

Source: NatureScot

Ancillary woodland indicators

Herbivore damage

Herbivore damage negatively impacts on the ecological condition of woodland. The National Forest inventory for Great Britain between 2010 and 2015 shows the percentage of woodland area condition for herbivore damage was:

- 40% unfavourable
- 11% intermediate
- 49% favourable

Woodland wildfires

Wildfires can be considered a pressure indicator, as most wildfires are caused by humans, intentionally or not. In Wales, it was identified between April 2018 and March 2019 that around [7 out of 10 fires on woodland, grassland and crops were started deliberately \(PDF, 2.54KB\)](#).

Since 2009 to 2010, the greatest number of woodland wildfire incidents and area burnt occurring in woodlands in England (Table 4) occurred in 2011 to 2012. There was a drought in the same period, with heatwave alerts in central, eastern, and southern England and in Wales.

Table 4: Number of wildfire incidents in woodland for England, Scotland, and Wales, 2009 to 2010, to 2020 to 2021

Forestry England – Incident Reporting System, Forestry Commission Scotland, Welsh Government

	England			Scotland	Wales	
	Woodland fires (NFI)	Woodland (LCM) (verified)	Woodland (LCM)(not verified)	Woodland	Woodland /forest – broadleaf /hardwood	Woodland /forest – conifers /softwood
2009 to 2010	5,128	284	1,225	850	14	35
2010 to 2011	6,182	374	1432	1,166	36	161
2011 to 2012	7,238	392	1,507	1,050	32	130
2012 to 2013	1,794	110	368	479	8	22
2013 to 2014	3,899	218	863		19	44
2014 to 2015	2,360	137	626		15	30
2015 to 2016	3,333	208	871		14	32
2016 to 2017	2,570	188	610		7	17
2017 to 2018					8	20
2018 to 2019					48	130
2019 to 2020					27	49
2020 to 2021 (p)					39	99

Notes

1. (p) provisional.
2. Data are not available for all years for England and Scotland.

Protected sites

There are several formal designations, including Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs). These are usually established because of rare fauna or flora, or important geological or physiological features, which make them areas of interest to science.

Sites classed as favourable in Scotland rose from 46% in 2007 to 50% in 2020 (Table 5).

Table 5: Number of protected woodland sites by condition in Scotland, 2007, 2010, 2015, 2018 and 2020

	Condition	2007	2010	2015	2018	2020
Broadleaf, mixed and yew woodland	Favourable	186	229	223	211	203
	Recovering	48	39	51	59	59
	Unfavourable	173	131	144	152	161
Broadleaf, mixed and yew woodland (upland)	Favourable	2	10	12	12	12
	Recovering	3	0	6	5	6
	Unfavourable	2	6	2	3	2
Coniferous woodland	Favourable	32	38	37	38	36
	Recovering	4	4	12	14	14
	Unfavourable	24	18	13	10	12

Source: NatureScot

For England 40% of protected woodland sites were classed as favourable.

Table 6: Area of protected woodland sites in England by condition, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
Broadleaf, mixed and yew woodland - Lowland	Favourable	38,190	38,749
	Recovering	36,849	35,211
	Unfavourable	3,658	5,077
	Destroyed	13	13
Broadleaf, mixed and yew woodland - Upland	Favourable	6,269	6,093
	Recovering	7,569	7,214
	Unfavourable	1,427	1,905
	Destroyed	37	37
Coniferous woodland	Favourable	2,500	2,500
	Recovering	21,785	21,052
	Unfavourable	40	40
	Destroyed	0	0

Source: Natural England

In Wales, the number of protected woodland sites for broadleaf, mixed and yew woodland in 2020 by condition was:

- 30 sites favourable
- 112 sites unfavourable
- 169 sites unknown

Certified woodland

The UK's [certified woodland](#) is independently audited against the UK Woodland Assurance Standard, which promotes good forest practice. The area of certified woodland in the UK increased from 1,257 thousand hectares in March 2005 (42% total woodland) to 1,413 thousand hectares in March 2021 (44% total woodland).

5 . Enclosed farmland

Physical state indicator: Soil

Soils are a finite resource; one centimetre of topsoil can take up to 1,000 years to form. Topsoil is the fertile section of the soil profile that crops need to grow their roots. Topsoil can get washed off fields and carried out to sea during heavy rainfall events. It is estimated some [hillside agricultural areas can lose more than 100 tonnes per hectare per year \(PDF, 1.42KB\)](#).

The Countryside Survey identified the loss of carbon (0 to 15 centimetres depth) from the intensively managed arable and horticulture broad habitat in Great Britain. The [carbon concentrate on arable and horticulture land has decreased 11% between 1978 and 2007 \(PDF, 5.0MB\)](#) (Table 7).

Table 7: Soil indicators for farmland, Great Britain, 1978, 1998 and 2007

Enclosed farmland	Indicator	1978	1998	2007
Arable and horticultural	pH levels	6.59	6.81	7.2
Improved grassland		5.79	6.06	6.27
Arable and horticultural	Carbon concentrate (g C kg ⁻¹)	34.5	33.5	30.7
Improved grassland		56.4	58.3	56.9
Arable and horticultural	Loss of ignition (%)	6.27	6.09	5.58
Improved grassland		10.25	10.6	10.35
Arable and horticultural	Soil bulk density	1.23		
Improved grassland		0.97		

Source: UK Centre for Ecology and Hydrology – Countryside Survey

Compositional species indicators on farmland

Changes in [farmland management \(PDF, 4.85MB\)](#) since the 1970s have adversely affected many farmland species. The farmland bird index has been in long-term decline from 1978 (Figure 6). By contrast, the butterfly index has remained fairly stable.

The enclosed farmland smoothed bat index (Figure 6) has significantly increased since the base year of 1999. The [common pipistrelle \(PDF, 6.95KB\)](#) is one of the three species in this index and their population in Great Britain is considered to have increased since 1999.

Figure 6: The smoothed farmland bird index has declined by 57% between 1970 and 2019

Bat, bee, bird, butterfly and moth farmland species, Great Britain or UK

Notes:

1. Bats provisional Index for 2019 and 2020.
2. Bats species in index: common pipistrelle, soprano pipistrelle, and noctule.
3. The Rothamsted Insect Survey, a National Capability, is funded by the Biotechnology and Biological Sciences Research Council under the Core Capability Grant BBS/E/C/000J0200.

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Organic farms

In the UK, [organic farming \(ODT, 1.42MB\)](#) uses natural methods of production and pest control. The share of UK agricultural land that is organically farmed decreased by 32% between 2010 and 2020, with 3% of UK agricultural land in 2020 being organic (Figure 7).

Figure 7: Organic farming accounts for 3% of total agricultural land in 2020

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Landscape indicators: Woodland and hedgerows on farmland

The proportion of woodland on UK farmland has increased from 1.6% in 1984 to 5.7% in 2020 (Figure 8). By contrast, the average length of hedges on farmland in Great Britain declined 23% between 1984 and 2007.

Figure 8: The percentage of woodland on farmland has steadily increased between 1984 and 2020

Woodland and linear features on farmland, Great Britain or UK

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Ancillary enclosed farmland indicators

Wildfires

The Welsh Government identified in July 2018 that [there were almost nine times more fires on grassland, woodland and cropped land compared with July 2017 \(PDF, 2.55MB\)](#). There were 40% more sunshine hours and half the rainfall in July 2018 than in July 2017.

Table 8: Number wildfire incidents on enclosed farmland in England and Wales, 2009 to 2010, to 2020 to 2021

	England		Wales – primary		Wales – secondary
	Arable	Improved grassland	Grassland, pasture, grazing, etc.	Stacked/baled and standing crop	Grassland, pasture, grazing, etc.
2009 to 2010	5,952	8,129	7		1,872
2010 to 2011	5,995	8,116	7		2,293
2011 to 2012	6,168	8,255	1		1,329
2012 to 2013	2,437	2,775	0		595
2013 to 2014	4,396	5,396	6		1,220
2014 to 2015	3,140	3,708	1		942
2015 to 2016	2,093	3,956	9		1,103
2016 to 2017	1,967	3,528	6	33	535
2017 to 2018			3	27	635
2018 to 2019			10	24	1,446
2019 to 2020			5	21	721
2020 to 2021 (p)			9	19	689

Source: Forestry England – Incident Reporting System, Welsh Government

Notes

1. (p) provisional.
2. Data are not available for all years for England and Wales.

Fertiliser and pesticide usage

A [surplus of phosphorous and nitrogen from fertiliser can lead to environmental pollution](#), such as eutrophication of surface water. This can be limited through efficient use of fertiliser. Fertiliser used per tonne of produce declined 53% between 1985 and 2019.

Sustainable [pest management \(PDF, 918KB\)](#) is encouraged as it enhances UK biodiversity. Pesticide use for arable, potato storage, soft fruit and orchards has decreased by 60% between 1990 and 2020 (Figure 9).

Figure 9: Fertiliser per tonne of produce declined by 53% between 1985 and 2019

Tonnes of fertiliser used per tonne produce, UK 1985 to 2019 and total pesticide usage in tonnes, UK, 1990 to 2020 (all biomass less grazed biomass)

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Protected sites

On enclosed farmland, 97% of protected sites were classed as favourable in both 2018 and 2022 (Table 9).

Table 9: Area of protected sites in England on enclosed farmland by condition, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
	Favourable	13,755	13,828
Arable and horticulture	Recovering	253	171
	Unfavourable	22	32
	Favourable	1,097	963
Improved grassland	Recovering	149	149
	Unfavourable	37	176

Source: Natural England

6 . Semi-natural grassland

Physical state indicator: Soil

The [reduction in soil acidity \(increase in pH\) \(PDF, 5.0MB\)](#) between 1978 and 2007, in neutral grassland, acid grassland and bracken (Table 10) is consistent with expected benefit of reductions in sulphur emissions from the 1980s.

Table 10: Summary semi-natural grassland soil indicators, Great Britain, 1978, 1998 and 2007

Semi-natural grasslands Indicator		1978	1998	2007
Neutral grassland	pH	5.5	6.0	6.1
Acid grassland		4.4	4.7	4.8
Bracken		4.1	4.5	4.6
Neutral grassland	Carbon concentrate (g C kg ⁻¹)	67.1	70.1	68.0
Acid grassland		235.1	256.7	228.5
Bracken		155.2	154.7	195.9
Neutral grassland	Loss of ignition (%)	12.2	12.8	12.4
Acid grassland		42.8	46.7	41.6
Bracken		28.2	28.1	35.6
Neutral grassland	Soil bulk density	0.9		
Acid grassland		0.4		
Bracken		0.4		

Source: UK Centre for Ecology and Hydrology – Countryside Survey

Compositional species indicators for semi-natural grassland

Natural England reported [97% of wildflower meadows have been lost since the 1930s](#), with the UK now having 1% of its land area as flower-rich grassland. The butterfly index for semi-natural grassland has declined by 61% between 1976 and 2020. The bird index has steadily declined 18% from 2005 to 2019. By contrast, the average number of bees in semi-natural grassland increased 32% between 2010 and 2020 (Figure 10).

Figure 10: The semi-natural grassland bird index has declined by 61% between 1976 and 2020

Bee, butterfly and bird species indicators for semi-natural grassland, Great Britain or UK

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Landscape indicator: Habitat connectivity

Habitat connectivity is about a measure of how well different species can move between habitats in the landscape.

The developmental habitat connectivity statistics for England showed an increasing trend in the connectivity of neutral grasslands between 1990 and 2007. The mean [functional connectivity values \(PDF, 4.73MB\)](#) for neutral grasslands in England were:

- 0.3272 for 1990
- 0.7569 for 1998
- 0.8226 for 2007

A different method was used in Scotland to calculate connectivity. As Table 11 shows connectivity varies considerably across Scotland and between each catchment area for semi-natural grasslands. The Equivalent Connected Area (Probability of Connectivity) or ECA(PC) shows the higher the value the greater the connectivity. The ECA(PC) is calculated as a percentage of total amount of habitat in the region. While the semi-natural grasslands for Forth and the North Highland catchments have similar total areas, the Forth has a much higher ECA(PC), indicating this area is better connected.

Table 11: Scottish Equivalent Connected Area (Probability of Connectivity) values per catchment area for semi-natural grassland, 2017

	Area of habitat (hectares)	Number of patches	Equivalent Connected Area (Probability of Connectivity) (hectares)	Percentage Equivalent Connected Area (Probability of Connectivity) of total habitat
Argyll	83,985	4,248	5,111	6.1
Clyde	117,476	8,955	8,639	7.4
Forth	60,359	6,035	9,285	15.4
Orkney and Shetland	53,470	5,167	2,506	4.7
North East Scotland	57,491	11,788	1,342	2.3
North Highland	59,281	7,379	2,391	4
Solway	132,514	9,035	11,899	9
Tay	77,574	6,384	6,549	8.4
Tweed	94,870	5,612	10,113	10.7
West Highland	47,344	4,711	2,886	6.1

Source: NatureScot

Ancillary indicators for semi-natural grassland

Wildfires

Wildfires in England vary over the data time series, with a declining number of wildfires between 2013 to 2014 and 2016 to 2017 (Table 12).

Table 12: Number of wildfire incidents on semi-natural grassland in England and Scotland, 2009 to 2010, to 2016 to 2017

	England	Scotland
	Semi-natural grassland	Semi-natural grassland
2009 to 2010	1,394	354
2010 to 2011	1,701	465
2011 to 2012	1,596	368
2012 to 2013	506	203
2013 to 2014	1,164	
2014 to 2015	722	
2015 to 2016	400	
2016 to 2017	250	

Source: Forestry England, Incident Reporting System, Forestry Commission Scotland, Welsh Government

Notes

1. Data are not available for all years for Scotland.

Protected sites

The number of designated protected sites, for either fauna, flora or important geological or physiological features, in Scotland that were classified as good increased from 38 in 2007 to 73 in 2020 (Table 13).

Table 13: Number of protected grassland sites by condition, Scotland, 2007, 2010, 2015, 2018 and 2020

Grasslands	Condition	2007	2010	2015	2018	2020
Acid grassland	Favourable	3	5	6	8	7
	Recovering	2	3	6	7	7
	Unfavourable	9	7	6	3	4
Acid grassland (upland)	Favourable	0	0	0	0	0
	Recovering	0	0	1	1	1
	Unfavourable	2	2	1	1	1
Calcareous grassland	Favourable	8	14	16	16	16
	Recovering	3	6	8	11	11
	Unfavourable	20	8	6	3	3
Calcareous grassland (upland)	Favourable	7	7	14	15	17
	Recovering	2	8	11	7	7
	Unfavourable	29	28	16	19	17
Neutral grassland	Favourable	20	27	31	35	33
	Recovering	7	9	15	11	10
	Unfavourable	33	19	11	11	14

Source: NatureScot

The percentage area of protected sites on grassland in England classed as favourable was 44% in 2018 and 2022 (Table 14).

Table 14: Area of protected sites on semi-natural grassland in England by condition, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
Neutral grassland – Lowland	Favourable	23,782	23,292
	Recovering	16,668	13,327
	Unfavourable	7,590	11,333
	Destroyed	52	52
Neutral grassland – Upland	Favourable	1,655	1,639
	Recovering	730	708
	Unfavourable	350	388
	Destroyed	-	-
Calcareous grassland – Lowland	Favourable	19,390	19,836
	Recovering	22,391	21,812
	Unfavourable	794	1,140
	Destroyed	193	193
Calcareous grassland – Upland	Favourable	2,208	2,242
	Recovering	5,751	4,114
	Unfavourable	244	1,848
	Destroyed	-	-
Acid grassland – Lowland	Favourable	2,762	2,774
	Recovering	5,103	5,154
	Unfavourable	546	804
	Destroyed	14	14
Acid grassland – Upland	Favourable	10,730	10,318
	Recovering	13,315	12,951
	Unfavourable	2,114	2,785
	Destroyed	-	-

Source: Natural England

Table 15: Number of protected semi-natural grassland sites by condition, Wales, 2020

Habitat	Condition	Number of sites
Neutral grassland	Favourable	23
	Unfavourable	65
	Destroyed	0
	Unknown	92
Calcareous grassland	Favourable	3
	Unfavourable	42
	Destroyed	1
	Unknown	32
Acid grassland	Favourable	7
	Unfavourable	18
	Destroyed	0
	Unknown	44

Source: Natural Resources Wales

7 . Mountain, moorland and heath

Physical state indicator: Soil

Soil information is important for understanding [species distribution \(PDF, 5.0MB\)](#). Dwarf shrub heath soils found on mountain, moorland and heath habitats have always been naturally acidic in Great Britain.

Table 16: Soil indicators for mountain, moorland and heath, Great Britain, 1978, 1998 and 2007

MMH	Indicator	1978	1998	2007
Dwarf shrub heath	pH	4.2	4.5	4.6
	Carbon concentrate (g C kg ⁻¹)	305.3	298.7	284.9
	Loss of ignition (%)	55.5	54.3	51.8
	Soil bulk density	0.35		

Source: UK Centre for Ecology and Hydrology – Countryside Survey

Chemical state indicator: Water

The UK Uplands Water Monitoring Network investigates the chemical and biological responses of acidified streams and lakes to changes in air quality and “acid rain” and also investigates impacts of climate change and land management on these systems.

Upland water condition has improved from the reduction in concentrations of non-marine sulphate and the reduction of water acidity (increased pH) from 1996 to 2018 (Figure 11). Mean concentration of dissolved organic carbon, largely derived from the degradation of plant and soil organic material, often causing a brown staining to upland waters, roughly doubled between 1989 and 2018.

Figure 11: Mean concentration of dissolved organic carbon (DOC) roughly doubled between 1989 and 2018

Chemical levels in Uplands Water Monitoring Network, mountain, moorland and heath sites, upscaled to UK, 1989 to 2018

Download the data

[.xlsx](#)

Compositional species indicators for mountain, moorland and heath

Our [bird populations](#) can provide a good indicator of the state of wildlife in the UK as they occupy a wide range of habitats and respond to environmental pressures. The unsmoothed bird index between 1994 and 2019 has increased by 12% (Figure 12). The moth index has been increasing over the data time series, with abundance showing a fourfold increase from 1991 to 2019. By contrast, the average total number of bees per kilometre walk decreased by 10% between 2010 and 2020.

Figure 12: The moth index shows abundance, having a fourfold increase from 1991 to 2019

Bee, bird and moth species for mountain, moorland and heath, Great Britain or UK

Notes:

1. The Rothamsted Insect Survey, a National Capability, is funded by the Biotechnology and Biological Sciences Research Council under the Core Capability Grant BBS/E/C/000J0200.

Download the data

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Landscape indicators for mountain, moorland and heath

Habitat connectivity

Habitat connectivity metrics were created for 10 catchment areas using Equivalent Connected Area (Probability of Connectivity) or ECA(PC) in Scotland, which shows the higher the value the greater the connectivity. The ECA (PC) for heathland varies considerably across catchment areas in Scotland (Table 17), with the north east of Scotland having the highest connectivity value for heathland.

Table 17: Scottish Equivalent Connected Area (Probability of Connectivity) values per catchment area for heathland, 2017

Catchment	Area of habitat (hectares)	Number of patches	Equivalent Connected Area (Probability of Connectivity) (hectares)	Percentage Equivalent Connected Area (Probability of Connectivity) of total habitat
Argyll	439,609	3,821	70,702	16.1
Clyde	136,377	3,112	19,741	14.5
Forth	46,452	1,547	10,357	22.3
Orkney and Shetland	117,259	1,645	24,381	20.8
North East Scotland	292,611	3,670	124,813	42.7
North Highland	799,628	4,152	190,200	23.8
Solway	74,238	2,824	10,587	14.3
Tay	275,735	2,307	105,796	38.4
Tweed	73,446	1,495	20,779	28.3
West Highland	702,291	3,861	150,880	21.5

Source: NatureScot

Hedgerows

The Countryside Survey shows a decline in the mean length of hedgerows in mountain, moorland and heath in Great Britain from 1984 to 2007 (Figure 13).

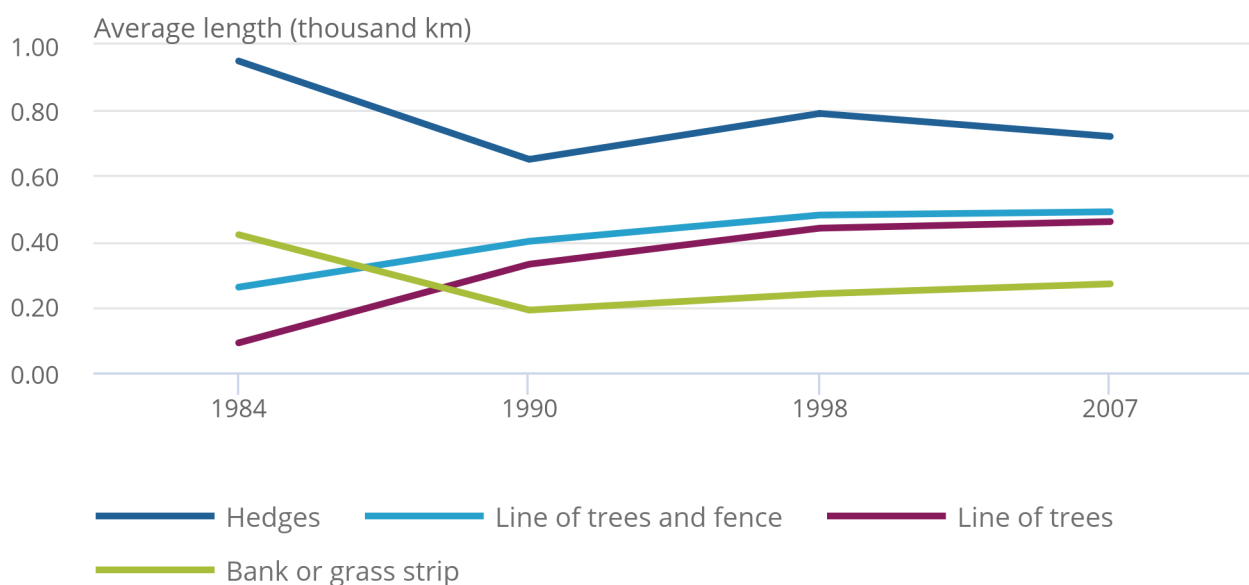
In addition, it showed a decrease in [species richness score \(PDF, 29.4MB\)](#) of surveyed plots alongside linear features on moorland for Great Britain from a mean value of 22.2 in 1998 to 18.9 in 2007.

Figure 13: The average length of hedges decreased by 24% since 1984

Average length, thousand kilometres, linear features mountain, moorland and heath, Great Britain, 1984, 1990, 1998 and 2007

Figure 13: The average length of hedges decreased by 24% since 1984

Average length, thousand kilometres, linear features mountain, moorland and heath, Great Britain, 1984, 1990, 1998 and 2007



Source: UK Centre for Ecology and Hydrology – Countryside Survey

Ancillary indicators for mountain, moorland and heath

Wildfires

The number of wildfire incidents, a pressure indicator (see previously), varies across Great Britain, with 2010 to 2011 being the highest in the data time series for England and Wales (Table 18).

Table 18: Number of wildfire incidents on mountain, heath and bog for England, Scotland, and Wales, 2009 to 2010, to 2020 to 2021

	England – Mountain, heath and bog	Scotland – Mountain, heath and bog	Wales – primary – Heathland or moorland	Wales – secondary – Heathland or moorland
2009 to 2010	392	154	8	866
2010 to 2011	547	211	15	1,038
2011 to 2012	506	199	18	736
2012 to 2013	142	153	3	343
2013 to 2014	283		8	470
2014 to 2015	181		3	349
2015 to 2016	201		4	446
2016 to 2017	145		4	225
2017 to 2018			3	310
2018 to 2019			25	495
2019 to 2020			4	275
2020 to 2021 (p)			4	287

Source: Forestry England – Incident Reporting System, Forestry Commission Scotland, Welsh Government

Notes

1. (p) provisional.
2. Data are not available for all years for England, Wales, and Scotland.

Protected sites

The number of designated protected sites in mountain, moorland and heath, because of fauna, flora or important geological or physiological feature, in Scotland, in a favourable condition rose from 182 in 2007 to 281 in 2020 (Table 19).

Table 19: Number of protected mountain, moorland, and heath sites by condition in Scotland, 2007, 2010, 2015, 2018 and 2020

Heathland and inland rock	Condition	2007	2010	2015	2018	2020
	Favourable	5	16	18	18	18
Dwarf shrub heath	Recovering	4	4	5	10	10
	Unfavourable	16	3	10	5	5
	Favourable	40	45	47	55	58
Dwarf shrub heath (upland)	Recovering	6	16	30	24	23
	Unfavourable	59	59	37	35	33
	Favourable	108	120	127	135	136
Inland rock	Recovering	0	4	11	8	7
	Unfavourable	24	27	19	13	13
	Favourable	29	41	48	67	69
Montane	Recovering	5	9	19	12	12
	Unfavourable	50	55	39	29	27

Source: NatureScot

The area of designated protected sites in England classed as favourable increased from 18% in 2018 to 19% in 2022 (Table 20).

Table 20: Area of protected sites on mountain, moorland, and heath by condition in England, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
	Favourable	21,569	22,692
Dwarf shrub heath – Lowland	Recovering	26,784	24,809
	Unfavourable	3,232	4,177
	Destroyed	15	15
	Favourable	19,151	20,062
Dwarf shrub heath – Upland	Recovering	157,203	148,700
	Unfavourable	4,671	12,267
	Destroyed	11	11
	Favourable	108	108
Montane habitats	Recovering	1,242	948
	Unfavourable	16	310
	Destroyed	-	-
	Favourable	2,492	2,468
Inland rock	Recovering	4,612	4,562
	Unfavourable	740	816
	Destroyed	9.6	9.6

Source: Natural England

Table 21: Number of protected mountain, moorland, and heath sites by condition in Wales, 2020

Habitat	Condition	Number of sites
	Favourable	8
Dwarf shrub heath	Unfavourable	90
	Destroyed	0
	Unknown	86
	Favourable	6
Inland rock	Unfavourable	10
	Destroyed	0
	Unknown	37
	Favourable	1
Montane habitats	Unfavourable	3
	Destroyed	0
	Unknown	5

Source: Natural Resources Wales

8 . Freshwater, wetlands and floodplain

Physical state: Soil

While the soils of fen, marsh and swamp became less acidic over the same period, there was no major change in mean soil acidity (pH level) in the more acidic, organic-rich soils found in [bogs \(PDF, 5.0MB\)](#) across Great Britain between 1978 and 2007 (Table 22).

Table 22: Soil indicators for freshwater, wetlands and floodplain, Great Britain, 1978, 1998 and 2007

Freshwater, wetlands, floodplain Indicator		1978	1998	2007
Fen, marsh, and swamp	pH	4.6	5.4	5.5
		4.3	4.5	4.5
Bog				
Fen, marsh, and swamp	Carbon concentrate (g C kg ⁻¹)	231.7	252.8	228.6
		411.8	449.9	432.9
Bog				
Fen, marsh, and swamp	Loss of ignition (%)	42.1	46.0	41.6
		74.9	81.8	78.7
Bog				
Fen, marsh, and swamp	Soil bulk density	0.45		
		0.17		
Bog				

Source: UK Centre for Ecology and Hydrology – Countryside Survey

Water quality

The [Water Framework Directive](#) helps assess the water environment for water bodies, including rivers, lakes and canals. The overall condition of each body of water is examined and categorised into one of five classifications, ranging from "Bad" to "High" condition status. As shown in Table 23 there has been very little change in the number of rivers and canals classed as "Good" and "High" in each classification.

Table 23: Percentage of UK surface water bodies awarded each status for rivers and canals, under the Water Framework Directive, 2009 to 2020

Classification	High	Good	Moderate	Poor	Bad
2009	2	30	50	14	4
2010	2	30	49	15	4
2011	2	31	47	17	4
2012	2	31	47	17	4
2013	2	31	46	17	4
2014	2	29	47	19	3
2015	2	29	49	17	3
2016	2	29	48	17	4
2017	2	29	49	16	4
2018	2	30	48	16	4
2019	2	30	48	16	3
2020	3	30	49	16	3

Source: Joint Nature Conservation Committee, Environment Agency, Natural Resources Wales, Scottish Environment Protection Agency, Department of Agriculture, Environment and Rural Affairs for Northern Ireland

While the share of lakes classified as "High" and "Moderate" has risen, the share classed as "Good" has fallen from 37% in 2009 to 22% in 2020 (Table 24).

Table 24: Percentage of UK surface water bodies awarded each status for lakes, under the Water Framework Directive, 2009 to 2020

Classification	High	Good	Moderate	Poor	Bad
2009	6	37	44	10	3
2010	5	38	44	10	3
2011	5	38	44	11	2
2012	6	32	46	14	2
2013	6	31	46	14	2
2014	5	33	44	15	2
2015	9	28	47	13	2
2016	10	21	57	11	1
2017	10	21	57	11	1
2018	10	22	56	12	1
2019	10	22	55	11	1
2020	10	22	55	11	1

Source: Joint Nature Conservation Committee, Environment Agency, Natural Resources Wales, Scottish Environment Protection Agency, Department of Agriculture, Environment and Rural Affairs for Northern Ireland

Compositional species indicators for freshwater, wetlands and floodplains: Bees, bats and birds

The total average number of bees varies over the data time series, however, the average number of queen bees has declined from 2012 to 2020 (Figure 14). The wetland bird smoothed index decreased 15% between 1975 and 2019.

The freshwater bat smoothed index was higher than the baseline year between 2003 and 2008, then the number declined to 2020. This bat index uses the Daubenton's bat, which is considered to have [a stable bat population in Great Britain \(PDF, 6.95MB\)](#).

Figure 14: Wetland birds decreased by 15% between 1975 and 2019

Bee, bat and bird species indicators for freshwater, wetland and floodplains, Great Britain or UK

Notes:

1. Bats provisional Index for 2019 and 2020.
2. Bats species in index: common pipistrelle, soprano pipistrelle, and noctule.

Download the data

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Compositional state indicator: Freshwater salmonids

Trout and salmon catch data are recorded to manage fish stocks. The number of rod-caught and retained salmon and trout has decreased by 94% in Great Britain between 1996 and 2020 (Figure 15). [Fixed engine fishing](#) is an ancient practice used in the UK as a general descriptor of stationary fishing gears, fixed to the bed or bank; this has declined 94% between 1994 and 2020.

Figure 15: The number of rod-caught and retained salmon and trout has decreased by 94% between 1996 and 2020

Salmon and trout caught in rivers in Great Britain

Download the data

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Structural state indicator: Invasive species

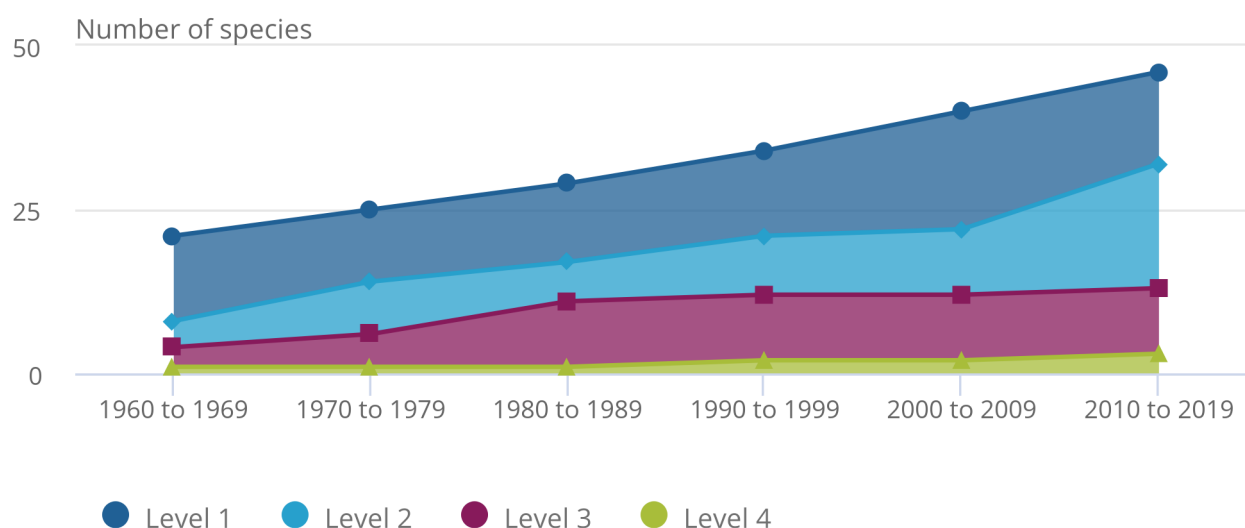
The [Joint Nature Conservation Committee invasive species indicator](#) for freshwater includes species that have arrived since 1500. It shows the change in the number of invasive non-native species that have become established across 10% or more of Great Britain's land area. Between 1960 and 2019, the number of non-native freshwater species has more than doubled from 21 to 46 (Figure 16).

Figure 16: The number of non-native freshwater species has more than doubled from 1960 to 2019

Number of non-native species in freshwater established in or along 10% of land area, Great Britain, 1960 to 1969 and 2010 to 2019

Figure 16: The number of non-native freshwater species has more than doubled from 1960 to 2019

Number of non-native species in freshwater established in or along 10% of land area, Great Britain, 1960 to 1969 and 2010 to 2019



Source: Botanical Society of Britain and Ireland; British Trust for Ornithology; UK Centre for Ecology and Hydrology; Marine Biological Association; National Biodiversity Network

Notes:

1. Level 1 – not/scarcely established, Level 2 – established but still generally absent or most occasional, Level 3 – established and frequent in part of the territory and Level 4 –widespread.

Landscape level indicators for freshwater, wetlands and floodplain

Habitat connectivity

In Scotland, habitat connectivity metrics were created for 10 catchment areas using Equivalent Connected Area (Probability of Connectivity) or ECA(PC) with higher values meaning greater connectivity. The ECA(PC) for fen, marsh and swamp varies considerably across catchment areas in Scotland (Table 25), with the Tweed having the highest connectivity value for fen, marsh and swamp.

Table 25: Scottish Equivalent Connected Area (Probability of Connectivity) values per catchment area for fen, marsh, and swamp, 2017

Catchment	Area of habitat (hectares)	Number of patches	Equivalent Connected Area (Probability of Connectivity) (hectares)	Percentage Equivalent Connected Area (Probability of Connectivity) of total habitat
Argyll	1,232	884	135	11
Clyde	292	256	54	18.5
Forth	393	169	100	25.3
Orkney and Shetland	972	664	113	11.6
North East Scotland	540	146	153	28.3
North Highland	2,393	630	531	22.2
Solway	2,932	348	1,010	34.4
Tay	586	162	161	27.4
Tweed	35	24	12	33.7
West Highland	2,018	1,283	200	9.9

Source: NatureScot

River naturalness

"River naturalness" refers to the extent to which a river has departed from its original state. The chemical, biological, hydrological and physical habitat change indicators can assist in interpreting the overall condition of the river.

England

[In England, hydrological, physical habitat, biological and chemical integrity scores are investigated](#), and the number of river water bodies with limiting naturalness scores in 2017 was:

- 9,485 for physical integrity
- 1,281 for biological integrity
- 879 for chemical integrity
- 152 hydrological integrity

Wales

[In Wales, rivers were assessed using a Hydromorphological Impact Ratio \(PDF, 1.18MB\)](#), which looks at the physical character and water content of water bodies. For 2007 to 2008, the areas with highest departure from naturalness are south east and south central Wales (Table 26).

Table 26: Comparison of hydromorphological impact ratio categories for Welsh areas, 2007 to 2008

Impact ratio (%)	Very low	Low	Moderate	High	Very high
Mid Wales	1.8	10.4	35.3	34.4	18.1
North East Wales	0	7	45.6	26.3	21.1
North West Wales	1.3	6.9	38.8	39.4	13.8
South Central Wales	0	8.5	17	48.9	25.5
South East Wales	2.2	4.3	10.9	52.2	30.4
South West Wales	2.3	11.6	25.4	41	19.7

Source: Natural Resources Wales

Scotland

In Scotland, the surface water bodies environment are assessed as part of river basin management plans, including looking at physical changes to the riverbeds and banks, such as straightening or culverting, and barriers to fish migration, such as dams and weirs. The percentage of [water environment condition classed as good or better condition in 2020 for Scotland \(PDF, 608MB\)](#) was:

- water quality – 87%
- water resources – 90%
- fish migration – 88%
- physical condition – 90%

Ancillary indicators for freshwater, wetland and floodplain

Pollution incidents from sewerage

Pollution by discharges or escapes of contaminants into rivers are recorded by the water companies. The number of pollution incidents has decreased by 34% in Great Britain between 2011 (3,316 pollution incidents) and 2019 (2,194 incidents).

Protected sites

In Scotland the number of designated protected sites classed as favourable condition on wetlands has risen from 509 in 2007 to 609 in 2020 (Table 27).

Table 27: Number of protected wetlands sites in Scotland by condition, 2007, 2010, 2015, 2018 and 2020

Wetlands	Condition	2007	2010	2015	2018	2020
Bogs (Upland)	Favourable	121	116	120	128	126
	Recovering	13	18	22	29	29
	Unfavourable	46	55	47	34	36
Bogs (Wetland)	Favourable	33	64	69	74	74
	Recovering	30	20	20	28	27
	Unfavourable	45	27	26	13	14
Fen, marsh and swamp (Grassland)	Favourable	19	22	23	25	25
	Recovering	1	6	3	2	3
	Unfavourable	14	3	7	6	5
Fen, marsh and swamp (Upland)	Favourable	34	41	49	55	56
	Recovering	0	9	12	7	7
	Unfavourable	30	17	10	9	9
Fen, marsh and swamp (Wetland)	Favourable	145	155	166	171	170
	Recovering	4	22	25	27	25
	Unfavourable	72	42	39	36	38
Rivers and streams	Favourable	6	6	6	6	3
	Recovering	0	0	0	0	0
	Unfavourable	5	5	3	3	6
Standing open water and canals	Favourable	151	161	156	155	155
	Recovering	6	4	5	8	51
	Unfavourable	51	41	51	52	9

Source: NatureScot

In England, the area of designated protected sites classed as favourable for freshwater and wetlands is 19% for 2018 and 2022 (Table 28).

Table 28: Area of protected freshwater, wetlands, and floodplain sites in England by condition, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
Fen, marsh and swamp – Lowland	Favourable	10,073	9,731
	Recovering	13,825	13,694
	Unfavourable	2,222	3,122
	Destroyed	18	18
Fen, marsh and swamp – Upland	Favourable	894	886
	Recovering	1,332	1,313
	Unfavourable	375	412
	Destroyed	0	0
Bogs – Lowland	Favourable	744	702
	Recovering	7,189	7,194
	Unfavourable	1,437	1,475
	Destroyed	27	27
Bogs – Upland	Favourable	21,735	19,661
	Recovering	148,817	139,005
	Unfavourable	11,032	23,004
	Destroyed	0	0
Rivers and streams	Favourable	1,228	1,182
	Recovering	4,215	3,933
	Unfavourable	2,830	2,766
	Destroyed	0	0
Standing open water and canals	Favourable	13,994	15,233
	Recovering	5,144	4,726
	Unfavourable	4,743	5,712
	Destroyed	7	12

Source: Natural England

Table 29: Number of protected freshwater, wetlands, and floodplain sites in Wales by condition, 2020

Habitat	Condition	Number of sites
Fen, marsh and swamp	Favourable	22
	Unfavourable	142
	Destroyed	2
	Unknown	255
Standing open water and canals	Favourable	17
	Unfavourable	54
	Destroyed	1
	Unknown	20
Bogs	Favourable	8
	Unfavourable	50
	Destroyed	0
	Unknown	25
Rivers and streams	Favourable	2
	Unfavourable	30
	Destroyed	0
	Unknown	9
Freshwater lake	Favourable	0
	Unfavourable	4
	Destroyed	0
	Unknown	0

Source: Natural Resources Wales

9 . Coastal margins

Compositional species indicators for coastal margins

The total wintering waterbird index has increased from the 1975 baseline to a peak in the late 1990s, then declined. The smoothed index in 2018 stands 90% above its 1975 baseline (Figure 17).

The average number of queen bees has declined by 27% from 2010 to 2020, and the average total bees by 24% in the same period. The coastal moth index has steadily declined from 1995 and has decreased 88% from 1990 to 2019.

Figure 17: The wintering waterbird index has increased by 90% between 1975 and 2018

Bee, bird and moth species indicators for coastal margins, Great Britain or UK

Notes:

1. The Rothamsted Insect Survey, a National Capability, is funded by the Biotechnology and Biological Sciences Research Council under the Core Capability Grant BBS/E/C/000J0200.

[.xlsx](#)

Landscape level indicator: Hedgerows

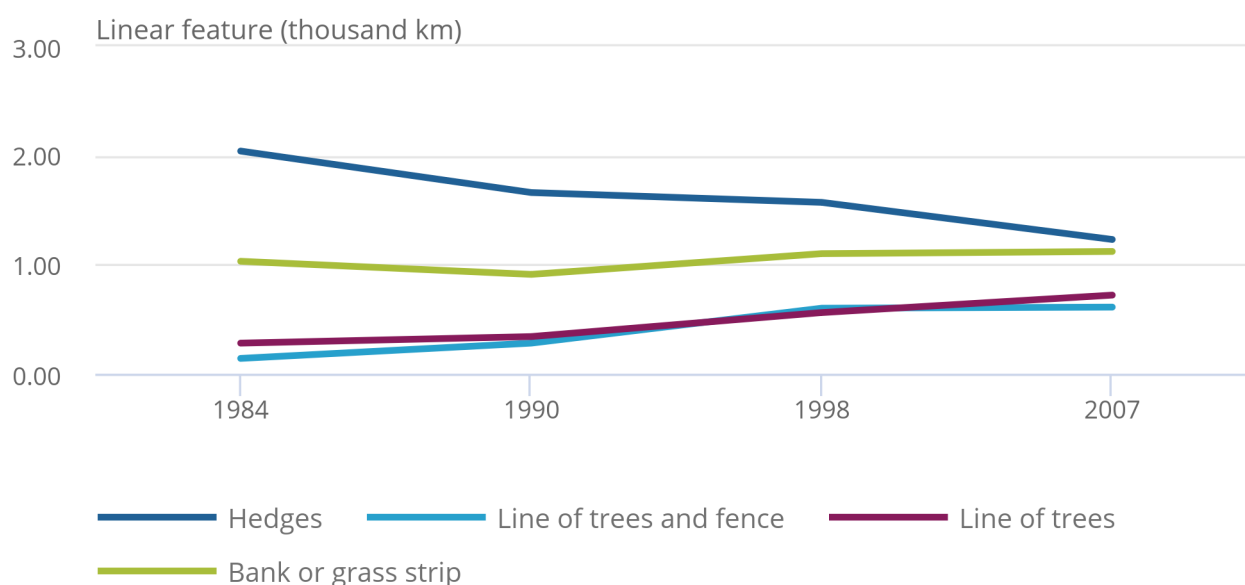
The average length of hedgerows on coastal habitats has decreased by 39% from 1984 to 2007 in Great Britain.

Figure 18: The average length of hedges in coastal habitats has decreased by 39% in Great Britain between 1984 and 2007

Linear coastal features, Great Britain, 1984, 1990, 1998 and 2007

Figure 18: The average length of hedges in coastal habitats has decreased by 39% in Great Britain between 1984 and 2007

Linear coastal features, Great Britain, 1984, 1990, 1998 and 2007



Source: UK Centre for Ecology and Hydrology – Countryside Survey

Ancillary coastal indicators

Wildfires

The number of wildfire incidents in coastal, freshwater and saltwater habitats in England increased between 2009 and 2012, with a peak of 450 incidents in 2010 to 2011. The number then decreased in 2012 to 2013, to 134 incidents, but increased the following year (2013 to 2014) to 267 incidents. Since then, the number of wildfire incidents has been decreasing, with 161 incidents recorded in 2016 to 2017.

Protected sites

In Scotland, the number of designated protected sites, for fauna, flora or important geological or physiological features, classed as favourable condition on coastal sites, has risen from 222 in 2007 to 276 in 2020 (Table 30).

Table 30: Number of protected coastal sites in Scotland by condition, 2007, 2010, 2015, 2018 and 2020

Coastal	Condition	2007	2010	2015	2018	2020
Littoral sediment (coast)	Favourable	44	50	57	60	60
	Recovering	2	5	1	3	3
	Unfavourable	21	10	10	5	5
Supralittoral sediment (coast)	Favourable	107	125	134	135	133
	Recovering	3	17	15	12	12
	Unfavourable	67	33	28	30	32
Supralittoral rock (coast)	Favourable	71	72	80	83	83
	Recovering	0	4	3	2	2
	Unfavourable	19	14	6	4	4

Source: NatureScot

The area of designated protected coastal sites classed as favourable in England dropped from 31% in 2018 to 30% in 2022 (Table 31).

Table 31: Area of protected coastal sites in England by condition, 2018 and 2022

Habitat	Condition	2018	2022
		Hectares	Hectares
Supralittoral rock	Favourable	4,872	4,518
	Recovering	1,652	1,709
	Unfavourable	171	468
	Destroyed	0	0
Supralittoral sediment	Favourable	3,977	4,347
	Recovering	8,983	7,990
	Unfavourable	1,634	1,747
	Destroyed	29	29
Inshore sublittoral sediment	Favourable	922	939
	Recovering	222	135
	Unfavourable	452	496
	Destroyed	23	23
Littoral rock	Favourable	2,840	2,804
	Recovering	364	364
	Unfavourable	72	108
	Destroyed	0	0
Littoral sediment	Favourable	169,720	166,335
	Recovering	91,670	84,804
	Unfavourable	11,359	22,833
	Destroyed	20	8

Source: Natural England

In Wales the numbers of protected sites by condition in 2020 and their condition for supralittoral sediment were:

- 6 favourable
- 21 unfavourable
- 30 unknown

For supralittoral rock there were:

- 4 favourable
- 8 unfavourable
- 24 unknown

10 . Marine

Physical state: Water

The [Water Framework Directive](#) helps assess the water environment for water bodies, including estuaries and coastal, with classifications from "Bad" to "High" condition (see previously). There is a small improvement in the number of estuaries and coastal water bodies classed as "Good" and "High" between 2009 and 2020 (Table 32).

Table 32: Percentage of UK surface water bodies awarded each status for estuaries and coastal, under the Water Framework Directive, 2009 to 2020

	Classification High	Good	Moderate	Poor	Bad
2009	23	47	29	1	0
2010	23	49	26	1	1
2011	20	54	25	1	1
2012	20	55	24	1	1
2013	22	53	24	1	1
2014	18	55	25	1	1
2015	22	52	25	1	0
2016	23	49	25	1	1
2017	21	55	22	1	1
2018	21	55	23	1	1
2019	21	55	23	1	1
2020	21	55	23	1	1

Source: Joint Nature Conservation Committee, Environment Agency, Natural Resource Wales, Scottish Environment Protection Agency, Department of Agriculture, Environment and Rural Affairs for Northern Ireland

Compositional state indicators

Seabirds

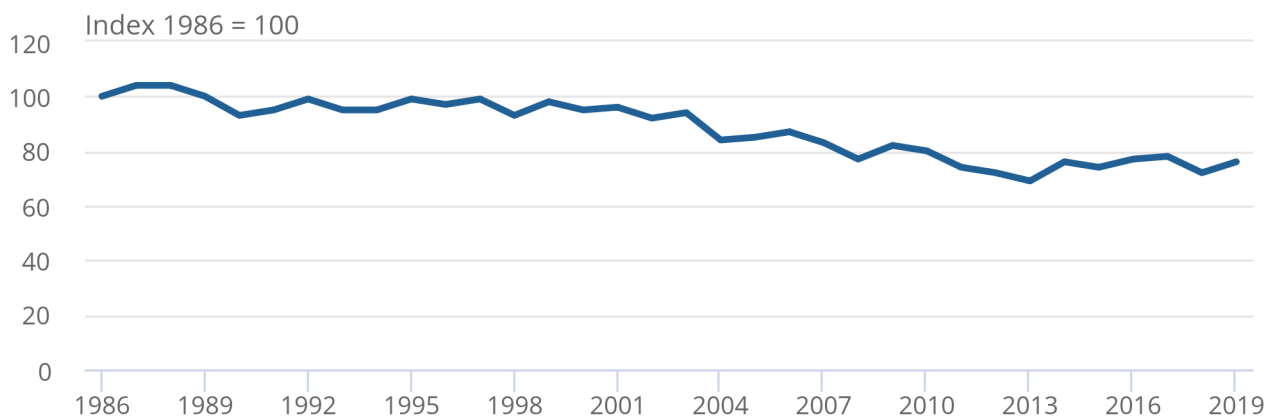
The UK seabird index in 2019 was 24% lower than in 1986 (Figure 19).

Figure 19: The UK seabird index decreased by 24% between 1986 and 2019

Seabird index 1986 = 100, UK, 1986 to 2019

Figure 19: The UK seabird index decreased by 24% between 1986 and 2019

Seabird index 1986 = 100, UK, 1986 to 2019



Source: Joint Nature Conservation Committee

Sustainable fishing

Fish are an integral component of marine biodiversity, an important food source for seabirds and aquatic mammals, as well as a source of food and employment for people. The Joint Nature Conservation Committee states that [sustainable fisheries help to ensure our marine ecosystems remain diverse and resilient](#), providing a long-term and viable fishing industry.

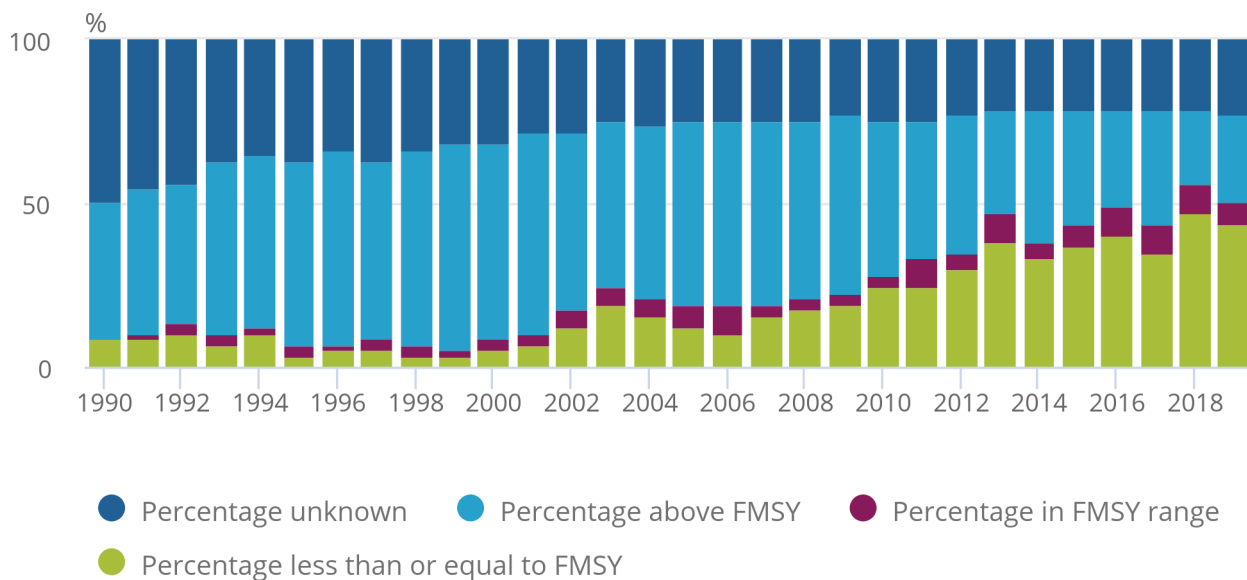
Among the 57 marine stocks fished in an acceptable mortality range, stocks exploited at or below the maximum sustainable yield (FMSY), increased from 9% in 1990 to 51% in 2019 (Figure 20).

Figure 20: Fish stocks exploited at or below and in the FMSY range were 51% in 2019

Percentage pressure of marine fish stocks of UK interest exploited with respect to FMSY (fishing maximum sustainable yield), 1990 to 2019

Figure 20: Fish stocks exploited at or below and in the FMSY range were 51% in 2019

Percentage pressure of marine fish stocks of UK interest exploited with respect to FMSY (fishing maximum sustainable yield), 1990 to 2019



Source: International Council for the Exploration of the Sea, Centre for Environment, Fisheries and Aquaculture Science and Joint Nature Conservation Committee

Invasive species

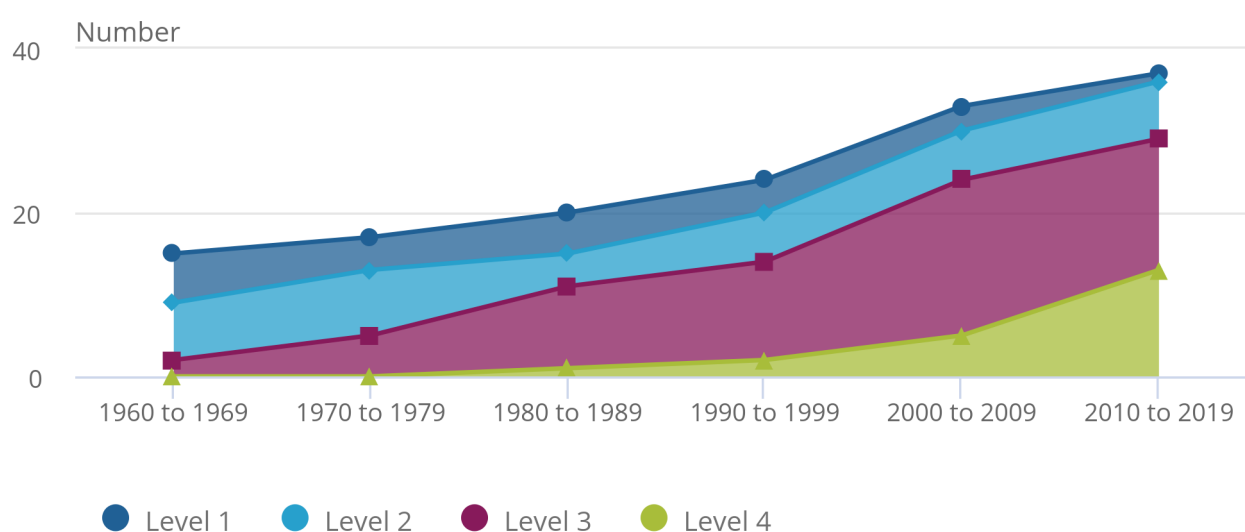
The [Joint Nature Conservation Committee invasive species indicator](#) for freshwater includes species that have arrived since 1500. It shows the change in number of invasive non-native species that have established across 10% or more of Great Britain's coastline extent. Between 1960 and 2019, the number of non-native freshwater species has risen from 15 to 37 (Figure 21).

Figure 21: The number of widespread invasive species has risen to 13 between 2010 and 2019

Number of non-native species in marine areas established in or along 10% of the total coastline, Great Britain, 1960 to 1969 and 2010 to 2019

Figure 21: The number of widespread invasive species has risen to 13 between 2010 and 2019

Number of non-native species in marine areas established in or along 10% of the total coastline, Great Britain, 1960 to 1969 and 2010 to 2019



Source: Botanical Society of Britain and Ireland, British Trust for Ornithology, UK Centre for Ecology and Hydrology, Marine Biological Association, National Biodiversity Network

Notes:

1. Level 1 – not/scarcely established, Level 2 – established but still generally absent or most occasional, Level 3 – established and frequent in part of the territory and Level 4 – widespread.

Ancillary marine indicators

Sea litter

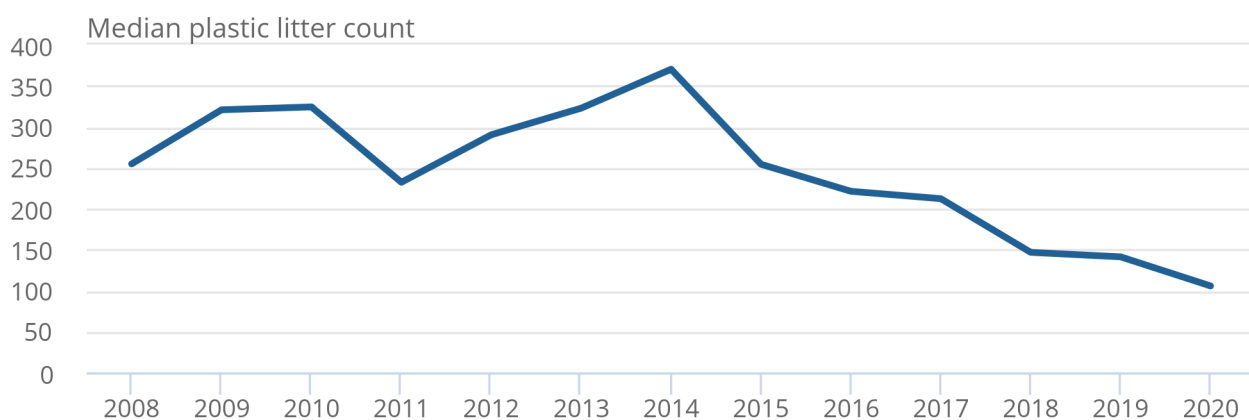
Accounting for methodological changes – which beaches are included and variations in the number of volunteers across years – the density of plastic-related litter on beaches seems to have declined between 2008 and 2021 (Figure 22).

Figure 22: Long-term trend in a reduction of plastic-related sea litter

Median count plastic litter. 100 metre beach cleans, UK, 2008 to 2020

Figure 22: Long-term trend in a reduction of plastic-related sea litter

Median count plastic litter. 100 metre beach cleans, UK, 2008 to 2020



Source: Marine Conservation Society

Notes:

1. 2020 data should not be compared with other years as number of volunteers collecting litter was significantly smaller.

Blue Flag awards

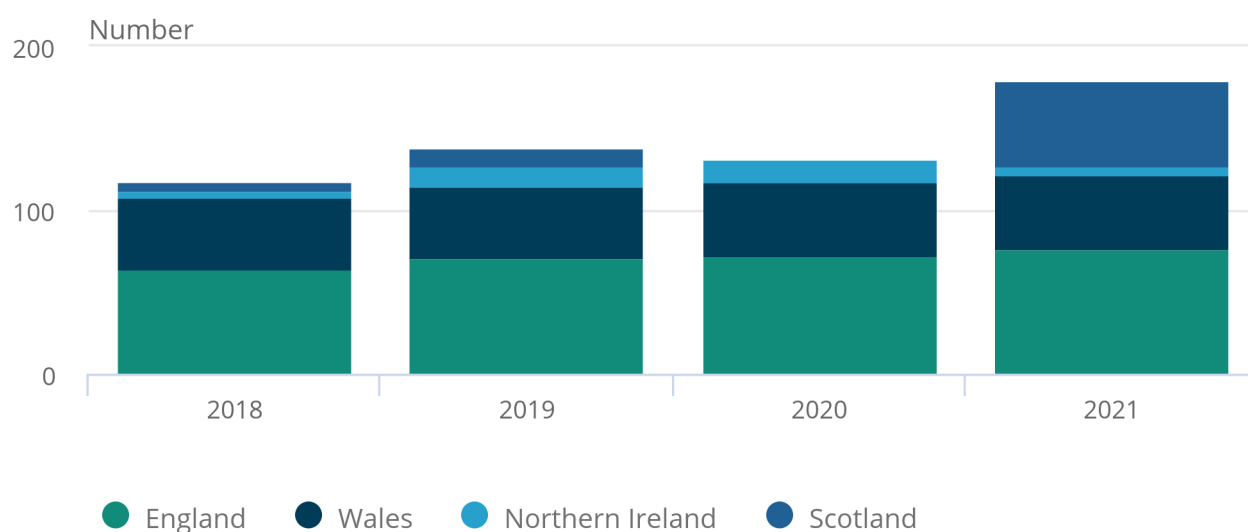
The [Blue Flag certification \(PDF, 416KB\)](#) (Figure 23) has 33 individual targets including water quality, including bathing water quality for resort beaches with facilities. Water samples must be taken no longer than 31 days apart throughout the Blue Flag season.

Figure 23: The number of Blue Flags awarded in the UK has increased by 53% from 2018

Number of Blue Flag awards by country, 2018 to 2021

Figure 23: The number of Blue Flags awarded in the UK has increased by 53% from 2018

Number of Blue Flag awards by country, 2018 to 2021



Source: Blue Flag

Notes:

1. Data for Scotland are not available for 2020.

Protected sites

In Scotland, the number of designated protected marine sites classed as favourable has risen from 76 in 2018 to 102 in 2020 (Table 33).

Table 33: Number of protected marine sites in Scotland by condition, 2007, 2010, 2015, 2018 and 2020

Marine	Condition	2007	2010	2015	2018	2020
Inshore sublittoral rock (marine)	Favourable	16	18	21	21	21
	Recovering	0	0	0	0	0
	Unfavourable	1	1	1	1	1
Inshore sublittoral sediment (marine)	Favourable	28	29	31	31	30
	Recovering	0	0	0	0	0
	Unfavourable	0	0	0	0	0
Littoral rock (marine)	Favourable	9	11	12	11	11
	Recovering	0	0	0	0	0
	Unfavourable	0	0	0	0	0
Littoral sediment (marine)	Favourable	23	25	37	38	40
	Recovering	0	0	0	0	0
	Unfavourable	0	0	1	1	1

Source: NatureScot

11 . Urban

Compositional species indicators

The urban smoothed bat index has gradually increased from 2003, and by 2020 was 28% higher than the base year of 1999. The number of moths found in urban areas has been largely stable between 1990 and 2019, while the urban unsmoothed bird index has also remained fairly consistent between 1994 and 2019.

Figure 24: The smoothed bat index rose by 28% for Great Britain urban areas between 1999 and 2020

Bat, bird and moth species indicators for Urban, Great Britain or UK

Notes:

1. Provisional data for 2019 and 2020 index.
2. Species in index: common pipistrelle, soprano pipistrelle, and noctule.
3. The Rothamsted Insect Survey, a National Capability, is funded by the Biotechnology and Biological Sciences Research Council under the Core Capability Grant BBS/E/C/000J0200.

Download the data

[.xlsx](#)

Ancillary urban indicators

Wildfires

In England, there were 11,199 wildfire incidents in built-up areas and gardens in 2016 to 2017, the latest period with available figures. This was lower than the previous year (2015 to 2016), which saw 13,115 incidents.

Previously, the number of urban wildfire incidents was higher between 2009 and 2012, with the highest number of incidents in 2011 to 2012 (23,750 incidents).

Urban green spaces

Outdoor [green and blue space in urban areas](#), such as parks, gardens, rivers and lakes are important for well-being. Of the approximately 1.77 million hectares of urban area in Great Britain, 0.55 million hectares are classified as natural land cover, 31%. In 2020, [one in eight households \(12%\) has no access to a private or shared garden](#).

Table 34: Extent of urban green spaces, hectares, Great Britain, 2017

	England	Scotland	Wales	Great Britain
Extent (hectares)				
Urban area	1,502,000	176,000	91,000	1,768,000
Natural land cover	456,700	64,700	27,600	549,000
Blue space	17,900	2,500	1,000	21,400
Functional green space	107,600	12,700	4,500	124,800
Publicly accessible green space	73,600	7,710	3,300	84,610
Proportion of urban area (percentage)				
Natural land cover	30	37	30	31
Blue space	1	1	1	1
Functional green space	7	7	5	7
Publicly accessible green space	5	4	4	5
Number of sites				
Functional green space	53,085	5,500	3,700	62,300
Publicly accessible green space	35,900	3,300	2,400	41,600

Source: Ordnance Survey

Notes

1. These figures may not sum because of rounding.

Green Flag awards

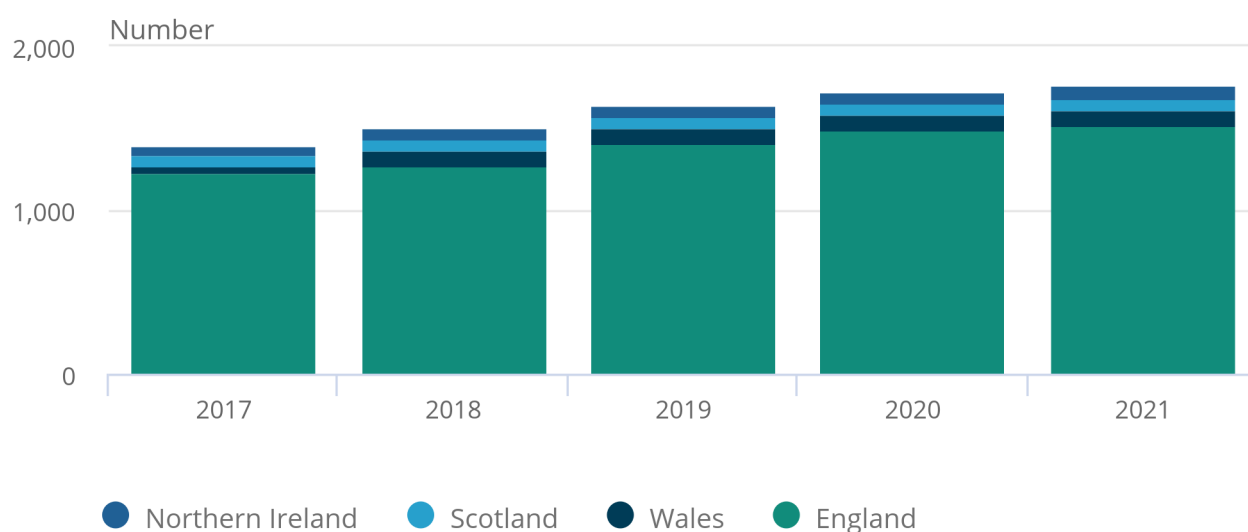
The [Green Flag Award \(PDF, 3.0MB\)](#) is a scheme that recognises and rewards well-managed parks and green spaces, a standard for the management of UK recreational outdoor spaces. The number of Green Flag awards has increased 26%, from 1,404 in 2017 to 1,765 in 2021.

Figure 25: The number of Green Flag awards in the UK has increased by 26% since 2017

Number of Green Flag awards by country, 2017 to 2021

Figure 25: The number of Green Flag awards in the UK has increased by 26% since 2017

Number of Green Flag awards by country, 2017 to 2021



Source: Keep Britain Tidy

Protected sites

The area of designated protected urban sites classed as favourable in England decreased from 39 hectares in 2018 to 23 hectares in 2022. Those sites classed as recovering stayed the same at 1.7 hectares in 2018 and 2022, while those classed as unfavourable also increased, from 3.3 hectares to 19.8 hectares, in the same period. Those sites classed as destroyed stayed the same over the period, at 15.2 hectares.

12 . System of Environmental Economic Accounting (SEEA) condition summary

We have used the new United Nations System of Environmental-Economic Accounting (SEEA) template for creating extent and condition metrics, to organise the biophysical data for natural capital accounting. This has highlighted data gaps (Table 35 and Figure 4).

This includes data that appear for at least one year between 2010 and 2020. The compositional state is relatively well-covered, with indicators for most of the eight broad habitats, including for bats, bees, birds, moths and butterflies. However, there are significant data gaps for physical state, chemical state, structural state (other than woodlands), functional state and landscape-level characteristics.

Using the SEEA format to organise these data helps to create an index of condition over time. We were unable to calculate the SEEA Ecosystem Condition Index (ECI) for all habitats because of data gaps. The supplementary tables accompanying this bulletin include the full index, with available data for each part of the natural capital accounts.

This provides a starting point to gather new datasets to enable future natural capital accounting to report changes of values over time for ecosystem condition.

Table 35: Summary of the number of condition indicators, UK: 2010 to 2020

	Physical state	Chemical state	Compositional state	Structural state	Functional state	Landscape level characteristics	Total
Enclosed Farmland	0	0	5	0	0	1	6
Woodland	0	0	8	6	0	0	14
Semi-natural grassland	0	0	3	0	0	0	3
Mountain, moorland, and heath	0	2	3	0	0	0	5
Freshwater, wetlands, and floodplain	2	0	5	1	0	0	8
Coastal margins	0	0	3	0	0	0	3
Marine	1	0	2	1	0	0	4
Urban	0	0	3	0	0	0	3
Total	3	2	32	8	0	1	

Source: Office for National Statistics

13 . Habitat extent and condition, natural capital data

[Habitat extent, natural capital, UK – supplementary tables](#)

Dataset| Released 3 May 2022

The extent of the eight broad habitats needed to present habitat-based natural capital accounts.

[Habitat condition, natural capital, UK – supplementary information](#)

Dataset| Released 3 May 2022

Suitable condition indicators for an understanding of the relationship between the ecosystem condition and the ecosystem services they deliver.

[Habitat SEEA condition, natural capital, UK – supplementary information](#)

Dataset| Released 3 May 2022

Creation of extent and condition metrics, to organise the biophysical data for natural capital accounting, using the new United Nations System of Environmental-Economic Accounting (SEEA) template.

14 . Glossary

Ecosystem services

Ecosystem services are the flows of benefits that people gain from natural ecosystems. This includes provisioning services such as food and water; regulating services such as flood protection and pollution removal; and cultural services such as recreation and heritage.

Natural capital

Natural capital is a way of measuring and valuing the benefits that the natural world provides society. These benefits from natural resources include food, cleaning the air of pollution, sequestering carbon, and cleaning fresh water.

15 . Measuring the data

In this release, the condition accounts for eight broad habitats are presented in two sections:

- the size of the area covered by semi-natural (extent account)
- indicators of the quality of the semi-natural ecosystem and ability to continue supplying services (condition account)

The data underpinning the eight broad habitats come from a range of sources with different timeliness and coverage. This release is based on the most recent data as at March 2022.

Data sources include:

- Bat Conservation Trust
- Blue Flag
- British Trust for Ornithology (BTO)
- Bumblebee Conservation Trust
- Butterfly Conservation (BC)
- Countryside Survey
- Department for Environment, Food and Rural Affairs (Defra)
- Department of Agriculture, Environment and Rural Affairs (DAERA)
- Environment Agency
- Food and Environment Research Agency (FERA)
- Forest Research
- Forestry Commission Scotland
- Forestry England
- International Council for the Exploration of the Sea
- Joint Nature Conservation Committee (JNCC)
- Keep Britain Tidy
- Marine Conservation Society
- National Biodiversity Network
- Natural England
- NatureScot
- Natural Resources Wales
- Ordnance Survey
- Rothamsted Insect Survey
- Royal Society for the Protection of Birds
- Scottish Environment Protection Agency
- UK Centre for Ecology and Hydrology
- Welsh Government

The Office for National Statistics's (ONS's) natural capital accounts are produced in partnership with the Department for Environment, Food and Rural Affairs (Defra).

16 . Strengths and limitations

Data quality

The UK Natural Capital Accounts are [Experimental Statistics](#). Currently, there is no single data source for the UK for the individual condition indicators. These are calculated from data from the four UK countries and often have different timeliness.

Condition indicators provide a diverse range of data on the health of an ecosystem and not all have been included in this publication, either because of unavailability of data or the need for new methods of evaluation. We intend to continue to develop our ability to report on all condition indicators as recommended by the [United Nations System of Environmental-Economic Accounting \(SEEA\)](#).

17 . Related links

[Habitat extent and condition methodology, natural capital, UK: 2022](#)

Methodology | Published 3 May 2022

Methodology for estimating the extent and condition of UK habitats. Uses the broad habitat classifications as defined by the UK National Ecosystem Assessment and Land Cover Maps produced by the UK Centre for Ecology and Hydrology.

[UK natural capital accounts: 2021](#)

Bulletin | Published 12 November 2021

Estimates of the financial and societal value of natural resources to people in the UK.

[Semi-natural habitat natural capital accounts, UK: 2021](#)

Bulletin | Published 10 February 2021

Exploring the size, condition, quantity and value of semi-natural habitats and ecosystem services, as part of the UK Natural Capital accounts. These are our most natural spaces, although they have been altered by human activity.

[Woodland natural capital accounts: ecosystem services for England, Scotland, Wales and Northern Ireland, 2020](#)

Bulletin | Published 11 May 2021

Additional information splitting down UK data in the Woodland natural capital accounts, UK: 2020 publication for England, Scotland, Wales and Northern Ireland. Extra data on summary ecosystem services and asset value.