Natural capital account

2023/24

Contents

Foreword from the Chief Executive

It is with great pride that I present Forestry England's tenth annual Natural Capital Account—a milestone that reflects not only a decade of progress but also the growing value of the nation's forests to society, nature, and the climate.

This year, the natural capital value of England's forests rose to £88.3 billion, continuing the long-term trend of increasing value since our baseline year. This sustained growth highlights the maturing nature of the accounts and the enduring benefits of our stewardship. In the twelve months from April 2023 to March 2024, the forests we care for delivered £1.9 billion in public benefits, including nearly £794 million in recreation-related health improvements and £577 million in physical health benefits. Our contribution to climate regulation* also grew significantly, with carbon sequestration valued at £473 million—an increase of over 11% from the previous year.

Behind these figures lies a year of meaningful action. We planted 278 hectares of new woodland and grew 6.7 million trees in our nurseries. These efforts are helping to shape more resilient landscapes and support our ambitious goals for biodiversity and carbon capture.

Our forests welcomed 285 million visits this year, a testament to their enduring importance for public wellbeing. With 99.9% of the population living within an hour's drive of one our sites, we continue to ensure that nature is accessible to all. Volunteers gave over 200,000 hours of their time, and nearly 44,000 households are now members of their local forest—evidence of deepening connection between people and places we care for.

We also continued to protect and restore vital habitats, including 23,000 hectares each of priority woodland and open habitat, and 11,000 hectares of wetlands. Our biodiversity work now includes 20 active species reintroduction projects, and over 96% of our Sites of Special Scientific Interest are in favourable or recovering condition.

This account, prepared to the British Standards Institute's Natural Capital Accounting standard and independently audited, also includes a correction to previous years' figures, which had understated the value of physical health benefits. With this adjustment, we now have a clearer and more accurate picture of the true value of our forests.

Despite challenges—from wildfires and pests to economic pressures—our forests remain resilient. With continued investment in woodland creation, biodiversity, and inclusive access, I am confident that the natural capital value of England's forests will continue to grow for generations to come.

Mike Seddon,
Chief Executive

** Climate regulation in this context refers to natural capital accounting metrics used by Forestry England that include avoided costs through reduced carbon sequestration greenhouse gas absorption as defined SEEA Ecosystem Accounting framework.*

Our natural capital accounts on a page

Report highlights

£88.3 billion
Total Natural Capital Value of the nations' forests

Physical flows

285 million
visits

1 million tonnes
of minerals produced

78 million
cubic metres of water stored

1.9 million
cubic metres of sustainable timber yield

146.7 million active visits
to the nation's forest

1.3 million kilograms
of particulate matter removed from the atmosphere

1.7 million tonnes
of CO_2 captured

6.7 million plants
produced

Monetary flows

Delivered total benefits to society worth
£1.9b

Provided benefits to society worth
£473m
in removing CO_2 from the atmosphere

£42m
in prevented flooding

£127,519
in mineral sales

Provided recreational benefits to society worth
£794m

Provided physical health benefits amounting to
£577m
in avoided medical costs

Provided air quality regulation benefits to society worth
£50m
through removal of particulate matter from the air

Asset register

Overall standing timber volume is
37 million m³

Coniferous standing timber volume
27 million m³

Broadleaf standing timber volume
10 million m³

16,969 ha
of grassland

46 million tonnes
of CO_2 (carbon dioxide equivalent) now stored within our living biomass

256,643 ha
of land managed

18,206 ha
woodland in urban areas

42,179 ha
area native woodland

Asset register

The asset register provides a comprehensive inventory of the natural capital assets managed within the nation's forests, detailing their extent, condition, and spatial distribution. It also includes relevant information on other forms of capital that interact with or influence the delivery of natural capital benefits.

This register is a key component of our Natural Capital Accounts and should be considered alongside the balance sheet and flow schedules. It enables us to monitor the sustainability of our asset base, ensuring that increases in the value of ecosystem service flows are not achieved at the expense of long-term asset integrity. The 2023/24 asset register reaffirms our commitment to maintaining and enhancing the condition of our habitats, supporting resilient ecosystems and the continued provision of public benefits.

Value change	Key
Increase (>3%)	↑
Minimal change	↔
Decrease (>3%)	↓

Impact of change	Key
Planned or positive	
Minimal impact	
Unplannned or negative	
No available data	

Indicator			Baseline year (2013/14)	Reporting year (2023/24)	Trend	% change	Units
Ecological communities and species							
Extent	Broad and priority habitat area		Full list of priority habitat areas given in S1.1				
	Broad habitat area	Woodland area	207,876	207,643	↔	-0.1%	ha
		Grassland area	12,748	16,969	↑	33.1%	
		Mountain, moors and heathlands area	28,564	29,679	↑	3.9%	
		Enclosed farmland	724	1,234	↑	70.4%	
		Freshwater	265	328	↑	23.8%	
		Urban area	742	837	↓	12.8%	
		Coastal margins area	17	23	↑	35.3%	
		Total area	250,936	256,712	↔	2.3%	
	Priority habitat within the nation's forests	Broadleaved, mixed and yew woodland	22,757	22,736	↔	-0.1%	
		Lowland dry acid grassland and lowland heath	14,628	14,902	↔	1.9%	
		Other priority grassland	522	876	↑	67.8%	
		Lowland raised bog	782	833	↑	6.5%	
		Blanket bog	6,793	6,872	↔	1.2%	
		Upland heathland	6,881	7,097	↑	3.1%	
		Other	364	546	↑	50.0%	
		Total area	52,727	53,861	↔	2.2%	
	Woodland area	Plantation	164,199	158,313	↓	-3.6%	
		Native	38,890	42,179	↑	8.5%	
		Non-intervention	13,275	14,081	↑	6.1%	
		Wood pasture	735	736	↔	0.1%	
	Total land area holdings	Freehold	198,883	203,285	↔	2.2%	
		Leasehold	53,341	48,418	↓	-9.2%	
		Total area	252,223	251,703	↔	-0.2%	
	Total agricultural land use		3,284	6,875	↑	109.3%	
	Area of land under statutory designations	Sites of Special Scientific Interest	68,192	68,264	↔	0.1%	
		Areas of Natural Beauty	29,832	29,750	↔	-0.3%	
		Number of scheduled ancient monuments	969	998	↔	3.0%	

Indicator			Baseline year (2013/14)	Reporting year (2023/24)	Trend	% change	Units
Ecological communities and species							
Extent		National Parks	85,230	85,200	↔	0.0%	ha
		Total area (designations overlap so not additive)	147,982	147,940	↔	0.0%	
	Area of open habitat[a]		43,060	49,064	↑	13.9%	
	Plantations on Ancient Woodland -area by semi-naturalness score	1 (over 80 % native)	9,066	11,673	↑	28.8%	
		2 (between 50 to 80% native)	3,372	3,902	↑	15.7%	
		3 (between 20 to 50% native)	5,336	5,808	↑	8.8%	
		4 (under 20% native)	25,775	20,470	↓	-20.6%	
		0 (no trees)	981	927	↓	-5.5%	
		Total area	44,531	42,780	↓	-3.9%	
	Ancient semi natural woodland and PAWS -area by semi-naturalness score	1 (over 80 % native)	21,840	23,830	↑	9.1%	
		2 (between 50 to 80% native)	4,077	5,463	↑	34.0%	
		3 (between 20 to 50% native)	5,910	6,622	↑	12.1%	
		4 (under 20% native)	27,272	21,472	↓	-21.3%	
		0 (no trees)	1,698	1,618	↓	-4.7%	
		Total area	60,797	59,007	↔	-2.9%	
Condition	Condition of Sites of Special Scientific Interest	% in favourable condition	35.6	38.27	↑	7.5%	%
		% in unfavourable recovering condition	63.9	58.13	↓	-9.0%	
		% in unfavourable no change or declining condition	0.5	3.57	↓	614.6%	
		% part destroyed or destroyed condition	-	0.0%	↔	0.0%	
	Woodland Ecological Calculator Index	Deadwood volume (native woodland)	6.0%	-	-	-	% ha favour-able
		Vertical structure (native woodland)	42.0%	-	-	-	
		Ground flora (native woodland)	9.0%	-	-	-	
		Veteran trees (native woodland)	0.0%	-	-	-	
		Nativeness of occupancy (native woodland)	89.0%	-	-	-	
		Invasive species (native woodland)	95.0%	-	-	-	
		Tree pests and diseases (native woodland)	89.0%	-	-	-	
		Herbivores/grazing pressure (native woodland)	49.0%	-	-	-	
		Regeneration at component group level (native woodland)	20.0%	-	-	-	
		Number of native tree/shrub species (native woodland)	46.0%	-	-	-	
		Age distribution of tree species (native woodland)	18.0%	-	-	-	
		Proportion of open space (native woodland)	5.0%	-	-	-	
		Proportion of woodland/open habitat (native woodland)	76.0%	-	-	-	
		Size of woodland parcel (native woodland)	97.0%	-	-	-	
		Regeneration at population level (native woodland)	41.0%	-	-	-	
		Overall ecological condition score (native woodland)	18.0%	-	-	-	
		Overall ecological condition score (non-native woodland)	0.5%	-	-	-	

Indicator			Baseline year (2013/14)	Reporting year (2023/24)	Trend	% change	Units
Condition	Trees of interest	Total	6,922	6,922	⟷	0.0%	
		Notable	562	562	⟷	0.0%	
		Ancient	1,271	1,271	⟷	0.0%	
		Veteran	5,089	5,089	⟷	0.0%	
	Wildlife management	Fallow	3,347	4,336	↑	29.5%	-
		Muntjac	2,228	4,313	↑	93.6%	
		Red	544	669	↑	23.0%	
		Roe	4,967	5,446	↑	9.6%	
		Sika	301	355	↑	17.9%	
		Boar	196	803	↑	309.7%	
		Chinese water deer	-	26	↑	n/a	
		Total	11,583	15,948	↑	37.7%	
	Carbon stock in...	...living biomass	11,360	12,723	↑	12.0%	Thousand metric tonnes
		...deadwood and litter	3,336	-	-	-	
		...soils	38,899	-	-	-	
	CO_2e stock in...	...living biomass	41,653	46,651	↑	12.0%	
		...deadwood and litter	12,232	-	-	-	
		...soils	142,630	-	-	-	
	Biomass stock...	...total above and below ground	22,720	25,446	↑	12.0%	Thousand metric tonnes oven-dry weight
		...above ground	17,704	19,840	↑	12.1%	
		...below ground	5,016	5,606	↑	11.8%	
	Standing timber volume (overbark standing)	Coniferous	26,148	27,817	↑	6.4%	Thousand m^3
		Broadleaved	8,147	10,166	↑	24.8%	
Location of the nation's forests by ONS land classification	Rural town and fringe		27,954	27,932	⟷	-0.1%	ha
	Rural village and dispersed		206,223	206,709	⟷	0.2%	
	Urban city and town		16,517	16,209	⟷	-1.9%	
	Urban conurbation		2,201	1,997	↓	-9.3%	
	Total		252,895	252,847	⟷	0.0%	
Access to the nation's forests							
Percentage of population within 10 km (about 6 miles) of the nation's forest[b]			49.1	48.4	⟷	-1.4%	%
Percentage of people in 'Priority Places' close to accessible woodland in the nation's forest[c]			9	7.5	↓	-16.7%	
Percentage of England's population within 15min, 30min and 60min drive time to accessible sites within the nation's forests		15 minutes	40.3	47.0	↑	16.6%	
		30 minutes	85.8	88.2	⟷	2.8%	
		60 minutes	99.9	100	⟷	0.1%	

Indicator		Baseline year (2013/14)	Reporting year (2023/24)	Trend	% change	Units
Soil						
Area of woodland on deep peat soils	Yield class > 6	16,405	15,807	↓	-3.6%	ha
	Yield class ≤ 6	3,118	2,702	↓	-13.3%	
Area of woodland on shallow peat soils and peaty pockets	Yield class > 6	45,737	44,775	⟷	-2.1%	
	Yield class ≤ 6	7,164	7,055	⟷	-1.5%	
Air						
Area of woodland in areas of differing air quality	Urban	15,433	15,369	⟷	-0.4%	ha
	Peri-urban	25,152	25,253	⟷	0.4%	
	Rural	160,141	157,966	⟷	-1.4%	
	Total	200,727	198,588	⟷	-1.1%	
Other forms of capital						
Area of land by accessibility status	CRoW Access	150,430	150,208	⟷	-0.1%	ha
	Other accessibility based on deeds	86,228	86,180	⟷	-0.1%	
Km of published recreational routes across the estate	Walking	1,095	1,297	↑	18.4%	km
	Cycling	1,303	1,272	⟷	-2.5%	
	Other (e.g equestrian, rally)	497	932	↑	87.5%	
	Total	2,895	3,501	↑	20.9%	
Trees of notable interest						
Ancient trees	Ancient trees	460	473	⟷	2.8%	-
	Veteran trees	4,043	4,152	⟷	2.7%	
	Total	4,503	4,625	⟷	2.7%	
Active Forests programme						
Total visitors		865,618	1,478,295	↑	70.8%	No. of people
Gender of visitors[d]	Female	479,892	868,449	↑	81.0%	
	Male	383,834	604,293	↑	57.4%	
	Other	1,892	5,553	↑	193.5%	
Activities[e]	Cycling	247,134	390,231	↑	57.9%	
	Running	174,181	478,762	↑	174.9%	
	Walking	207,719	417,264	↑	100.9%	
	Other	236,584	198,761	↓	-16.0%	

Notes:

a. The open habitat area baseline has been updated since the last accounts as the methodology for calculating it has changed since it was first calculated.

b. This metric estimates the proportion of the population living within 10 km (approximately 6 miles) of the nation's forest, using a straight-line (Euclidean) distance approach.

- **Forest Definition:** The nation's forest is derived from Forestry England's database. All forest areas are considered accessible except those explicitly marked as 'No access'. To ensure relevance, only forest parcels larger than 0.5 hectares are included, removing minor fragments and slivers.
- **Buffering Method:** Each qualifying forest area is buffered by 10 km to define the potential access zone.
- **Population Data:** Population points are based on Output Areas (the smallest ONS geography) and are weighted to the population centroid. If a centroid falls within the 10 km buffer, the entire population of that Output Area is considered to have access to the forest. Conversely, populations outside the buffer are considered to lack access.

c. This metric assesses how many people living in 'Priority Places' have access to significant woodland areas within the nation's forest, based on established accessibility standards.

- **Definition of Priority Places:** These are built-up areas with a population of 10,000 or more, where the population points fall within Multiple Deprivation (IMD) deciles 1 to 4, representing the lowest 40% nationally on the IMD.
- **Woodland Access Standard:** For a population to have access to woodland in the nation's forest the population point must meet the following criteria:
  - Be located within 4 km of woodland in the nation's forest.
  - The woodland must have an area of at least 20 hectares.
- **Access Assessment:** If a population point, with an IMD of 1-4, is in a Priority Place and meets the Woodland Access Standard, the entire population of that area is considered to have access. Otherwise, they are classified as lacking access.
- The total population in this instance is the total population of England with an IMD value of 1-4.

d. This baseline is for 2018-19. This figure is an estimate based on total survey responses across all years of programme being averaged across all activities and forest sites.

e. Number of visits for cycling and walking have been adjusted down to account for introduction of counters at many forest sites that likely capture visits not associated with the Active Forests programme. Numbers presented are considered a conservative estimate.

Risk register

Forestry England's approach to risk management is proactive, structured, and embedded across all levels of the organisation. In line with the BSI standard, risks to natural capital assets and the delivery of ecosystem services are identified and included in the accounts. These risks are assessed and managed through a robust governance framework which includes local risk registers, a cross-functional risk management group, and oversight by the Executive Team and Board.

This register draws on insights from our Annual Report and Accounts (ARA) and summarises the principal risks relevant to natural capital and outlines the mitigation measures in place to manage them.

Risk	Mitigation measures
Climate change & extreme weather	Shifts in climate present a substantial challenge to the long-term viability of forestry operations, land management practices, and the overall health of ecosystems and communities. Forestry England is actively embedding climate adaptation strategies into national policies, strategic frameworks, and forest management plans. Leveraging our forestry expertise, we are working collaboratively with partners and the public to raise awareness and drive action on how forestry can contribute to addressing climate change.
Pests & diseases	Forestry England is deploying advanced biodiversity monitoring tools such as eDNA sampling and bioacoustic sensors to detect early signs of ecological stress. These technologies enable rapid identification of species and ecosystem changes, guiding targeted interventions. Traditional surveillance and research partnerships complement these efforts to manage the growing threat of pests and diseases exacerbated by climate change.
Economic pressures	Inflation and economic uncertainty pose risks to income from timber, recreation, and investment delivery. A temporary programme, *Securing the future*, is in place to develop sustainable financial strategies. Budget reviews are conducted monthly across all business units to ensure financial resilience.
Health & safety	Forestry and land management activities carry inherent risks. The *Look Out and Look After (LOLA)* programme has strengthened the organisation's health and safety culture, reducing incidents and improving risk awareness across teams.

Physical flow account

This schedule presents the annual flow of natural capital benefits generated by the nation's forests during the baseline and reporting year. It captures outputs from Forestry England's direct operations, as well as those of our contractors and tenants. Including all sources of production ensures a comprehensive view of how management decisions influence the total value delivered by the public forest estate.

Spatial accounting by natural capital benefit	Indicator	Units	Baseline year	Reporting year
			2013/14	2023/24
Timber provision				
Woodland	Total timber production in the nation's forests	m^3/yr	1,520,129	1,904,842
Climate regulation[a]				
Woodland	Carbon sequestered/(emitted)	tCO_2/yr	1,645,657	1,687,888
Bogs			(11,663)	(11,872)
Grassland			-	-
Heathland			-	-
Woodland on deep peat soils			(88,569)	(83,969)
Woodland	Carbon embodied in environmental goods (timber)[b]	tCO_2/yr	1,030,038	1,332,780
Flood mitigation				
Woodland	Total volume of water stored	m^3/yr	78,334,513	78,334,513
Air quality				
Woodland	Volume of PM2.5 removed	kg	1,289,984	1,289,984
Recreation				
Whole estate	Visits to the nation's forests[c]	visits/yr	BL 2016/17 165,000,000	285,000,000
	Visitors to the nation's forests[c]	visitors/yr	BL 2016/17 21,000,000	28,297,000
	Volunteers	hours/yr	201,337	208,359
Plant and seed supply				
Whole estate	Plants production number	number/yr	14,961,000	6,707,540
	Seed production weight	kg/yr	-	-
Food provision				
Whole estate	Wild game carcass numbers	number/yr	11,586	16,078
	Livestock production from tenant farmers	number/yr	7,309	6,283
	Crop production from tenant farmers	tonnes/yr	381	597
Minerals				
Whole estate	Mineral production volume	tonnes/yr	1,295,850	1,023,741
Physical health				
Whole estate	Active visits to nation's forests	visits/yr	84,975,000	146,775,000

Notes:

a. All GHG emissions are grossed out by expressing them all in terms of the same 'language': Carbon Dioxide Equivalents. Bogs on the PFE, for example, are net emitters of GHGs in the form of methane, nitrous oxide and carbon dioxide, depending on condition. PFE bogs are assumed to be 75% near natural and 25% modified.

b. Carbon embodied in environmental goods does not represent a release of carbon to the atmosphere. It represents carbon locked up in harvested timber, which leaves the estate for commercial uses in the reporting year. It does not include non timber biomass (such as brash and roots), which is left on site after felling. This flow is of a slightly different nature to the other flows in the accounts, as it does not take into account what that subsequent use is, and in order to avoid double counting alongside the carbon sequestered figure, does not contribute to the monetary account or the balance sheet.

c. The total figure for visit numbers quoted for 2016/17 is reduced from that published in last year's CNCA. This is the result of refined methodology which has also been used to calculate the 2017/18 visits total, ensuring consistency of approach across these two reporting cycles.

Monetary flow account

This section outlines the estimated annual monetary value of the ecosystem services provided by the nation's forests during both the baseline and reporting years. These figures represent net values, calculated after subtracting production costs. Maintenance costs, which cannot be directly linked to individual services, are netted off the gross value of assets in the balance sheet.

Spatial accounting by natural capital benefit	Indicator	Units	Baseline year	Reporting year
			2013/14	2023/24
Timber provision				
Woodland	Net asset value for timber produced	£/yr	£19,245,672	£(5,481,463)
Climate regulation				
Woodland	Carbon sequestration value	£/yr	£124,851,971	£473,447,948
Bogs			£(884,813)	£(3,330,098)
Grassland			-	-
Heathland			-	-
Woodland on deep peat soils			£(6,719,539)	£(23,553,125)
Flood mitigation				
Woodland	Flood mitigation value	£/yr	£41,729,728	£41,729,728
Air quality				
Woodland	Air quality regulation	£/ha	£49,997,727	£49,997,727
Recreation				
Whole estate	Net asset value for recreation	£/yr	£457,798,166	£793,824,328
	Value to Forestry England	£/yr	-	£(5,832,213)
	Public Value	£/yr	-	£799,656,542
	Volunteers	£/yr	-	-
Plant and seed supply[b]				
Whole estate	Plant and seed revenues	£/yr	£3,091,288	£658,642
Food provision				
Whole estate	Wild game carcass value[c]	£/yr	£12,677	£(1,013,878)
	Livestock production value	£/yr	-	-
	Crop production value	£/yr	-	-
Minerals				
Whole estate	Mineral sales value	£/yr	£925,504	£127,519
Physical health				
Whole estate	Avoided medical treatment costs	£/yr	£334,299,475	£577,426,365
Total annual value of ecosystem services delivered		**£/yr**	**£1,024,347,856**	**£1,903,833,694**

Notes:

a. The monetary account reports the value to the reporting entity (private value from rents) and to wider society (external value from the direct consumption of benefits only). It does not include the indirect or 'downstream' value to farmers and aggregates/timber contractors from the sale of their produce. This is because these sales are based on decisions outside of the control of Forestry England and exist further along the value chain). Values reported above are the sum of annual private and external value.

b. Our plant and seed sales are counted as a benefit to society as the actual value of plants and seeds is much higher than their sale value when they are sold at cost of production.

c. Although the number of wild carcasses has increased against baseline, the huge decline in wild boar value from £2.50 in October 2017 to £0.75 in November 2017, as well changes in Forestry England venison contracts, has meant the revenues to Forestry England have fallen sharply alongside an increase in the cost of production. Wild game income is a by product of culling for forest management purposes, rather than done primarily for profit.

		Private value[c]					External value[c]					Total value				
	Asset Values Baseline Year	Baseline[d]	Cumulative gains/losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2023/24)	Baseline[d]	Cumulative gains/losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2023/24)	Baseline[d]	Cumulative gains/losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2023/24)
		Present value £m					Present value £m					Present value £m				
Net asset values (gross + production costs)																
Timber	2013/14	475	24	-	(608)	(110)	-	-	-	-	-	475	24	-	(608)	(110)
Food	2013/14	6	(37)	-	-	(31)	-	-	-	-	-	6	(37)	-	-	(31)
Plants and seeds	2013/14	-	-	-	-	-	19	-	-	-	19	19	-	-	-	19
Carbon sequestered	2013/14	-	-	-	-	-	8,648	490	-	10,321	19,459	8,648	490	-	10,321	19,459
Mitigation of floods	**2021/22**	-	-	-	-	-	1,297	-	-	-	1,297	1,297	-	-	-	1,297
Air quality regulation	**2021/22**	-	-	-	-	-	1,345	-	-	-	1,345	1,345	-	-	-	1,345
Recreation and public access[i]	2013/14	(160)	(21)	-	-	(182)	14,384	10,461	-	-	24,846	14,224	10,440	-	-	24,664
Minerals	2013/14	5	-	-	(1)	4	-	-	-	-	-	5	-	-	(1)	4
Physical health	2013/14	-	-	-	-	-	24,832	18,059	-	-	42,891	24,832	18,059	-	-	42,891
Total net asset values		**326**	**(34)**	**-**	**(609)**	**(319)**	**50,525**	**29,010**	**-**	**10,321**	**89,857**	**50,851**	**28,976**	**-**	**9,712**	**89,538**
Natural capital maintenance costs																
Government payment for ecosystem services funding[j]		625	945	-	-	1,570	(625)	(945)	-	-	(1,570)	-	-	-	-	-
Maintenance costs[l]		(428)	(748)	-	-	(1,176)	(59)	(13)	-	-	(72)	(487)	(762)	-	-	(1,249)
Total natural capital maintenance costs		**197**	**197**	**-**	**-**	**394**	**(684)**	**(958)**	**-**	**-**	**(1,642)**	**(487)**	**(762)**	**-**	**-**	**(1,249)**
Total net natural capital assets value		**523**	**163**	**-**	**(609)**	**75**	**49,841**	**28,052**	**-**	**10,321**	**88,215**	**50,364**	**28,214**	**-**	**9,712**	**88,289**

Abbreviated natural capital balance sheet

The natural capital balance sheet (NCBS) presents the estimated total value of ecosystem services provided by the nation's forests, projected into perpetuity, for both the baseline and reporting years. It reflects the benefits we are currently able to quantify and assign a monetary value to.

Some of these benefits—such as timber, minerals, food, and recreation—are also captured in our financial accounts as private values. Others, including carbon sequestration, air quality regulation, flood mitigation, and the health and wellbeing benefits of public access, are non-market services and therefore not reflected in traditional financial reporting. Together, these values provide a broader picture of the long-term contribution of the public forest estate to society and the environment.

Notes:

a. All values in 23/24 prices £m in present value terms, rounded to the nearest £1m.

b. Present values are calculated as discounted flow of annual value in perpetuity. A 3% discount rate is used. Annual values are forecast over 50 years and from year 51 to perpetuity it is assumed that the annual value is constant (i.e. a constant flow assumption).

c. Private value of assets is to Forestry England, external value of assets is to the rest of society.

d. The baseline value represents the value of assets at the baseline date (31 March 2014 where possible, if otherwise the baseline year is noted in the asset register).

e. Cumulative gains/losses show the net change in asset values (compared to the baseline date). The change is normally due to a change in the condition of the assets, either through natural improvement/deterioration or through management intervention.

f. Additions show the increase in asset values associated with the acquisition, realisation or discovery of new assets since the baseline date.

g. Disposals disclose the reduction in asset values associated with the disposal or extraction (for non-renewable resources) of natural assets.

h. Revaluations and adjustments calculate the asset value changes arising from changes in external factors and key assumptions (e.g. market prices).

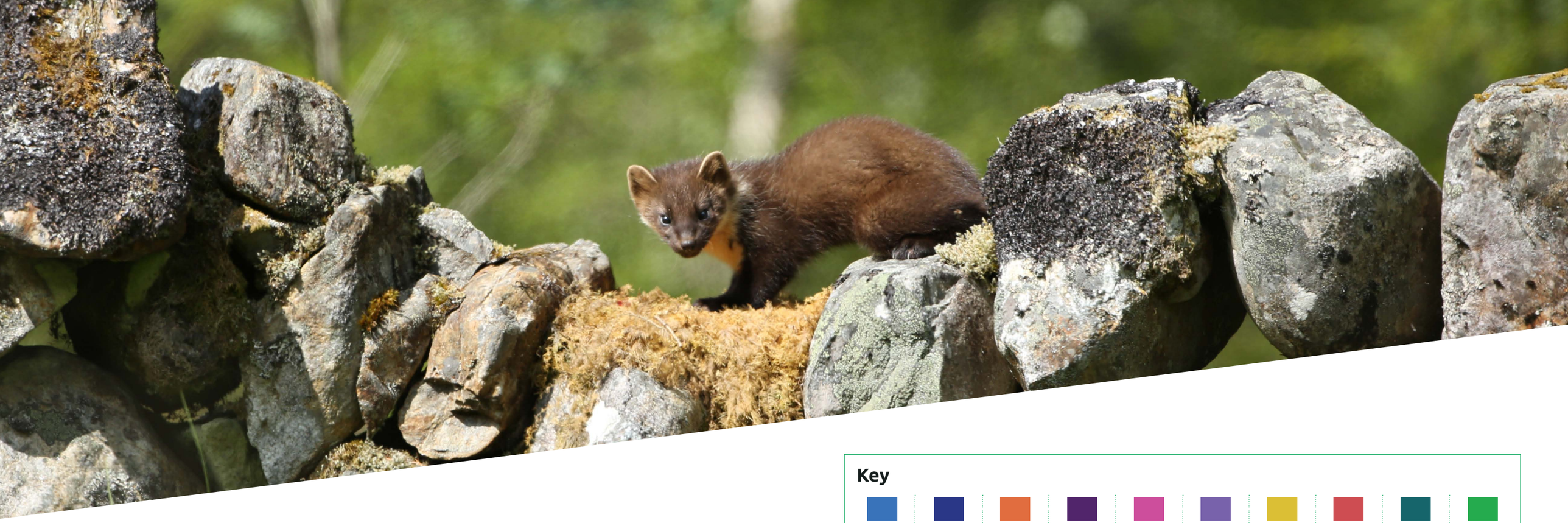
i. Baseline data 2015-16 when Forestry England started regular surveying for visitor numbers. The methodology is still being refined and so there are some amends to the baseline and current year data in line with this. The increase in value is driven by an increase in visitor numbers, e.g. both our survey data of all visitors to the PFE, and the visitor counting we undertake at some of our more popular visitor destinations, has recorded an increase in visits year on year of about 20%.

j. Payment from central government for the provision of Ecosystem Services.

k. Total gross asset values are for the reporting year (2023/24) and are calculated after the deduction of production costs (i.e. value of benefits minus costs of production) as reported in the monetary account. This is shown as a flow of private benefit into Forestry England, but the same value is repeated as a cost to society in the external value flows.

l. Maintenance costs include the cost of all legal obligations and other activities necessary to preserve the long term output of the natural assets at the benefit levels assumed in the asset values section of the balance sheet.

Natural capital values fluctuate annually due to variations in benefit delivery, valuation updates (e.g. inflation or revised methodologies), and the inclusion of additional ecosystem services. Future accounts will continue to evolve.



Natural capital through the years

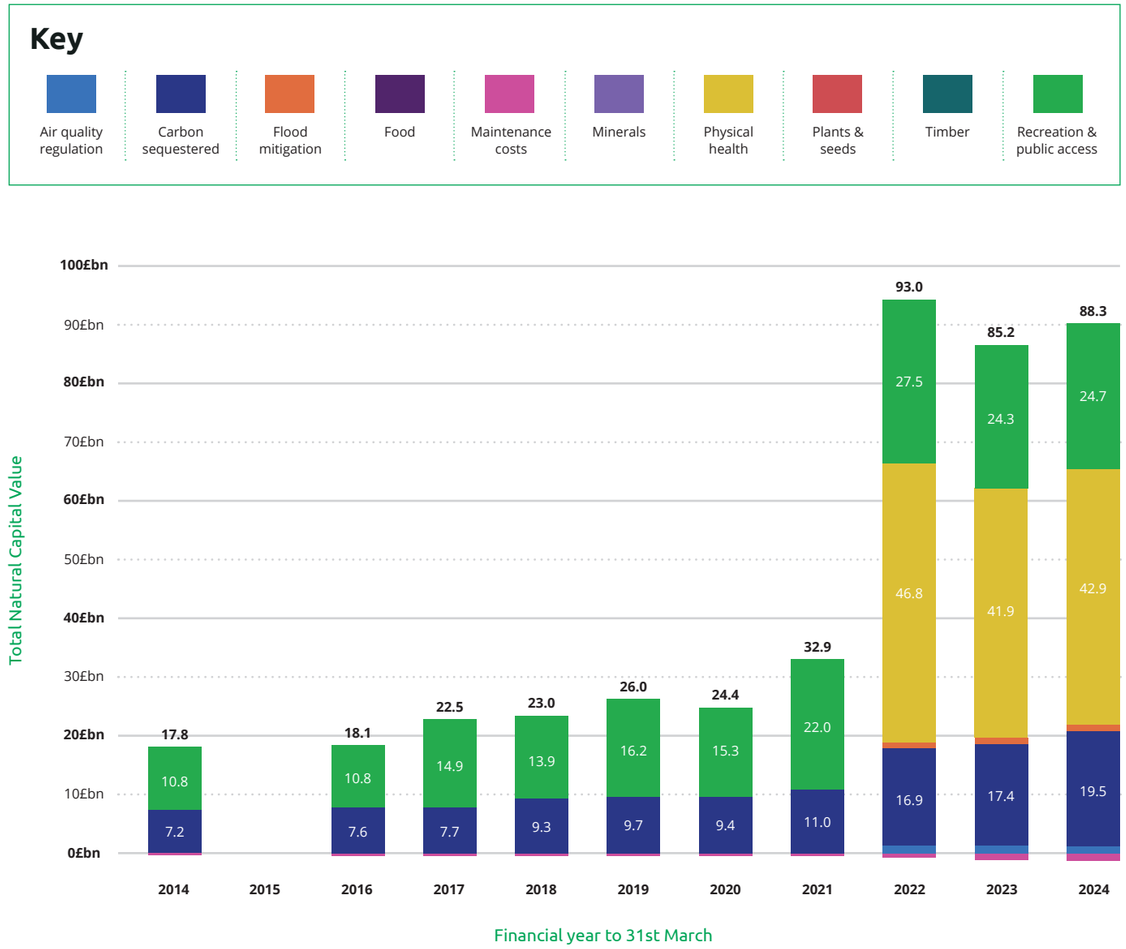
Breakdown by year of ecosystem services delivered, monetary value (£ billions)

Over the past decade, Forestry England's Natural Capital Accounts have become a cornerstone of evidence-based decision-making, enabling us to quantify and communicate the full value of the nation's forests to people, nature, and the economy. These accounts have helped shape our priorities, track our progress, and demonstrate the long-term benefits of sustainable forest management. As we deliver on the ambitions of our strategic plan, Growing the Future, the accounts continue to guide our actions—supporting our response to the climate and nature crises, enhancing public wellbeing, and underpinning our contribution to a thriving green economy. They are a vital tool in ensuring that the forests we steward today will continue to flourish for generations to come.

The value of ecosystem services provided by the nation's forests has evolved significantly over time, reflecting both changes in the benefits delivered and improvements in how we measure and value them. Since our first Natural Capital Account in 2013/14, we have expanded the range of ecosystem services included, leading to a more comprehensive understanding of the forests' contribution to society and the environment.

From a baseline of approximately £17.8 billion in 2013/14, the total estimated natural capital value rose steadily through to 2020, reaching £26.0 billion. A substantial increase occurred in 2021/22, with the total value rising to £93.0 billion. This sharp rise was driven primarily by the inclusion of three newly valued ecosystem services: physical health, air quality regulation, and flood mitigation.

The chart on the right illustrates the net present value of each ecosystem service over time, highlighting how our understanding and accounting of natural capital have matured. It also underscores the growing recognition of the forests' role in supporting public health, climate regulation, and sustainable resource provision.



Natural capital income statement

The Natural Capital Income Statement (NCIS) presents the impact of Forestry England's activities on natural capital assets during the 2023/24 reporting year. It includes direct impacts from our operations (Scope 1) and, where data is available, indirect impacts across our value chain (Scope 2). Although we intend to include scope 2 impacts in future accounts, none have been evaluated this year.

The statement also reflects the balance between production costs and private income.

Where production costs exceed private income in a given year, the private income is shown as a negative value.

This income statement supports transparency in how our operations affect the natural capital we manage and helps inform decisions that promote long-term sustainability.

	2023/24		
	Private value £m/yr	**External value £m/yr**	**Total value £m/yr**
Scope 1			
Enhancements to natural capital			
Timber produced	(5)	-	(5)
Food produced	(1)	-	(1)
Carbon sequestration in all habitats	-	473	473
Air pollution removal by woodland	-	50	50
Recreation provision	(6)	800	794
Physical health benefits	-	577	577
Water storage	-	42	42
Plant and seed Supply	-	1	1
Total enhancements	**(12)**	**1,943**	**1,931**
Deteriorations to natural capital (own operations)			
GHG emissions from all habitats	-	(27)	(27)
GHG emissions from own energy use (whole enterprise)	-	-	-
Total deteriorations	**-**	**(27)**	**(27)**
Net contribution to natural capital (A+B)	**12**	**1,916**	**1,904**

Annex A: natural capital accounting

For the third time, this account has been produced following the brand new British Standards Institute Standard for Natural Capital Accounting, 2021 BS 8632:2021.

This year has followed the same overall process, with Eftec appointed as auditors for this annual account.

Confirm our NCA purpose statement

↓

Stakeholder analysis

- Who needs to be involved?
- Stakeholder needs identified.
- Engagement plan developed.

↓

Scoping exercise

- What does the NCA need to include in terms of balance sheet & income statement for both scopes 1 & 2?

↓

Materiality assessment

- Which benefits are delivered on a scale that is material to people or businesses? To what degree?

Confirm scope decisions

- Decision to include both balance sheet and income statement for scopes 1 & 2 as an aspiration, although due to availability of data, this will take time to implement fully.

↓

Data gathering

- Pulling the relevant quantity data and value data from various internal and external systems.
- Working with partners to identify new benefits for inclusion and valuation.

↓

Quality assurance

- Ensuring the quality of data collected and its correct use in calculations.

See pages 14–27 of BS 8632:2021, 'Natural Capital Accounting for Organizations — Specification' for a detailed breakdown of this process, with each step explained in detail. Page 14 of the Specification in particular lays out each of these individual elements in broad outline.

Annex B: materiality statement

This table is a summary of which ecosystem services should be included in our NCA, based on materiality to Forestry England, and to wider society; the potential impact of that service; and whether we are able to quantify it now or if we need to prioritise including it.

Clause 3.16 of BS 8632:2021 says: “impact or dependency on natural capital is material if consideration of its value, as part of the set of information used for decision making, has the potential to alter that decision”. We have undertaken a materiality assessment to understand which assets actually or potentially provide which benefits, and which ones can or cannot be included in the accounts.

Description	Key
Not included	0
Partially included	1
Included	2
Data unavailable or no method	-
Significant	

		Natural capital assets			
Ecosystem service	**Private & public benefits**	Freshwater	Grassland	Mountain, moorland and heath	Woodland
Provisioning	Food provision	-	2	2	2
Provisioning	Fishing (commercial)	-	-	-	-
Provisioning	Timber	-	-	-	2
Provisioning	Fibre and materials	-	-	0	2
Provisioning	Water supply	-	-	-	-
Provisioning	Renewable energy	0	-	-	0
Provisioning	Minerals	-	-	-	2
Regulating	Carbon sequestration	0	0	1	2
Regulating	Air quality regulation	-	-	-	2
Regulating	Flood risk management	-	-	0	2
Cultural	Recreation	1	1	1	1
Cultural	Education	0	0	0	0
Cultural	Volunteering	1	1	1	1
Bundled	Water quality	0	0	0	0
Bundled	Property value	0	0	0	0
Bundled	Biodiversity	1	1	1	1
Cultural	Mental health	0	0	0	0
Cultural	Physical health	2	2	2	2

Annex C: maintenance cost schedule

This table is a summary of the costs associated with maintaining and improving the quality of the natural capital assets of the nation’s forests. Here we have categorised the costs of natural capital benefits delivery into five main areas to show the proportional difference between groups of costs.

We review our decision making at all levels of our business to ensure costs are effectively focused on investment into maintaining and improving the natural capital assets themselves and their capacity to provide increasing value to society.

	2013/14	2023/24
Forest regeneration and maintenance	£11,160,569.67	£7,851,752.77
Habitat and species management	£3,821,704.34	£11,429,311.96
Infrastructure	£2,841,512.36	£14,140,523.04
Community and learning	£1,772,842.31	£4,439,056.89
Volunteering	£2,011,356.63	£2,455,131.97
Total	£21,607,985.31	£40,315,776.63

Annex D: detailed natural capital balance sheet

This balance sheet broadly shows the same information as the balance sheet above with the additional detail of individual production costs for each ecosystem service valued rather than the net value shown in the abbreviated version above.

	2023/24		
	Private value PV £m	**External value PV £m**	**Total value PV £m**
Asset values (monetised)			
Timber	9	98	998
Food	18	-	18
Plant and seeds	-	19	19
Carbon sequestered	-	19,459	19,459
Food risk mitigated	-	1,297	1,297
Air quality regulated	-	1,345	1,345
Recreation and public access	986	24,846	25,832
Minerals	4	-	4
Physical health	-	42,891	42,891
Total gross asset value	**2,006**	**89,857**	**91,863**
Asset values (non-monetised)			
Other material unquantified benefits	-	-	-
Liabilities			
Production costs			
Timber	(1,108)	-	(1,108)
Food	(49)	-	(49)
Plants & seeds	-	-	-
Carbon sequestered	-	-	-
Mitigation of floods	-	-	-
Air quality regulation	-	-	-
Recreation and public access	(1,168)	-	(1,168)
Minerals	-	-	-
Physical health	-	-	-
Natural capital maintenance costs			
Government payment for ecosystem services funding	1,570	**(1,570)**	-
Maintenance costs	(1,176)	(72)	(1,249)
Total gross liabilities	**(1,931)**	**(1,642)**	**(3,574)**
Net natural capital asset value (monetised)	**75**	**88,215**	**88,289**

	2023/24		
	Private value PV £m	**External value PV £m**	**Total value PV £m**
Net benefits			
Timber	(110)	-	(110)
Food	(31)	-	(31)
Plant & seeds	-	19	19
Carbon sequestered	-	19,459	19,459
Food risk mitigated	-	1,297	1,297
Air quality regulated	-	1,345	1,345
Recreation and public access	(182)	24,846	24,664
Minerals	4	-	4
Physical health	-	42,891	42,891
Net asset value (monetised)	**(319)**	**89,857**	**89,538**
Maintenance liabilities	(1,176)	(72)	(1,249)
Net natural capital asset value (monetised)	**(1,495)**	**89,785**	**88,289**

Audit trail and references

Below is a breakdown of the ecosystem services included within this natural capital account, alongside a brief explanation of where the data and values come from. NCA information, values and quantities are drawn from a wide range of internal and external sources. All of these methods are under review and will be refined/revised as needed in future.

Timber

Our timber data is based on production forecasts developed by Forest Research's Inventory, Forecasting and Operational Support (IFOS) team. Ultimately, the raw inventory data is sourced from the Forestry England Geographic Informations System database, 'ForesterWeb' which is used to estimate timber production (thinning and felling) in m^3 overbark standing, within the reporting period. Monetary values are taken from direct production and standing sales figures that also feed into Forestry England's Annual Report and Accounts.

Food

The quantity of food produced and its monetary value and costs are recorded in our internal Wildlife Management System. These accounts show both the overall quantity of food produced (based on number of carcasses sold) and the net financial income of our wildlife management programme. Carcasses are sold and valued at market price, and so this benefit is subject to potentially quite large variations in per kilo prices of boar and venison.

Plant & seeds

Forestry England's Plant and Seed Supply (PSS) team provide the NCA with an estimate of what quantity and weight of seeds and plants are produced by our nurseries. Monetary values within the NCA are calculated based on revenues from the sale of our seeds and plants, which are then subject to an assumed margin of external value (14.46% for the reporting year) based on PSS analysis.

Carbon sequestered

Like the timber data, our carbon sequestration figures come from Forest Research's National Forest Inventory team. This time they use Forestry England's forest plans to forecast 'net volume increments' (the volume of tree growth in m^3). This is then converted into tonnes of CO_2 in the accounts, based on sequestration models developed by Forest Research. The value per tonne of sequestered CO_2 is updated each year for inflation and forecast into future flows. This value is taken directly from government guidance on the non-trade value of carbon, the Department for Business, Energy & Industrial Strategy's (BEIS) 'Valuation of energy use and greenhouse gas'.

Mitigation of floods

The valuation for flood mitigation draws on the Forest Research report, 'Revised valuation of flood regulation services of existing forest cover to inform natural capital accounts.' (2023). Using the values within this report, we applied the same discount rate as to the other services to estimate the value over 50 years based on 2022 prices.

Air quality regulation

Air quality benefit arises from the ability of different types of vegetation to remove pollutants from the air. This benefit is estimated for the amount of PM2.5 removed by woodland. Jones et al. (2017) modelled this benefit for the UK national accounts reflecting the variety of different levels of PM2.5 concentration, types and extent of vegetation and density of human population across the country. An update to this study has produced estimates of PM2.5 removal per hectare of woodland by local authority. The economic value of this service is estimated through the resulting avoided healthcare cost at local authority level (eftec and CEH, 2019).

Recreation and public access

Forestry England's NCA recreation figures are sourced from quarterly surveys conducted with Kantar (previously Kantar TNS) – a demographically representative sample of the English population fills in a series of questions asking them to estimate how many woodland visits they have made to the nation's forests over the previous three months. This data is then input into statistical models (also developed by Kantar), which give us annual estimates for how many recreational visits we have.

We then apply a per recreational visit value – £2.66 this year – which is updated annually for inflation. The original value is taken from 'The Social and Environmental Benefits of Forests in Great Britain' (2003).

Minerals

Mineral production information is sourced directly from internal Forestry England databases – our Civil Engineering function collate estimates for mineral and aggregate volumes extracted within each calendar year. Monetary values are also collated by the same team, based primarily on rents from mineral and aggregate extraction.

Physical health

In addition to improving the general welfare of visitors, if people are active during their visits, recreation can also have measurable physical health benefits. White et al. (2016) estimate that 51.5% of recreation visits are 'active', where an 'active visit' is defined as those who met recommended daily physical activity guidelines either fully, or partially, during visits.

The benefit is valued as the health benefits of active recreation (in terms of improvements in Quality Adjusted Life years – QALYs) and the economic value of health improvement (in terms of the avoided health cost due to improvement in QALY). Beale et al. (2007) analysed Health Survey for England data, estimating that 30 minutes a week of moderate-intense physical exercise, if undertaken 52 weeks a year, would be associated with 0.0106768 QALYs per individual per year. Beale et al. (2007) assume this relationship between physical activity and QALYs is both cumulative and linear.

Claxton et al. (2015) estimate a cost effectiveness threshold of a QALY to be roughly £12,900/QALY in 2008 prices. This figure is used as a proxy for health costs, reflecting the avoided health costs when QALY is improved by one unit. Based on this information, the avoided health cost is estimated as £3.71 in 2022 prices. The monetary unit value is assumed to remain constant over time.

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Butterfly Conservation

British Trust for Ornithology

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