

Wye Valley Area of Outstanding Natural Beauty (AONB)

State of the AONB Report 2021



To Accompany the
Wye Valley AONB Management Plan 2021-2026

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Introduction

To assess habitat and landscape change, we need to collate and understand the baseline data that already exists. This report is a comprehensive look at current data and statistics where they exist for the Wye Valley Area of Outstanding Natural Beauty (AONB).

The Wye Valley AONB straddles the English Welsh border and 3 counties. There is not always consistency in what, and the how, data is collated and disseminated in the different countries and counties. The result of this is that some data is available only for one country or the other and a full picture across the nationally designated protected landscape is not available. Methodologies vary and in some cases there is also duplication with habitats being mapped and reported in both countries' datasets. The source and scope of data analysed is defined in this report.

This State of the AONB Report is an appendix of the statutory Wye Valley AONB Management Plan (2021-26) and considers the variety of habitats, land use, features and Special Qualities across the AONB. It consolidates the information available to measure and monitor the Special Qualities, including their extent, condition and context within the wider landscape.

Wye Valley Area of Outstanding Natural Beauty (AONB)

The Wye Valley AONB covers 32,735 ha (126 square miles). It is the only cross-border Protected Landscape being 20,864 ha in England and 11,871 ha in Wales. This is 0.16% of the total land mass of England and 0.57% of Wales. The AONB contains 14,996 ha (45.8% of the AONB) in the County of Herefordshire, 11,871 ha (36.3%) in Monmouthshire and 5,868 ha (17.9%) in Gloucestershire. There are 92km (58 miles) of the lower reaches of the River Wye in the AONB.

Priority Habitats analysis

UK BAP priority habitats cover a wide range of semi-natural habitat types, and were those that were identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan (UK BAP).

As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focused at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK list of priority habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats in England, Scotland, Wales and Northern Ireland, as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (England).

There are 28 Priority Habitats identified in England. 10 of these habitats are found in the Wye Valley AONB (*mapped as Priority Habitat but considered non priority habitat).

- Coastal and Floodplain grazing marsh
- Deciduous Woodland
- Good quality semi-improved grassland*
- Lowland Calcareous Grassland
- Lowland Dry Acid Grassland
- Lowland Heathland
- Lowland Meadows
- Mudflats
- Purple Moor Grass and Rush Pasture
- Traditional Orchards

Priority Habitats not found in the Wye Valley AONB (*habitats identified in bold are priority habitats in both England and Wales*) are **Blanket Bog, Calaminarian Grassland, Coastal Saltmarsh, Coastal sand dunes, Coastal vegetated shingle, Fragmented heath*, Grass moorland *, Limestone pavement, Lowland fens, Lowland raised bog, Maritime cliff and slope, Mountain heath and willow scrub, Reedbeds, Saline lagoons, Upland Calcareous Grassland, Upland flushes, fens and swamps, Upland hay meadows, and Upland heathland.**

3,903.07 ha of the English Wye Valley AONB are mapped as Priority Habitats (see table 1 below). Included in this national data set are the habitats Good Quality Semi Improved Grassland, Fragmented Heath and Grass Moorland which are all non-priority habitat (*), and 'no main habitat but additional habitat present' where candidate habitats remain but no main habitat can be identified (**).

The 3,903.07 ha in the English part of the Wye Valley AONB equates to 18.71% of the land area.

The most widespread Priority Habitat is Deciduous Woodland of which there are 2,945.92 ha in the Wye Valley AONB. This equates to 14.12% of the land area. Comparing this to 5.54% of the land area of England being Deciduous Woodland gives a good indication of the importance of the Wye Valley for this particular priority habitat. The Wye Valley AONB (England) contains 0.4% of the English Deciduous Woodland resource in only 0.16% of the land. In 2013 Deciduous Woodland accounted for 39% of total priority habitat resource in England.

Habitat (<i>this table relates to England only, but habitats identified as priority in Wales also are in bold</i>)	England (ha)	WVAONB (ha)	WVAONB % national resource	Resource as % of England	AONB coverage
Coastal and Floodplain grazing marsh	219,918.33	5.03	0.002%	1.654%	0.02%
Deciduous Woodland (<i>NB – specific woodland types priority in Wales</i>)	736,623.40	2945.92	0.400%	5.541%	14.12%
Good quality semi-improved grassland*	74,275.68	174.54	0.235%	0.559%	0.84%
Lowland Calcareous Grassland	62,942.80	3.25	0.005%	0.473%	0.02%
Lowland Dry Acid Grassland	15,560.16	1.49	0.010%	0.117%	0.01%
Lowland Heathland	57,073.04	11.13	0.020%	0.429%	0.05%
Lowland Meadows	22,179.89	122.46	0.552%	0.167%	0.59%
Mudflats	65,035.53	29.95	0.046%	0.489%	0.14%
No main habitat but additional habitat present**	204,370.22	451.48	0.221%	1.537%	2.16%
Purple Moor Grass and Rush Pasture	9,857.94	3.77	0.038%	0.074%	0.02%
Traditional Orchards	16,053.86	154.05	0.960%	0.121%	0.74%
	2,091,163.91	3903.07	0.187%		18.71%

Table 1 – Wye Valley AONB England Priority Habitats (source - Natural England MEOPL data)

Wales Priority Habitat data

The Wye Valley AONB Unit are not supplied with comparable Priority Habitat data for Wales. The Environment (Wales) Act 2016 Section 7 lists the 'habitats of principle importance for the purpose of maintaining and enhancing biodiversity in relation to Wales'. The list is the same as the list previously under section 42 of the NERC Act and is under review. The list of habitats is extensive and similar to the England list, with the following additions, Wood pasture & parkland; Upland Oak Woodland; Lowland beech and yew woodland; upland mixed ash woodland; wet woodland; lowland mixed deciduous woodland (**NB – England Priority habitat is *Deciduous Woodland***); hedgerows; arable field margins; rivers; oligotrophic and dystrophic lakes; ponds; mestrophic lakes; eutrophic standing waters; aquifer-fed natural fluctuating water bodies; inland rock outcrops and scree habitats; open mosaic on previously developed land; intertidal boulder communities; sabellaria alvelata reefs; estuarine rocky habitats; intertidal mudflats (**presumed to be the same as England priority habitat *Mudflats***);

seagrass beds; sheltered muddy gravels; peat and clay exposures; tidal swept channels; fragile sponge and anthozoan communities on subtidal rocky habitats; carbonate reefs; subtidal sands and gravels; subtidal mixed muddy sediments; mud habitats in deep water; musculus discors beds; blue mussel beds; horse mussel beds; maerl beds.

No GIS layer showing Welsh Priority Habitats is available on Lle, but a GIS table has been found showing Orchards in Wales, as well as a Glastir Woodland Creation 'sensitive habitats' layer which identifies the location of some priority habitats. From these data sources the following has been derived.

Orchards

The Natural Resources Wales report Traditional Orchard Habitat Inventory of Wales establishes there are 1,037.3ha of traditional orchard in Wales (including marginal sites), of which 452.4ha are found in Monmouthshire. In the Monmouthshire part of the AONB there are 63.7ha of Orchard. This data establishes that the Wye Valley AONB (Wales only) has 6.1% of the nation's traditional orchards in only 0.57% of the land area.

Sensitive Habitats

Through the sensitive habitat data, we can analyse the priority habitats in the table 2 below. It can be seen that whilst the Wye Valley AONB contains a number of the Wales priority habitats, other than traditional orchards, there are only small pockets of the national resource. It is established elsewhere in this report that the AONB landscape is made up of a high proportion of woodland, particularly in the southern half, but it has not been possible to map the specific deciduous woodland types which are listed in the Welsh Priority Habitats (other than wet woodland listed below). It is however known the Wye Valley AONB contains fine examples of lowland beech and yew woodland, wood pasture and parkland, as well a mosaic of other woodland types containing oak and ash amongst other important species.

habitat	Wales (ha)	WVAONB (ha)	WVAONB % of national resource	Habitat Wales coverage	Habitat AONB coverage
Blanket Bog or Lowland Raised Bog	272.95	1.85	0.678%	0.013%	0.016%
Wet Woodland (scrub component)	487.87	0.19	0.039%	0.024%	0.002%
Wet Woodland	149.78	5.57	3.719%	0.007%	0.047%
Purple Moor Grass and Rush Pastures	29,201.12	13.48	0.046%	1.415%	0.114%
Mosaic of BAP habitats	2,380.83	3.6	0.151%	0.115%	0.03%
May support Lowland Meadows	1,597.41	10.75	0.673%	0.077%	0.091%
Maritime Cliff and Slopes	3,501.58	0.48	0.014%	0.17%	0.004%
Lowland Meadows	1,273.64	24.37	1.913%	0.062%	0.205%
Lowland Heathland	14,741.57	4.42	0.03%	0.714%	0.037%
Lowland Fens and Reedbeds	6,803.06	14.1	0.207%	0.33%	0.119%
Lowland Dry Acid Grassland	33,271.02	4.63	0.014%	1.612%	0.039%
Lowland Calcareous Grassland	1,018.36	1.67	0.164%	0.049%	0.014%
Inland Rock Outcrop and Scree habitats	1,811.51	0.05	0.003%	0.088%	0.000%
TOTAL	96,510.7	85.16	0.088%		0.717%

Table 2 – Wales Sensitive Habitats (Glastir Woodland Creation Sensitivity Layer – Priority Habitats gis layer)

Priority Habitats in SSSIs

Of the 3,903.07 ha of Priority Habitat in the English AONB, 999.11 ha is within designated Sites of Special Scientific Interest (SSSI) and 625.05 ha is on land within a Higher Level Stewardship agreement but outside SSSI. The remaining 2,278.92 ha has no designation or land management agreement, the vast majority of this (1,982.18 ha) is Deciduous Woodland. These statistics indicate that 41.6% of these Priority Habitats have a level of protection and/or existing Environmental Stewardship Agreements over them.

Table 3 below shows Priority Habitats in SSSIs, and in Environmental Stewardship within the English parts of the AONB.

habitat	English Wye Valley AONB total	In SSSI	In Higher Tier / HLS but outside SSSI	Outside SSSI Not in Higher Tier / HLS
Coastal and Floodplain grazing marsh	5.03			5.03
Deciduous Woodland	2945.92	836.29	127.45	1,982.18
Good quality semi-improved grassland	174.54	0.77	153.14	20.63
Lowland Calcareous Grassland	3.25	0.12	2.33	0.80
Lowland Dry Acid Grassland	1.49		1.45	0.04
Lowland Heathland	11.13		10.97	0.16
Lowland Meadows	122.46	6.06	74.22	42.18
Mudflats	29.95	29.44		0.51
No main habitat but additional habitat present	451.48	126.33	225.77	99.38
Purple Moor Grass and Rush Pasture	3.77		3.50	0.27
Traditional Orchards	154.05	0.10	26.22	127.74
TOTAL	3903.07	999.11	625.05	2,278.92

Table 3 – English AONB Priority Habitats and SSSIs (source – Natural England MEOPL data)

Of the 999.11 ha of Priority Habitat in SSSIs, table 4 below indicates that 721.43 ha (72.21%) of this is considered to be in favorable condition. 216.46 ha (21.67%) is in Unfavorable recovering condition. The remaining 61.21 ha (6.13%), almost entirely Deciduous Woodland habitat, is in either Unfavorable no change or Unfavorable declining condition. These statistics indicated that a very high percentage of priority habitat in SSSIs are in good condition. Habitat outside SSSI is not monitored for condition status, but if we take the monitored sites as a representative cross section of all habitats, we could suggest that over 90% of the Priority Habitat in the English Part of the Wye Valley AONB is in good or moving towards good condition. This equates to over 3,500 ha of habitat, or approximately 0.17% of the National Resource.

	Favourable	Unfavourable recovering	Unfavourable no change	Unfavourable declining
Deciduous Woodland	570.85	204.26	42.54	18.65
Good Quality Semi Improved Grassland*	0.26	0.51		
Lowland Calcareous Grassland	0.12			
Lowland Meadows	0.76	5.30		
Mudflats	29.42	0.01		
No main habitat but additional habitat present**	120.00	6.30		0.02
Traditional Orchard	0.01	0.09		
Total	721.43 (72.21%)	216.46 (21.67%)	42.54 (4.26%)	18.67 (1.87%)

Table 4 - SSSI English Priority Habitat condition (source – Natural England MEOPL data)

Wider AONB Network picture

The total land area of AONBs in England is 1,915,135 ha, which equates to 14.4% of the country. AONBs collectively contain 512,533.75 ha of Priority Habitat, which equates to 26.76% of the total resource. Only 15.73% of England is considered to be Priority Habitat. This indicates that, as may be expected, AONBs are strongholds for the nation's highest priority habitats. By way of example, 22.7% of deciduous woodland, 25.77% of Good Quality Semi-Improved Grassland*, 31.01% of Lowland Heathland, 32.12% of Lowland Calcareous Grassland, 39.01% of Blanket Bog, 64.17% of Maritime Cliff and Slope and 65.44% of Upland Heathland is found in AONBs.

The 34 AONBs in England contain a wide variety of important habitats and as each landscape is different, so the important and key habitats as different. The Wye Valley AONB, being a lowland and primarily inland landscape, contains few examples of coastal or upland priority habitats. By analysing priority habitats across the AONB network, we can though identify where the Wye Valley AONB can play an important role in both the conservation and enhancement of particular habitats.

The Wye Valley AONBs 20,864 ha of land equates to 1.09% of the total covered by AONBs in England. The three Priority Habitats where the Wye Valleys percentage of the resource across AONBs is greater than its percentage of total AONB land are Deciduous Woodland (1.76% of the national AONB resource), Traditional Orchards (6.56% of the national AONB resource) and Lowland Meadows (3.06% of the national AONB resource). These habitats are all identified in the AONB Management Plan as Special Qualities. All AONBs play an important role in the conservation and enhancement of valuable habitats. The statistics back up the special nature of the Wye Valley AONBs Deciduous Woodland, Traditional Orchards and Lowland Meadows.

Farming statistics analysis

Natural England MEOPL data provides us with agricultural statistics, from which we can establish recent local farming trends. The statistics in table 5 show that although the number of land holdings decreased in between 2010 and 2013, the total farmed area and amount of both rented and owned land increased. Although the number of land holdings increased again by 2016, the statistics show us that the amount of land managed by those holdings, both rented and owned, decreased. Over the time period 2010 to 2016, the number of holdings in the English part of the Wye Valley AONB has increased slightly from 226 to 232, but the farmed area has decreased by just under 500 ha. The hectares of land rented has overall decreased slightly and the area of land owned increased by just over 400 ha.

	Farmed area		Rented land	Owned land
	Holdings	Area (ha)	Area (ha)	Area (ha)
2010	226	13,777	4,416 (32.1%)	9,145 (66.4%)
2013	220	15,446	5,855 (37.9%)	10,049 (65.1%)
2016	232	13,290	4,399 (33.1%)	9,553 (71.9%)

Table 5 – English AONB land holdings (source – Natural England MEOPL data)

Statistics for land use (table 6 below) show that there has been a significant decrease in the amount of permanent grassland in the English part of the AONB, decreasing from 41% of farmed area to 31.7%. Small increases in temporary grass and rough grazing can be seen, with a more significant rise in the amount of woodland on farmed land of 2.8%, from 3.8% to 6.6%. This equates to 343ha increase from 2010 to 2016. The largest single land use increase can be seen in the crops & bare fallow land, rising by 4.8% over 6 years to over half of all farmed land (50.6%).

	LAND USE (hectares)						
	Crops & bare fallow	Temp grass	Permanent grass	Rough grazing (sole right)	Woodland	All other land	Total (ha)
2010	6,306 (45.8%)	986 (7.2%)	5,651 (41%)	100 (0.7%)	527 (3.8%)	206 (1.5%)	13,776
2013	8,006 (51.8%)	1,134 (7.3%)	5,105 (33.1%)	54 (0.4%)	957 (6.2%)	190 (1.2%)	15,446
2016	6,719 (50.6%)	1,115 (8.4%)	4,217 (31.7%)	163 (1.2%)	870 (6.6%)	205 (1.5%)	13,289

Table 6 – English AONB farmed area land use (source – Natural England MEOPL data)

Data relating to farm size (table 7) over the same period show increases in the numbers of farms of less than 20 hectares in size, and a general decrease in the number of farms over 20 hectares in size. Farms of less than 20 hectares in size were 40.7% of all holdings in 2010; by 2016 47% of holdings were under 20 ha. At the largest end of the scale, 18.1% of holdings were over 100 ha in size in 2010, compared to 13.4% in 2016.

Year	Farm Size in hectares (number of farms)				
	< 5	5 < 20	20 < 50	50 < 100	> = 100
2010	22 (9.7%)	70 (31%)	46 (20.4%)	47 (20.8%)	41 (18.1%)
2013	28 (12.7%)	64 (29.1%)	37 (16.8%)	50 (22.7%)	41 (18.6%)
2016	25 (10.8%)	84 (36.2%)	42 (18.1%)	50 (21.6%)	31 (13.4%)

Table 7 – English AONB farm size (source – Natural England MEOPL data)

Farm labour data (table 8) indicates that numbers of full-time farmers in the English AONB remained static between 2010 and 2016, but there was a slight decrease in part-time farm workers from 197 to 185. The numbers of casual workers increase from 325 in 2010 to 493 in 2013, but then decreased significantly to only 180 in 2016. This demonstrates the seasonal and unpredictable nature of casual work. The numbers of people employed full time and part time by farms follows a similar trend, increasing from 2010 to 2013, before decreasing significantly in 2016. The statistics all show that there are fewer people working in agriculture in the Wye Valley AONB in 2016 than in 2010, which reflects the national trend.

	Labour (number of people)							
	Farmers full time	Farmers part time	Managers full time	Managers part time	Casual workers	Employees Full Time	Employees Part Time	Total labour*
2010	175	197			325	100	56	872
2013	173	195			493	103	66	1060
2016	175	189	16	8	180	84	54	707

Table 8 – English AONB farm labour (source – Natural England MEOPL data)

**it is noted the number of people indicated in columns doesn't add up to the 'total'. These figures are taken directly from the data supplied, the reason for this data anomaly is unknown.*

We are also provided with data related to stock on farms in the English AONB, which are presented and analysed here.

The Wye Valley AONB is a mixed farming landscape with no great tradition in pig farming. The amount of pigs farmed across the English side of the AONB (table 10) rose between 2010 and 2016 from 1,752 animals to 2,503, a significant increase of 751 or a 42% increase from 2010 levels.

Sheep farming is a more common activity across the AONB, however in the same time period the total number of sheep farmed in the English AONB fell (table 9), despite a small increase in 2013, from 27,627 to 23,419. This represents a reduction in sheep numbers of 4,208, or 15.2% fewer than 2010 levels.

	Pigs (number)		Sheep (number)			
	Total pigs		Breeding Ewes	Lambs under 1yr	Other sheep	Total sheep
2010	1,752		13,522	13,213	892	27,627
2013	1,833		14,262	13,011	778	28,051
2016	2,503		11,313	11,484	621	23,419

Table 9 – English AONB pig and sheep farming (source – Natural England MEOPL data)

Cattle numbers in the English AONB (table 10) also decreased between 2010 and 2016 by 1,005 animals in total, or 13.9% of 2010 numbers. Dairy herds in the English AONB dropped about one quarter between 2010 and 2013, but levelled off in 2016. Beef herds have reduced gradually over the same time period, dropping by just over 20% from 2010 levels. Calf numbers show a similar decrease.

	Cattle (number)				
	Dairy herd	Beef herd	Calves <1yr	Other Cattle	Total Cattle
2010	817	1,471	2,454	2,484	7,226
2013	614	1,302	2,064	2,698	6,678
2016	625	1,169	1,994	2,433	6,221

Table 10 – English AONB cattle farming (source – Natural England MEOPL data)

The largest changes can be seen in poultry numbers on the English side of the AONB (table 11). In 2010 there was a total of almost 1.5million poultry in the English side of the Wye Valley AONB, more than any other AONB in England, despite the Wye Valleys relatively small size. The level dropped hugely by over 60% in the three years to 2016, to 576,155 birds. Numbers have continued to fall dramatically and by 2016 there were 173,971 poultry, just 11.7% of 2010 levels. This level of decrease, although from a very high number in 2010, appears to be greater in the Wye Valley AONB than elsewhere in the country; 8 other AONBs had a higher number of poultry in 2016.

	Poultry (number)		
	Total Fowl	Other Poultry	Total Poultry
2010	1,448,311	34,018	1,482,329
2015	532,665	43,490	576,155
2016	160,578	13,393	173,971

Table 11 – English AONB poultry farming (source – Natural England MEOPL data)

A continuation of these trends in animal numbers over the coming years has the potential to have a significant impact on the farmed landscape in the AONB.

Land Management Agreements

MEOPL data provided by Natural England, along with gis data, provides a snap shot of live land management agreements in the Wye Valley AONB (England only). Data for previous years has not been sought, but these figures can be used to analyse trends in future reports.

In January 2021 there are 41 Environmental Stewardship agreements live covering 1,821.93ha, as well as 75 Countryside Stewardship Agreements covering 5,225.25ha. Table 12 and figure 1 below show a breakdown of agreements.

		Environmental Stewardship Agreements			Countryside Stewardship Agreements			
		Higher Level	Entry Level plus Higher Level	Organic Entry Level plus Higher Level	Hedgerows and Boundaries	Higher Tier	Mid Tier	Woodland Management Plan
Hectares		145.29	1,258.28	418.36	77.00	1,003.16	3,673.17	471.91
Agreements	Heref.	4	16	4	1	11	53	10
	Glouc.	2	14	1				

Table 12 – Live (Jan 2021) Environmental Stewardship and Countryside Stewardship Agreements English AONB (source – Natural England MEOPL data and gis table)

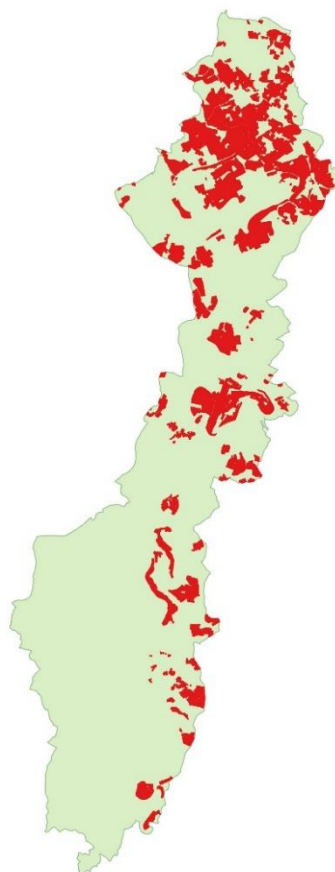


Figure 1 - Live (Jan 2021) Environmental Stewardship and Countryside Stewardship Agreements English AONB (source – Natural England open data gis table)

Veteran Trees

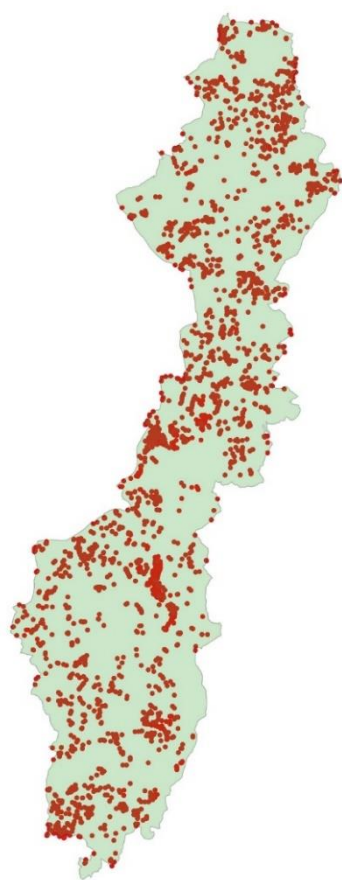


Figure 2 - Recorded Veteran Tree locations (Source – AONB/Woodland Trust/Parkland data gis layers)

The AONB have a number of different data sets for Veteran Trees, which are amalgamated on figure 2 above. AONB surveys carried out by volunteers and ecological survey trainees from 2005 to 2007 recorded 2,273 trees in and directly adjacent to the AONB, the breakdown of species can be seen in table 13 below. Parkland data (date unknown) also records 201 trees in the Herefordshire Part of the AONB (table 15), and Woodland Trust records (table 14) derived from a number of projects and individuals including some (but not all) AONB records, show 2,346 trees across the AONB. All three surveys were undertaken in isolation and have all added to the record of veteran trees. Each survey has picked up new records, but it is certain that some records are duplicated by more than one survey, and difficult to tell which ones without revisiting each record on the ground. For this reason, we can say that at the time of surveying there were at least 2,350 veteran trees in the Wye Valley AONB.

Species	number	%	Recorded variations
oak	1,075	47.3%	common oak (91), English Oak (1), pedunculate oak (287), sessile oak (119), Turkey oak (2)
beech	243	10.7%	common beech (2), copper beech (9)
ash	160	7%	common ash (2)
lime	133	5.9%	common lime (6), large leaved lime (2), broad leaved lime (4), small leaved lime (58)
willow	129	5.7%	Crack Willow (32), Cricket Bat Willow (1), White Willow (3), Goat Willow (6)
redwood	68	3%	coast redwood (1), Wellingtonia (41), giant sequoia (24), sequoia (1)
sweet chestnut	59	2.6%	
sycamore	57	2.5%	

maple	53	2.3%	field maple (51), norway maple (1)
horse chestnut	52	2.3%	
yew	45	2%	english yew (1)
unknown	37	1.6%	
poplar	27	1.2%	Black Poplar (16), hybrid black poplar (1), White poplar (1), lombardy poplar (1)
alder	21	0.9%	
cherry	16	0.7%	wild cherry (9)
hawthorn	16	0.7%	
cedar	14	0.6%	atlas cedar (1), cedar of lebanon (7), western red cedar (3)
birch	13	0.6%	silver birch (11)
london plane	10	0.4%	
hazel	8	0.4%	
apple sp	7	0.3%	crab apple (2), wild crab apple (1)
pine	6	0.3%	corsican pine (2), Monterey Pine (1), Scots pine (1)
elm	5	0.2%	Wych elm (2)
holly	5	0.2%	
hornbeam	3	0.1%	
pear	3	0.1%	wild pear (1)
walnut	3	0.1%	
cypress	1		
elder	1		
Mullberry	1		
Robina	1		
Tulip	1		
	2,273		

Table 13 - Wye Valley AONB Veteran Tree Survey data

Species	number	%	Recorded variations
oak	960	40.9%	pedunculate oak (378), sessile oak (133), holm oak (1), turkey oak (3), hybrid sessile and english oak (5)
beech	333	14.2%	common beech (11), copper or purple beech (17)
lime	251	10.7%	small leaved lime (126), large leaved lime (4), common lime (17), broad leaved lime var. lubra (1)
ash	185	7.9%	Common Ash (3)
willow	96	4.1%	goat willow or sallow (3), crack willow (21), cricket bat willow (1), white willow (4)
yew	65	2.8%	Irish yew (1), common yew (41)
sycamore	57	2.4%	verigated sycamore (1)
redwood	55	2.3%	giant sequoia (54), coast redwood (1)
sweet chestnut	52	2.2%	
horse chestnut	39	1.7%	red horse chestnut (2)
maple	39	1.7%	Norway maple (1), field maple (36)
unknown	33	1.4%	
poplar	20	0.9%	wild black poplar (14), lombardy poplar (1)
whitebeam	19	0.8%	symonds yat whitebeam (1), herefordshire whitebeam (1), evans whitebeam (1), doward whitebeam (1), common whitebeam (4), wild service tree (4)
birch	16	0.7%	silver birch (8), downy birch (5)

cheery	16	0.7%	wild cherry (14)
Hazel	16	0.7%	
alder	15	0.6%	alder buckthorn (1)
cedar	15	0.6%	atlas cedar (1), Cedar of Lebanon (7), western red cedar (3)
london plane	10	0.4%	
pine	9	0.4%	scots pine (2), maritime pine (1), monterey pine (1), corsican pine (3)
hawthorn	8	0.3%	common hawthorn (3)
pear	7	0.3%	common pear (1), wild pear (2)
elm	6	0.3%	wych elm (3)
holly	5	0.2%	
apple	4	0.2%	crab apple (3)
hornbeam	3	0.1%	common hornbeam (1)
walnut	3	0.1%	
false acacia	2	0.1%	
mullberry	2	0.1%	black mulberry (1)
tulip tree	2	0.1%	
cypress	1		
european larch	1		
spruce	1		
	2,346		

Table 14 - Woodland Trust Veteran Tree Survey data (source – Ancient Tree Inventory GB & NI)

species	number	%	Recorded variations
oak	105	52.2%	pedunculate oak (64), evergreen oak (1), sessile oak (22), turkey oak (2)
beech	16	8%	
unknown	12	6%	
elm	8	4%	English elm (4)
horse chestnut	8	4%	
pine	8	4%	scots pine (7)
sweet chestnut	8	4%	
ash	7	3.5%	
cedar of lebanon	6	3%	
willow	6	3%	
london plane	4	2%	
sycamore	4	2%	
pear	2	1%	
conifer	1	0.5%	
downy birch	1	0.5%	
european larch	1	0.5%	
lime	1	0.5%	
spanish chestnut	1	0.5%	
wellingtonia	1	0.5%	
whitebeam	1	0.5%	
	201		

Table 15 – Parkland data in AONB (source – gis table)

All three sets of data paint a similar picture. Oak species make up more than 40% of veteran trees in the AONB. Beech species are second most populous in all surveys. Lime, Ash and Willow species are all found in good numbers, contributing around 20%. These figures help to highlight the importance of Ash to the landscape of the Wye Valley AONB, with at least 185 individual veteran Ash being recorded. The impact of ash-dieback has the potential to be great on this important feature of our landscape and ecology. A variety of species have been suggested as a replacement for Ash, but none can play host to as many species.

Both Small and Large Leaved Lime are on the IUCN red list, on which they are noted as being of least concern but with decreasing populations. The number of recorded veteran lime in the Wye Valley AONB is therefore significant and needs to be safeguarded, along with younger specimens to help safeguard the future of the tree species.

It is interesting to note a number of more unusual species in veteran tree statistics, indicating their presence in the landscape, although not in large quantities, for a substantial length of time. More than 50 sycamore, and nearly 70 redwood species have been recorded.

Woodland Data

The most recent National Forest Inventory figures are from 2018 which establishes there are just over 9,002 ha of woodland across the whole AONB, equating to 27.5%. This is a slight increase from 27.35% in 2010. The data shows the breakdown of woodland types as being 5,594.6 ha broadleaved, 1,994.2 ha conifer, 523.3 ha mixed woodland, 263 ha Young Trees and the remaining 627.3 ha made up of a combination of felled, coppice, bare ground, grassland, ground prep, shrubs, young trees, urban and assumed woodland. This can be seen tabulated in table 17 below and mapped in figures 3 and 4.

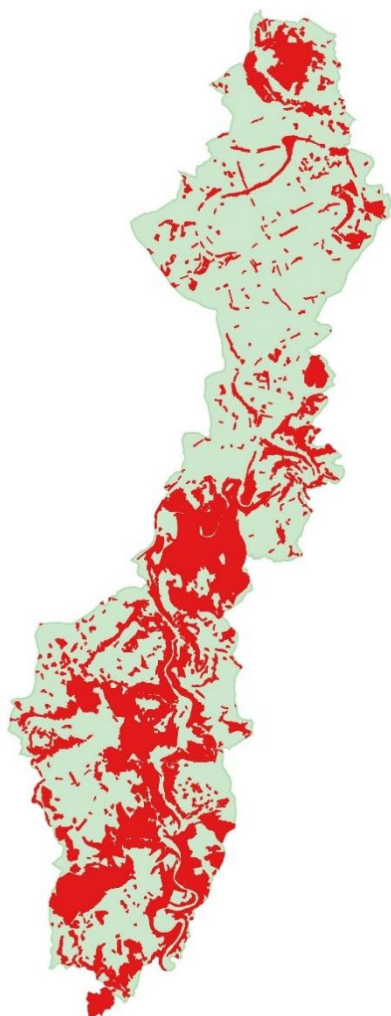


Figure 3 - Wye Valley AONB Woodlands (source - National Forest Inventory 2018)

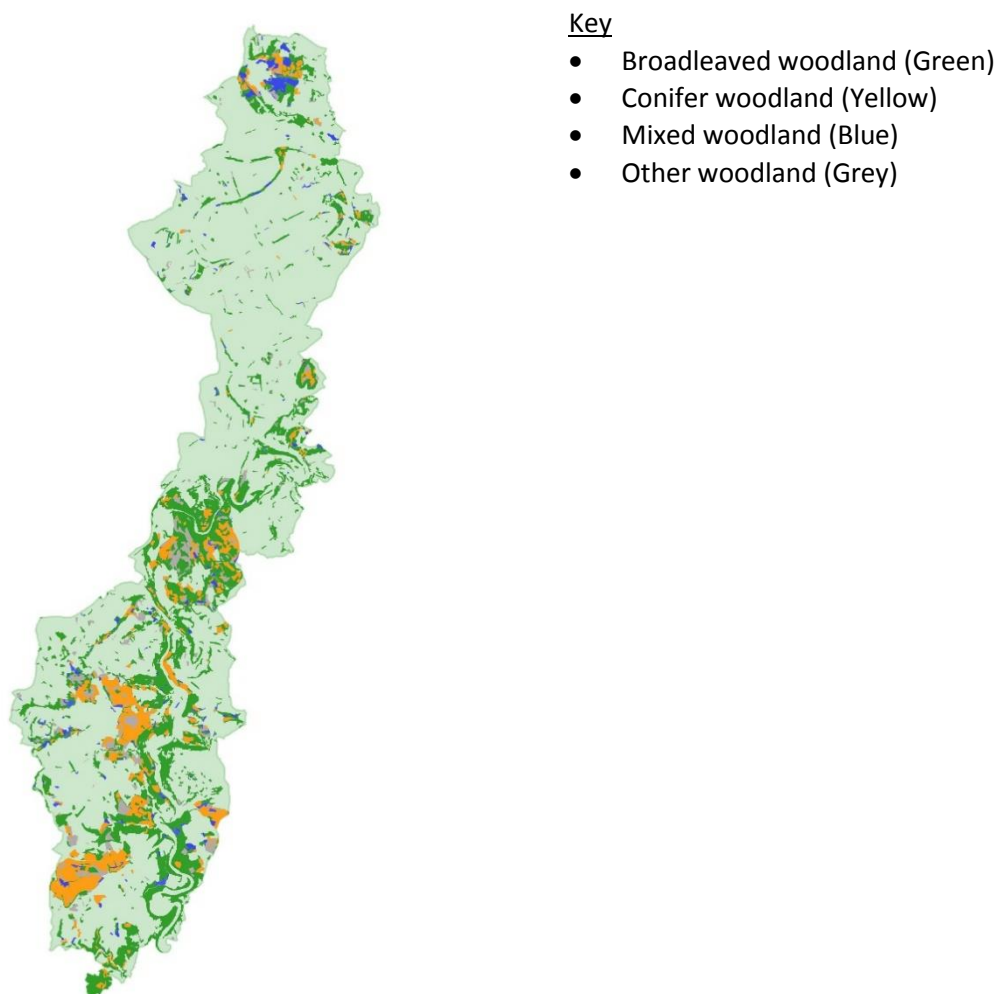


Figure 4 – Woodland in the AONB by type (source – National Forest Inventory 2018)

National Forest Inventory woodland has been recorded in the same way since 2011 and gis files are downloadable. When cut to the AONB boundary these provides us with useful data on both the total amount of woodland in the AONB but also the breakdown of woodland type. National datasets have been cut manually to the AONB boundary, meaning there may be slight variances in the size of woodland blocks which cross the AONB boundary and have needed to be split individually for each year; this may account for any small variances in annual figures. This can be seen in table 16 below (*note: no statistics found for 2016*).

Year	Woodland Type (hectares)					Total
	Broadleaved	Conifer	Mixed	Young Trees	Other*	
2011	5,584.9	2,168.5	521.2	225.1	454.3	8,954.0
2012	5,589.0	2,168.5	522.0	250.7	430.1	8,960.3
2013	5,592.0	2,166.2	526.2	257.7	436.9	8,979.1
2014	5,596.3	2,152.7	532.7	257.7	455.9	8,995.3
2015	5,604.3	2,142.8	525.5	257.7	457.1	8,987.4
2016						0.0
2017	5,608.7	2,117.4	525.4	257.7	494.1	9,003.3
2018	5,594.6	1,994.2	523.3	263.0	627.3	9,002.4

Table 16 - Wye Valley AONB woodland 2011 to 2018 (source - National Forest Inventory)

It can be seen from the data that over the 7 year period the amount of woodland in the AONB has increase by approximately 45ha. There has been a minimal increase in deciduous woodland cover of approximately 10ha. Mixed woodland cover has remained almost unchanged. Changes in woodland composition can be seen when looking at conifer woodland, young trees and 'other' woodland. Coniferous woodland has reduced in amount by over 170ha and been replaced by the small deciduous woodland increase along with the amount of young tree woodland cover rising by nearly 40ha and other woodland categories rising by over 160ha. It can be assumed the change in composition is as a result of coniferous woodland felling and being replaced by new planting, natural regeneration and 'open space' woodland.

Woodland cover in the AONB is high and the increase only slight since 2010, which makes demonstrating it in map form difficult. Figure 5 below shows how the amount of woodland cover has increased from 2011 to 2018.

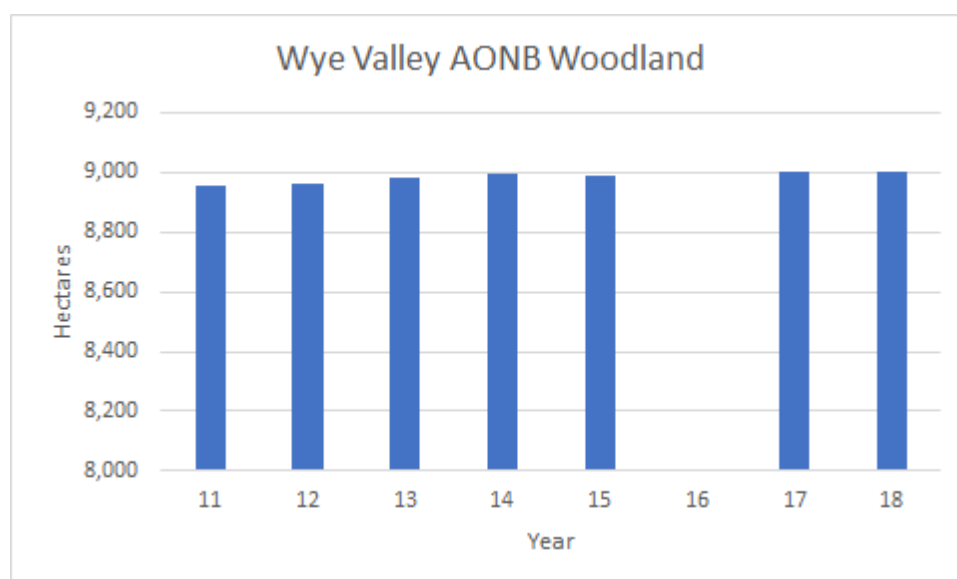


Figure 5 – Wye Valley AONB woodland cover (source - National Forest Inventory)

The following tables (17 to 23) show the breakdown of woodland type across the AONB according the National Forest Inventory maps from 2011 to 2018.

Woodland Type	AONB resource 2011 (ha)	% of total woodland	% of AONB
Broadleaved	5,584.9	62.4%	17.1%
Coniferous	2,168.5	24.2%	6.6%
Mixed	521.2	5.8%	1.6%
Young Trees	225.1	2.5%	0.8%
Other woodland types	454.3	5.1%	1.4%
TOTAL	8,954.0		27.35%

Table 17- Wye Valley AONB woodland 2011 (source - National Forest Inventory 2011)

Woodland Type	AONB resource 2012 (ha)	% of total woodland	% of AONB
Broadleaved	5,589.0	62.4%	17.1%
Coniferous	2,168.5	24.2%	6.6%
Mixed	522.0	5.8%	1.6%
Young Trees	250.7	2.8%	0.8%
Other woodland types	430.1	4.8%	1.3%
TOTAL	8,960.3		27.37%

Table 18 - Wye Valley AONB woodland 2012 (source - National Forest Inventory 2012)

Woodland Type	AONB resource 2013 (ha)	% of total woodland	% of AONB
Broadleaved	5,592.0	62.3%	17.1%
Coniferous	2,166.2	24.1%	6.6%
Mixed	526.2	5.9%	1.6%
Young Trees	257.7	2.9%	0.8%
Other woodland types	436.9	4.9%	1.3%
TOTAL	8,979.1		27.43%

Table 19 - Wye Valley AONB woodland 2013 (source - National Forest Inventory 2013)

Woodland Type	AONB resource 2014 (ha)	% of total woodland	% of AONB
Broadleaved	5,596.3	62.2%	17.1%
Coniferous	2,152.7	23.9%	6.6%
Mixed	532.7	5.9%	1.6%
Young Trees	257.7	2.9%	0.8%
Other woodland types	455.9	5.1%	1.4%
TOTAL	8,995.3		27.5%

Table 20 - Wye Valley AONB woodland 2014 (source - National Forest Inventory 2014)

Woodland Type	AONB resource 2015 (ha)	% of total woodland	% of AONB
Broadleaved	5,604.3	62.4%	17.1%
Coniferous	2,142.8	23.8%	6.5%
Mixed	525.5	5.8%	1.6%
Young Trees	257.7	2.9%	0.8%
Other woodland types	457.1	5.1%	1.4%
TOTAL	8,987.4		27.46%

Table 21 - Wye Valley AONB woodland 2015 (source - National Forest Inventory 2015)

Woodland Type	AONB resource 2017 (ha)	% of total woodland	% of AONB
Broadleaved	5,608.7	62.3%	17.1%
Coniferous	2,117.4	23.5%	6.5%
Mixed	525.4	5.8%	1.6%
Young Trees	257.7	2.9%	0.8%
Other woodland types	494.1	5.5%	1.5%
TOTAL	9,003.3		27.5%

Table 22 - Wye Valley AONB woodland 2017 (source - National Forest Inventory 2017)

Woodland Type	AONB resource 2018 (ha)	% of total woodland	% of AONB
Broadleaved	5,594.6	62.2%	17.1%
Coniferous	1,994.2	22.2%	6.1%
Mixed	523.3	5.8%	1.6%
Young Trees	263	2.9%	0.8%
Other woodland types	627.3	7%	1.9%
TOTAL	9,002.4		27.5%

Table 23 – Wye Valley AONB woodland 2018 (source - National Forest Inventory 2018)

The tables above show a gradual increase in woodland cover across the AONB from 27.35% in 2010 to 27.5% in 2014 and a constant level since. Broadleaved woodland consistently covers 17.1% of the AONB; Conifer woodland cover has fallen gradually from 6.6% of the protected landscape to 6.1% in 2018.

Carbon Offsetting

The Forestry Commissions *Creating New Woodland: Woodland Carbon Code (2017)* publication establishes that “A new native woodland can capture 300-400 tonnes of CO₂ equivalent per hectare by year 50. By year 100, it can capture 400-600 CO₂ equivalent per hectare”. The approximately 10ha increase in broadleaved woodland cover, assuming it will be managed over the next 50 and 100 years, could capture 4,000 tonnes of CO₂ equivalent by 2070 and 6,000 tonnes by 2120. Using a carbon offsetting calculator as a rough guide, this is crudely calculated to be equivalent to 645 single passenger return economy class flights from Cardiff to Sydney by 2070 (at 6.2 t CO₂ per return trip), or 1 trip per month (calculations made using carbon offset calculator at www.myclimate.org). Alternatively, the carbon stored in this additional woodland is equivalent to driving a mid-range petrol car (at 0.343t per 1,000km) over 11.5 million km by 2070.

Assuming the full 45 ha increase in woodland cover is accounted for by native broadleaved planting and natural regeneration, the carbon offset of this increase in woodland cover is calculated to be equivalent to up to 18,000 tonnes of carbon by 2070; a return flight from Cardiff to Sydney every 16 days or more than 52.5 million km in a mid-range petrol car (1,310 times around the world).

Woodland in Active Management

Forestry Commission England record levels of woodland in active management. In March 2020 the Forestry Commission England Managed Woodland Headline Performance Indicator showed that in the Wye Valley AONB there were 3,389ha of woodland in active management and 1,164ha of woodland currently unmanaged. This indicates that 74% of woodland in the English part of the AONB is considered to be in active management. This compares to 59% of woodlands across England being actively managed (source: Forestry Commission Key Performance Indicators report for 2019-20).

Ancient Woodland

Data is available for Ancient Woodland in both Wales and England. The Woodland Trust website describes Ancient Woodlands as areas of woodland that have persisted since 1600 in England and Wales. The definitions used for the habitat type is subtly different on each side of the border, as can be seen in table 24 below. Broadly speaking there are two categories of Ancient Woodland, Ancient Semi-natural Woodland (ASNW), these are woodlands which have developed naturally and have had woodland cover for over 400 years, and Plantation on ancient woodland, which are ancient woodlands that have been felled and replanted with non-native species; these sites often retain ancient woodland soils and woodland species. We can use these figures to establish that within the AONB there are 6,684.72ha of Ancient Woodland covering 20.42% of the protected landscape, of which 2,795.26 ha (8.54% of the AONB) is Ancient Semi Natural woodland.

	Area in hectares				
	Ancient Semi-Natural (ASNW)	Restored Ancient	Plantation on Ancient Woodland Site (PAWS)	Unknown Category	Total
England	1,432.37		1,959.21		3,391.58
Wales	1,362.89	652.29	1,153.89	124.07	3,293.14
Total	2,795.26	652.29	3,113.1	124.07	6,684.72

Table 24 – Wye Valley AONB Ancient Woodland (source – Natural England (2020) & NRW (2011) gis layers)

Natural England and NRW gis tables show that across England and Wales there is 459,708 ha of ancient woodland. The amount of each resource within the Wye Valley AONB is show in table 25 below.

Ancient Woodland type	England			Wales					Eng & Wal total
	ASNW	PAWS	England Total	ASNW	PAWS	Restored Ancient	Unknown category	Wales Total	
National Total	214,667	150,100	364,767	41,787	25,749	21,962	5,444	94,941	459,708

Wye Valley AONB as % of national resource	0.67%	1.31%	0.93%	3.26%	4.48%	2.97%	2.28%	3.47%	1.45%
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Table 25 – Ancient woodland total for England and Wales, and Wye Valley AONB Ancient Woodland as a percentage
(source – Natural England (2020) & NRW (2011) gis layers)

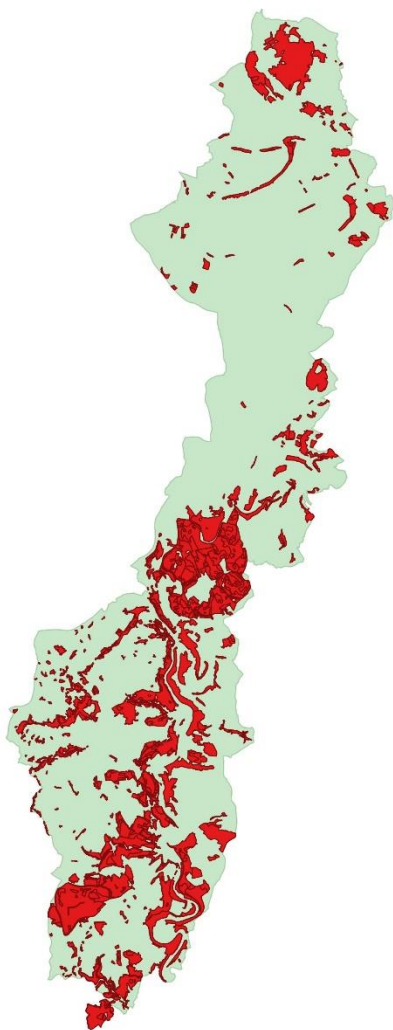


Figure 6 – Ancient Woodland in the Wye Valley AONB (source – Natural England (2020) & NRW (2011) gis layers)

Traditional Orchards

Analysis of the most recent 2020 gis data download for Orchards shows there are 158.9ha of Orchard in the English part of the AONB and 63.7ha of Orchard on the Welsh side of the border. This figure for England differs slightly from the 154.05 given as part of the MEOPL Priority Habitat data in 2017.

Within the Monmouthshire part of the AONB there are 63.7ha of Traditional Orchards. The Natural Resources Wales report Traditional Orchard Habitat Inventory of Wales establishes there are 1,037.3ha of traditional orchard in Wales (including marginal sites), of which 452.4ha are found in Monmouthshire. This data shows

us that the Wye Valley AONB (Wales only) has 6.1% of the nations traditional orchards in only 0.57% of the land area.

The data shows us there are 222.6ha for Orchards across the whole AONB, equivalent to 0.68% of the landscape.

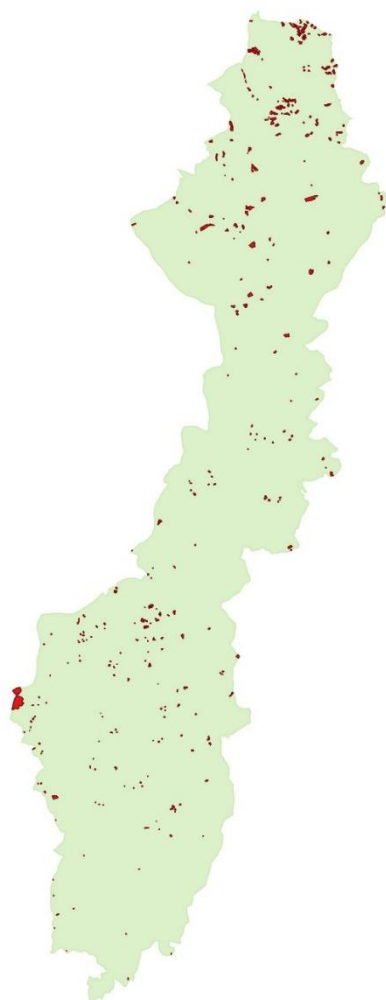


Figure 7 – Orchards Wye Valley AONB (source – Open Source gis downloads)

This orchard data can be added to the Priority Woodland data to give a representation of tree cover across the AONB, as seen in table 26 below.

	Woodland cover 2018	Orchard cover 2020	Total tree cover	% AONB cover
Total (ha)	9,002.4	222.6	9,227	28.19%

Table 26 – Woodland cover in the Wye Valley AONB, including orchards

Designated Sites data

Local Nature Reserves (LNRs)

There are 3 Local Nature Reserves (LNR) in the Wye Valley AONB (see table 27 below), covering a total of 125.2 hectares (0.38% of the AONB). The LNRs can be seen in figure 8 below. Coppet Hill is the Wye Valley AONBs largest LNR at just under 100ha. In England there are 1,367 LNRs of which Coppet Hill is the 71st largest. Coppet Hill LNR covers 0.23% of the English part of the Wye Valley AONB.

Across Wales there is 6,187.3ha of land designated as LNR. Cleddon Bog covers 15ha making it 0.24% of the Wales total of LNRs.

LNR	Size (ha)	% National Resource	% AONB
Coppet Hill	95.9	0.23	0.29
Cleddon Bog	15	0.03	0.05
Broadmoor Common	14.3	0.24	0.04

Table 27 – Wye Valley AONB Local Nature Reserves (source – NRW/NE gis tables)



Figure 8 – Wye Valley AONB Local Nature Reserves (source – NRW/NE gis tables)

Special Areas of Conservation (SACs)

There are 3 Special Areas of Conservation (SAC) in the Wye Valley AONB (see table 28 and figure 9 below), all 3 of which are cross border, covering land in both England and Wales.

SAC Name	Size (ha)	England (ha)	Wales (ha)	% of AONB
Wye Valley Woodlands SAC	918*	529*	389*	2.8%
River Wye SAC	644.53	471.09	173.44	1.97%
Wye Valley and Forest of Dean Bat SAC	0.76	0.004	0.75	0.002%
TOTAL	1,563.29	1,000.09	563.19	4.78%

Table 28 – Wye Valley AONB Special Areas of Conservation (source NRW/NE gis tables)

*There is some discrepancy about the size of the Wye Valley Woodlands SAC; its cross border nature causing some difference in the reported figure. Natural England's European Site conservation Objectives: supplementary advice on conserving and restoring site features for the Wye Valley Woodlands SAC pg 3 states the designation area is 913.32 ha; The Citation Document (English Nature 2005) for the SAC states the area to be 916.24 ha. The Countryside Council for Wales Core Management Plan (2008) in the site description (pg 5) also states it is 916.24 ha, but in the Outline Description on the same page says "the site measures c.914ha". Both the downloadable gis layers for Wales' SACs and Englands SACs map the area around Lady Park Wood (within Wales) and include it within their area figures. Cutting the Welsh SAC from the English layer and calculating the area covered gives a figure of approximately 529 ha in England and 389 ha in Wales, a total of c918 ha. As much of the other data used in this state of the AONB report is gis data, this is the figure quoted in this instance. Of course, the steep gradient of the woodland sites makes measuring area difficult, and it is accepted that any one of the figures quoted could be correct.

Across England and Wales there is a total of 7,436,636ha of SAC making the Wye Valley SACs only a small percentage (0.02%) of the national total. However, the national figure is heavily skewed by large marine SACs such as the Southern North Sea (3,698,885ha) and the Bristol Channel Approaches SAC (585,129ha), meaning it is difficult to draw any conclusions as to the Wye Valley AONBs contribution to the national picture.



Figure 9 – Wye Valley AONB Special Areas of Conservation (source – combined NRW/NE gis tables)

Sites of Special Scientific Interest (SSSIs)

Across the Wye Valley AONB there are 47 Sites of Special Scientific Interest (SSSI), cover a total of 2,295.68 ha, or 7.01% of the Protected Landscape. The largest of these SSSI is the River Wye which cover 663.31 ha, and represents 28.89% of all SSSIs in the AONB.

Information relating to SSSIs in England is readily available and can be analysed. The England Wales border confuses and complicates analysis as there are cross border designations. The River Wye SSSI and Lower Wye Gorge designations are both cross border, some of the Lower Wye Gorge SSSI being included in both the Natural England and Natural Resources Wales GIS dataset. This confusion and complication can be attributed to any variations in figures relating to both the amount of SSSIs in each country and the breakdown of condition.

There are 26 SSSIs in England; their size, habitat type and condition can be seen in table 29 below. The difference in SSSI area in the table below (derived from Natural England gis dataset) and condition data above (source MEOPL data) can be attributed to the cross border SSSIs and different approaches to their analysis.

SSSI name	SSSI area	Habitat	Broad habitat	condition
Sylvan House Barn	0.00	Biological	Built up areas and gardens	Favourable
Wilton Bluff, Ross-on-Wye	0.28	Geological	Earth heritage	Favourable
Scutterdine Quarry	0.98	Geological	Earth heritage	Unfavourable – Declining
Coughton Wood and Marsh	1.13	Biological	Broadleaved, mixed and yew woodland - lowland	Unfavourable – Recovering
Great Doward	1.55	Biological	Calcareous grassland - lowland	Unfavourable - Recovering
Slade Brook	3.65	Geological	Earth heritage	Favourable
Capler Wood	5.97	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Woodshuts Wood	8.74	Biological	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering
Dingle Wood	9.63	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Brooks Head Grove	11.50	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Common Hill	12.91	Biological	Broadleaved, mixed and yew woodlands – lowland Calcareous Grassland - Lowland	3.12 ha Favourable 6.56 ha Unfavourable – Recovering 3.23 ha Unfavourable - Declining
Swanpool Wood and Furnace Grove	14.09	Biological	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Declining
Park Wood	15.19	Biological	Broadleaved, mixed and yew woodland - lowland	Unfavourable – Recovering
Sharpnag Wood	18.97	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Astridge Wood	19.46	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Birch Wood	24.33	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Lea & Pagets Woods	28.82	Biological	Broadleaved, mixed and yew woodland - lowland	1.97 ha Favourable 25.28 ha Unfavourable – Recovering 1.58 ha Unfavourable Declining
Cherry Hill Wood	39.37	Biological	Broadleaved, mixed and yew woodland - lowland	5.76 ha Unfavourable – Recovering 33.61 ha Unfavourable - Declining
Highbury Wood	46.74	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Bigsweir Woods	48.66	Biological	Broadleaved, mixed and yew woodland - lowland	5.81 ha Favourable 42.85 ha Unfavourable – No change
Lower Wye Gorge	66.45	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Shorn Cliff and Caswell Woods	68.65	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
The Hudnalls	98.54	Biological	Broadleaved, mixed and yew woodland - lowland	Favourable
Upper Wye Gorge	252.74	Mixed	Broadleaved, mixed and yew woodland – lowland Earth Heritage	74.33 ha Favourable 178.41 ha Unfavourable - Recovering
Haugh Wood	353.77	Mixed	Broadleaved, mixed and yew woodland – lowland Earth Heritage	Favourable

River Wye	617.15	Biological	Rivers and Streams	114.92 ha Favourable 502.23 ha Unfavourable - Recovering
Total	1640.56			

Table 29 – Wye Valley AONB SSSIs in England and condition status (source - Natural England SSSI gis layer)

Analysis of the table above shows that on the English side of the AONB there are 931.45 ha (56.78%) of SSSIs in Favorable condition, 612.82 (37.35%) in unfavorable recovering, 42.85 ha (2.61%) in unfavorable no change and 53.48 ha (3.26%) in unfavorable declining.

Each SSSI is classified as either Geological or Biological (or mixed if SSSI designation contains both). There are 3 solely Geological SSSIs in the English AONB, covering 4.91 ha (0.3% of SSSI total area), 3.93 ha in favorable condition (80.04%) and 0.98 ha in unfavorable – declining (19.96%).

21 SSSIs are Biological covering a total of 1,029.13 ha (62.73% of SSSI total area), with 463.32 ha in favorable condition (45.02%), 470.8 ha in unfavorable – recovering condition (45.75%), 42.85 ha in unfavorable no change (4.16%) and 53.48 ha in unfavorable – declining condition (5.2%).

2 SSSIs, the Upper Wye Gorge and Haugh Wood SSSIs are classified as mixed habitat, both geological and biological, and cover a total of 606.52 ha (36.97% of SSSI total area). 428.11 ha are in favorable (70.58%) and 178.41 ha in unfavorable – recovering condition (29.42%).

SSSI habitat in the Wye Valley AONB is then split down further into Broadleaved, mixed and yew woodland – lowland, Calcareous Grassland – Lowland, Rivers and Streams, Earth Heritage, and Built up areas and gardens. Table 30 below shows the condition of each of these more specific habitat types. (NB – SSSIs of mixed habitat have been counted as both biological and geological, counting the area twice)

Habitat	Broad Habitat	SSSI area (ha)	Condition							
			Favorable		Unfavorable - recovering		Unfavorable – no change		Unfavorable - declining	
			ha	%	ha	%	ha	%	ha	%
Biological	Built up areas and gardens		0.00	100						
Biological	Calcareous grassland - lowland	14.45	3.12	21.59	8.11	56.12			3.22	22.29
Biological	Rivers and Streams	488.47	81.88	16.76	406.59	83.24				
Biological	Broadleaved, mixed and yew woodlands - lowland	1,145.66	809.25	70.64	241.07	21.04	42.85	3.74	52.20	4.58
Geological	Earth Heritage	611.43	432.04	70.67	178.41	29.18			0.98	0.16

Table 30 – Wye Valley AONB SSSIs in England condition status (Source – Natural England data)

The table above indicates that over 70% of both Broadleaved, mixed and yew woodland, and Earth heritage (100% of Built up areas and gardens, but the land coverage is negligible) sites are in favorable condition. More than 50% of Calcareous grassland – lowland land is unfavorable – recovering, and of greater concern more than 20% are unfavorable – declining. The statistics show that this broad habitat type is in the poorest condition. The large majority (83.24%) of River and stream SSSI sites are in unfavorable – recovering condition, indicating an increase in the overall condition of this habitat type.

In Wales there are 22 Sites of Special Scientific Interest (SSSI) covering 655.12ha, which can be seen listed below in table 31. The condition of Welsh SSSIs is currently unknown.

SSSI name	ha
Barbadoes Hill Meadows	3.48
Blackcliff - Wyndcliff	122.45
Caer Llan Wood	5.53
Cleddon Bog	14.98
Cleddon Shoots Woodland	11.18
Croes Robert Wood	18.61
Fiddlers Elbow	44.75
Gaer Wood, Llangoven	14.39
Graig Wood	14.86
Harper's Grove – Lord's Grove	23.5
Livox Wood	20.22
Llwyn y Celyn Wetland	10.42
Lower Hael Wood	18.45
Maes-yr-Uchaf Wood	2.3
Mwyngloddfa Mynydd-Bach	0.18
Park House Wood	8.72
Penarth Brook Woodlands	4.46
Pentwyn Farm Grasslands, Penallt	7.59
Pierce, Alcove and Piercefield Woods	78.66
River Wye (Lower Wye) / Afron Gwy (Gwy Isaf)	174.84
Upper Wye Gorge	54.97
Wye Valley Lesser Horseshoe Bat Site	0.58
Total	655.12

Table 31 – Wye Valley AONB SSSIs in Wales (Source – NRW SSSI gis table)

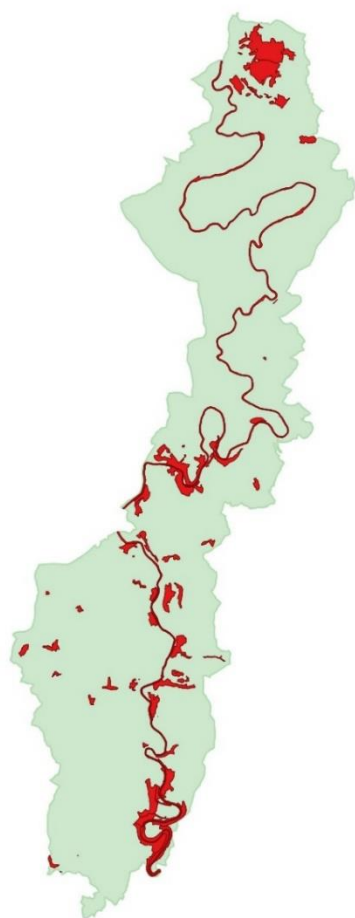


Figure 10 – Wye Valley AONB Sites of Special Scientific Interest (SSSIs) (source – NE/NRW gis tables)

SSSI condition (England)

Analysis of Natural England’s data on the condition of SSSIs in the Wye Valley (England) shows that since 2003 the hectareage of SSSIs in Favorable condition has risen gradually. Despite a small drop in hectareage of SSSI in favourable condition in 2020, the trend over the range of data still shows a gradual increase in condition since 2003 (see figure 11 below).

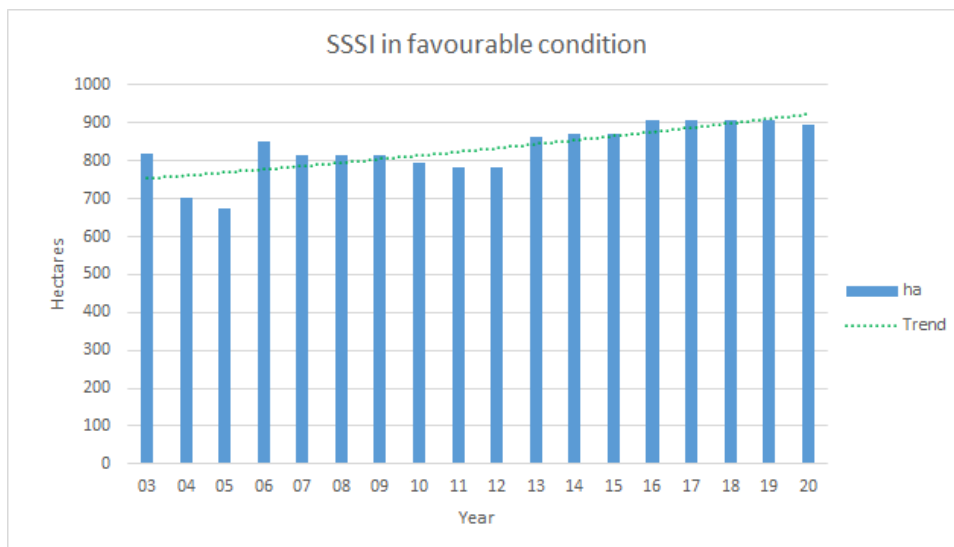


Figure 11 – SSSI condition in the Wye Valley AONB (England), favourable status 2003 to 2020 (source Natural England gis table)

The percentage of SSSI in Unfavourable Recovering condition rose dramatically until 2010 but has since dropped off slightly (see figure 12). This trend has continued in 2020 with another small decrease, however the area of SSSI in unfavourable recovering condition is still more than double that between 2003 and 2010 resulting in the ongoing trend still being upwards.

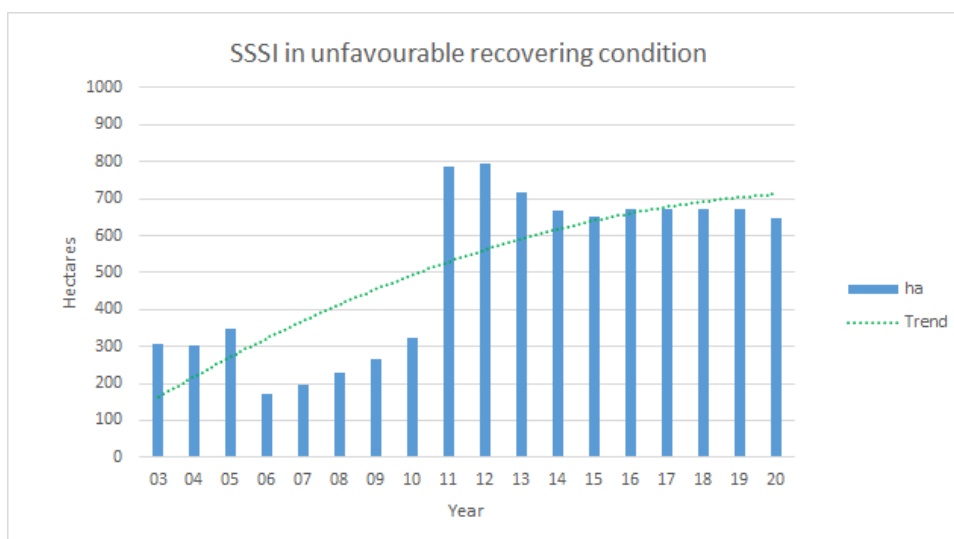


Figure 12 – SSSI condition in the Wye Valley AONB (England), unfavourable recovering status 2003 to 2020 (source Natural England gis table)

This pattern of improvement in SSSI condition since 2003 is also replicated when looking at SSSI in Unfavourable No Change. A gradual reduction in hectares from 2003 to 2010, followed by a sharp drop and a levelling off at very low level (see figure 13).

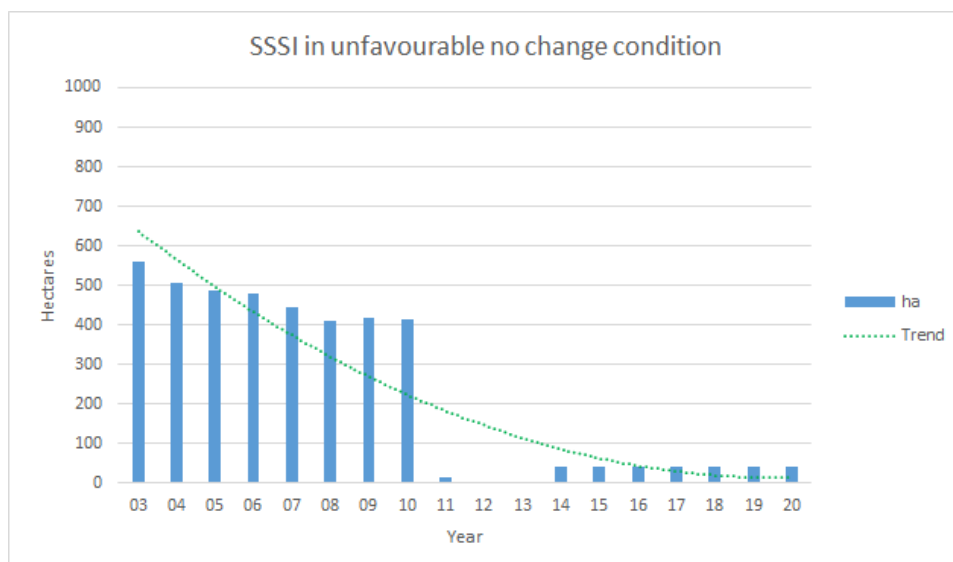


Figure 13 – SSSI condition in the Wye Valley AONB (England), unfavourable no change status 2003 to 2020 (source Natural England gis table)

The percentage of habitat in Unfavourable Declining condition has also shown a decrease over the 15-year period to only 1.16% in 2019, however an increase was recorded in 2020 resulting in a recent upward trend. The amount of SSSI in poor condition is still lower than in any of the 8 years between 2003 and 2010, but has shown a steady increase since. It must be noted though that the low hectarage in comparison to other SSSI condition status' accentuates only small difference in annual figures.

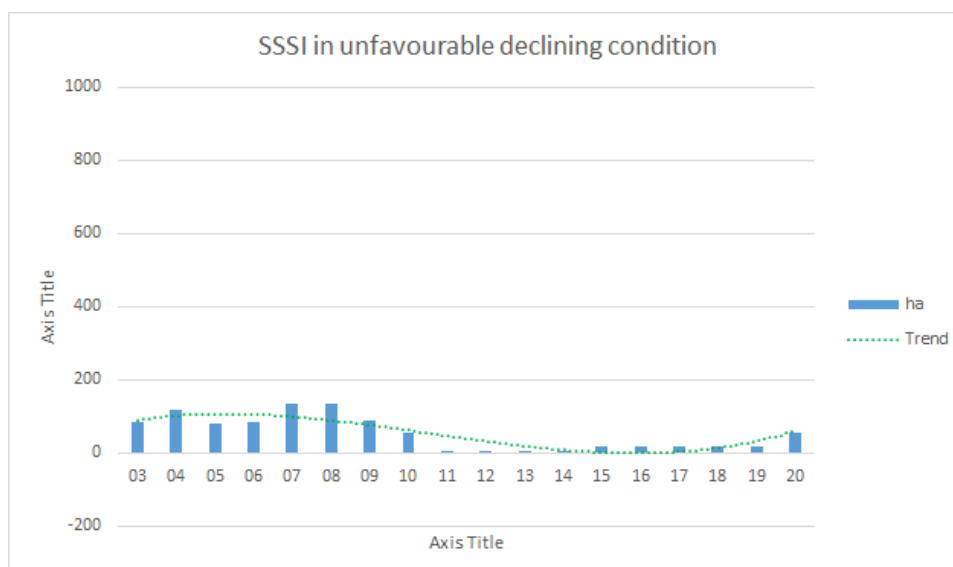


Figure 14 – SSSI condition in the Wye Valley AONB (England), unfavourable declining status 2003 to 2020 (source Natural England gis table)

Table 32 below shows the condition of SSSI habitat in England between 2003 and 2020 in tabular form, indicating the percentage of SSSIs in each condition category.

	Favourable		unfavourable recovering		unfavourable no change		unfavourable declining		Total
	ha	% of SSSIs	ha	% of SSSIs	ha	% of SSSIs	ha	% of SSSIs	ha
2003	818	46.29%	307	17.37%	559	31.64%	83	4.70%	1,767

2004	703	43.13%	304	18.65%	506	31.04%	117	7.18%	1,630
2005	676	42.54%	347	21.84%	486	30.59%	80	5.03%	1,589
2006	853	53.68%	173	10.89%	479	30.14%	84	5.29%	1,589
2007	816	51.35%	196	12.33%	444	27.94%	133	8.37%	1,589
2008	816	51.39%	229	14.42%	411	25.88%	132	8.31%	1,588
2009	814	51.32%	267	16.83%	416	26.23%	89	5.61%	1,586
2010	794	50.06%	324	20.43%	415	26.17%	53	3.34%	1,586
2011	781	49.24%	787	49.62%	13	0.82%	5	0.32%	1,586
2012	781	49.24%	796	50.19%	4	0.25%	5	0.32%	1,586
2013	865	54.54%	716	45.15%		0.00%	5	0.32%	1,586
2014	872	54.98%	666	41.99%	43	2.71%	5	0.32%	1,586
2015	872	54.98%	652	41.11%	43	2.71%	19	1.20%	1,586
2016	907	55.34%	670	40.88%	43	2.62%	19	1.16%	1,639
2017	907	55.34%	670	40.88%	43	2.62%	19	1.16%	1,639
2018	907	55.34%	670	40.88%	43	2.62%	19	1.16%	1,639
2019	907	55.34%	670	40.88%	43	2.62%	19	1.16%	1,639
2020	895	54.61%	648	39.54%	43	2.62%	53	3.23%	1,639

Table 32 – Wye Valley AONB (England) SSSI condition 2003 to 2020

Local Wildlife Sites

Local Wildlife Sites are sites considered to be of ‘substantive nature conservation value’. It is a non-statutory designation for areas identified and selected by local wildlife conservation groups and authorities, for their nature conservation value. They are known by different names locally such as Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites, and play an important role in conserving natural heritage.

There are 685 Local Wildlife Sites in Herefordshire, 53 of which are in the AONB (2009 data); approximately 850 Key Wildlife Sites in Gloucestershire, 35 of which are in the AONB covering 535.19ha (2009 data); 715 Sites of Importance for Nature Conservation in Monmouthshire, of which 245 are in the AONB (2014 data). Local Wildlife Sites cover just over 11% of the AONB, making them a significant resource of important habitat.

It should be noted that there is some cross over between Local Wildlife Sites and SSSIs, with some land being designated as both.

	Number of sites	Total Hectares	% of county within AONB	% of AONB
Gloucestershire	35	535.19	9.12%	1.6%
Monmouthshire	245	1,130.4	9.52%	3.45%
Herefordshire	53	1,976.54	13.18%	6.04%
Total	333	3,642.13		11.13%

Table 33 – Wye Valley AONB Local Wildlife Sites / SINCs / SNCIs (source – Wye Valley AONB gis data)

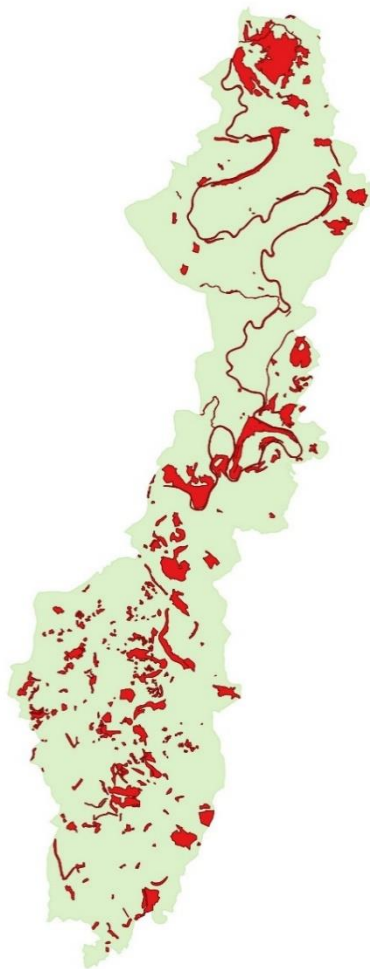


Figure 15 - Location of Local Wildlife Sites in the AONB (source – Wye Valley AONB gis data)

Listed Buildings

There are 765 listed building in the English part of the AONB (2020), and 201 in Wales (2019), 966 in Total. This is an increase of 4 from 2018 data; an additional four Grade 2 listings are recorded in 2020 data.

24 Grade 1 listed buildings represent 2.5% of all listings, 66 grade 2* is 6.8% and the remaining 876 buildings are grade 2, equal to 90.7% of listings.

	Number of listings by Grade		
	1	2*	2
England	20	40	705
Wales	4	26	171

Table 34 – Listing buildings by grade in the Wye Valley AONB (source – Historic England / Cadw gis tables)

Scheduled Ancient Monuments

Across the AONB there are a total of 125 Scheduled Ancient Monuments (SAMs). On the English side of the border there are 81, and 44 in Wales (2018/2019 data). The time period of SAMs in Wales and the location of all SAMs can be seen in table 35 and the location of SAMs is shown in figure 16 below.

Scheduled Ancient Monuments cover 140.87 ha across the AONB, 107.87 ha in England and 33 ha in Wales. The single largest SAM is Little Doward Camp, being 11.52 ha; this is slightly larger than Camp in Chase Wood at 11.29 ha. However, the combined size of the Offa's Dyke SAMs is 41.75 ha.

	Number
Prehistoric	8
Roman	2
Early Medieval	1
Medieval	16
Post Medieval / Modern	17
TOTAL	44

Table 35 - Time period of Scheduled Ancient Monuments in Wales (source – Cadw gis table data)

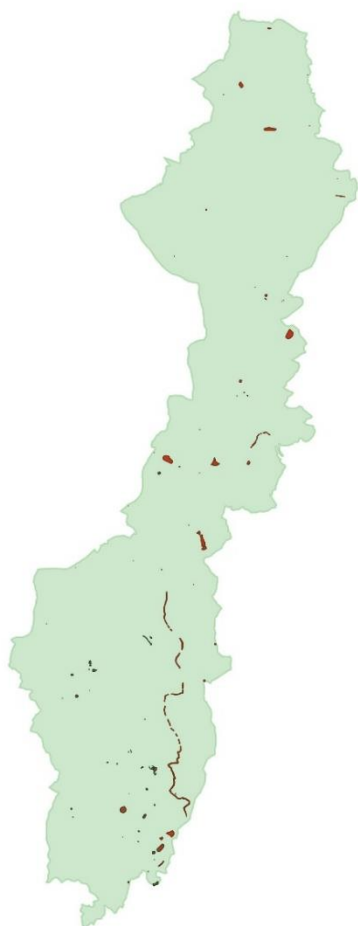


Figure 16 - Schedules Ancient Monuments in the AONB (Source – Historic England / Cadw gis tables)

Offa's Dyke

Of the 125 Scheduled Ancient Monuments in the Wye Valley AONB, Offa's Dyke represents 44 of these. The dyke is scheduled in sections, which when combined cover a total area of 41.75 ha.

The Offa's Dyke Conservation Management Plan (2018) funded by Cadw, Historic England and the Offa's Dyke Association, gives an insight into the scale and condition of the feature, both scheduled and unscheduled, within the Wye Valley AONB.

The total length of the dyke (as currently identified) in the Wye Valley AONB is:

- 13,385m scheduled (14.68% of the total scheduled length of Offa's Dyke, and 92.69% of the total scheduled length in Gloucestershire.)
- 1,955m unscheduled (8.55% of the total unscheduled length of Offa's Dyke, and 92.87% of the total unscheduled dyke in Gloucestershire.)

There are a further 5 sections either within or adjacent to the AONB, where the course of the dyke is either advocated with some justification, or where the alignment has not been determined. This covers an additional 15,190m.

The Offa's Dyke Conservation Management Plan (ODCMP) identifies and catalogues twenty-eight different types of threat for the dyke, falling into four broad categories; agriculture, development, erosion and vegetation. The biggest single threat to the dyke within the AONB is woodland, which is considered to have a high impact on 29 of the scheduled sections, and a lesser impact on a further 5. The impact of woodland is not restricted to root growth, but also includes the impact of burrowing woodland animals. Three of the sections of Offa's Dyke on the Heritage at Risk register (see section below) are due to the impact of burrowing animals. Human erosion through the Offa's Dyke Path running along or passing over the dyke is also considered to be a significant threat, with 21 sections of path considered to be at risk of differing levels. The main agricultural impacts are fencing on the monument and tracks, which impact on 24 and 17 monuments respectively.

The ODCMP report also considers the importance of woodland to the Wye Valley landscape today, though the landscape may have been considerably different at the time the dyke was constructed. Twelve of the scheduled monument sections of the dyke sit within woodland SSSIs and/or the SAC.

One scheduled section on the at risk register is due to extensive human erosion. The Offa's Dyke Path National Trail follows the top of the dyke itself in many parts of the AONB, and the resulting erosion can be of detriment to the ancient monument.

The condition surveys of scheduled sections of the dyke by Historic England (& their predecessor English Heritage) can be seen in table 36 below. We can see from this data that 93.18% of the scheduled sections of dyke are in one of the unfavourable categories, with only 6.82% in favourable condition.

Condition	Number of scheduled monument sections	%
Favourable	3	6.82
Unfavourable Improving	4	9.09
Unfavourable No Change	32	72.73
Unfavourable Declining	5	11.36
Part Destroyed	0	0
Destroyed	0	0

Table 36 – Offa's Dyke Scheduled Ancient Monument sections condition (source – Historic England / English Heritage)

Unscheduled sections of the dyke are also considered to be under threat, with agricultural fencing affecting 6 sections, construction, gardens and woodland impacting negatively on 5 sections each. The condition of the 17 sections of unscheduled dyke are shown in table 37 below. Whilst a higher percentage of unscheduled

sections are in favourable condition, 17.64% of unscheduled sections of the dyke are either destroyed or part destroyed.

Condition	Number of scheduled monument sections	%
Favourable	3	17.65
Unfavourable Improving	0	0
Unfavourable No Change	9	52.94
Unfavourable Declining	2	11.76
Part Destroyed	1	5.88
Destroyed	2	11.76

Table 37 – Offa's Dyke unscheduled sections condition (source – The Offa's Dyke Conservation Management Plan (2018), extrapolated from past condition surveys of adjoining scheduled monument sections)

Conservation Areas

There are 21 conservation areas in the AONB, 9 in Monmouthshire, 6 in Gloucestershire and 6 in Herefordshire. Of these 15 are wholly within the AONB and 6 part outside. 1 other Conservation area (Clearwell) abuts the AONB. Figure 17 below shows their location.

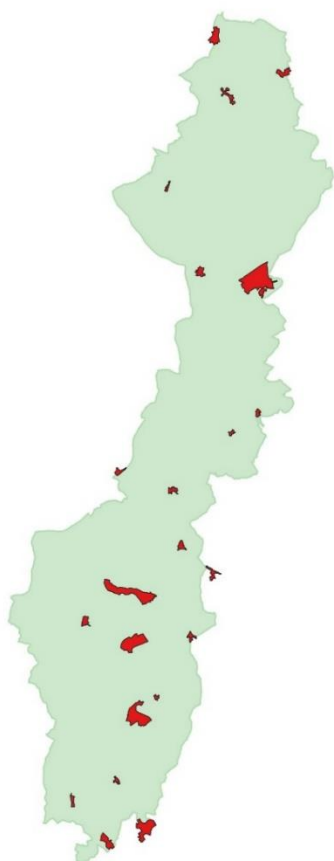


Figure 17 - Conservation Areas in the Wye Valley AONB (source – Local Authority records)

Heritage at Risk

The Heritage at Risk register (England) from 2019 establishes that there are 13 listings in the English part of the AONB which are considered to be 'at risk'. This represents a reduction in at risk listings from 15 identified in 2017. These can be seen in table 38 below. The figure for Wales is unknown.

Six of the at risk features are listed buildings (down from 8 in 2017), representing 0.8% of listed buildings (down from 0.9% in 2017). 6 at risk features are Scheduled Monuments, representing nearly 7.5% of SAMs in the English AONB. One at risk feature is a Conservation Area. The only grade 1 listed building identified at risk in 2017 is no longer on the register. Of the listed buildings at risk four are grade 2* (10% of grade 2* listed buildings in the English AONB, down from 12.5% in 2017), and two are grade 2 (0.3% of grade 2 listed buildings in the English AONB). It is a worrying statistic that a larger percentage of listed buildings at risk are those with a greater significance and protection, but it is encouraging that fewer listings are considered at risk than two years previously.

	Listing type	Grade	
Offa's Dyke: section in Chapelhouse Wood, 240 metres west of the Recreation Ground	Scheduled Monument		Archaeology
Offa's Dyke: section in Lippets Grove, 680 metres WSW of Beeches Farm	Scheduled Monument		Archaeology
Offa's Dyke: section in Passage Grove, 660 metres west of Sheepecot	Scheduled Monument		Archaeology
Moated site 360m north of Joanshill Farm	Scheduled Monument		Archaeology
Offa's Dyke: section in Caswell Wood, 280 metres west of Beeches Farm	Scheduled Monument		Archaeology
Offa's Dyke: section in Worgan's Wood, 800 metres west of Chase Farm	Scheduled Monument		Archaeology
Church of St Andrew and St Mary, How Caple	Listed Building	2*	Place of worship
Church of St Dubricius, Hentland	Listed Building	2*	Place of worship
Church of St Michael, Brampton Abbots	Listed Building	2*	Place of worship
Outbuilding east of Marstow Court (formerly listed as the Granary at Marstow)	Listed Building	2*	Building or structure
Church of St Saviour, Redbrook	Listed Building	2	Place of worship
Church of St Matthew, Marstow	Listed Building	2	Place of worship
Ross-on-Wye	Conservation Area		Conservation area

Table 38 - Heritage at Risk register, English AONB (Source – MEOPL data / Historic England Heritage at Risk Register)

Welsh Historic Landscapes

To recognise the value of historic landscapes, and to raise awareness of their importance, Cadw, in partnership with the Countryside Council for Wales (now Natural Resources Wales) and the International Council on Monuments and Sites (ICOMOS UK) has compiled a non-statutory Register of 58 landscapes of outstanding or special historic interest in Wales. One of these is the Lower Wye Valley. A visual representation of the area recognised as a historic landscape is below in figure 18.

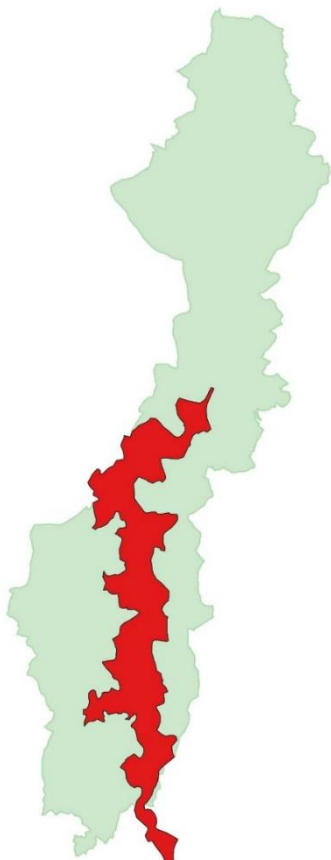


Figure 18 - Map showing the Welsh Historic Landscape of the Lower Wye Valley (source - Lle gis dataset)

Historic Parks and Gardens

There are eleven registered Historic Parks and Gardens across the AONB, two in Herefordshire and nine in Monmouthshire. Piercefield Park is the only Grade 1 listing, one of 36 grade 1 listings in Wales and five in Monmouthshire. There are five graded 2 and 2*. A list of registered parks and gardens is below in table 39, and the locations are represented visually in figure 19.

Name	County	Grade
Piercefield Park	Monmouthshire	1
The Argoed	Monmouthshire	2
Itton Court	Monmouthshire	2
The Kymin	Monmouthshire	2
Chepstow Park	Monmouthshire	2
Sufton Court	Herefordshire	2
High Glanau	Monmouthshire	2*
Mounton House	Monmouthshire	2*
Troy House	Monmouthshire	2*
Wyndcliffe Court	Monmouthshire	2*
Hill Court	Herefordshire	2*

Table 39 – Registered Historic Parks and Gardens in the Wye Valley AONB (sources – Historic England / Cadw gis datasets)

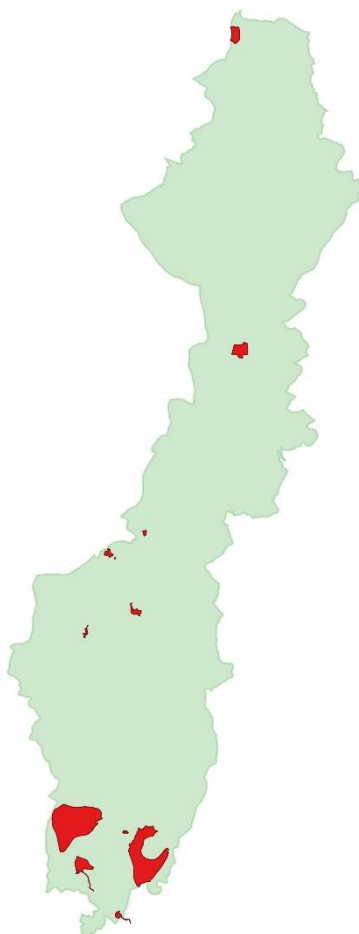


Figure 19 - Registered Historic Parks and Gardens in the Wye Valley AONB (source – Historic England / Cadw gis datasets)

Landownership

The majority of land in the AONB is in private ownership. There is however a significant amount of land publicly owned. The Public Forest Estate, owned by Natural Resources Wales and Forestry England covers 5,002.7 ha of land across the AONB (1,969.87 ha in England and 3,035.39 ha in Wales), equivalent to 15.28% of the Protected Landscape (see figure 20 below).

Other significant landholdings include 278.2 ha of Woodland Trust sites, 11.84 ha of National Trust across their two areas of always open land in the AONB at The Kymin and Poors Acre, along with numerous sites owned and managed by Herefordshire, Gloucestershire and Gwent Wildlife Trusts.

It is estimated more than 17% of the AONB is therefore in the ownership and management of organisations who have a remit for and/or interest in management for the benefit of wildlife, habitat and landscape.

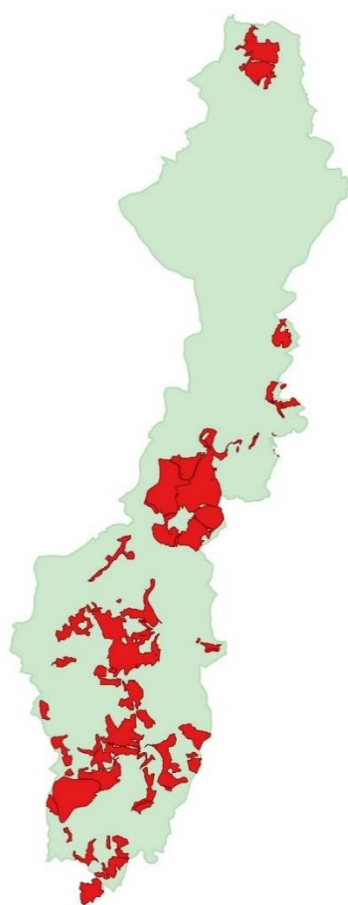


Figure 20 - Public Forest estate in the Wye Valley AONB (source – NRW / Forestry Commission gis datasets)

Small Commons

Registered Common Land covers 455 ha across the AONB, 1.4% of the landscape. 46 ha of this is in Wales and 409 ha England. The largest examples of which are Coppet Hill, Broadmoor Common, Moor Meadow, Staunton Meend, Cleddon Bog, The Hudnalls and woodland near Coed Ithel weir.

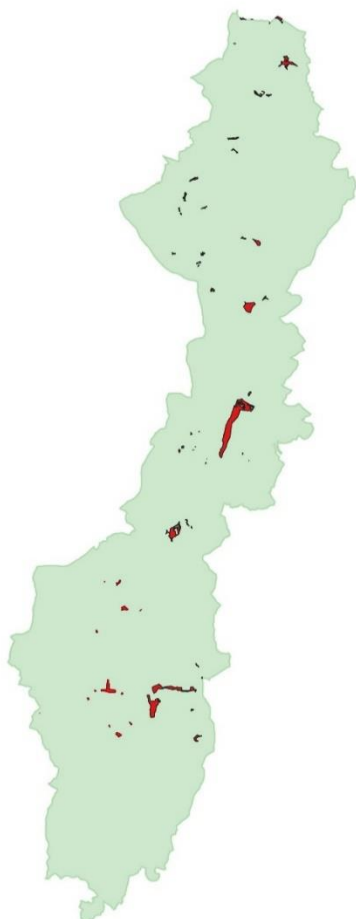


Figure 21 - Registered Common Land in the Wye Valley AONB (source – DEFRA / Lle gis datasets)

Access Land

The Countryside and Rights of Way Act (2000) gave rights of access on foot to land mapped as mountain, moor, heath and down, and all land over 500m in height. Also included is all registered common land and land dedicated by the landowner. In the Wye Valley there is very little land mapped as access land based on the habitat type, but there are significant areas of land either dedicated by the landowner or areas of registered common. The total amount of access land across the whole AONB is 5,641.99 ha, which equates to 17.24% of the protected landscape over which people have a right of access on foot. This is depicted in figure 22 below.

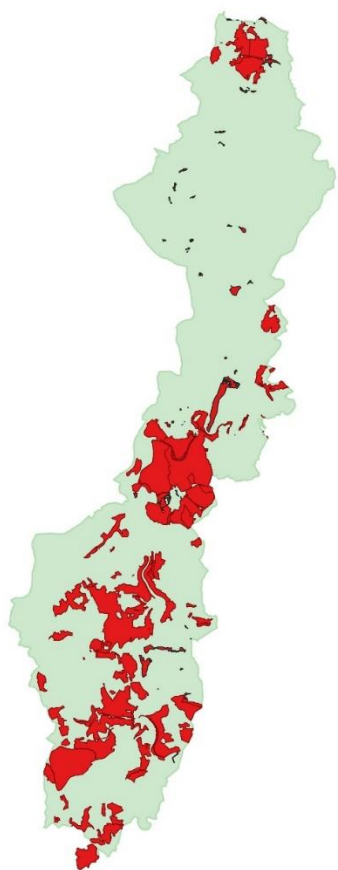


Figure 22- CROW Access Land in the Wye Valley AONB (source – Combined Defra, NRW and FC gis datasets)

Promoted Routes

The two primary promoted walking routes in the AONB are the Wye Valley Walk and Offa's Dyke National Trail. The Wye Valley Walk travels for 74.93km / 46.56 miles within the AONB, Offa's Dyke Path covering 23.4km / 14.54 miles. Both routes are at their most southern ends within the AONB, the Wye Valley Walk starting/ending within the AONB at Chepstow. Offa's Dyke paths starts/finishes at Sedbury cliffs above the River Severn.

The Wye Valley Walk can be seen represented by a blue line in figure 23 below; Offa's Dyke National Trail depicted in red.



Figure 23 - Wye Valley Walk and Offa's Dyke National Trail within the Wye Valley AONB (Source – Wye Valley AONB dataset)

Welsh Language

According to the most recent census data in 2011, in Monmouthshire 8,780 (an increase from 7,688 in 2001) were considered able to speak Welsh and 79,829 not able to speak Welsh. This equates to 9.9% of the population of Monmouthshire being able to speak Welsh; the national average is 19%. There are only five Local Authorities with fewer Welsh speakers, Blaunau Gwent being the lowest at 7.8%. The highest percentage of people able to speak Welsh is Gwynedd at 65.4% (stats.wales.gov.wales).

There are only 3 Welsh Electoral Wards almost entirely within the AONB, Wyesham, Trellech United and St Arvans, making these the easiest with which to consider Welsh language ability within the Wye Valley AONB. Analysis of census data can be seen in table 40 below.

	Welsh Ability Level % of population (2011)					
	Speak, read and write	Speak and read, but cannot write	Speak, but can't read or write	Can understand spoken only	Other combination of skills	No skills
Trellech United	6.9%	0.5%	2.0%	1.9%	1.2%	87.5%
St Arvans	6.1%	0.8%	1.5%	2.0%	1.7%	88%
Wyesham	7.3%	0.5%	1.8%	2.5%	2.2%	85.8%

Table 40 – Welsh language ability in 3 most complete Wye Valley AONB electoral wards (source – 2011 census)

Bearing in mind the comparison above of Monmouthshire in the context of the rest of Wales, analysing Census data for the whole of Monmouthshire County for 2001 and 2011 provides the opportunity to look at changes in Welsh language use at a local level. Table 41 below shows a general increase in the numbers able to speak Welsh across Monmouthshire. All age ranges up to 65 show a percentage increase in Welsh language ability; there is however a drop in the percentage of people able to speak Welsh in Monmouthshire over the age of 65. Looking at the number of people able to speak Welsh, rather than the percentage within each age bracket, 1,092 more people report being able to speak Welsh in 2011 compared to 2001, which equates to an increase of 0.6% of the population. Only the 5-15 age bracket records a decrease in the number (although not the percentage) of Welsh speakers.

	2001	2011	
Age range	% of population able to speak Welsh		Increase / Decrease – number of people
All ages (+3)	9.3%	9.9%	+1,092
Age 3-4	7.3%	18.2%	+204
Age 5-15	40.6%	42%	-164
Age 16-19	11.7%	21.9%	+547
Age 20-44	3.2%	4.7%	+312
Age 45-64	3.2%	3.3%	+155
Age 65-74	3.3%	2.8%	+15
Age 75+	2.9%	2.6%	+23

Table 41 – Welsh speakers in Monmouthshire 2001 and 2011 comparison (source – 2011 census)

The following tables are a more detailed breakdown for Welsh language ability within each age category (source – 2011 census)

	All ages (+3)			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	7,688	74,663	82,351	9.3%
2011	8,780	78,829	88,609	9.9%

Table 42 – Welsh speakers in Monmouthshire all ages

	Age 3-4
--	---------

	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	146	1,854	2000	7.3%
2011	350	1,573	1923	18.2%

Table 43 – Welsh speakers in Monmouthshire age 3-4

	Age 5-15			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	5,036	7,367	12,403	40.6%
2011	4,872	6,734	11,606	42%

Table 44 – Welsh speakers in Monmouthshire age 5-15

	Age 16-19			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	457	3,450	3,907	11.7%
2011	1,004	3,574	4,578	21.9%

Table 45 – Welsh speakers in Monmouthshire age 16-19

	Age 20-44			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	825	24,562	25,387	3.2%
2011	1,137	22,964	24,101	4.7%

Table 46 – Welsh speakers in Monmouthshire age 20-44

	Age 45-65			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	750	22,657	23,407	3.2%
2011	905	26,453	27,358	3.3%

Table 47 – Welsh speakers in Monmouthshire age 45-65

	Age 65-74			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	266	7,824	8,090	3.3%
2011	281	9,789	10,070	2.8%

Table 48 – Welsh speakers in Monmouthshire age 65-74

	Age 75+			
	Able to speak Welsh	Not Able to speak Welsh	Total Population	% population able to speak Welsh
2001	208	6,949	7,157	2.9%
2011	231	8,742	8,973	2.6%

Table 49 – Welsh speakers in Monmouthshire age 75+

Railway Heritage

There is no standard gauge railway line in the AONB remaining in use. There is however a significant railway heritage which can be seen throughout the AONB. Figure 24 below shows the extent of former railway lines in the AONB and the location of former stations and halts.



Figure 24 - Wye Valley AONB former railway line and station/halt locations (source – Wye Valley AONB dataset)

A number of different lines passed through the AONB. The Hereford, Ross & Gloucester railway passed through the AONB between Holme Lacy and Ross for 12.5km. Stations at Ballingham, Fawley and Backney Halt were all situated in the AONB. Much of the railway heritage in the town of Ross-on-Wye sits directly adjacent to the AONB, including the site of the railway station and Town and Country Trail which runs on the old track bed directly adjacent to the AONB boundary for much of its length.

17.3km of the Ross & Monmouth railway line passed through the AONB, passing Walford halt, Kerne Bridge, Lydbrook Junction, Symonds Yat and Hadnock Halt stations. Much of the length of the track bed between Hadnock and Lydbrook now has public access in the form of the Peregrine Path and Wye Valley Walk. The Severn & Wye Railway met the Ross & Monmouth at Stowfield near Lydbrook, 2.27km of which are in the AONB. This line included the Lower Lydbrook Viaduct, which passed high over Lower Lydbrook before its removal in 1966, and Lower Lydbrook station.

The Wye Valley railway ran from Monmouth to Chepstow predominantly following the river down the valley. 17.8km of its 24km length are in the AONB, including 7 former station sites named Redbrook on Wye, Penallt Halt, Whitebrook Halt, St Briavels, Llandogo Halt, Brockweir Halt, and Tintern. Tintern Old Station Country Park is now one of the foremost locations to explore the Wye Valleys railway heritage.

Short branches came off the Wye Valley line serving Tintern Quarry and Tintern Wireworks which includes the railway bridge in Tintern village. The Coleford Railway also joined with the Wye Valley line just north of Redbrook village, travelling for 5.1km in the AONB and including a station at Newland. The Monmouth Railway, also known as the Monmouth Tramroad, was a horse-drawn plateway which ran from Coleford to Monmouth. This became dormant in the 1870s and was replaced by the Coleford Railway using some of the Tramroads route. The Tramroad incline bridge still passes over the road out of Redbrook.

The AONB boundary runs along the Monmouth viaduct, the final section of the Coleford, Monmouth, Usk & Pontypool Railway before it meets the Wye Valley line in the direction of Chepstow.

Four former railway bridges in the AONB remain, a further 5 river crossings no longer exist although abutments can still be seen at some crossing points. The railways would have passed through 8 separate tunnels in the AONB (the Wye Valley Line enters/leaves the AONB underground south of Tintern).

The Wye Valley Cycleway Project Feasibility Study, Structural Condition Assessments (July 2001) considers the condition of a number of railway heritage features in the AONB. This assessment was for the purpose of a cycleway project, but provides an insight into a number of railway heritage features. Extracts of the report are provided in table 50 below.

	Location	Listing	Condition (2001 Structural Condition Assessments)	Other info
Tidenham Tunnel	Wye Valley Line		Required repairs identified	Bats present 1,086m long
Black Morgan Viaduct	Wye Valley Line			Believed to be only predominantly brick built viaduct on line
Wireworks Bridge Tintern	Wye Valley Line / Tintern Wireworks spur	Grade II	Required repairs identified	Three simply supported longitudinal edge steel truss girders with two small side spans. Sandstone pillars. Timber deck planks
Tintern Tunnel	Wye Valley Line		Required repairs identified	161m long tunnel completely brick lined
Tintern Bridge	Wye Valley Line		Only abutments remain	Approx 18.3m high masonry stone parapet and stone abutment
Redbrook Bridge	Wye Valley Line	Grade II	Required repairs identified	Five span steel beam/iron girder structure Railway bridge disused, footpath cantilevered off bridge.
Upper Redbrook Incline bridge	Monmouth railway / Coleford railway line	Scheduled Ancient Monument Grade II		Masonry arch with four masonry arch culverts. "one of the most substantial relics of the Forest's horse tram road era to survive"

Monmouth Viaduct	Coleford, Monmouth, Usk & Pontypool Railway		Bridge over river Wye demolished	Brick and Stone construction with 22 semi elliptical arches. 7.9m rising to 15.3m high.
Stowfield Viaduct	Ross & Monmouth railway		Repairs required to viaduct	Temporary footbridge over viaduct currently used. Steel tubes, wrought Iron Beam and timber deck planks
Walford Court Overbridge Abutments	Ross & Monmouth railway		Demolished railway abutments	
Backney Bridge	Hereford, Ross & Gloucester railway		Bridge demolished, only abutments remain	Stone Masonry
Shepherd's Rough Overbridge	Hereford, Ross & Gloucester railway			
Church Road Abutments	Hereford, Ross & Gloucester railway		Bridge demolished, only abutments remain	
Holme Lacy Underbridge	Hereford, Ross & Gloucester railway			Stone Arch

Table 50 – Railway heritage features, condition and information (source – Wye Valley Cycleway Project Feasibility Study, Structural Condition Assessments (July 2001))

The River Wye and tributaries

The river Wye is designated as both a SSSI and SAC and flows through the AONB for 58 miles (92km) from Holme Lacy bridge to Chepstow bridge, leaving the AONB only when it passes through Monmouth. Between Mordiford and Chepstow there are five Gauge stations, Mordiford (just outside the AONB boundary), Ross-on-Wye, Lydbrook, Monmouth (just outside the AONB boundary) and Redbrook. Within the AONB there are also Gauge stations on the Garren brook and river Trothy. The river Wye, its main tributaries and river gauge locations (red dots) are shown on figure 25.

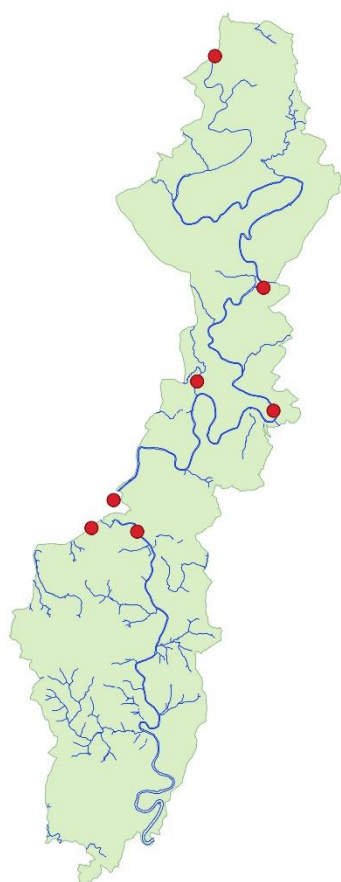


Figure 25 – The river Wye and its main tributaries within the AONB, and the location of gauge stations (source – Wye Valley AONB dataset)

Flood zones have been identified and developed as a starting point to determine how likely somewhere is to flood. Flood Zone 2 is land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% - 0.1%); Flood Zone 3 is land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%). At the time of writing Flood zone data for Wales is unavailable, but we are able to identify how much of the AONB within England is within each of these flood zones. This is shown in table 51 and figure 22 below.

	Flood Zone 2 (ha)	Flood Zone 3 (ha)
England	2,603.9	2,374.9
Wales	Unknown	Unknown

Table 51 – Area of Flood Zones 2 & 3 in the Wye Valley AONB (Source – Environment Agency gis dataset)

This data shows us that 14.7% of the AONB in England is covered by Flood Zone 2 and is determined as having between a 1 in 100 and 1 in 1,000 annual probability of flooding. 13.4% of the AONB, or 1.34 hectares in every 10, in England is covered by Flood Zone 3, having a 1 in 100 or greater probability of river flooding.

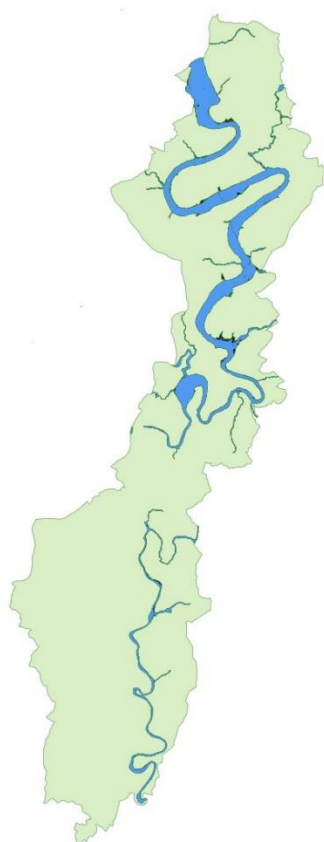


Figure 26 – Flood Zone 2 (*black) and Flood Zone 3 (*Blue) in the Wye Valley AONB (England only) (source – Environment Agency gis dataset)

River gauge data is available online (riverlevels.uk) for the 5 gauges on the river Wye between Mordiford and Redbrook. Analysis of the data is shown in tables 52 to 56 below (source – riverlevels.uk for all tables), showing annual highs and lows, the number of days above and below the usual range, and the average river level over the year. Any obvious anomalies have been indicated, but it is likely there will have been occasions, especially at particularly high and low levels, when gauges have not given completely accurate data, and this should be taken into account when reading figures/

Mordiford	Above Normal Range (>3.6m)			Below Normal Range (<0.47m)			Annual average river level (m)
Year	Max (m)	Date	Days >3.6m	Min (m)	Date	Days <0.47m	
2015	4.96	2 Dec	19	0.57	19 Aug	0	1.328
2016	4.7	9 Feb	19	0.56	13 Aug	0	1.224
2017	4.21	14 Dec	7	0.43	28 May	15	1.133
2018	4.84	14 Oct	17	0.45	9 Aug	8	1.363
2019	5.23	27 Oct	33	0.6	23 Sept	0	1.544
2020	5.49	17 Feb	26	0.34	12 Aug	61	1.428

Table 52 – River gauge data for Mordiford 2015 – 2020

Ross-on-Wye	Above Normal Range (>3.2m)			Below Normal Range (<0.25m)			Annual average river level (m)
Year	Max (m)	Date	Days >3.2m	Min (m)	Date	Days <0.25m	
2015	4.27	2 Dec	21	0.23	20 Aug	7	0.93

2016	4.16	9 Feb	20	0.17	13 Aug	24	0.856
2017	3.54	15 Dec	6	0.15	11 Jul	69	0.738
2018	4.19	15 Oct	20	0.1	22 Jul	76	0.963
2019*	4.77*	28 Oct	23	0.28	8 Aug	0	1.115
2020**	4.77**	17 Feb	27	0.14	12 Aug	63	1.087

*Gauge appear to have broken on 28 Oct reading 4.765m. Max level may be higher than recorded.

**Data missing for 18 and 19 February, directly after 17 February record day. Max level may be higher than recorded.

Table 53 – River gauge data for Ross-on-Wye 2015 – 2020

Lydbrook	Above Normal Range (>4.0m)			Below Normal Range (<0.42m)			Annual average river level (m)
Year	Max (m)	Date	Days >4.0m	Min (m)	Date	Days <0.42m	
2015	5.06	3 Dec	13	0.57	29 Apr	0	1.29
2016	4.95	10 Feb	13	0.37	13 Aug	4	1.216
2017*	4.16	15 Dec	1	0.28	28 May	10	1.188
2018	4.86	15 Oct	8	0.62	12 Aug	0	1.516
2019	6.53	28 Oct	23	0.7	30 Jul	0	1.658
2020	7.551**	18 Feb	24	0.6	12 Aug	0	1.685

*Readings suggest gauge broken from 24/6 to 23/8, 15/9 to 29/9 and 7/12 to 13/12.

**7.551m highlighted as record level on 18/2/20, but graph data records only 5.562m.

Table 54 – River gauge data for Lydbrook 2015 – 2020

Monmouth	Above Normal Range (>3.52m)			Below Normal Range (<0.79m)			Annual average river level (m)
Year	Max (m)	Date	Days >3.52m	Min (m)	Date	Days <0.79m	
2017	3.69	15 Dec	6	0.92	21 Jul	0	
2018	4.1	15 Oct	16	0.72	11 Aug	25	1.579
2019	5.92	28 Oct	29	0.8	8 Aug	0	1.658
2020	7.146	18 Feb	31	0.71	12 Aug	28	1.636

Table 55 – River gauge data for Monmouth 2017 – 2020

Redbrook	Above Normal Range (>3.91m)			Below Normal Range (<0.27m)			Annual average river level (m)
Year	Max (m)	Date	Days >3.91m	Min (m)	Date	Days <0.27m	
2017	4.00	15 Dec	4	0.34	11 Jul	0	
2018	4.49	15 Oct	9	0.12	9 Aug	46	1.384
2019	6.27	28 Oct	31	0.33	29 Jul	0	1.61
2020	7.679	18 Feb	32	0.18	12 Aug	14	1.582

Table 56 – River gauge data for Redbrook 2017 – 2020

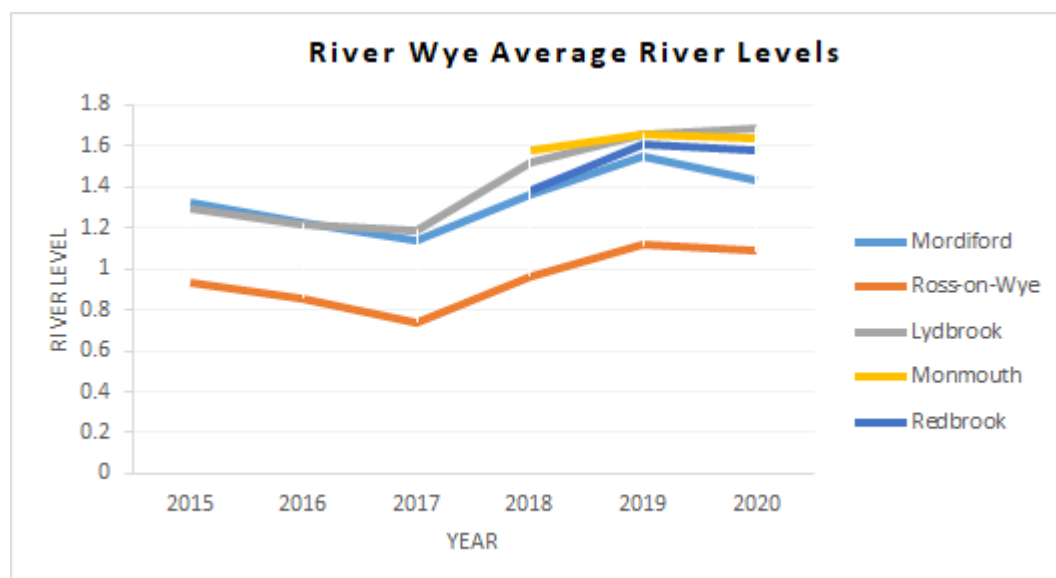


Figure 27 – Graph showing average river levels at river Wye gauges in the Wye Valley AONB (source - riverlevels.uk)

Land Use

Natural England have provided Protected Landscapes with Ministry of Housing, Communities and Local Government (MHCLG) Land Use data from 2018. The figures established by this data can be seen in tables 57 and 58 below.

	Developed Land Use						
	Community services	Defence	Industry / commerce	Minerals / landfill	Other developed use	Residential	Transport / utilities
Wye Valley AONB (ha)	40	0	21	4	254	91	590
Wye Valley AONB (%)	<1	0	<1	<1	1	<1	3
All AONBs (%)	<1	<1	<1	<1	1	<1	2

Table 57 – Developed Land Use in the Wye Valley AONB and all AONBs (source – MHCLG land use statistics 2018)

	Non-developed Land Use					
	Agriculture	Forestry / open land and water	Outdoor recreation	Residential gardens	Undeveloped land	Vacant Land
Wye Valley AONB (ha)	13,853	5,215	85	724	48	3
Wye Valley AONB (%)	66	25	<1	3	0	<1
All AONBs (%)	62	30	1	2	0	<1

Table 58 – Non-developed Land Use in the Wye Valley AONB and all AONBs (source – MHCLG land use statistics 2018)

It can be seen that only 5% of the Wye Valley AONB in England is developed, with the majority of this falling into the Transport and utilities, and other categories. The statistics show the Wye Valley is slightly more developed than the national AONB average.

The vast majority, 95% of the AONB is non-developed land. As has been established elsewhere in this report and the AONB Management Plan, two thirds of the AONB is agricultural land, and approximately one quarter woodland, open land and water. Comparing the Wye Valley AONB to the national AONB picture, we can see the Wye Valley is more agricultural which is to be expected given the lowland nature of the landscape. The amount of Forestry, Open land and water is lower than the average, which is again as a result of the Wye Valley's lowland and inland geography.

Looking at residential and residential gardens figures together, we can see that there is 91 ha classified as residential, and 724 ha as residential gardens. Using these figures, we can see that houses plus their gardens cover 815 ha of the AONB in England. On average, a plot for residential and residential garden is 11% building and 89% garden. Residential Gardens in the Wye Valley appear to be quite a bit larger than in other AONBs, with 3% of the landscape of the Wye Valley being gardens, compared to 2% average nationally. This gives us an indication of the type of residential land which can be found in the Wye Valley.

Green Belt

Green Belt data has also been supplied by Natural England, which confirms there is no land in the Wye Valley AONB designated as Green Belt. There are 151,664 ha of Green Belt in AONBs across England.

Flood possibility by land use

The following MHCLG data in tables 59 and 60, from 2018, provided by Natural England, shows the chance of flooding from rivers and the sea presented in categories.

High = each year, there is a chance of flooding of greater than 1 in 30 (3.3%)

Medium = each year, there is a chance of flooding of between 1 in 30 (3.3%) and 1 in 100 (1%)

Low = each year, there is a chance of flooding of between 1 in 100 (1%) and 1 in 1,000 (0.1%)

Very Low = each year, there is a chance of flooding of less than 1 in 1,000 (0.1%)

Wye Valley AONB Developed Land Use at risk of flooding (ha)								
Risk level	Community services	Defence	Industry / commerce	Minerals / landfill	Other developed use	Residential	Transport / utilities	TOTAL
High	1	0	0	0	8	1	15	25
Medium	1	0	3	0	14	2	25	46
Low	0	0	0	0	2	0	3	5
Very Low	0	0	0	0	0	0	0	0

Table 59 – Total developed land use at risk of flooding from rivers and sea, High probability (+3.3%) (source – MHCLG land use statistics 2018)

Wye Valley AONB Non-Developed Land Use at risk of flooding (ha)							
Risk level	Agriculture	Forestry, open land and Water	Outdoor recreation	Residential gardens	Undeveloped land	Vacant Land	TOTAL
High	1,365	400	21	7	8	0	1,801
Medium	442	72	4	17	3	0	537
Low	61	16	0	1	0	0	79
Very Low	0	0	0	0	0	0	0

Table 60 – Total non-developed land use at risk of flooding from rivers and sea, High probability (+3.3%) (source – MHCLG land use statistics 2018)

Some statistics which can be derived from these figures include:

- Just under 10% (9.85%) of agricultural land in the English Wye Valley AONB is at a high risk of flooding.
- Just under 1% (0.98%) of residential and residential gardens combined, is at a high risk of flooding.
- Just under 25% (24.7%) of recreational land is at a high risk of flooding, demonstrating much of this type of land is being allocated on the flood plain.

Land Use Change: Land changing to residential use

Across all AONBs in England between 2017 and 18, 74 hectares of land changed to residential use. This change was split evenly between land which was previously developed and land which was non previously developed.

In the Wye Valley AONB (England only) 2.4ha of land changed to residential use over 2017 and 2018. The breakdown of previous land use can be seen in table 61 below.

	Previously developed land use group (ha)				Previously non-developed land use group (ha)				
	Industry / commerce	Other developed use	Residential	Developed Total	Agriculture	Forestry / open land / water	Residential Gardens	Vacant Land	Non developed total
Wye Valley AONB	0.1	0.8	0.2	1.2	0.5	0.2	0.3	0.3	1.2

Table 61 – Land changing to residential use in the Wye Valley AONB (England only) (Source – MHCLG land use change statistics 2017 and 2018)

Housing Density

Natural England have provided all AONBs and National Parks with data relating to the average density of residential addresses surrounding newly created residential addresses (MHCLG statistics from 2017 to 2018). This average density is calculated by counting all of the residential addresses within a one square hectare surrounding a newly created residential address. The average density for the Wye Valley AONB (England only) is 17.0. This compares to an average density of 13.7 across all AONBs and 12.8 across National Parks.

For local comparison, the Wye Valley AONBs average density of 17.0 compares to 11.9 across the South Herefordshire and Over Severn National Character Area, and 15.2 in the Forest of Dean and Lower Wye Valley Character Area.

Dark Skies

In December 2020, Natural Resources Wales commissioned LUC to develop a terrestrial Tranquility and Place – Dark Skies map, covering the whole of Wales. Data has been cut to each AONB, which provides us with dark sky statistics for the Welsh part of the Wye Valley AONB. Figures are derived from December 2019 satellite data, monitoring amongst other things light emissions.

Key findings from the report for the whole of Wales are:

- More than 2/3rds of Wales falls into the darkest category.
- On average, 95% of Protected Landscapes in Wales fall within the darkest two categories.

Light pollution levels have been assigned a unit of measurement, the lower the value the lower the light pollution levels and the darker skies are likely to be. The percentage of the Wye Valley AONB (Wales only) within each range is shown in table 62 below.

	Light Pollution level							
	<0.5	0.5 - 1	1 - 2	2 - 4	4 - 8	8 - 16	16 - 32	>32
% of Wye Valley AONB (Wales)	68.1	28.3	2.9	0.7	0	0	0	0
Area (km ²) of Wye Valley AONB (Wales)	79.9	33.2	3.4	0.8	0.1	0	0	0

Table 62 – Wye Valley AONB (Wales) Light pollution levels (Source – Tranquility and Place – Dark Skies, NRW/LUC)

It can be seen that 96.4% of the AONB in Wales is in the darkest two categories, a slightly higher percentage than the average for Protected Landscapes in Wales.

Ecosystem Services analysis

The Marches Ecosystem Assessment (C Holzinger 2016) is an assessment of the Natural Capital and Ecosystem Service Value in Herefordshire, Shropshire and Telford & Wrekin. The aim of the report was to “establish a robust and evidence-based Ecosystem Assessment for the Marches”. It is acknowledged however that different methods were used to value ecosystem services for different habitat types and services, and direct comparisons between the values of different habitats or ecosystem services cannot be confidently made. It should also be noted that in the tables below, a £0 value or blank cell does not mean ‘no value’, but that a monetary value could not be/not fully calculated within the scope of the assessment. 51% of the total geographical area of the Marches was assessed in the reports production.

Natural Capital is defined in the report as “the stock of natural ecosystems that yields a flow of valuable ecosystem services into the future”. Ecosystem services are defined as “the benefits people obtain from ecosystems such as food, timber, aesthetic and recreational opportunities”.

It is established that across Herefordshire the following Ecosystem Service values are derived from these habitats. For the purposes of this State of the AONB report, we are using the higher threshold of the sensitivity analysis used, to reflect the Wye Valley AONBs status as a Protected Landscape being one of the nation's finest lowland landscapes.

Broad definitions for each Ecosystem Service measured in the Marches Ecosystem Assessment are as follows:

Wild Food - non-commercial food harvested from nature such as deer and goose hunting, collecting mushrooms or the collection of bilberries.

Ornamental resources and non-food products – products used for non-commercial decorative, artistic or education purposes, including wild flowers and plants for decoration, stones, minerals, fossils etc collected from the countryside.

Water Supply – Provision of fresh water and groundwater directly consumed by people, eg through private consumption, agriculture, aquaculture, industry, energy.

Wild Species Diversity – To some extent, biodiversity underpins every ecosystem service, as each depends on living organisms and processes. The report uses a narrow definition for biodiversity and relates it in particular to areas with a high diversity of species.

Recreation – General leisure for a range of activities such as walking, running, bird watching etc.

Aesthetic value & sense of place – The visual amenity and aesthetic appreciation of environmental landscapes.

Health – A classic cross-cutting ecosystem service, all ecosystem services have an impact on human health. The figures used are a monetary measure of 'green' physical activity on mortality rates.

Productivity – The assessment calculates the effect of improved health due to green exercise on work productivity.

Flood Regulation – The ability of habitats to provide flood risk regulation.

Water Quality Regulation – The ability of wetland habitats to provide benefit through management of nutrients, organic matter, sediment etc...

	Annual Baseline Value (£m) of Assessed Ecosystem Services in Herefordshire, Higher threshold of the sensitivity analysis (source: Marches Ecosystem Assessment, Holzinger 2016)					
	Woodland	Grassland	Wetland	Heathland	Hedgerows	TOTAL
Ecosystem Service						
Wild Food	£3.52m	£0.68m	£0.02m	£0.01m	£0.00m	£4.23m
Ornamental resources and non-food products	£6.06m	£1.52m	£0.01m	£0.03m	£0.00m	£7.62m
Water Supply			£0.00m			£0.00m
Wild Species Diversity	£50.24m	£23.09m	£0.17m	£0.55m	£0.00m	£74.05m
Recreation	£5.21m	£11.59m	£0.48m	£0.22m	£0.00m	£18.56m
Aesthetic Value & Sense of Place	£1.07m					
Health						£54.58m
Productivity						£7.29m
Flood Regulation	£19.23m	£33.18m	£0.23m	£0.42m	£0.00m	£53.05m
Water Quality Regulation			£0.16m			£0.16m
TOTAL						£129.54m

Table 63 – Value of assessed Ecosystem Services in Herefordshire (Source – The Marches Ecosystem Assessment, Holzinger 2016)

Crude analysis of the figures can give us an estimation for the value of habitats in the AONB within Herefordshire. The 14,996 ha of the Wye Valley AONB within Herefordshire equates to 6.9% of the County of Herefordshire (c.218,000 ha). Assuming the Wye Valley AONB contains an average amount of each habitat assessed, and that the quality of this habitat is high, 6.9% of the Herefordshire values gives us the following amounts.

	Annual Baseline Value (£m) of Assessed Ecosystem Services in 6.9% of Herefordshire, Higher threshold of the sensitivity analysis					
	Woodland	Grassland	Wetland	Heathland	Hedgerows	TOTAL
Ecosystem Service						
Wild Food	£0.24m	£0.05m	£0.00m	£0.00m	£0.00m	£0.29m
Ornamental resources and non-food products	£0.42m	£0.10m	£0.00m	£0.02m	£0.00m	£0.53m
Water Supply			£0.00m			£0.00m
Wild Species Diversity	£3.47m	£1.59m	£0.01m	£0.04m	£0.00m	£5.11m
Recreation	£0.36m	£0.80m	£0.03m	£0.02m	£0.00m	£1.28m
Aesthetic Value & Sense of Place	£0.07m					
Health						£3.77m
Productivity						£0.50m
Flood Regulation	£1.33m	£4.83m	£0.02m	£0.03m	£0.00m	£3.66m
Water Quality Regulation			£0.07m			£0.01m
TOTAL						£15.15m

Table 64 – Value of assessed Ecosystem Services for 6.9% of Herefordshire, representing the size of the Herefordshire AONB (Source – extrapolated from The Marches Ecosystem Assessment, Holzinger 2016)

This Herefordshire annual baseline data can be further broken down to provide an estimated value per hectare for each ecosystem service derived by each habitat. The results of this are as follows.

	Annual Ecosystem Service value per hectare (£m), by habitat across Herefordshire				
	Woodland* 22,946 ha	Grassland** 86,189 ha	Wetland*** 222 ha	Heathland 834 ha	Hedgerows
Ecosystem Service					
Wild Food	£153.40	£7.89	£90.10	£11.99	£0.00
Ornamental resources and non-food products	£246.10	£17.64	£45.10	£35.97	£0.00
Water Supply			£0.00		
Wild Species Diversity	£2,189.49	£267.90	£765.77	£659.47	£0.00
Recreation	£227.05	£134.47	£2,162.16	£263.79	£0.00
Aesthetic Value & Sense of Place	£46.63				
Flood Regulation	£838.05	£384.97	£1,036.04	£503.60	£0.00
Water Quality Regulation			£720.72		

*woodland area includes Broadleaved, Coniferous, Mixed, Recently Felled, Scrub.

**grassland includes Acid, Calcareous, Improved, Neutral.

***wetland includes Floodplain Grazing Marsh, Purple Moor-grass & rush pasture, Fen, Reedbed, Swamp, Blanket Bog, Other.

Table 65 – Annual Ecosystem Services value per ha Herefordshire (Source – The Marches Ecosystem Assessment, Holzinger 2016)

Taking these values as a robust assessment of the value of each habitat and Ecosystem Service, we can use baseline habitat data in this State of the AONB report to establish the Ecosystem Service value of certain habitats across the whole Wye Valley AONB.

	Annual Ecosystem Service value in the Wye Valley AONB				
	Woodland*	Grassland**	Wetland***	Heathland***	Total
Total Habitat area	9,002.4	10,109.1	27.2	15.55	19,154.25
Ecosystem Service					
Wild Food	£1.38m	£0.08m	£0.00m (£2,450)	£0.00m (£186)	£1.46m

Ornamental resources and non-food products	£2.22m	£0.18m	£0.00m (£1,227)	£0.00m (£559)	£2.4m
Wild Species Diversity	£19.71m	£2.71m	£0.02m	£0.01m	£22.45m
Recreation	£2.04m	£1.36m	£0.06m	£0.00m (£4,102)	£3.88m
Aesthetic Value and Sense of Place	£0.42m				
Flood Regulation	£7.54m	£3.89m	£0.03m	£0.01m	£11.47m
Water Quality Regulation			£0.02m		£0.02m
Total	£33.31m	£8.22m	£0.13m	£0.02m	£41.68m

*Woodland area taken from National Forest Inventory 2018.

**Grassland area taken from AONB Phase 1 habitat surveys and includes Improved, Semi-improved Poor, Semi-improved Rich and unimproved grasslands habitats.

*** Wetland and Heathland area taken from Wales Sensitive Habitat data and England Priority Habitat data.

Table 66 – Annual Ecosystem Services value for the Wye Valley AONB (Source – Extrapolated from data in The Marches Ecosystem Assessment, Holzinger 2016)

Carbon Stock value

The Marches Ecosystem Assessment gives us figures relating to the Carbon Stock Value of each habitat. For Herefordshire these are shown below in table 67.

		Area	Carbon Stock	Carbon Stock per ha	Stock Value	Stock Value per ha
Carbon	Woodland	22,946 ha	6,568,783 t	286.27 t	£1,503m	£0.07m
	Grassland	86,189 ha	5,198,064 t	60.31 t	£1,190m	£0.01m
	Wetland	222 ha	168,186 t	757.59 t	£38m	£0.17m
	Heathland	834 ha	75,084 t	90.03 t	£17m	£0.02m
	TOTAL	110,192 ha	12,010,117 t	108.99 t	£2,749m	£0.02m

Table 67 – Carbon Stock value for Herefordshire (Source - The Marches Ecosystem Assessment, Holzinger 2016)

These figures can again be disaggregated in 2 ways to estimate the Carbon Stock Value of Habitats in the Wye Valley AONB.

Assuming the Wye Valley AONB contains an average amount of each habitat, we can again use 6.9% (Wye Valley AONB percentage of Herefordshire) to estimate the carbon stock of each habitat in the Herefordshire AONB. See table 68 below.

		Estimated Carbon Stock in Herefordshire AONB	Estimated Stock Value in Herefordshire AONB
Carbon	Woodland	453,246 t	£104m
	Grassland	358,666 t	£82m
	Wetland	11,605 t	£3m
	Heathland	5,181 t	£1m
	TOTAL	828,698 t	£190m

Table 68 – 6.9% of the Carbon Stock in Herefordshire, representing the size of the Herefordshire AONB (Source – Extrapolated from data in The Marches Ecosystem Assessment, Holzinger 2016)

Using areas for each habitat across the AONB, we can establish an estimated Carbon Stock Value for the whole AONB. We can estimate the stock value of carbon stored in vegetation and soil in the Wye Valley AONB to be £737 million

		Area	Carbon Stock	Stock Value
Carbon	Woodland	9,002 ha	2,577,003 t	£630.1m
	Grassland	10,109 ha	609,674 t	£101.1m

	Wetland	27 ha	20,455 t	£5.6m
	Heathland	16 ha	1,440 t	£0.3m
	TOTAL	19,154 ha	3,208,572 t	£737.1m

Table 69 – Estimated Carbon Stock for the Wye Valley AONB (Source – Extrapolated from data in The Marches Ecosystem Assessment, Holzinger 2016)

These ecosystem service values are estimated being disaggregated and extrapolated from the Marches Ecosystem Assessment. Whilst it is a robust and evidenced based report, there are acknowledgements about the limitations of the data gathered. These same is the case for the AONB data derived from it.