

Tamar Valley AONB Landscape Monitoring Project Phase 2

2013

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Photo: daffodils © TVAONB



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Introduction

Tamar Valley AONB Monitoring Project Phase 1

- 1.1 The Tamar Valley Area of Outstanding Natural Beauty (TVAONB) Monitoring Project was commissioned in 2007 with the objective of selecting a set of indicators that could accurately assess change in the landscape and to lay a firm baseline of data against which change could be assessed. Full details can be found in the document 'Cornwall, Tamar Valley and Isles of Scilly AONB Landscape Monitoring Project. Phase 1 Project Report'.
- 1.2 During Phase 1 the AONB's Landscape Character Assessment (Diacono, 2007, 2008) was used to identify key characteristics across different parts of the Tamar Valley. Data sources were then sought that could be used to look for changes in the condition of those characteristics.
- 1.3 In addition a matrix of 'forces for change' were compiled, to identify which characteristics were likely to be the ones that would change over time, and therefore make good indicators for landscape change.
- 1.4 The AONB is very varied and as such it was necessary to create a series of Landscape Monitoring Units, which were derived from the Landscape Character Assessment (See Figure 1.1). This enables changes in the landscape to be picked up at a more local scale than looking at the data over the whole AONB.
- 1.5 Sample Squares were also derived to allow data collection in the field to take place, such as looking at hedge condition or orchard condition (See Figure 1.1).

Phase 2 Method

Review of Indicators and data availability

- 1.6 Each of the indicators and the data sources that were used to form the baseline were reviewed to see if they could be repeated. If the data source was no longer available or had not been repeated a new data source was recommended. Where new data sources have become available additional indicators were added into the monitoring report.
- 1.7 Indicators 1.1 Levels of Tranquillity, 1.2 Levels of Intrusion and 1.3 Extent of Dark Night Skies have not been repeated in this phase as new data is not yet available from the Council for the Protection of Rural England (CPRE). These indicators could be used in further phases as new data becomes available.
- 1.8 The baseline data used for Indicator 2.5 'Extent of Semi Natural Habitats' combined Environmental Records Centre for Cornwall and the Isles of Scilly (ERCISS) Life data (1995) for the Cornwall Side and Centre for Hydrology and Ecology (CEH) Landcover Map 2000 for the Devon side to report the extent of semi natural habitats across the AONB. The ERCISS data was based largely on phase 1 habitat data and has not been repeated; therefore no comparison can be

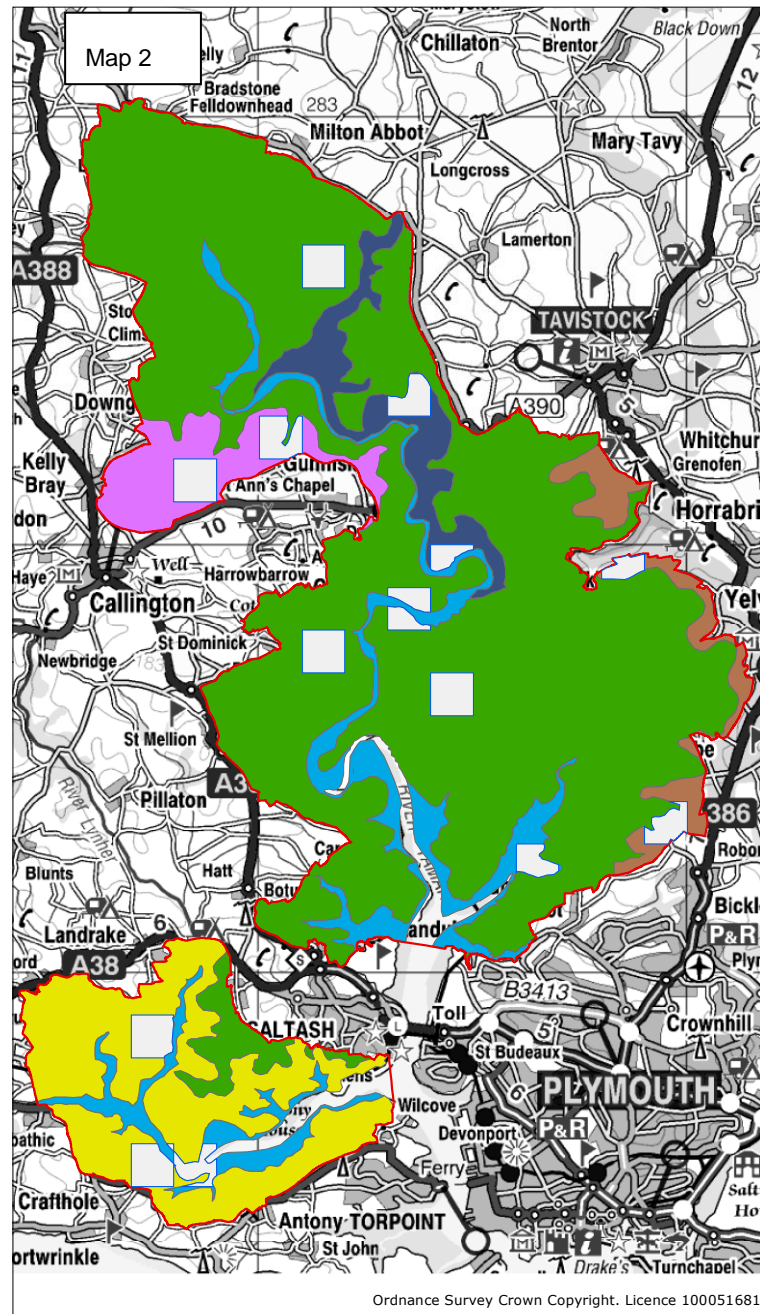
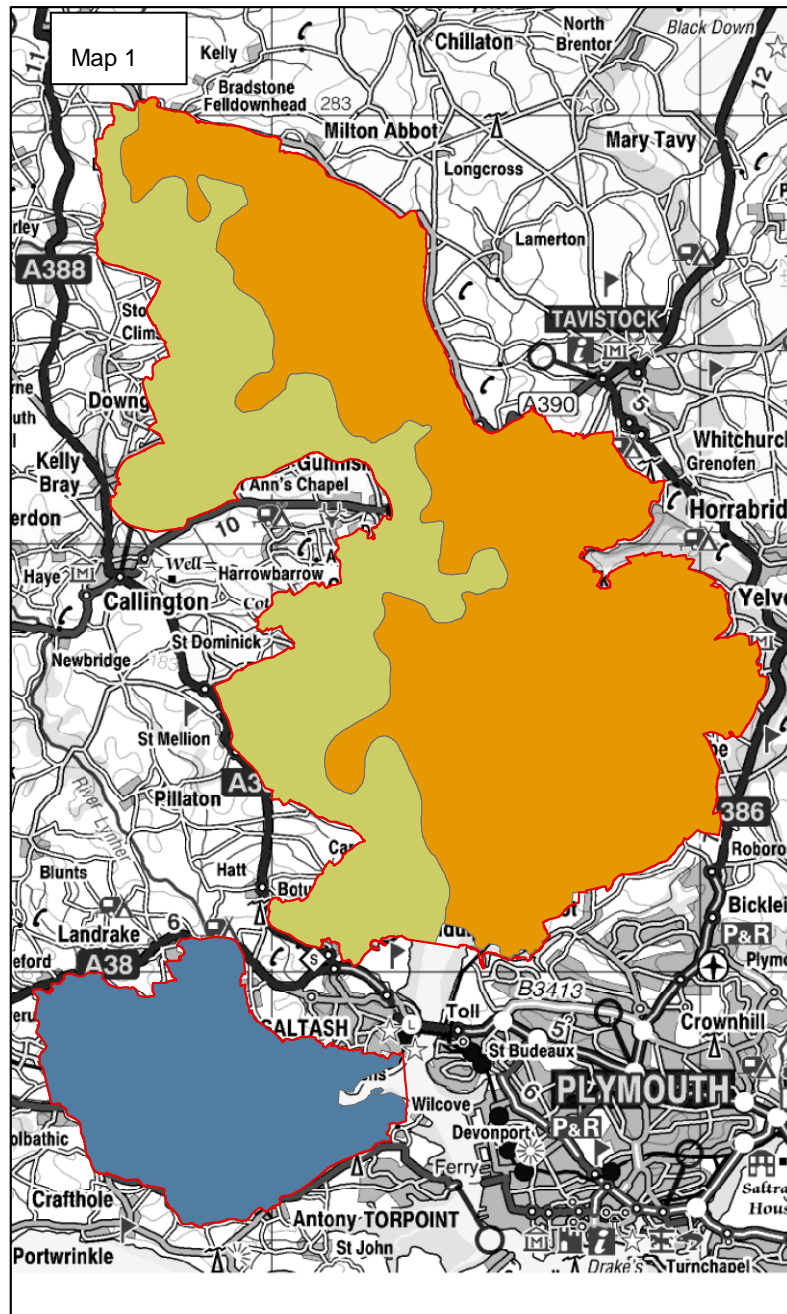
made for this phase. There has been a new Landcover map produced (Landcover Map 2007) however in the final project report (Countryside Survey: Final Report for LCM2007 – the new UK Land Cover Map, 2011) it suggests that there may be a 20% chance of misclassification in both the new and old maps (Landcover Map 2000) due to the way the categories are derived from imagery and there is no reliable way of separating out real changes from those due to error and spatial differences. Therefore new data has been sought from Natural England to set a new baseline; these datasets have been derived from sources such as National Vegetation Classification, Phase 1 Habitat Surveys, Sites of Special Scientific Interest (SSSI) and Natural England's Site Information System (ENSIS) database.

- 1.9 Data has been collected at several scales across the AONB mainly due to data availability or the usefulness of the data at different scales. For example, the indicators derived from Environmental Stewardship were only available at AONB Level. The Department of Environment Food and Rural Affairs (DEFRA) June Agricultural Survey was only available by AONB Section (i.e. The East Cornwall side, West Devon Side and the Lynher) as any further breakdown could lead to the identification of single farms (See Figure 1, Map 1),. Data such as the Historic Environment Record (HER) can be assessed using Landscape Monitoring Units (LMU) as there are many data points and sample squares are used where primary data collection is required, for indicators such as hedge condition (See Figure 1, Map 2).

Structure of this report

- 1.10 This report presents the results from Phase 2 of the monitoring study, whereby the data from the baseline has been compared to new data sources to gauge how the Tamar Valley Landscape is changing.
- 1.11 The results are presented in themed chapters using text, tables and figures. A summary of changes table is presented at the end of each chapter to give an 'at a glance' view of whether the landscape is stable or changing.

Figure 1.1 - Monitoring Units



Legend

- Tamar Valley AONB
- AONB Sections**
- West Cornwall
- East Devon
- Cornish Lynher
- Landscape Monitoring Units**
- Kit Hill
- Lynher
- Mining Heritage Area
- Moorland Fringe
- River Corridor
- The Plateau
- Sample Squares

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Historic Environment and Local Distinctiveness

The Indicators:

- Presence and Condition of Historic Landscape Features
- Extent and Condition of Designed Landscapes



Presence and Condition of Historic Landscape Features

Historic Environment Record

- 2.1 The Devon Historic Environment Record has 2008 entries and the Cornwall Historic Environment Record has 1312, together this totals 3320, which is an increase of 639 designations since 2008. Along the River Corridor Monitoring Unit, many of the features are related to the areas mining heritage and river transportation, for example there are kilns, quarries, Calstock Viaduct, 8 bridges, 3 fords and 6 quays.
- 2.2 The Plateau Monitoring Unit has a vast variety of entries from houses, barns, dovecots and walls to the mining heritage features including adits, shafts, leats, mines and quarries.
- 2.3 The Mining Heritage Monitoring Unit has many entries which are associated with mining activities such as buildings, chimneys, dressing floors, engine houses, pits, leats, shafts, quarries, spoil heaps and ponds.
- 2.4 The Moorland Fringe Monitoring Unit has entries including barracks, kennels, mines, quarries, a stable, a milestone and ridge & furrow.

Scheduled Monuments and Listed Buildings

- 2.5 There are 27 Scheduled Monuments (66.2ha) across the AONB, many of which relate to the rich mining heritage of the area such as Gawton Arsenic Mine & Flue and Gunnislake Clitters Copper, Tin, Arsenic and Wolfram Mine. There have been two recent designations: Morwellham Quay: Transport infrastructure, part of the water control system & a manganese mill (2010); and New Consols Mine, Lucket: Surface, buried, and underground remains (2013).

The number of Listed Buildings and Scheduled Monuments has increased slightly each year since 2010 (See Table 2.1).

Year	Listed Buildings				Scheduled Monuments
	Grade I	Grade II*	Grade II	Total	
2010	No data	No data	No data	643	25
2012	31	47	566	644	26
2013	31	47	567	645	27

Table 2.1 Listed Buildings and Scheduled monuments 2010 - 2013

Heritage at Risk

- 2.1 There are 8 Conservation Areas on the Cornwall side of the AONB, and 6 on the Devon side. The Bere Alston Conservation Area is at risk, in very bad condition with no significant change in trend.
- 2.2 There are currently 13 entries on the Heritage at Risk 2012 register for the AONB. Scraesdon Fort is a Grade II listed building and also a Scheduled Monument to ensure it is not counted twice and for the purpose of reporting it occurs on the Buildings at Risk Register and not on the Scheduled Monuments at Risk Register.

Year	Listed Buildings at Risk				Scheduled Monuments	Places of Worship at Risk	Conservation Area	Industrial Heritage at Risk
	Grade I	Grade II*	Grade II	Total				
2010	0	2	No data	2	7	No data	No data	No data
2012	0	2	1	3	7	1 (Grade II*)	1	1

Table 2.2 Heritage at Risk

- 2.3 The Grade II* Listed Buildings Warleigh House and 'Calf House at Lithiack and Stable adjacent to north' are noted to be in poor condition.
- 2.4 Scraesdon Fort near Antony is Grade II listed and in Poor Condition (also a Scheduled Monument)
- 2.5 The Church of St Philips and St James near Antony is a Grade II* Place of Worship in very bad condition.
- 2.6 There is 1 entry on the Industrial Heritage at Risk register, Gawton Mine also part of the World Heritage Site, this is noted to be in poor condition.
- 2.7 There are 7 scheduled monuments at risk (Excluding Scraesdon Fort). See Table 2.3.

Scheduled monument	Condition	Trend	Vulnerability	Industrial
Iron Age defended settlement in Dunterue Wood, 570m south of Castle Head	Generally satisfactory but with significant localised problems	Stable	Scrub / tree growth	No
Morwellham Quay: transport infrastructure, part of the water control system and a manganese mill	Generally satisfactory but with significant localised problems	Stable	Development requiring planning permission	Yes

Scheduled monument	Condition	Trend	Vulnerability	Industrial
Tamar Canal, Gunnislake	Generally satisfactory but with significant localised problems	Improving	Deterioration - in need of management	Yes
Okeltor 19th century arsenic, copper and tin mine	Generally satisfactory but with significant localised problems	Unknown	Permitted development	Yes
Bury Camp	Generally satisfactory but with significant localised problems	Declining	Localised/limited stock erosion	No
Gawton Arsenic Mine and Flue	Extensive significant problems	Declining	Other	Yes
Hilltop enclosure known as Maristow Camp, 240m east of Middle Park House	Generally unsatisfactory with major localised problems	Declining	Forestry	No

Table 2.3 Scheduled Monuments at Risk

Archaeological Conservation

2.8 Across the AONB there are 16 Environmental Stewardships agreements (275.7 ha) that include the conservation of archaeological features (See Table 2.4).

	Take archaeological features out of cultivation (Area ha)		Management of scrub on archaeological features (Area ha)	Management of archaeological features on grassland (Area ha)		Arable reversion by natural regeneration (Area ha)	Total (ha)
	Entry Level (ED2)	Organic Level (OHD2)	Entry Level (ED4)	Entry Level (ED5)	Higher Level (HD5)	Higher Level (HD7)	
2012	0.01	1.7	0.2	9.2	16.2	6.3	33.61
2013	0.01	1.7	0.2	9.2	11.1	6.3	28.51

Table 2.4 Area of the AONB where Environmental Stewardship agreements include the conservation of archaeological features

Extent and Condition of Designed Landscapes

2.9 There are 4 Registered Parks and Gardens in the AONB; this has remained the same since 2007. There are no entries in the Heritage at Risk Register for Parks and Gardens in the Tamar Valley (See Table 2.5).

Monitoring Unit	Parkland	Grade I		Grade II*	
		Area in Monitoring Unit (ha)	Total Area (ha)	Area in Monitoring Unit (ha)	Total Area (ha)
Lynher	Port Eliot	218.6	220.4	-	-
	Antony	-	-	123.3	127.7
Plateau	Endsleigh	198.4	215.6	-	-
	Cotehele	-	-	56	56.7







Table 2.5 Area of Registered Parks and Gardens within Monitoring Units

- 2.10 In addition to the Registered Parks and Gardens recognised by English Heritage, Natural England has also identified some additional Parkland and Wood pasture Biodiversity Action Plan Habitats at Endsleigh (15.19 ha). There is also an additional area at Bickham House with 19.77 ha in the Plateau Monitoring Unit and 3.11 ha in the Moorland Fringe area. An area of Defunct Wood Pasture (5.3 ha) is also identified on the Plateau.
- 2.11 Environmental Stewardships schemes for the management of Wood Pasture and Parkland have increased in the period 2012 – 2013 (See Table 2.6)

	Maintenance of wood pasture and parkland (Area ha)	Restoration of wood pasture and parkland (Area ha)	Total (Area ha)
	Higher Level (HC12)	Higher Level (HC13)	
2012	94.5	68.3	162.7
2013	92.8	150.2	243

Table 2.6 Area of the AONB covered by Environmental Stewardship Schemes that include management of Wood Pasture and Parkland

Summary of Change

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Presence and Condition of Historical Landscape Features	Number of entries on Historic Environment Record (Cornwall Council, Devon County Council)	Number of historical features remain stable or increase.		2018
	Number of Scheduled Monuments (English Heritage, 2013)	Number of historical features remain stable or increase.		2018
	Number of Listed Buildings (English Heritage, 2013)	Number of historical features remain stable or increase.		2018
	Number of entries on the Heritage at Risk Register (English Heritage, 2008)	Number of Historical Features at risk to remain stable or decrease and condition to remain stable or improve	New Baseline data	2014
	Number and area of land in Archaeological Conservation – Environmental Stewardship (Natural England 2012, 2013)	Area of land managed for archaeological conservation stable or increasing		2015
Extent and Condition of Designed Landscapes	Register of Parks and Gardens (English Heritage, 2013)	Area of land designated as a Park or Garden to remain stable or increase		2018
	Number of parks and gardens on the Heritage at Risk register (English Heritage, 2008)	Parks or Gardens identified on the register to remain stable or decrease and Condition to remain stable or increase	New Baseline Data	2014
	Area of BAP Priority Habitat - Parkland and Wood Pasture (Natural England, 2012)	Area of land identified as a Parkland or Wood Pasture to remain stable or increase	New Baseline Data	2018
	Area of land in Environmental Stewardship for Parkland and Wood Pasture (2012, 2013)	Area of land managed for Parkland or Wood Pasture stable or increasing		2018

Biodiversity and Geodiversity

The Indicators:

- Extent of BAP Habitats
- Condition of SSSIs
- Extent of Traditional Orchards
- Extent of Semi Natural Habitats
- Sites Designated for their Conservation Value



Extent of Biodiversity Action Plan Habitats

- 3.1 Natural England has produced a new series of Habitat Inventories that have been used to create a new baseline for Phase 2 of the Monitoring Project. Due to the differences in the data collection techniques it is not possible to compare the data from this phase to the previous phase.
- 3.2 Several Biodiversity Action Plan (BAP) habitats occur across the AONB. The types and the area within each Monitoring Unit can be seen in Table 3.1.

BAP Habitat inventory (year)	Landscape Monitoring Unit (Area ha)						Total Area (ha)
	Kit Hill	River Corridor	The Lynher	Plateau	Mining Heritage Area	Moorland Fringe	
Coastal and floodplain grazing marsh (2012)		81.78		6.70			88.48
Habitat Action Plan woodland (2008)	13.54	38.88	233.84	1114.98	30.92	2.59	1434.75
Lowland dry acid grassland (2012)				30.92		199.02	229.95
Lowland heathland (2011)	61.17	0.80		1.21	1.21		64.40
Lowland meadows (2012)				1.87			1.87
Mudflats (2004)		738.75	34.71	22.18	1.87		797.51
Purple moor grass and rush pastures (2012)				2.59		1.58	4.17
Reedbeds (2011)		224.76	121.44	199.02	22.18		567.40
Total	74.71	1084.97	389.98	1379.48	56.19	203.19	3188.52

Table 3.1 Area of BAP habitat per Landscape Monitoring Unit and Total BAP habitats for the AONB

Land Management for BAP areas

3.3 Environmental Stewardship schemes have been granted for the maintenance, restoration and creation of a variety of BAP habitats (see Table 3.2). Overall the area under management has increased, most notably the area under option HK7 for the restoration of Species Rich Semi Natural Grassland which has increased by 17.2 ha. However, the area of land managed for Reedbed restoration has decreased by 5.7 ha.

Environmental Stewardship Option	2012 (Area ha)	2013 (Area ha)
Maintenance of Coastal Saltmarsh (HP5)	10.4	10.5
Restoration of Coastal Saltmarsh (HP6)	8.8	8.8
Maintenance of Species Rich Semi Natural Grassland (HK6)	39.3	38.9
Restoration of Species Rich Semi Natural Grassland (HK7)	30.4	47.6
Maintenance of Reedbeds (HQ3)	None	None
Restoration of Reedbeds (HQ4)	19.9	14.2
Creation of Reedbeds (HQ5)	None	None
Total Area	108.8	120

Table 3.2 Area of the AONB covered by Environmental Stewardships schemes which include management of BAP habitats

Extent and Condition of SSSIs

3.4 There are seven SSSIs located in the Tamar Valley AONB totalling 1687.88 ha; their location and condition in 2012 are mapped in Figure 3.1.

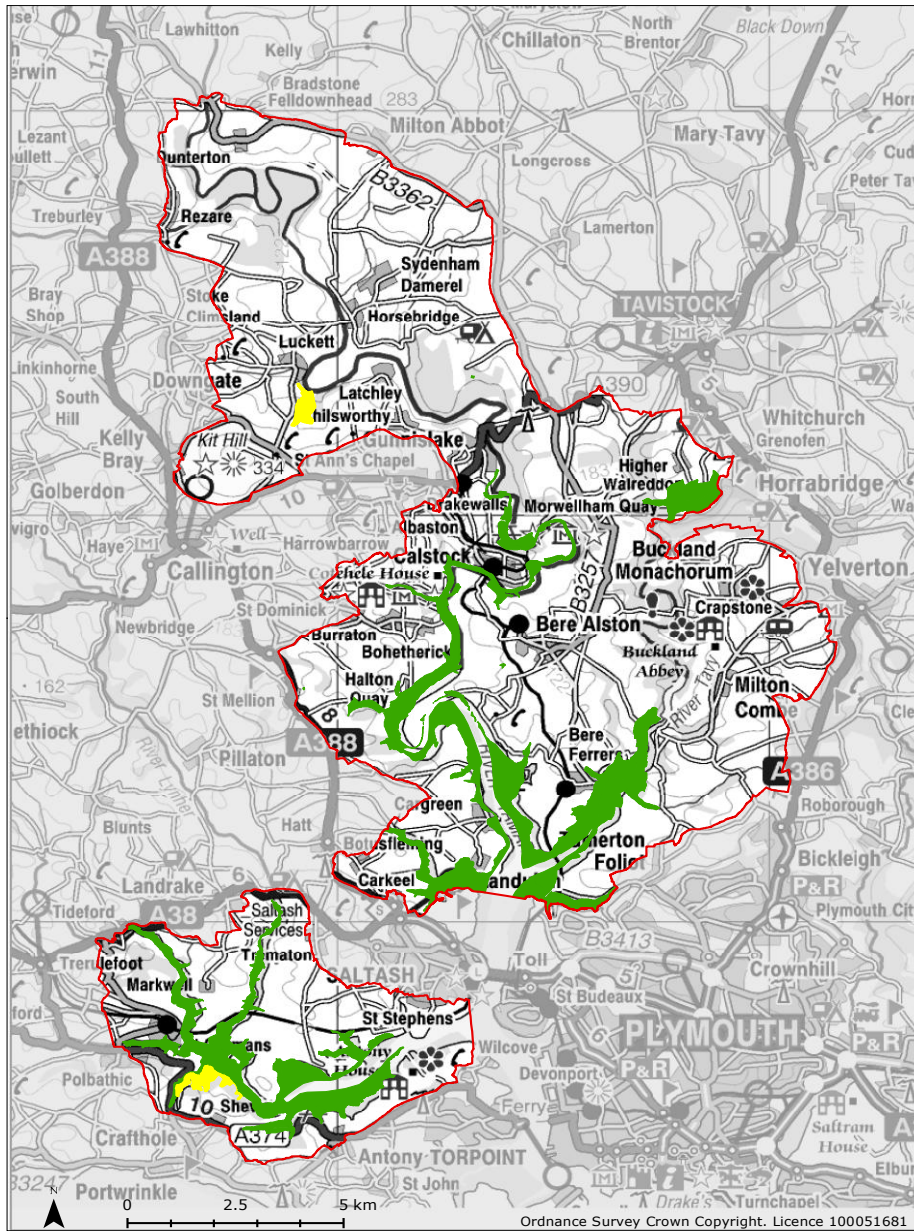
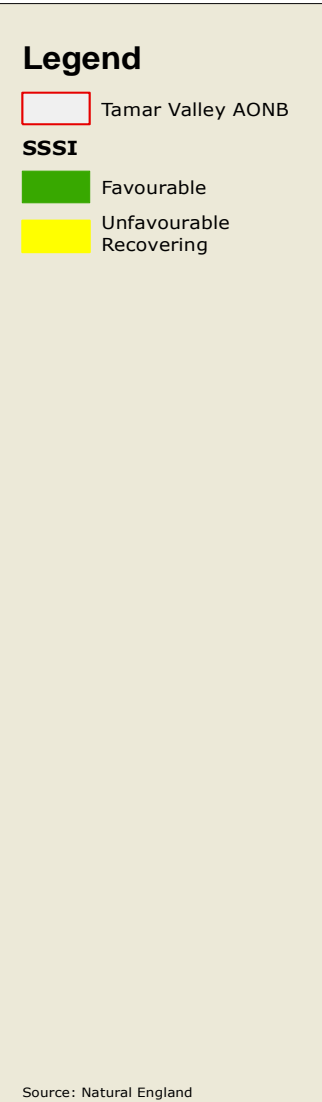


Figure 3.1 - Location and Condition of SSSIs



- 3.1 SSSI condition mapping uses 6 condition categories ranging from 'favourable' to 'destroyed'; the table below has been provided to reflect the changes in the condition in the period 2008 to 2013.
- 3.2 The condition of the SSSIs has been analysed using the Devon, Cornwall and Lynher Sections of the AONB. The condition of the Cornwall and Devon areas has improved in the study period however the area of the Lynher has declined (see Figure 3.2).

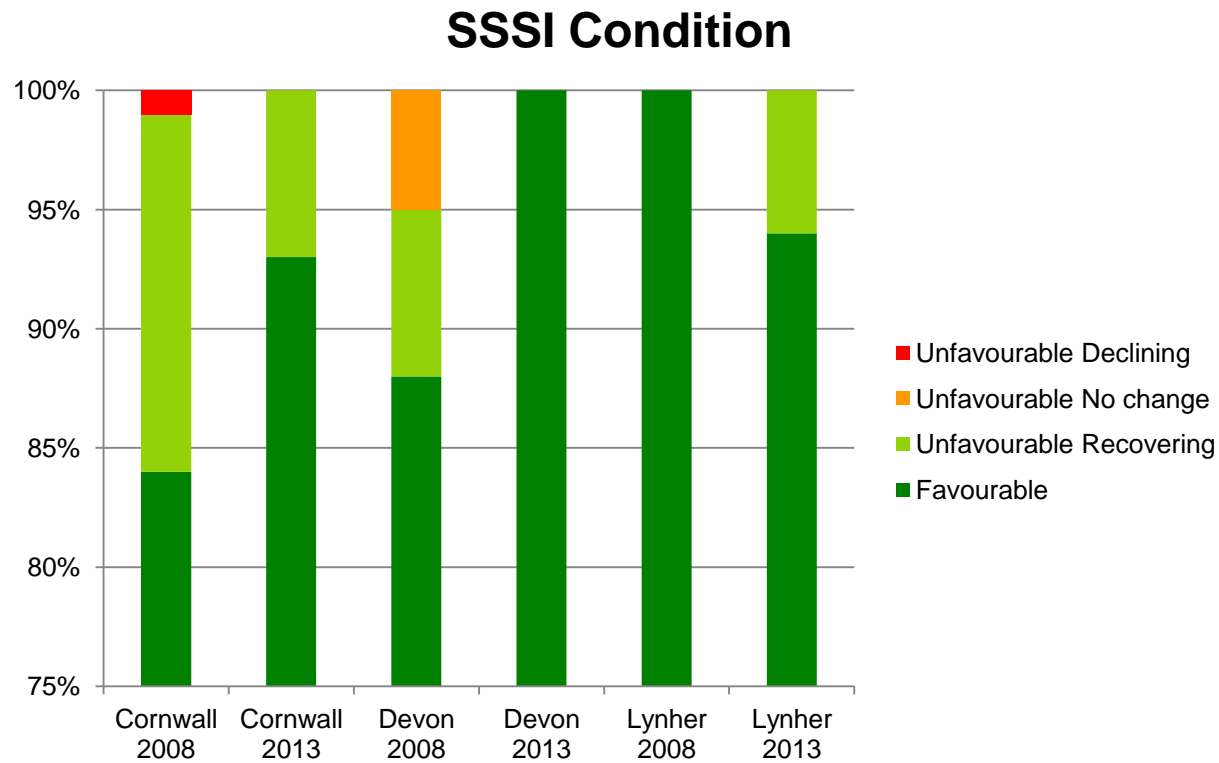


Figure 3.2 Comparison of SSSI Condition by AONB section between 2008 and 2013

- 3.3 Within the condition assessment across all of the SSSIs, 4 BAP habitats have been identified:
- Acid Grassland (lowland) – 68 ha in favourable condition
 - Broadleaved, Mixed and Yew Woodland (lowland) – 240 ha in favourable condition and 63 ha unfavourable recovering condition
 - Earth Heritage – 1 ha in favourable condition
 - Littoral Sediment – 1645 ha in favourable condition

Extent and Condition of Traditional Orchards

3.4 In 2008 a survey undertaken by the Tamar Valley AONB was used to create baseline figures, however this survey has not been repeated. Natural England has produced a BAP Habitat Inventory for Traditional Orchards which has been used for comparison in 2013 (See Table 3.4).

Sample Squares	2008 (Area ha)	2013 (Area ha)	Change (ha)
Kit Hill	No data	Active management 0.50 ha Unknown 0.06 ha	+ 0.56
Plateau	Traditionally managed 4.8 ha Modern Managed Orchards 1 ha	Active management 1.91 ha Part Managed 0.07 Unmanaged 1.51 ha No data for Modern Orchard	- 1.31
Mining Heritage Area	Traditionally managed 0.4 ha Derelict 0.6 ha	Active management 0.02 ha No data for Derelict	-0.02

Table 3.3 Comparison of the Extent of Orchards in 2008 and 2013

3.5 Orchards were also surveyed by Sample Squares. Initially areas of orchard were identified by aerial photography (Microsoft 2012) and the Tamar Valley 2008 Orchards Survey. Each orchard was identified as managed or derelict based on whether the area looks to have been mown or grazed, or is scrubbed over, or if young trees appear to have been planted. The status of 'Modern' is given to orchards that appear to be very uniform in their planting. Where the orchards are visible from roads or public footpaths they are then surveyed in the field to verify the status (See Table 3.4).

Landscape Monitoring Unit	2008 (Area ha)	2013 (Area ha)
Kit Hill	Derelict 0.02	Derelict 0.02
The Plateau	Derelict 4.93 Managed 4.27	Derelict 4.26 Managed 4.94
Mining Heritage Area	Derelict 0.54 Managed 0.35	Derelict 0.54 Managed 0.35

Table 3.4 Area and status of orchards identified from aerial photographs

3.6 For two Orchards in the Plateau Monitoring Unit the visibility is clear enough to provide a count of trees by species, whether these are alive or dead and upright or prostrate and whether the orchard has been mown/grazed. One orchard on the Plateau at Bohetherick was changed from Derelict to Managed as the orchard had been mown and 6 young apple trees being added to the existing prostrate alive 9 apple trees (See Table 3.5).

	2008	2013
Orchards surveyed	2	2
Total Number Apple Trees	17	17
Total Number of Cherry Trees	4	4
Other Trees	30	30
Total Prostrate Alive	51	51
Mature	10	10
Young	32	38
Grazed	No	No
Mown	Yes	Yes

Table 3.5 Orchards surveyed on the Plateau Monitoring Unit

3.7 Environmental Stewardship agreements are in place for the management of Traditional Orchards, See Table 3.6.

Environmental Stewardship Option	2012 (Area ha)	2013 (Area ha)
Maintenance of High Value Orchards (HC18)	1.7	1.7
Maintenance of Traditional Orchards in Production (HC19)	None	None
Restoration of Traditional Orchards (HC20)	13.8	13.7
Creation of Traditional Orchards (HC21)	1.6	1.6

Table 3.6 The Area of the AONB covered by Environmental Stewardship Schemes which include management of Traditional Orchards









Sites Designated for their Conservation Value


- 3.8 There are 56 sites designated for their conservation value across the AONB. This has increased since 2009 due to 7 County Geological Sites in Cornwall changing status from proposed to designated. The number of Sites of Special Scientific Interest, Local Nature Reserves, Special Areas of Conservation and Special Protection Areas have remained the same.
- 3.9 1 County Wildlife Site (CWS) has been removed - Lockett Reserve and Greenscombe Wood – this is due to a review by Cornwall Council whereby any CWS that had another designation was removed from the data - Lockett Reserve and Greenscombe Wood is also an SSSI (See Table 3.6)

	2009		2013	
	Number	Area (km2)	Number	Area (km2)
Regionally Important Geological Sites (County Geological Sites)	5 (7 provisional)	No data	13	1.65
Sites of Special Scientific Interest	7	21.6	7	21.6
Local Nature Reserve	1	4.63	1	4.63
County Wildlife Sites	33	26.5	32	13.33
Special Protection Areas	1	11.53	1	11.53
Special Areas of Conservation	1	15.63	1	15.63
Important Bird Areas	1	11.53	1	11.53

Table 3.6 Area of the AONB which has been designated as an important site for conservation

Summary of Change

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
BAP Habitats	Area of BAP Priority Habitat - (Natural England, 2012)	Area of land identified as BAP priority Habitat	New Baseline Data	2018
	Area of land in Environmental Stewardship for Management of BAP habitats (2012, 2013)	Area of land managed for BAP habitats remaining stable or increasing		2018
Extent and Condition of SSSIs	SSSi (Natural England, 2012)	Extent and condition of SSSI to remain stable or improve	West Devon 	2018
			East Cornwall 	2013
			Lyhner 	2015
Extent and Condition of Traditional Orchards	Traditional Orchards BAP priority habitat (Natural England, 2012)	Area of Traditional Orchard to remain stable or increase		2018
	Analysis of orchards from Aerial Photographs (Microsoft, 2012)	Area and Condition of Traditional Orchard to remain stable or increase		2013
	Field survey of Orchards in Sample Squares	Condition of Traditional Orchard to remain stable or increase		2018
	Area of land in Environmental Stewardship for Management of Orchard BAP habitats (2012, 2013)	Area of land managed for Orchard BAP habitats remaining stable or increasing		2018

<p>Sites Designated for their conservation value</p>	<p>SSSI (Natural England, 2012) SAC (Natural England, 2010) IBA (RSPB, 2000) Special Protection Areas (Natural England, 2010) National Nature Reserves (Natural England, 2010) County Wildlife Sites (ERCCIS, 2013) County Geological Sites (ERCCIS, 2013)</p>	<p>Area/Number of sites designated for their conservation value to remain stable or increase</p>		<p>2018</p>
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River and Estuary Management

The Indicators:

- Development at Sea
- Number of Moorings
- River Access
- River Management and Condition



Development at Sea

3.10 An investigation into possible developments at sea such as aquaculture or wind energy has found that there have been no developments either at the time of the baseline or currently.

Number of Moorings

The number of moorings on the River Corridor and the Lyhner have stayed fairly static since the baseline in 2009. The only increase is at Calstock where 2 extra moorings are noted (See Table 4.1). It is unlikely that the number of moorings will increase, due to the lack of available space and the restrictions on having moorings on inlets. It is not possible to tell from the available data what the level of active usage of the moorings actually is.

Location Number of moorings	2000/2013
Calstock	52 (2000) 54 (2013)
Cotehele	11
Halton Quay	10
Holes Hole	33
Weir Quay	157
Cargreen	157
Tavy	26
Tamerton Lake	25
Wearde Quay	47
Forder	55
St Germans	21

Table 4.1 Location and Number of Moorings in the AONB

River Access

Presence of Local Car and Passenger Ferries

- 3.11 Historically there were 11 ferries crossing the rivers of the Tamar Valley, at the time of the 2007 baseline the Calstock Passenger Ferry (Calstock>BereAlston>Cotehele Quay) was running between May and September, with 4 – 6 trips per day, tide dependant. This ferry no longer operates and there are no other ferries running on the river.

Tourist Boats

- 3.12 Sound and Tamar Cruising operate from Calstock between April and October with approximately one trip timetabled per week, other trips can also be scheduled. They also run a cruise to Morwellham Quay between April and October with 2 – 3 trips per month.

Quays and Crossings

- 3.13 There are 115 quays, 59 of which can be accessed by road, public footpath or permissive path. These quays are owned by parties such as the National Trust, Parish Councils, or estates, or they are under private ownership.
- 3.14 In a survey of 2010 it was noted that the bridges crossing the river at Blackmoreham Wood, Hatch Mill and Latchley are no longer present, leaving 5 bridges spanning the rivers.
- 3.15 Fords were also surveyed and Endsleigh Cottages, Maristow, Wareham Wood and Washford Fords are no longer present, leaving a total of 5 fords.

River Management and Condition

- 3.16 Environmental Stewardship schemes are in place for 6 metre Buffer Strips on 'Intensive Grassland Next to a Water Course' (Option EE10) for 1.2 ha of river bank; this has increased by 0.5 ha since 2012.
- 3.17 The Environmental Agency has stations on 49 sections of the rivers within the Tamar Valley AONB, totalling 86,622 m for Water Framework Directive condition monitoring. The ecological status can be classified as Good, High, Moderate, Poor or Bad. In 2013 2444m were downgraded from Good Condition to Moderate Condition. See Figure 4.1.

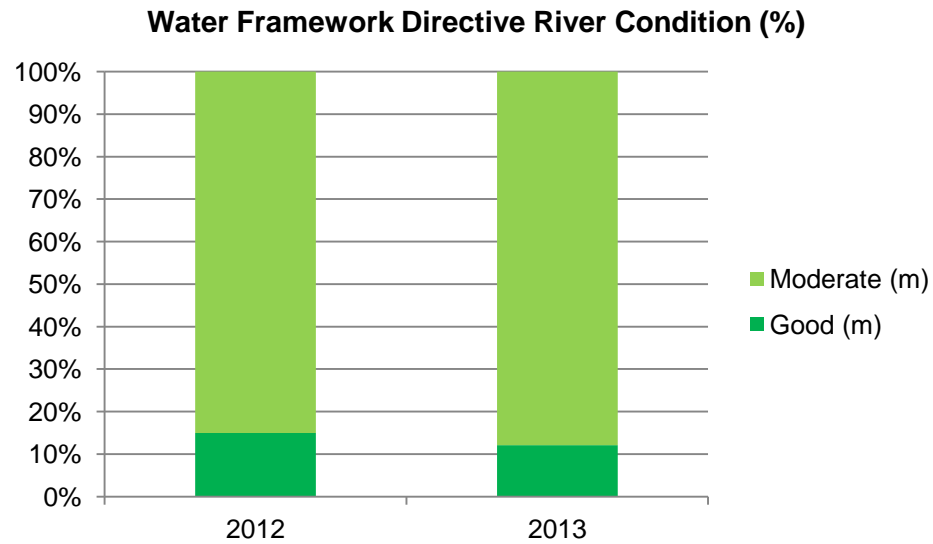







Figure 4.1 Ecological Status of the Rivers within the Tamar Valley

3.18 The Water Framework Directive Objectives for the Tamar Valley AONB rivers are for 11,116 m to be in good ecological status by 2015 (10,505 m achieved in 2013).

Summary of Changes

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Development at Sea	RESTATS	Area/number of developments at sea to remain stable		2018
Number of Moorings	Tamar Estuaries Consultative Forum (2013, per Comms) Calstock Moorings, Environment Agency (2013)	Number of Moorings to remain stable		2018
River Access		Continued presence of car passenger ferries		
	Tourism boats - Sound & Tamar Cruising (2013)	Number of cruises to remain stable	New Baseline data	2018
	Tamar Quays Survey (2010)	Number of accessible quays and crossings to remain stable or increase	New Baseline data	2018
River Management and Condition	River management – Environmental Stewardship (Natural England, 2013)	Area of river under management to remain stable or increase		2018
	Water Framework Directive	Condition of river to improve		2015

Farming, Forestry and Land Management

The Indicators:

- Agricultural Land Use
- Extent of Biomass Planting
- Extent of Horticultural Production
- Presence of Traditional Livestock Types
- Extent of Woodland and Tree Cover
- Woodland Management
- Field Boundary Condition



Photo *glasshouses at St Dominick* © Bob Levene

Agricultural Land Use

Agricultural Holdings

4.0 The total number of agricultural holdings and holdings of less than 5 ha in size have decreased since 2009 based on the June Agricultural Census, due to a change in the thresholds used in the survey (see Table 5.1). This change has been necessary to ensure only farms run as a commercial operation are included in the survey. The exclusion of smaller holdings removed approximately 40% of the holdings from the official estimates, however it only removes 1% of the activity from the main agricultural activities such as sheep, crops, pigs etc (more information about the change in thresholds can be found in the DEFRA June Survey of Agriculture and Horticulture: Methodology document). It is interesting to note that although the AONB appears to have reduced the number of holdings by 301 between 2008 and 2010, the amount total area of land has only decreased by 973 ha (equating to an average of 3.2 ha per holding).

	2007	2008	2009	2010
Total number of holdings	438	538	272	237
<5ha	263	276	51	27
>5ha but <20ha	109	105	80	74
>20ha but <50ha	71	70	57	58
>50ha but <100ha	50	53	48	45
>100ha	33	34	36	33
total land area	13,280	13,110	12,469	12,137

Table 5.1 Agricultural Holdings 2007 to 2010

Grassland

4.1 Overall there has been a decrease in grassland across the AONB (see Figure 5.1). Taking the following grassland categories and combining them - Rough Grazing, Permanent Grass and < 5ys Permanent Pasture, grassland has decreased across the AONB by 495 ha (5%) in the period 2007 – 2013 (See Figure*). However, the Cornish side of the

AONB has increased by 124 ha (4%) and there has also been a redistribution between the grassland categories with the area of <5 years Permanent Pasture decreasing and an increase in Permanent Grass. The area of Rough Grazing has also decreased by 25 ha (32%).

- 4.2 On the Devon side, again there has been a shift from <5 yrs permanent pasture to permanent grass with an overall decrease in grassland of 466ha (8%) Rough Grazing land has also decreased by 175 ha (54%).
- 4.3 The Lynher has a total decrease of 153 ha (18%) and again a change in the categories from < 5ys pasture to permanent pasture. It is not possible to tell the change in the area of Rough Grazing as the figures for 2013 have been suppressed for the 2013 survey.

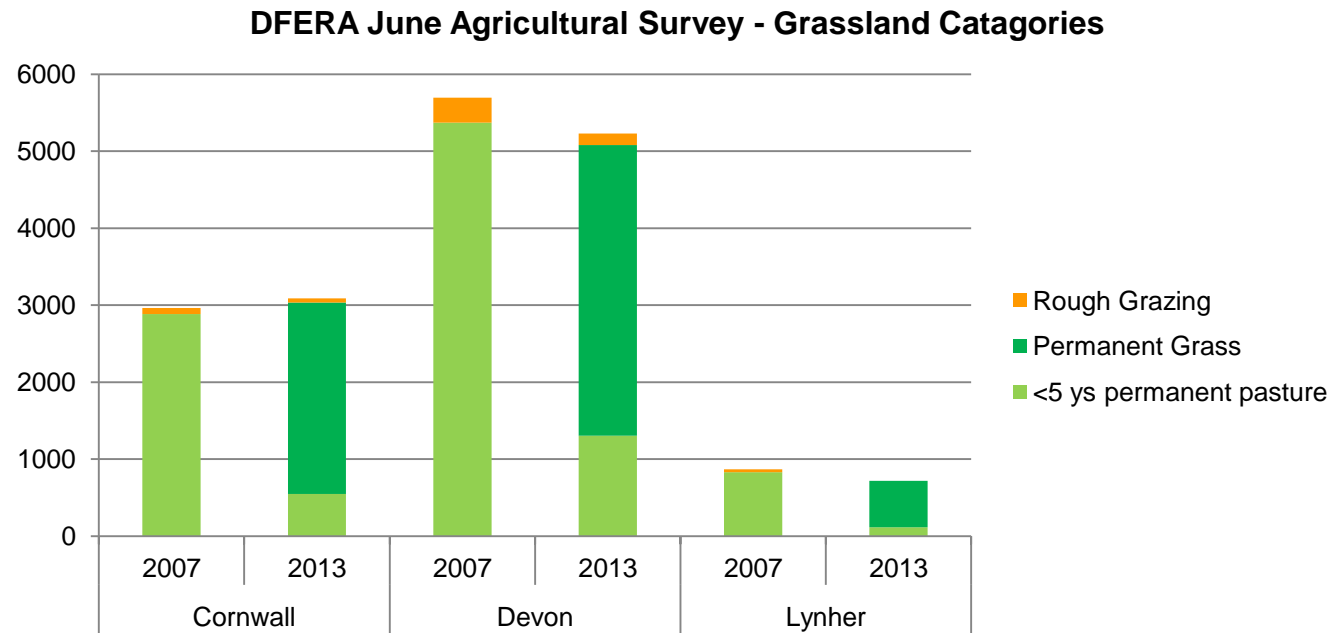


Figure 5.1 Comparison of the June Agricultural Survey – Grassland Categories between 2007 and 2013

Arable

- 4.1 The West Devon section of the AONB has an overall decrease of 121 ha (10%), with cereals reducing by 142 ha (16%). In 2007 there were 14 ha of potatoes however there is no data for 2013. The area of Maize increased by 2 ha (1%).
- 4.2 Across the Arable Categories (Cereals, Potatoes, Maize and Other Crops) the area covered has decreased by 81 ha (4%). In the East Cornwall Section there has been an overall increase in area by 85 ha (22%), there has been a reduction in the area of cereals if 70 ha but an increase an additional 120 ha of Maize and 35 ha of Other Crops.

4.3 The Cornish Lynher area had a reduction of cereals by 45 ha (10%), however in 2013 there is a presence of Maize and Other crops that were not present in 2007, although the exact area has been suppressed in the survey (See Figure 5.2).

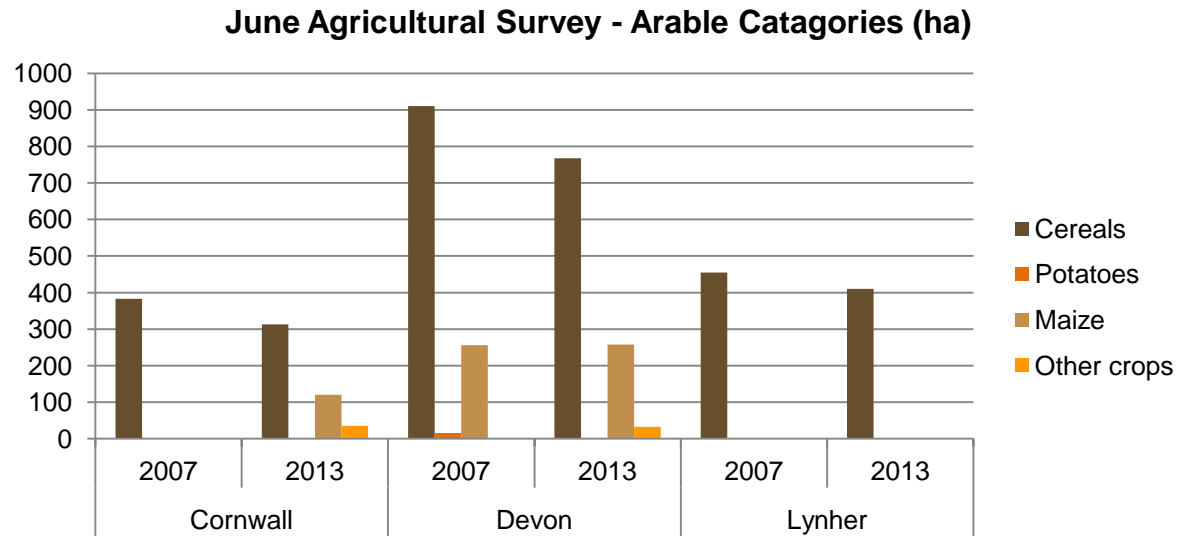


Figure 5.2 Comparison of the June Agricultural Survey – Arable Categories between 2007 and 2013

Horticultural

4.4 The area covered by Hardy Nursery Stock Bulbs and Flowers has increased on the Cornwall Side of the AONB by 3 ha to 19 ha, and has stayed the same in Devon at 29 ha.

Livestock

4.5 In 2013 58.1 ha of land was under Environmental Stewardship for Native Breeds at Risk Supplement (Option HR2).

Extent of Biomass Planting

4.6 There were no areas of biomass planting found at the time of the baseline or in 2013, based on the Natural England Energy Tranche Scheme data, and using data from the Renewable Energy Statistics database. There are also no Forestry Commission Woodland Improvement Grant schemes for short rotation coppice.

Extent of Woodland and Tree Cover

4.7 Total woodland cover across the AONB has increased by 360 ha (4%). There has been a change in the composition of the woodland types. This has been examined by comparing the Forestry Commission's National Inventory of Woodland and Trees (2002) and the National Forestry Inventory (2012). The methodology behind the two inventories has changed to include additional categories for mixed woodland (either mainly broadleaved or mainly coniferous) which have been combined in this analysis to make the data more comparable. Two additional categories have been amalgamated in a class called 'other' which includes 'interpreted open areas' and 'assumed woodland'. In addition the National Forest inventory now records woodland >0.5 ha that were not part of the National Inventory of Woodland and Trees and therefore these small woodlands have been removed from the National Forestry Inventory dataset to provide a more accurate comparison of changes over the monitoring period. Figure 5.3 indicates the extent of each woodland category for each of the AONB sections.

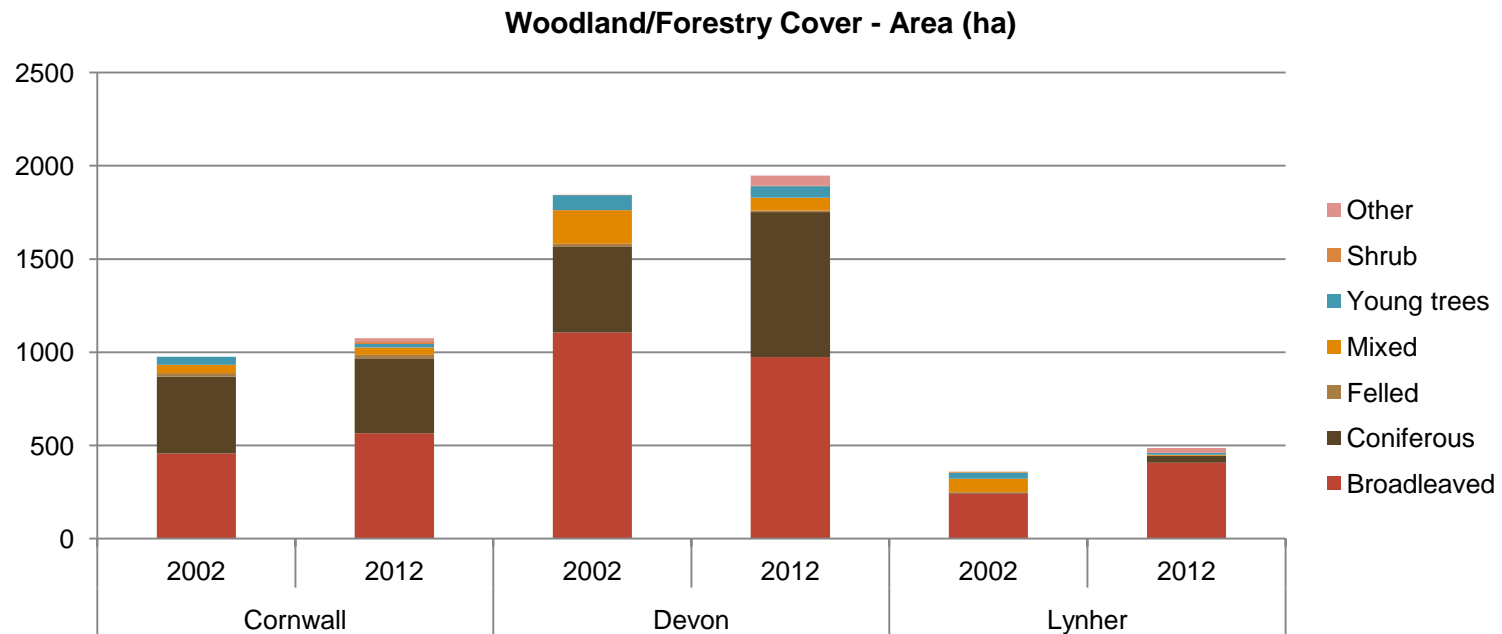


Figure 5.3 Comparison of Woodland Cover for the AONB section between 2002 and 2012

- 4.8 In Cornwall, there has been an increase of 108.5 ha (24%) of Broadleaved Woodland; most of this is distributed across the AONB rather than in a large area, often alongside woodland identified in the 2002 survey. Coniferous woodland decreased by 9.4 ha (2%) and mixed woodland decreased by 5.4 ha (12%). The overall change in woodland cover is an increase of 99.48 ha (4%)
- 4.9 In Devon, there has been a decrease in the area of Broadleaved woodland of 131 ha (17%), the area of coniferous woodland increased by 315 ha (68%). There are several large areas that have been reclassified from broadleaved woodland to coniferous woodland, for example around Blanchdown Wood, Maddacleave Wood and Morewelldown Plantation. An example of an area that has been reclassified is around Blackmoorham Wood which is now classified as Coniferous Woodland. Mixed woodland has also decreased by 111 ha (62%). Overall there has been a total gain in the area of woodland in Devon of 103 ha (3%).
- 4.10 In the Lyhner, broadleaved woodland has increased by 166 ha (69%), mixed woodland has decreased by 69 ha (94%) with much of it being reclassified as coniferous woodland which has increased by 38 ha (529%). Overall the woodland cover has increased by 126 ha (6%).
- 4.11 Figure 5.4 is useful to compare the composition of the woodland cover across the AONB Sections.

Comparison of Woodland Composition

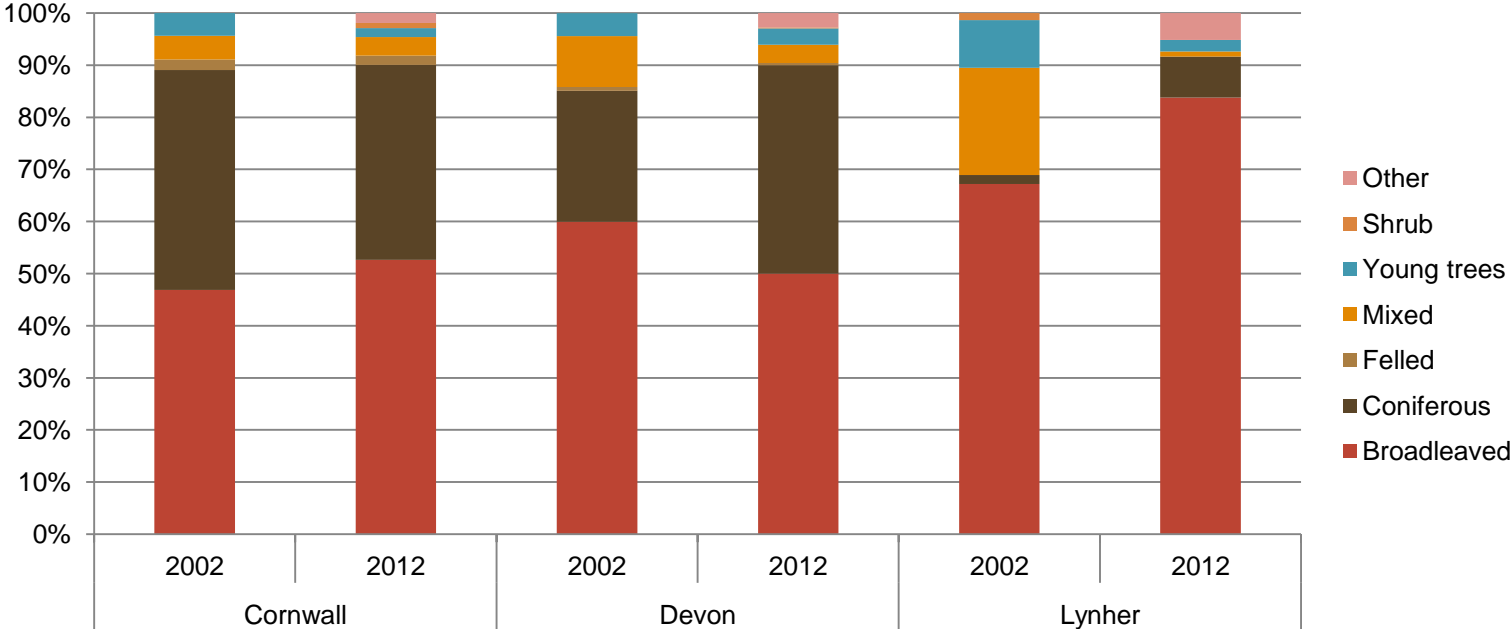


Figure 5.4 Comparison of Woodland Composition by AONB section between 2002 and 2012

Woodland Management

4.12 Environmental Stewardship Schemes are in place for 222 features across the AONB related to protecting in-field trees, see Table 5.2. There has been a decrease in 27 in-field trees protected on grassland.

	Protection of in-field trees on arable land (EC1)	Protection of in-field trees on grassland (EC2)	Protection of in-field trees on grassland (HC2)	Protection of in-field trees on rotational land (OC1)	Protection of in-field trees on organic grassland (OC2)	Total Number of Features
2012	54	102	8	1	86	251
2013	55	75	8	0	84	222

Table 5.2 Areas of Land Covered by Environmental Stewardships schemes that include elements for in Field Tree Protection

4.13 For management of farm woodland, a total of 217.6 ha are under Environmental Stewardship agreements, see Figure *. There has been an increase of 67.7 ha of land under the Maintenance of Woodland option.

	Maintenance of woodland HC7 (Area ha)	Restoration of woodland (HC8) (Area ha)	Management of woodland edges (EC4) (Area ha)
2012	68.6	78.8	1.3
2012	136.3	78.8	2.5

Table 5.3 Areas of Land Covered by Environmental Stewardships schemes that include elements for Woodland Management

4.14 Between 2005 and 2011 there were 815.7 ha of land under a Woodland Grant Scheme and a further 554 ha within ancient woodland.

4.15 According to the Forestry Commissions' Managed Woodland data there are 2,012 ha of actively managed woodland in the AONB accounting for 55% of the woodland (Source: Forestry Commission © 2013). Managed woodlands include any woodland that is supported by any of the Forestry Commissions' initiatives, is part of the publicly owned forest estate owned or managed by the Forestry Commission, or any woodland with a felling licence. Land under Woodland Grant Schemes (WGS) such as the Assessment Grant, Regeneration Grant, Forest Plans, Dedication, WGS1, WGS2 and Natural England's Higher Level Stewardship Scheme are not included in the data.

Ancient Woodland

- 4.16 The area of ancient woodland across the AONB has stayed stable with 376.3 ha of Ancient Semi Natural Woodland and 1249.8 ha of Ancient Replanted Woodland.

Field Patterns and Hedge Condition

- 4.17 The analysis of field boundaries was based on sample squares within each monitoring unit. For the base line each hedgerow was mapped and classified from Aerial Photographs taken in 2005 (Get Mapping, 2005) and repeated using Aerial Photographs from 2012 (Microsoft, 2012). The analysis looked at: Field Boundary Type and Features, Field Boundary Pattern and Field Size. Field surveys then took place to assess the condition of each hedge.

Field Boundary Type and Features

- 4.18 The Field Boundary Types were initially identified during the aerial photograph analysis and then ground truthed during the field surveys. The following classifications and criteria were used:
- Cornish/Devon hedgebank: Traditional stone-faced or bare earth/grassy banks either topped with vegetation (hedgerows, trees or other vegetation) or free from topping vegetation. No gaps other than specifically designed gateways, stiles and other openings.
 - Non-continuous Cornish/Devon hedge: Hedges with gaps other than specifically designed gateways, stiles and other openings greater than 20% of the total hedge length.
 - Relic Cornish/Devon hedge: not stock proof, less than 1m high
 - Hedgerow: Continuous hedgerow with interwoven growing branches forming a dense stockproof barrier from the ground up.
 - Non-continuous hedgerow: As above gaps of more 20% or more
 - Wooded boundary: overgrown hedge or tree line with uneven boundary line.
 - Non-continuous wooded boundary: Gaps of more 20% or more
 - Other: all other features defining a field edge, including fences, footpaths, buildings, woodland, scrub, etc
- 4.19 In total 1288 hedges were mapped with 722 (56%) checked in the field. There has been very little change in the hedgerow types in the period from 2005 to 2012 (see Table 5.4). In the Kit Hill monitoring unit one section (210.7m) of

Cornish Hedgebank on the edge of a woodland has now become overgrown and reclassified as a Wooded Boundary, and one section of Cornish Hedge bank (144.9 m) has further deteriorated and been reclassified as non-continuous. In the Plateau monitoring unit one field boundary (69.6m) has been re classified from a wooded boundary to a Cornish Hedgebank.

Type of Field Boundary	Total length (m) 2005 in AONB	Total length (m) 2012 in AONB
Cornish/Devon Hedgebanks	86303.06	86016.06
Cornish/Devon Hedgebanks Non-continuous	308.44	454.34
Hedgerow	267.86	267.86
Hedgerow Non-continuous	89.19	89.19
Wooded Boundary	41770.14	41911.24
Wooded Boundary - non continuous	313.94	313.94
Removed	584.14	0
Other	5339.56	5339.56

Table 5.4 Comparison of the total lengths of field boundaries 2005 – 2012

4.20 The proportion of each hedge type per AONB area can be seen in Figure 5.1. This chart gives a good overview of the main boundary type per AONB monitoring unit, for example it can be seen that the Moorland Fringe consists of mainly hedgebanks with few wooded boundaries compared to the areas that feature more woodland such as the mining heritage area and the River Corridor that has more wooded boundaries.

Field Boundary Type by AONB Monitoring Unit

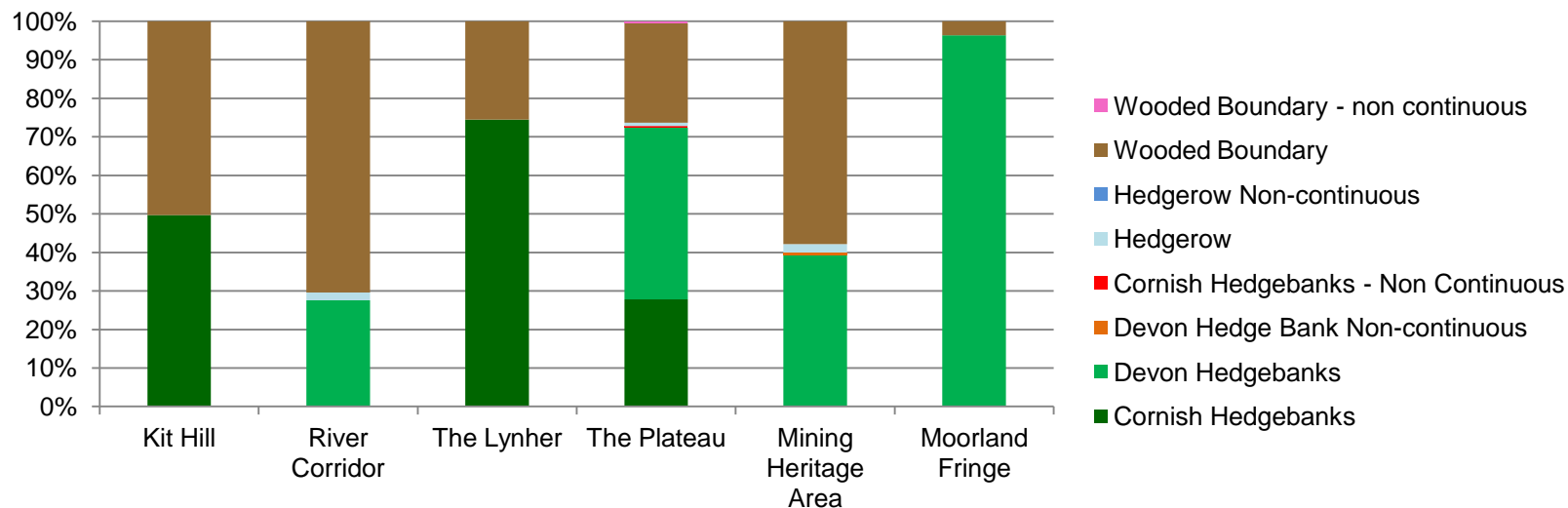


Figure 5.1 Composition of field boundaries within each landscape monitoring unit.

4.21 During the field survey the features of each visible hedgerow were also recorded for presence of the following:

- Hedgebanks with Trees
- Shrubs
- Gorse
- Bracken
- Scrub
- Grasses
- Wildflowers
- Bare Earth
- Bare Earth and Exposed Stone
- Stone Facing

4.22 The overall composition of the field boundary features per AONB area can be seen in Figure 5.2. Kit Hill has the most varied amount of features with many stone-faced hedgebanks. The River Corridor has the most simple hedgebank composition with just hedgebanks with trees, shrubs and wildflowers. The Moorland Fringe area features the most amount of scrub. Although there has been a slight variation in hedgebanks featuring wildflowers or grasses there has been no significant change in boundary features in the period 2008 to 2013.

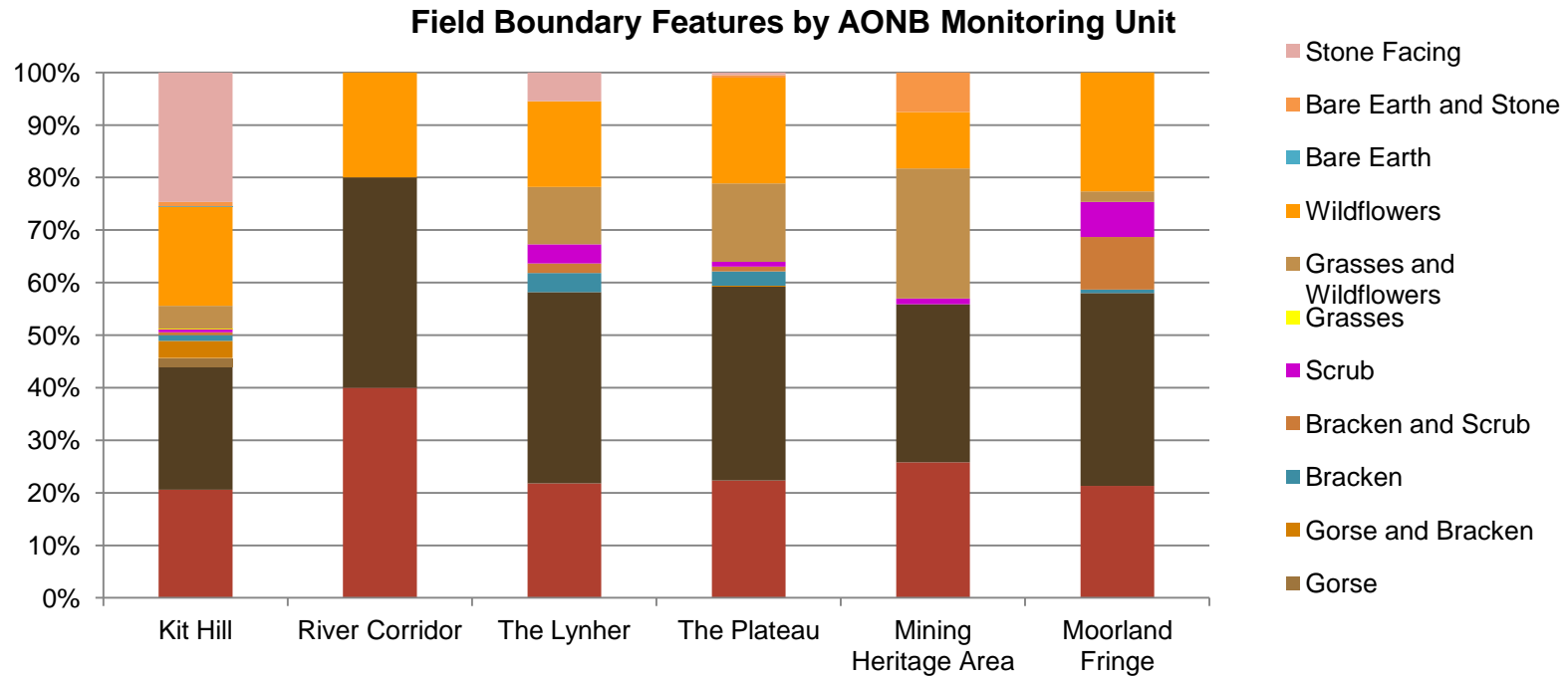


Figure 5.2 Composition of field Boundary features within each monitoring unit.

Field Boundary Management

4.23 Each visible hedge was also surveyed for evidence of management by flailing. There was no significant change in the period 2008 to 2013. None of the field boundaries surveyed in the River Corridor were managed by flailing reflecting the dominant type of field boundary in this area of Wooded Boundary, featuring Trees and Shrubs. Other areas such as the Moorland Fringe and Plateau show a much higher occurrence of flailing (See Figure 5.3).

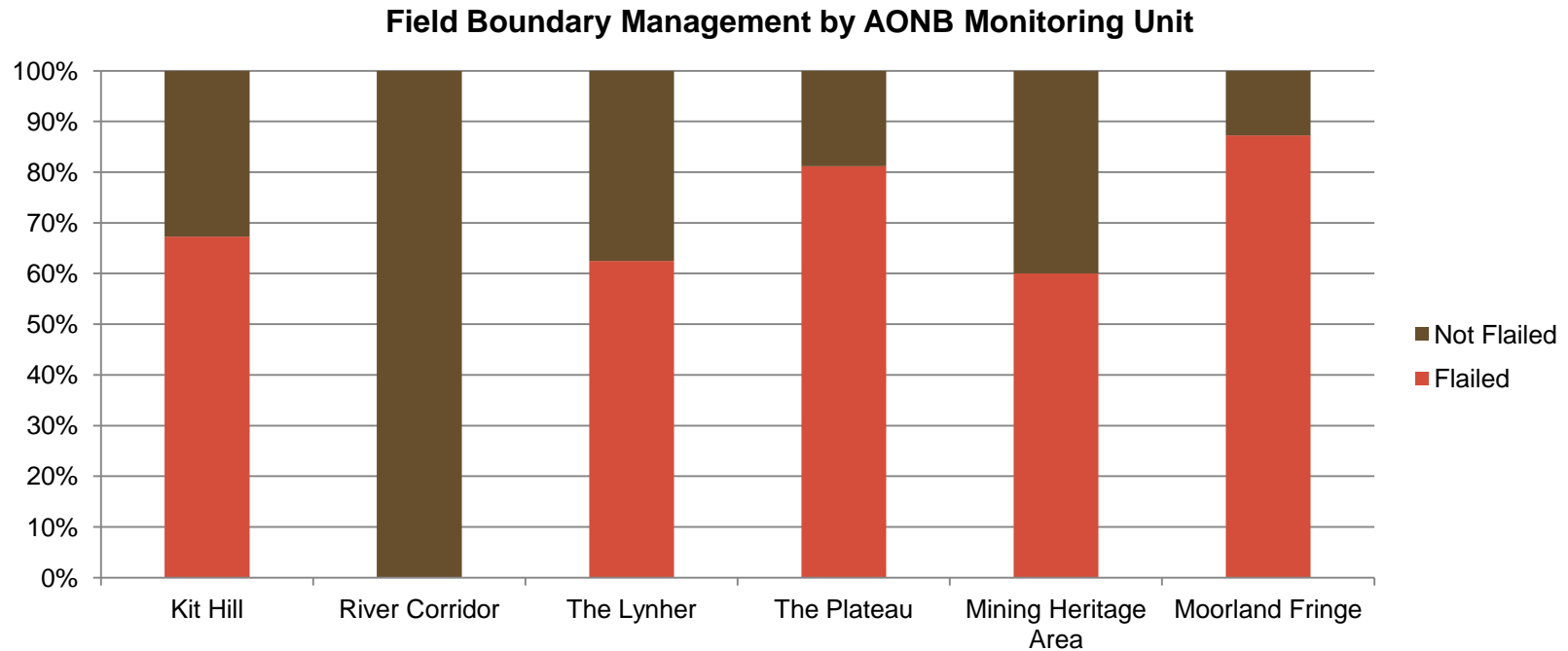


Figure 5.3 Percentage of field boundaries that are managed by flailing.

Field Boundary Pattern and Size

- 4.24 The field boundary survey did not find any changes to the structure of the field pattern, with no occurrences of hedgerow removal since the baseline survey in 2008. Therefore there has been no change in the field pattern or size.
- 4.25 Field Boundaries were assessed during the baseline study to be either straight or sinuous. It can be seen from Figure 5.4 that Kit Hill has a largely uniform field pattern with the majority of boundaries being straight, whereas the Moorland Fringe and the Lynher have over half of the boundaries identifies as sinuous.

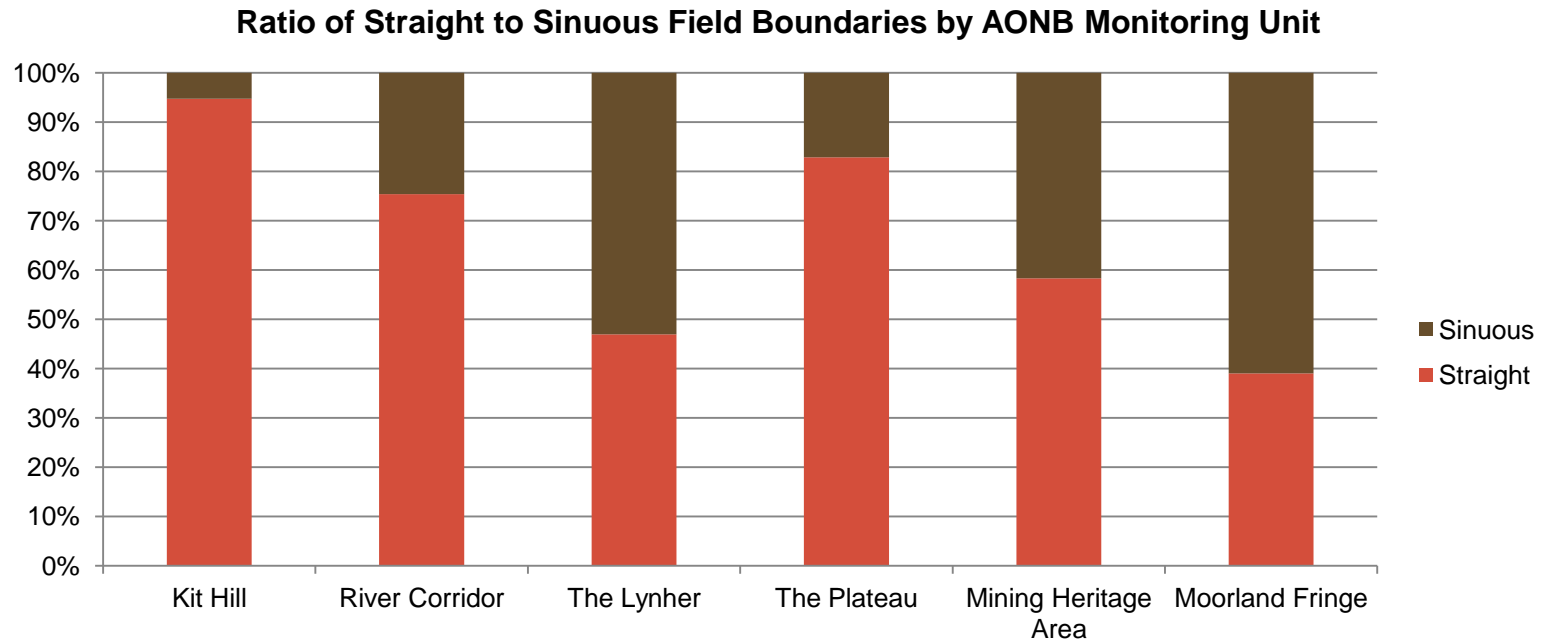


Figure 5.4 Percentage of straight or sinuous field boundaries within each monitoring unit.

4.26 The average Field Size for each monitoring unit was analysed using whole fields that occurred in the sample squares for each monitoring unit. The Lynher has the largest average field size at 4.2 ha and the River Corridor the smallest at 0.8 ha. The Plateau also has a relatively small field size of 1.7 ha (see Figure 5.5).

Average Field Size (ha) by AONB Monitoring Unit

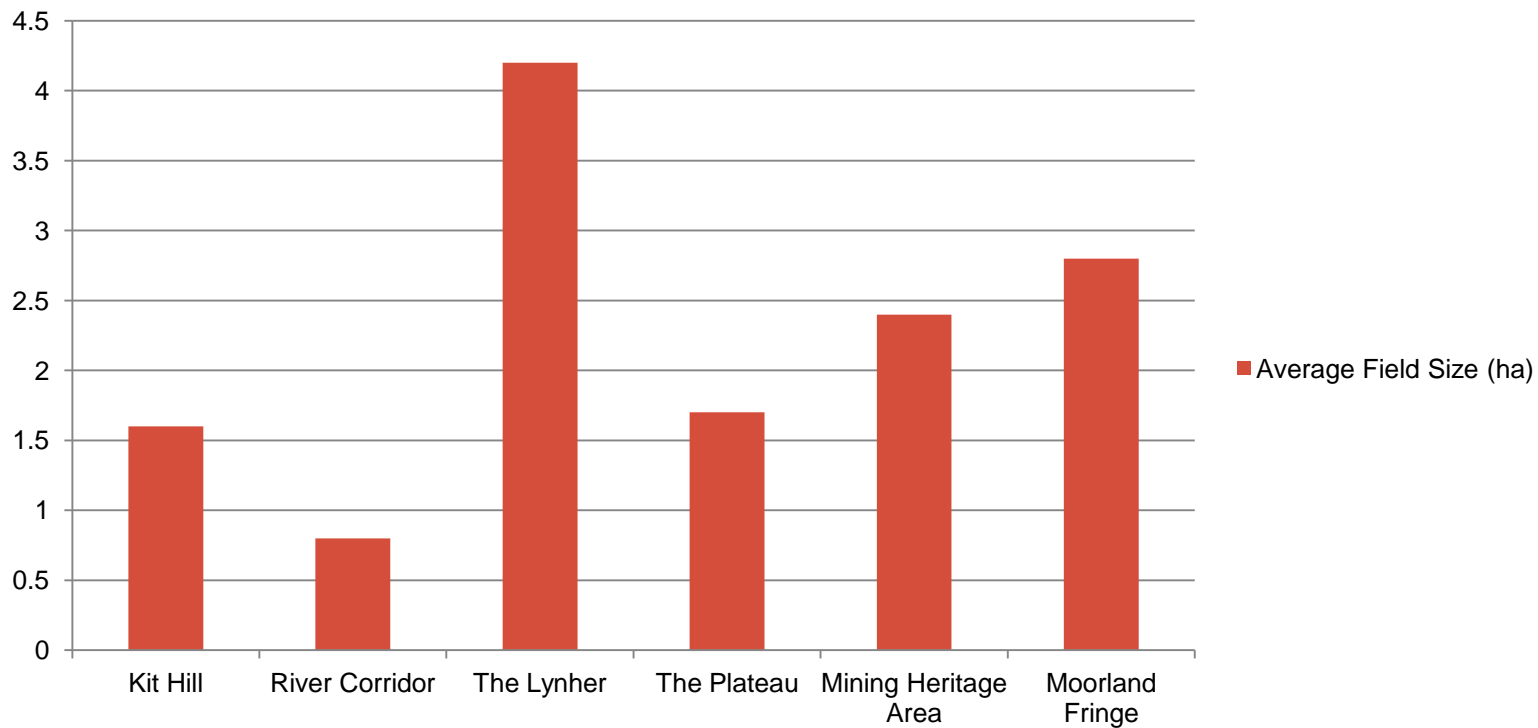




















Figure 5.5 Average field size within each monitoring unit.

Summary of Changes

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Agricultural Land Use	Number of Agricultural Holdings – DEFRA June Agricultural Survey (2007- 2010)	Maintenance of Agricultural Holdings		2018
	Area in Grassland - DEFRA June Agricultural Survey (2007- 2010)	Maintenance or increase in the area of pastoral farming, including cattle grazed meadows in the south	Cornwall 	2018
Devon 				
Lynher 				
	Area in Arable - DEFRA June Agricultural Survey (2007- 2010)	Reduction in the area of arable cultivation	Cornwall 	
Devon 				
Lynher 				
	Area in Horticultural production - DEFRA June Agricultural Survey (2007- 2010)	Increase in the area of horticultural production	Cornwall 	
Devon 				

	Livestock – Environmental Stewardship data	Increase or maintenance in the area of land managed for Native Breeds at Risk	New Baseline data	2018
Extent of Biomass Planting	Area planted for biomass. Energy Tranche data (Natural England) RESTATS (2013)	No Loss of permanent pasture or BAP habits to biomass planting. Biomass to be incorporated into existing cultivated land or woodland.		2018
Extent of Woodland and Tree Cover	Area of woodland cover. National Inventory of Woodland and Trees (2002) National Forestry Inventory (2012)	Maintenance or increase of woodland in valleys and estate woodland, Maintenance or increase in the number/size of small copses. No Increase in conifer plantations.	Cornwall 	
			Devon 	
			Lynher  	
	Ancient Woodland Inventory (Natural England, 2012)	Maintenance or increase in area of Ancient Woodland		
Woodland Management	Area of in-field tree protection – Environmental Stewardship (Natural England, 2012, 2013)	Maintenance or increase in the Area managed for the protection of in-field trees		2015
	Area in woodland management - Environmental Stewardship (Natural England, 2012, 2013)	Maintenance or increase in the Area of woodland managed		2015
Field Patterns and Hedge Condition	Aerial Photographic analysis of field Boundary Type and pattern	No Decrease in the length Total of Field Boundaries. No Increase in Field Size.		2015

Access, Recreation and Tourism

The Indicators:

- Public rights of way and permissive access
- Open Access Land
- Transport Infrastructure
- Tourism



Photo: Walkers at Devon Great Consols © TVAONB

Access

Public Rights of Way

- 5.1 There is a total increase of 110m of Public Footpaths across the AONB. There is a new section of Footpath at Bere Ferrers (Footpath 37) which is 325m. There have also been other small diversions and sections added/removed on other footpaths such as at the Public Footpath near Oatham and at Bere Ferrers (Footpath 20) which has been shortened by 200m making a more direct route.
- 5.2 The total length of bridleways increased by 52m in the period 2009 – 2013. There is a new Bridleway north of Weir Quay totalling 86m, this has been changed from a Public Footpath. 34m have been lost off of a variety of Bridleways in Cornwall in 2-3 m sections. It is possible that this is due to inconsistency in the data (see Table 6.1).

Public Rights of Way	2009	2013
Footpaths	111,447	111,557
Bridleways	145,75	146,27
Byway Open to all Traffic	818	818
Total	126,840	127,003

Table 6.1 The total lengths of public rights of way over the Tamar Valley Area of Outstanding Natural Beauty

Permissive access – The Tamar Trails and access under Stewardship Schemes

- 5.3 The Tamar Trails covers 25km and is a combination of footpaths, cycle ways, multi-use trails, byways and bridleways. The trails have been opened up on routes previously used as public access such as on the former mineral tramway. Other routes have been opened on private land as permissive access. The work on the trails began in 2007 and was completed in 2013.
- 5.4 In 2012 and 2013 there was 780m of permissive access to footpaths under Environmental Stewardship Schemes (3 Agreements). In 2012 there was 603m of permissive access to footpaths in 2013 this has increased to 4824m under Countryside Stewardship Schemes.

Open Access Land

- 5.5 There is 239 ha of Open Access land in the AONB, totalling 1 % of the AONB area.
- 5.6 In 2012 there was 0.7 ha of open access land permissible under Countryside Stewardship Schemes; in 2013 this has increased to 6 ha.
- 5.7 There is also 146 ha of open country, 93 ha registered common land, and 7 ha of section 15 land (1% of the AONB). 136 ha of Wildlife Trust reserves, 159 ha of Country Parks, 512 ha of Forestry Commission land and 97 ha of Woodland Trust land (5% of the AONB).

Transport Infrastructure

- 5.8 Where roads were present within the sample squares a Transport Infrastructure survey was undertaken. A total of 25 roads (15,074m) were surveyed for average width and depth, road signage, road markings and pavements. The only change to the infrastructure was an additional road sign in the Plateau Monitoring Unit (See Table 6.2).

	Kit Hill	The Lynher	The Plateau	Moorland Fringe
Roads Surveyed	7	1	14	3
Total Length (m)	4646	510	6110	2252
Average width (m)	4	4	4	2.5
Average road Depth (m)	1	0	3	0
Total amount of road signs	18	2	154	0
% of roads with pavements			57	
% of roads with Kerb stones			42	
Fingerposts			4	1
Roads with centre markings			1	1
Roads with painted words			3	

Table 6.2 Transport infrastructure







Tourism

5.9 The latest tourism data available is from 2003 (South West Tourism) which can be compared to the data from 2001. In each category there was an increase.

Tamar Valley AONB Value of Tourism			
	2001	2003	Difference
Number of Trips per Year	56,180	60,800	4620
Visitor Spend	10,512,000	11,908,000	1,396,000
Staying Nights	256,600	275,000	18,400
Day Trip Spend	5,898,000	6,334,700	436,700
Tourism Employment	481	No data	

Table 6.3 Comparison of the value of tourism from 2001 to 2003.

Summary of Changes

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Public Rights of Way	Length of Public Right of Way (Cornwall Council, 2013, Devon County Council, 2013)	Maintenance or increase in the length of Public Rights of Way		2018
	Length of Tamar Trails	Maintenance or increase in the length of permissible trails	AONB Wide 	2018
	Length of paths made accessible through Environmental Stewardship Schemes and Countryside Stewardship	Maintenance or increase in the length of permissible trails	AONB Wide 	2015
Open Access Land	Area of Open Access Land (Natural England)	Maintenance or increase in the area of Open Access Land	AONB Wide New Baseline data	2018
	Area of access permissible under Stewardship Schemes (Natural England, 2013)	Maintenance or increase in the area of Permissible Access Land		2015
Transport Infrastructure	Field Survey for road signage, painting, pavements, width and depth.	No widening of typically narrow lanes, no significant increase in roadside clutter.		2015
Tourism	South West Tourism statistics (Tamar Valley Economic Profile, 2005)	Maintenance or increase in number of visitors, trips and tourism spend		2018

Planning and Development

The Indicators:

- Local Vernacular Building Styles
- Settlement Pattern



Photo: © Get Mapping 2005

Settlement Pattern

- 6.1 A detailed look at settlement pattern has taken place using aerial photographic analysis during Phase 1 using photos from 2005 (Get Mapping, 2005), and in Phase 2 using aerial photos from 2012 (Microsoft, 2012). The analysis looks for new development outside of the existing curtilage of developments; therefore any new development that is 'infill' will not be identified.
- 6.2 6 incidents of new development covering a total of 1.8 ha were located including:
- A new farming complex just north of Klondyke (Kit Hill)
 - An additional farm building added to an existing complex just north of Klondyke (Kit Hill)
 - Change of use from agricultural land use to residential gardens just north of Coxpark (Kit Hill)
 - A new farm or industrial development adjacent to an existing farm/industrial dwelling next to the dismantled railway, south west of Chilsworthy (Kit Hill)
 - An extension to an existing site of polytunnels at Burraton (The Plateau)
 - Creation of a hard standing for car parking at Morwellham
- 6.3 An example of new development can be seen clearly on the aerial photographs at Morwellham (See Figure 7.1) where an existing temporary car park has been made into a hard standing.




Figure 7.1 The photograph on the left is from 2005 and the right 2012, the photos clearly show that a new permanent hard standing for parking has been created within the red circle.

Local Vernacular Building Styles

- 6.4 Research into local vernacular building styles is currently being completed by the Tamar Valley AONB in the form of a design guide. This will become a valuable tool in future planning applications and will also provide a detailed account of the building styles within the Tamar Valley from which future monitoring phases will be able to look for changes.

Summary of Changes

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Settlement Pattern	Area identified from Aerial Photographs, (Microsoft, 2012)	Maintenance or enhancement of distinctive character of the planned mining settlements and related small holdings. No new development outside of settlement curtilages (including industry and housing)		2018

Environmental Quality and Climate

The Indicators:

- Extent of Dark Night Skies
- Levels of Tranquillity
- Levels of Intrusion
- Extent of Bare Mining Spoil
- Soil Protection

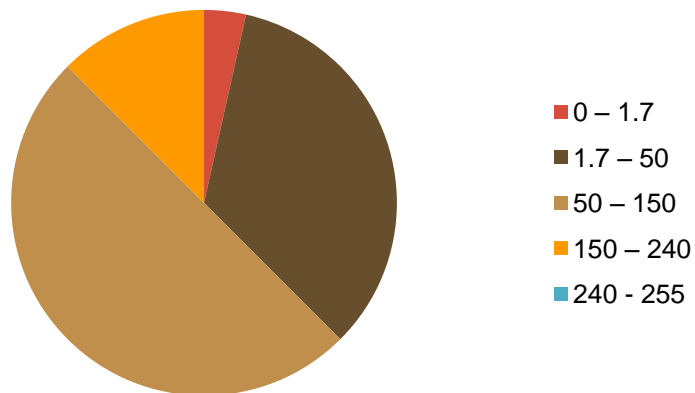


Photo: View from Kit Hill to Plymouth © TVAONB/Barry Gamble

Extent of Dark Night Skies

7.1 The extent of dark night skies data has not been repeated since the baseline in 2007; however the results of the baseline are included here and should be followed up if new data becomes available for future phases. Analysis of the previous data suggests the Tamar Valley improved within the Dark Night Skies categories, however this has not been repeated in the last 13 years (See Figure 8.1).

Extent of Dark Night Skies - Categories of Darkness 1993 (ha)



Extent of Dark Night Skies - Categories of Darkness 2000 (ha)

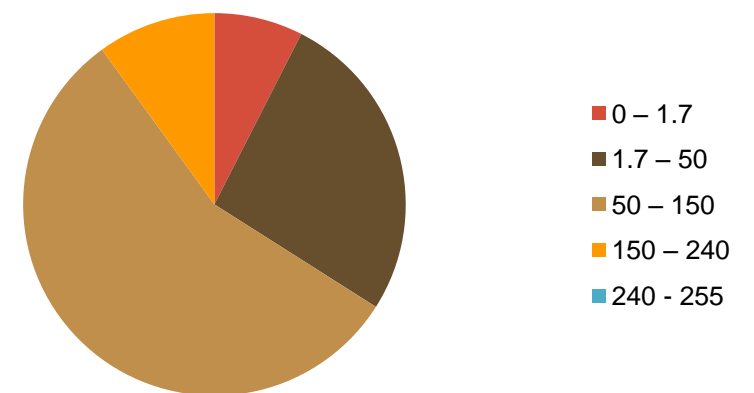


Figure 8.1 Comparison of the Extent of Dark Night Skies results from 1993 to 2000.

7.2 The Tamar Valley AONB organised a community star count in 2008 which is to be repeated in 2014 (see Table 8.1)

Location	GPS	Date	Weather	No of Stars Visible
Milton Abbot	50 05 28.5 04 17 40.0	31.12.08	Clear, frosty	9
Milton Abbot	50 35 08.8 04 15 05.8	31.12.08	Clear, frosty	9

Table 8.1 The results from the 2008 community star count

Extent of Intrusion

7.3 Intrusion mapping was completed in 2007 however this has not been repeated, the results are included here to enable comparison to be made when future data becomes available. Comparing the results to 1997 (see Figure 8.2), it appears that over that period the AONB was becoming more disturbed in each section of the designation.

Levels of Intrusion

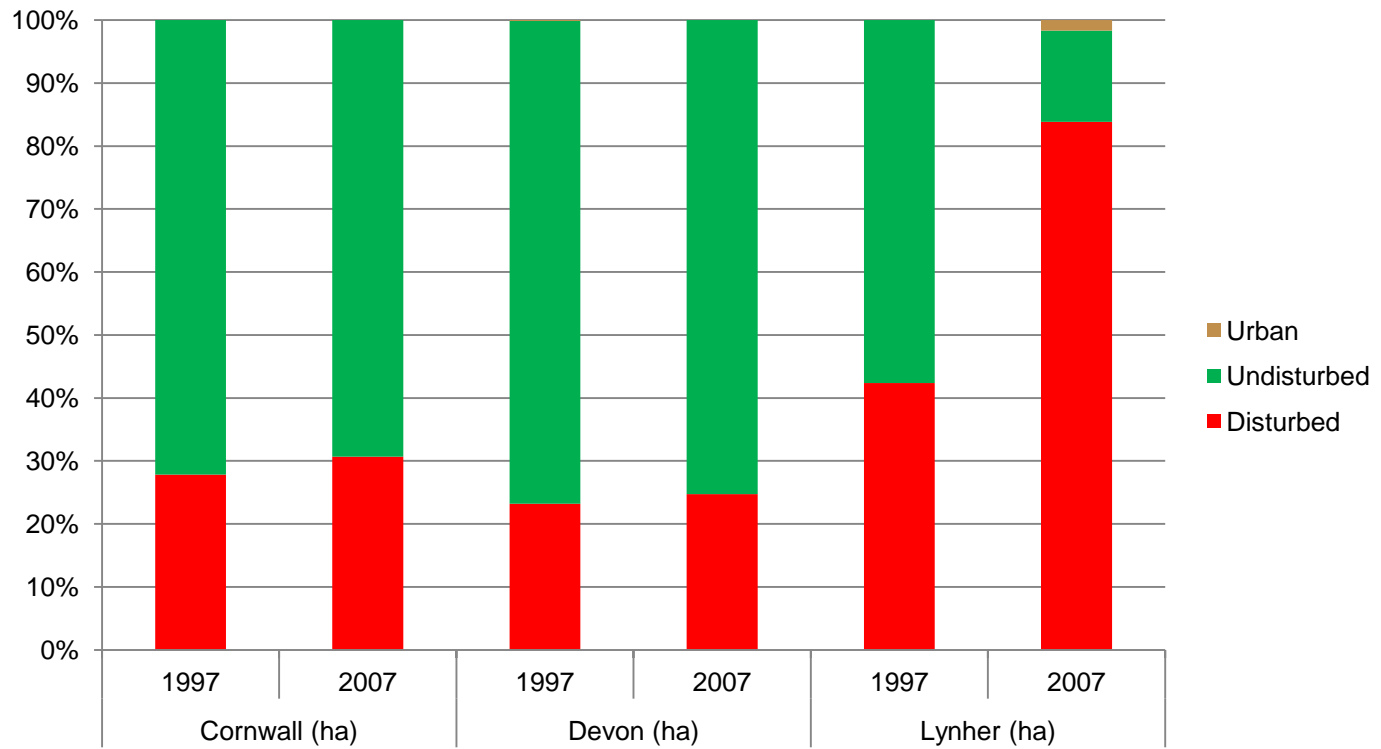


Figure 8.2 Comparison of the levels of intrusion from 1997 to 2007

Levels of Tranquillity

- 7.4 A Tranquillity study took place in 2007 by the CPRE, however this has not been repeated in time for this survey period. The results are presented here for comparison in future phases of the monitoring project (see Table 8.2). The range of scores across England ranged from the most tranquil area at +28.6 to the least tranquil area (-79.5).

Level of Tranquillity	Cornwall	Devon	Lynher
Highest	32.7	41.6	44.9
Lowest	-40.4	-29.4	-32.6
Mean	-1.1	9.8	6.2

Table 8.2 Levels of Tranquillity across the three sections of the Tamar Valley Area of Outstanding Natural Beauty



Extent of Bare Mining Spoil

- 7.5 The extent of bare mining spoil was mapped within the sample squares during phase 1 using aerial photographs from 2005 (Get Mapping, 2005) compared with 2012 (Microsoft, 2012). There has been significant decrease in the amount of mining spoil visible.
- 7.6 In Kit Hill the area visible has reduced from 741.6 m² to 126.9 m²
- 7.7 In the mining heritage area the visible spoil has reduced from 13540 m² to 1344.1 m²

Soil Protection

- 7.8 6.6 ha of land is covered by 'Soil Protection' Environmental Stewardship agreements, these are 'In Field Grass Areas to prevent erosion and run off (EJ5)' - 0.2 ha and Arable Reversion to unfertilised grassland to prevent erosion or run off (HJ3)' - 6.6 ha. This has remained the same in both 2012 and 2013.

Summary of Changes

Indicator	Evidence	Desired Direction of Change	Actual Change	Next review
Extent of Bare Mining Spoil	Area identified in aerial photographs, 2005 (Get Mapping) and 2012 (Microsoft)	Maintenance or increase in the visible mining spoil		2018
Soil Management	Area in Environmental Stewardship (Natural England 2012, 2013)	Maintenance or increase in the area managed for soil protection		2018

Glossary

AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CEH	Centre for Ecology and Hydrology
CGS	County Geological Sites
CPRE	Campaign to Protect Rural England
DEFRA	Department for Food and Rural Affairs
ENSIS	Natural England Site Information System
ERCCIS	Environmental Record Centre for Cornwall and the Isles of Silly
HER	Historic Environment Record
IBA	Important Bird Area
LMU	Landscape Monitoring Unit
NNR	National Nature Reserve
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
WGS	Woodland Grant Schemes

