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Area of Outstanding Natural Beauty

Malvern Hills Area of Outstanding Natural Beauty
State of the Malvern Hills AONB 2018

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Introduction and Acknowledgements

Introduction

This report provides a snap-shot of the condition of the Malvern Hills Area of Outstanding Natural Beauty (AONB) in 2018. It does this by identifying a range of attributes which are important for the area, for example, landscape, and then presenting data on one or more indicators of change against each of these attributes. Where possible, comparisons are made between new data and those presented in the State of the Malvern Hills AONB report for 2014, as well as, occasionally, with data contained in earlier *State* reports. In this way the reader can begin to understand how the condition of the AONB is changing. This comparison can also be seen as a gauge of the effectiveness of the AONB Partnership in conserving and enhancing the special qualities of the area.

Whilst the text does make brief references to methodology and sources of information, this report focuses on the presentation of data rather than on why or how it has been collected. Information on the justification and rationale for this work can be found in a report entitled 'A methodology for monitoring the changing condition of the Malvern Hills AONB' available at: www.malvernhillsaonb.org.uk.

Acknowledgements

The Centre for Rural Research at the University of Worcester and the Malvern Hills AONB Partnership have now collaborated for over 10 years on work to monitor the condition of the Malvern Hills AONB. Thanks are due once again to Nick Evans, Professor of Rural Geography, for his considerable effort in collecting and assembling data and for his help in compiling and editing this 2018 report. Thanks are also due to all landowners and property owners who have allowed survey work for the purposes of compiling this report.

Paul Esrich, Manager, Malvern Hills AONB Partnership

Front Cover photo © Mark Waidson

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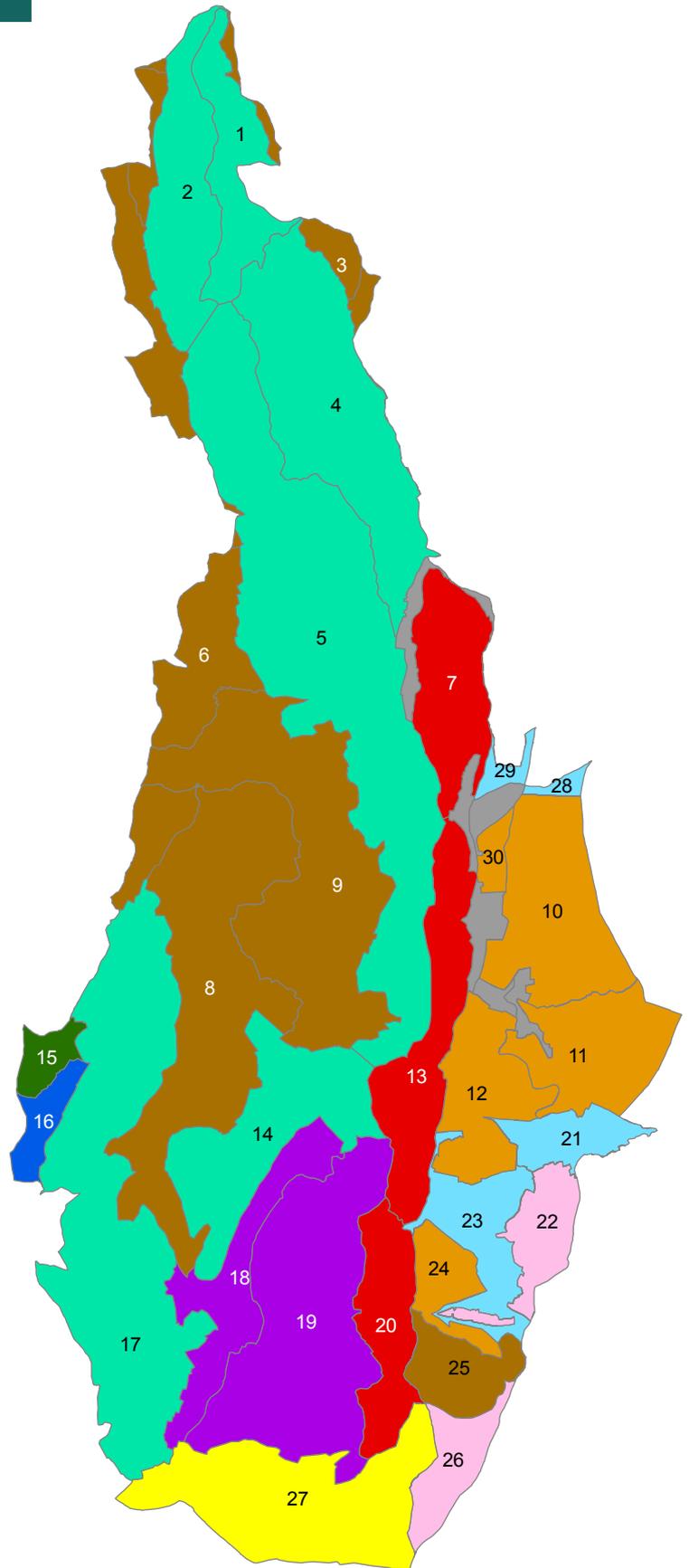
Figure 1: Landscape Description Units and Landscape Character Types

Overview

Landscape Character Assessment (LCA) is a key tool for identifying and describing variations in landscape character. Using the LCA work conducted at a county level by Local Authorities, the Malvern Hills AONB can be divided into 30 detailed and distinctive units of landscape character, known as Landscape Description Units or LDUs (Figure 1). One fixed-point photographic monitoring point was established in each of these LDUs in 2006.

In February/March 2018 the fixed photographic point for each LDU was revisited and a new set of images taken. The appearance and condition of the landscape in each fixed point scene has been assessed in relation to those images presented in the last State of the AONB report (hereafter *State* report), taken in late winter / early spring 2014. This provides an indication of change over a period similar to that of the AONB Management Plan; thus helping to appraise the effectiveness of that Plan. For an evaluation of change over a longer period (2006-16), please refer to the 10 Years of Change report in the Publications section of the AONB Partnership website. Images taken from fixed point scenes can also be found on the AONB Partnership website (www.malvernhillsaonb.org.uk/managing-the-aonb/condition-monitoring/)

Condition Trend

Table 1 summarises changes in each of the fixed point scenes which are discernible in the period 2014-2018. Specifically, it identifies whether change over that period has been positive (improvement), negative (deterioration) or shows no change.[1] Overall, changes occurring to the AONB landscape have been small. However, over the four years monitored they are trending in a negative direction with 12 units (40%) showing signs of deterioration in condition and only 4 (13%) showing improvement. Without further specific research, reasons for this are unclear, although it can be postulated that unpopular changes to the structure of agri-environmental schemes available to land managers may be a contributory factor.

Figures 2 and 3 show examples of a fixed point scene showing improvement and deterioration respectively.

[1] No change could apply equally to LDUs which are in poor or good condition.

Table 1: Condition trend (2014-2018)

LDU Number	Condition Trend	Reason
1	deterioration	less 'rough' land
2	no change	
3	no change	
4	deterioration	removal of hedgerow tree
5	no change	
6	no change	
7	improvement	less density of scrub on open hill
8	improvement	more grassland and less arable
9	no change	
10	no change	
11	no change	
12	deterioration	decline in tree health
13	deterioration	encroachment of scrub on open hill
14	no change	
15	deterioration	increased suburbanisation
16	deterioration	removal of orchard
17	no change	
18	no change	
19	no change	
20	improvement	less scrub on open hill and less bracken in enclosed land
21	deterioration	increased density of scrub on common land
22	deterioration	decline in tree condition and boundaries
23	deterioration	new incongruous building
24	no change	
25	deterioration	addition of modern, incongruous buildings
26	no change	
27	deterioration	Increased urban development at fringes
28	no change	
29	improvement	less bracken on common land
30	deterioration	emergence of woodland in a 'block' is out of character

LANDSCAPE: Fixed-Point Photography

Figure 2: LDU7 Malvern Hills North: Improvement

2018: There is much less scrub apparent due to active cattle grazing and mechanical control by the Malvern Hills Trust.

2014

Figure 3: LDU25 Whitehouse Farm: Deterioration

2018: Modern agricultural buildings have replaced old outbuildings. They are now more conspicuous and incongruous in the setting of the traditional farmhouse. Boundary regeneration continues, representing renewal of the existing field pattern.

2014

LANDSCAPE: Agricultural Change

Overview

As with the 2014 *State* report, data for this section are derived from Defra's June Survey of Agriculture for AONBs. Within the constraints of this Survey data particular reference is made to the period 2010-2016, so that agricultural change can be assessed in a period of time similar to that covered by the AONB Management Plan (5 years). The 2010 data were also the latest available in the previous report; this benchmark aiding comparison. Note that analysis of agri-environmental schemes is contained within the following section on 'Biodiversity'.

Current Condition

- **Farm type -** There are 116 farm holdings in the AONB, representing a slight increase in the number observed compared with 2010 and also 2013 (113). 'Grazing livestock' farms still dominate the AONB, representing 53.4% of all types despite a 5% loss of this type since 2010. Specialist horticulture farms (15) continue to show consistent decline, another 2 being lost between 2010 and 2016. However, the area of horticulture remains virtually the same at 201ha.

- **Farm size –** farm size trends are more complex. Small farms continue to dominate the AONB, with 77.6% under 50ha in size. Large farms (>100ha) are gradually increasing in absolute number but continue to represent just under 14% of holdings. Rented land has fallen back from a high-water mark of over 2000ha in 2013 to 1762ha; 5% below the average for all AONBs in England.

- **Land use –** comparison between years is challenging because there are 1,161 more ha of agricultural land recorded as farmed in the AONB in 2016 compared with in 2010. This is mainly due to variations in the way that 'rough grazing' has been recorded in the Survey. Permanent pasture now stands at 3183ha, or 46.3% of the farmed area of the AONB (51.3% in 2010 - see Figure 4). Since 2010, the amount of cropped and fallow land has fallen by a modest 89ha to 2165ha (now 31.5% of the farmed landscape – see Figure 4). Recorded rough grazing (sole rights) has increased on farms by 108ha to 373ha (5.5% of the AONB farmed area), but farm woodland area is erratically enumerated; there being 479ha more assigned to farm holdings in 2016 than in 2010.

- **Livestock change –** in keeping with national trends, a decline in the AONB's dairy herd is evident; by 19 cows from 2013. Only 138 dairy cattle are present in the AONB in 2016, despite permanent pasture remaining the dominant land use (46.3%). No clear trend is discernible with beef cattle; numbers have fluctuated over the years. That said, the 749 animals recorded in 2016 is the lowest figure since datasets began in 2007. Sheep numbers show a consistent decline, with 509 fewer animals in 2016 than in 2010. Pigs and poultry both show growth, although such animal enterprises may technically be attributed by the Survey to farms in the AONB yet, in reality, lie beyond its boundary.

- **Farm labour –** the number of full-time farmers in the AONB has declined marginally, again reflecting wider processes. Just 66 full-time farmers are recorded in 2016. In contrast, growth is exhibited in part-time farmers, part-time labour, salaried managers and casual labour. The total recorded farm labour force in the AONB is a mere 293 people.

Trend in Condition

The Malvern Hills AONB's predominantly pastoral landscape leads to an area specialisation in livestock enterprises. The unchanged area devoted to horticulture but loss of horticultural type farms in the AONB demonstrates the tendency towards increasing scale of such enterprises (a process of 'concentration'; one resulting in fewer but larger farming units). This is likely to put negative pressures on landscape features, for example, because there is less purpose for boundaries dividing previously separate holdings. With a decline in the area of cropland compared with 2010, there seems to exist at least a stemming, if even a marginal reversal, of the arabalisation effect noted in the last *State* [2014] report (see Figure 4). Whether this represents an actual 'trend' or is a shorter-term reaction to declining incomes for UK cereal farmers since 2011, remains to be seen.

Figure 4: Changes in the percentage total agricultural area of the Malvern Hills AONB devoted to permanent pasture and cropping since 2007
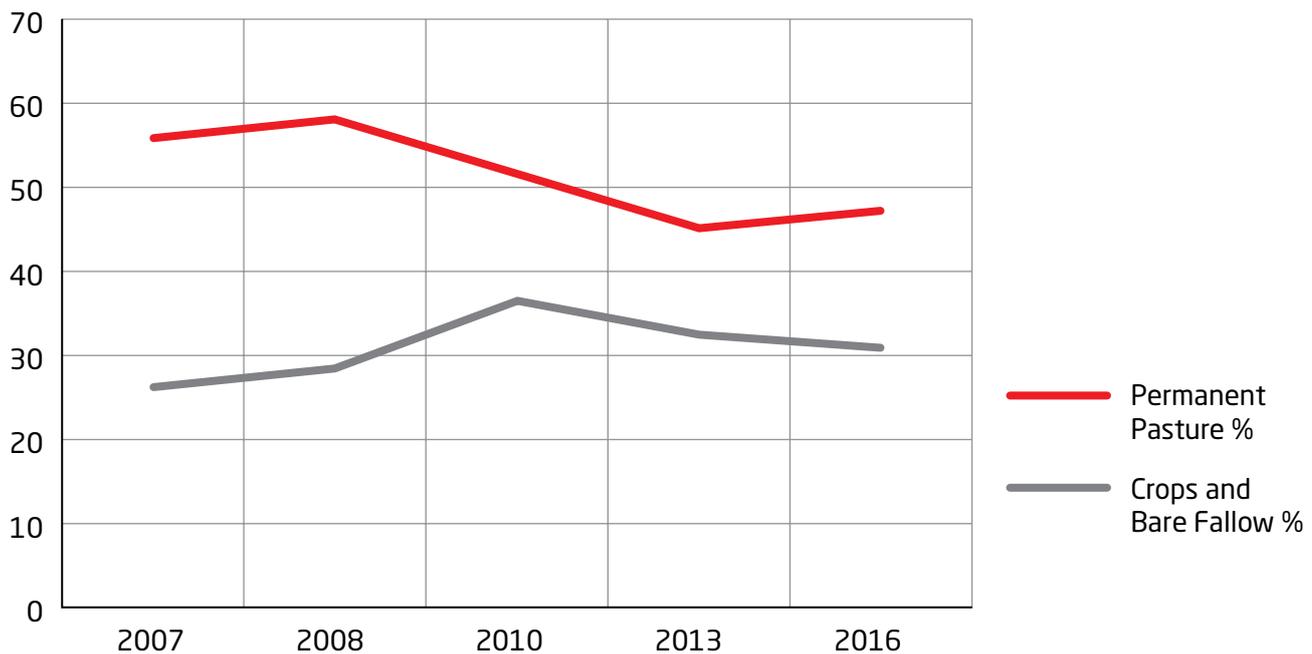
However, the future of pasture and livestock grazing in the AONB is highly uncertain at this point in time. Dairy farming continues its inexorable decline as low prices for liquid milk, blamed by most commentators on the actions of large supermarket retailers in driving down prices, mean that all but the most efficient producers are loss-making. Beef cattle continue to be affected by outbreaks of bovine TB, with no solution to the problem in sight even within the medium-term. All of the Malvern Hills AONB lies with the Defra-defined High Risk Area (HRA), where there is high incidence of TB in cattle, a high number of repeat cases and a strong reservoir of the disease in the wildlife population.

The change in the EU subsidy regime for sheep away from headage payments from 2005 has already been influential in reducing their numbers. Sheep farming is likely to be heavily influenced by the post-Brexit arrangements for trading (undecided at the time of writing). These trends mean that any hiatus in arabalisation observed in this reporting period may prove to be short-lived. Added to this, a trend towards large, indoor-housed, industrial style pigs and poultry units is indicated; together with potential landscape impacts of buildings associated with such operations. The figures for labour indicate a movement away from traditional family farms, as evidenced by employment restructuring towards more part-time workers and salaried managers. Taken together, a more highly industrialised agricultural landscape across the Malvern Hills AONB seems to lie ahead.

BIODIVERSITY:
Agri-environmental Schemes and SSSI Condition

Overview

This section continues to report on the condition of the 15 Sites of Special Scientific Interest (SSSIs) to be found in the Malvern Hills AONB. This is taken from data supplied by Natural England, the Government agency responsible for overseeing their protection. It picks up from the previous *State* report which used SSSI data gathered in 2013 and so examines change over a five-year period. However, it should be noted that only 4 of the 15 Sites have been fully reassessed since 2012.

Additionally, this section now reports on changes observed to landowners participating in voluntary agri-environmental schemes. Previously this appeared in the 'Agricultural Change' section of the State reports but is consolidated here to provide an overall picture of conservation activity. The data are taken from Natural England's 2018 Framework for Monitoring Environmental Outcomes in Protected Landscapes. This also continues monitoring from 2013 when the figures were last interrogated.

SSSIs: Current Condition

With reference to Table 2, the SSSIs of the Malvern Hills AONB are overwhelmingly in 'Favourable' or 'Unfavourable Recovering' condition (99.8%). The protection of these environmentally valuable areas has therefore remained secure throughout the monitoring period. The 'earth heritage' (100%) 'neutral grassland – lowland' (85.4%) and 'broadleaved mixed and yew woodland – lowland' (78.6%) types are in most favourable condition. SSSI land in the 'acid grassland – lowland' category, which mostly constitutes the grazing area of the Malvern Hills themselves, dominates the AONB SSSI area undergoing recovery. One site accounted for the 'Unfavourable' – No Change entry in Table 2. No part of any SSSI was in an 'Unfavourable Declining' condition, and no area was Destroyed.

Bechstein's Bat

© Frank Greenaway

Table 2: Changes in the condition of SSSIs in the Malvern Hills, 2013-2018

SSSI type 2018	Area* (ha)	% AONB area	Favourable ha (% of type)	Unfavourable recovering ha (% of type)	No change ha (% of type)	Unfavourable declining / Destroyed	TOTAL
Acid grassland - lowland	535.1	46.1	0 (0)	535.1 (100)	0	0	535.1
Broadleaved mixed and yew woodland - lowland	406.5	35.0	319.5 (78.6)	87 (21.4)	0	0	406.5
Earth Heritage	110.5	9.5	110.5 (100)	0	0	0	110.5
Neutral grassland - lowland	100.7	8.7	86 (85.4)	12.1 (12.0)	2.6 (2.6)	0	100.7
Calcareous grassland - lowland	8.2	0.7	3.1 (37.8)	5.1 (62.2)	0	0	8.2
TOTAL	1161.0	100	519.1 (44.7)	639.3 (55.1)	2.6 (0.2)	0	1161.0
% change +/- 2013-2018			0	+0.1	+0.2	-0.3	

* some very small variations (<3ha) exist in measured SSSI area types compared with 2013

SSSIs: Trend in Condition

The significant improvement in condition noted in the last *State* report appears to have been maintained throughout the 5 years since its publication. Thus, the picture has improved very slightly, with no SSSI habitat type now considered in 'Unfavourable Declining' condition (the 3ha of 'neutral grassland – lowland' reported in this state in 2013 has disappeared). This said, there is no overall change in the percentage of 'Favourable' SSSI land. The challenge facing owner-occupiers is to increase the area of SSSIs recorded in this top condition category, particularly those with the 'acid grassland-lowland' type. Active grazing and management, particularly by the Malvern Hills Trust, can be anticipated to bring about such an improvement in the future.

BIODIVERSITY: Agri-environmental Schemes and SSSI Condition

Stewardship Schemes: Current Condition

Since the last State report, Defra has introduced a new 'Countryside Stewardship' scheme which became operational from 2015. This means that there are now figures for the uptake of this scheme, together with figures for those still participating in the now closed 'Environmental Stewardship' scheme. It should be recalled that the latter comprised two distinct tiers: basic 'entry-level' (or ELS) and the more sophisticated (in terms of the demands of management to achieve conservation objectives) 'higher-level' (or HLS), as well as support for organic farming (organic entry-level or OES). Care is required in the interpretation of figures because entrants into Environmental Stewardship, introduced from 2007, are now reaching the end of their 10-year agreements (see Figure 5).

In 2013, there were 5923ha of the Malvern Hills in one or more of the Environmental Stewardship levels (Figure 5). However, currently there are just 2767ha left within the scheme, or only 46.7% of the 2013 enrolled area. This is not compensated for by the uptake of the new Countryside Stewardship scheme, where by 2018 there were just 272.5ha of agricultural land from 4 agreements enrolled in the scheme (Table 3).

Stewardship Schemes: Trends in Condition

Overall, the uptake figures show that 48.7% less of the Malvern Hills AONB agricultural environment and landscape is being managed with the aid of an agri-environmental scheme in 2018 as compared with 2013. The intention was that all participants in HLS and some in ELS would switch to new Countryside Stewardship (it has only Mid and Higher tiers of entry: there is no basic tier). Many involved at the former entry-level have decided not to step up to the demands of Mid-tier. Added to this, the current scheme is complex and has not proved to be particularly popular amongst those formerly signed up to HLS, so figures demonstrating lower rates of participation are inevitable. Such changes are borne out by the data presented in Table 3 on agri-environmental scheme participation for the AONB. Consequently, the total number of agreement holders across all schemes has fallen from 62 to just 33. However, the costs of providing schemes has remained the same at around the £450,000 mark, demonstrating the more sophisticated, and thus expensive, interventions the new Countryside Stewardship scheme is supporting.

Figure 5: Changes in Environmental Stewardship component agreement area (ha) in the Malvern Hills AONB 2013-2018
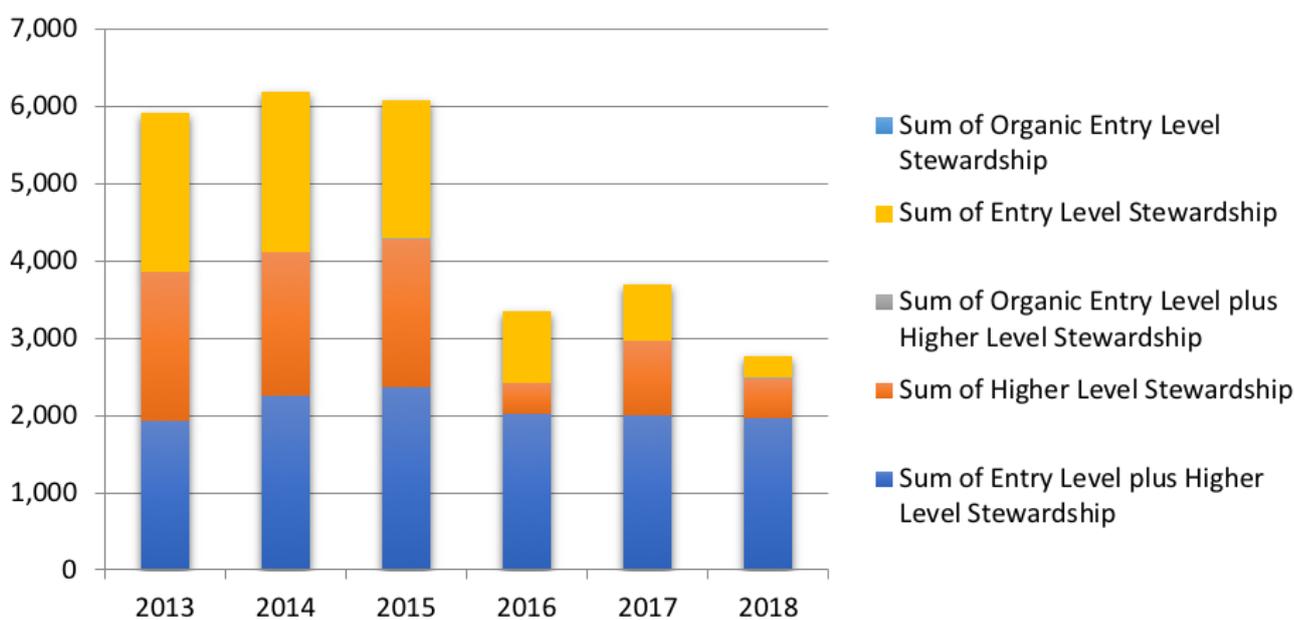
AONB ESS area (ha)

Table 3: Agri-environmental scheme participation and change 2013-2018 in the Malvern Hills AONB.

Agri-environmental scheme type	Area (ha)	Change in area managed (ha) 2013-2018	No. of agreements	Change in No. of agreements	Cost (£)
Entry-level Stewardship	274	-1,782	5	-27	3,910
Entry-level Stewardship and Higher-level Stewardship	1,975	+39	19	-2	214,835
Higher-level Stewardship	509	-1,413	4	-3	82,029
Organic Entry-level Stewardship	0	0	0	0	0
Organic Entry-level Stewardship and Higher-level Stewardship	9	0	1	0	2,428
Total Environmental Stewardship	2,767	-3,156	29	-32	303,202
(new) Countryside Stewardship Mid-tier	225.5	--	2	--	100,140
(new) Countryside Stewardship Higher-tier	45.6	--	1	--	23,227
(new) Countryside Stewardship Woodland Creation	1.4	--	1	--	27,431
(new) Countryside Stewardship Total	272.5	--	4	--	150,798

Woodland management, Bromesberrow

GEODIVERSITY:
Condition of Local Geological Sites

Overview

All 47 Local Geological Sites (LGS) within the AONB were investigated for condition in 2008 and that information forms the monitoring benchmark. In 2013 a resurvey of 13 (25%) randomly selected sites took place. In 2018 a resurvey of 24 (51%) randomly selected sites took place. As in previous rounds of monitoring, the data have been separated into the three basic types: bedrock, superficial deposit feature and geomorphological feature. For each, data were again gathered on their headline state as either desirable or undesirable and then the direction of change assessed according to whether current management status is 'good' or 'poor' situated within the overall direction of travel of condition.

Current condition

Table 4 shows that the vast majority of resurveyed sites (83.3%) are in a desirable condition. All superficial deposit and geomorphological sites reviewed, constituting the entire number of those existing in the AONB, are in a desirable condition. Of the 19 bedrock sites sampled at random, 78.9% are in a desirable condition.

Table 4: Condition of 2018 sampled LGS in the Malvern Hills AONB

Type of site	No. of sites	Condition of Site	
		Desirable	**Undesirable**
Bedrock	19	15 (78.9%)	4 (20.1%)
Superficial Deposit	2	2 (100%)	0 (0%)
Geomorphological Feature	3	3 (100%)	0 (0%)
Total	24	20 (83.3%)	24 (83.3%)

Geoconservation, West Malvern

Trend in condition

In 2008, it was reported that 75.6% of LGS were in 'desirable' condition. The quality of earth heritage had deteriorated within the AONB by 2013 when only 61.5% of sampled sites were in a desirable condition. Since this time, the evidence points to a reversal of this trend towards one of improvement, to which a larger sample also gives more confidence. The figure of 83.3% is higher than in 2008, as is that for just the bedrock type sites. Even within the limitations of sampling, a positive change is observed towards LGSs being in better condition than previously ascertained. This improvement is largely attributed to practical management works carried out by local geoconservation volunteers, supported financially by the Malvern Hills AONB Sustainable Development Fund and Malvern Hills Trust.

In terms of directional components of change, Table 5 shows that the number of sites which were both poor and declining are fewer, no further deterioration being indicated by a movement of a proportion of sites out of the 'poor declining' category and into the 'poor steady' category. The latter shows a percentage growth (+17%) compared with the former's percentage decline (-26%).

Some care is needed in the interpretation of sites in 'good' condition, as an initial interpretation of decline by 21% in their number could be interpreted from Table 5. However, this appears to be compensated for by a growth in sites classified as 'good steady' (+42%), so methodological factors associated with determination of types seem to be at play. If 'good' and 'good steady' sites are taken together, then there are 20% more of them in the combined categories for 2018 than for 2013. Also, the percentage of good declining sites is lower in 2018. The conclusion is that current LGS earth heritage in the AONB is generally in good condition, with poorer sites slowing in their rate of decline and achieving stability, with an additional trend towards some improvement in the sites in general good condition.

Table 5: Components of change in the management status of sample survey AONB LGS.

Type of site	No. of sites	Management Status						
		Poor declining	Poor steady	Poor improving	Good declining	Good steady	Good improving	Good
Bedrock	19	3 (15.8%)	4 (21.0%)	0 (0%)	1 (5.3%)	8 (42.1%)	0 (0%)	3 (15.8%)
Superficial Deposit	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (50%)	0 (0%)	1 (50%)
Geomor-phological Feature	3	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)	0 (0%)	0 (0%)
Total	24	3 (12%)	4 (17%)	0 (0%)	1 (4%)	12 (50%)	0 (0%)	4 (17%)
% change 2013 -2018		-26	+17	0	-11	+42	0	-21

HISTORIC AND BUILT ENVIRONMENT: Condition of Scheduled Monuments

Overview

All eight Scheduled Monuments (SMs) within the Malvern Hills AONB were again re-assessed by Historic England to establish their condition in 2018. A risk assessment was also completed to produce data comparable with 2013 and 2009, so that trends over the monitoring period can now start to become contextualised within longer term directions of condition change.

Current Condition

In 2018, six of the eight SMs were deemed to be in 'satisfactory condition with minor localised problems'. The remaining two, a boundary feature and Iron Age hill fort, were also found to be satisfactory but to possess more 'significant localised problems'. No SM is any longer described as being in optimal condition – there were two in 2013 – but evidently this has not been sufficient to change the judgement made on overall condition classification. In total, five monuments are presently considered to be at 'medium' risk and the remaining three at 'low' risk. In sum, only one shows evidence of change, that being in a positive direction.

Table: 6: Condition and trends of Scheduled Monuments within the Malvern Hills AONB

|	Type	Overall Condition 2013	Overall Condition 2018	Trend 2009-2013	Trend 2013-2018	Risk 2013	Risk 2018	Change
A	Boundary feature	✓✗✗	✓✗✗	↓	←→	Medium	Medium	←→
B	Iron Age hill fort	✓✓✗	✓✓✗	↑	↑	Medium	Medium	←→
C	Iron Age hill fort	✓✗✗	✓✗✗	↓	←→	Medium	Medium	←→
D	Fortified House	✓✗✗	✓✓✗	↓	←→	High	Low	↑↑
E	Bronze Age round barrows	✓✓✗	✓✓✗	←→	←→	Medium*	Medium	←→
F	Monastery	✓✓✗	✓✓✗	←→	←→	Medium	Medium	←→
G	Medieval and later building	✓✓✗	✓✓✗	←→	←→	Low	Low	←→
H	Medieval & post-Medieval feature	✓✓✗	✓✓✗	↑	←→	Low	Low	←→

Key

✓ ✓ ✗   Current condition is satisfactory with **minor** localised problems

✓ ✗ ✗   Current condition is satisfactory with **major** localised problems

*This was previously listed as 'low' risk for 2013 but the current dataset records it as 'medium' risk in that year, hence the discrepancy.

Trend in Condition

It can be concluded from the survey that whilst room for improvement remains, the more erratically changing condition status observed between 2009 and 2013 has become much more stabilised between 2013 and 2018. The general gains in improvement of condition made in the previous period have been consolidated. One SM, a fortified house, has been moved from the 'satisfactory major problems' to the 'satisfactory minor problems' category. It shows 'no change' in condition trend because the intervention was made in 2009 and only in the current period has evidence of the effectiveness of the intervention become apparent. Overall then, seven of the eight monuments show no change and one an improvement, representing a more positive picture than five years ago. In terms of risk, no SM is now classified as at high risk. The fortified house has been subject to positive management in conjunction with Historic England, with extensive masonry repairs undertaken, trees managed and a leak to its moat rectified. This has been effective enough to move the risk classification from high to low, representing the only change of risk amongst the eight SMs (data discrepancy aside).
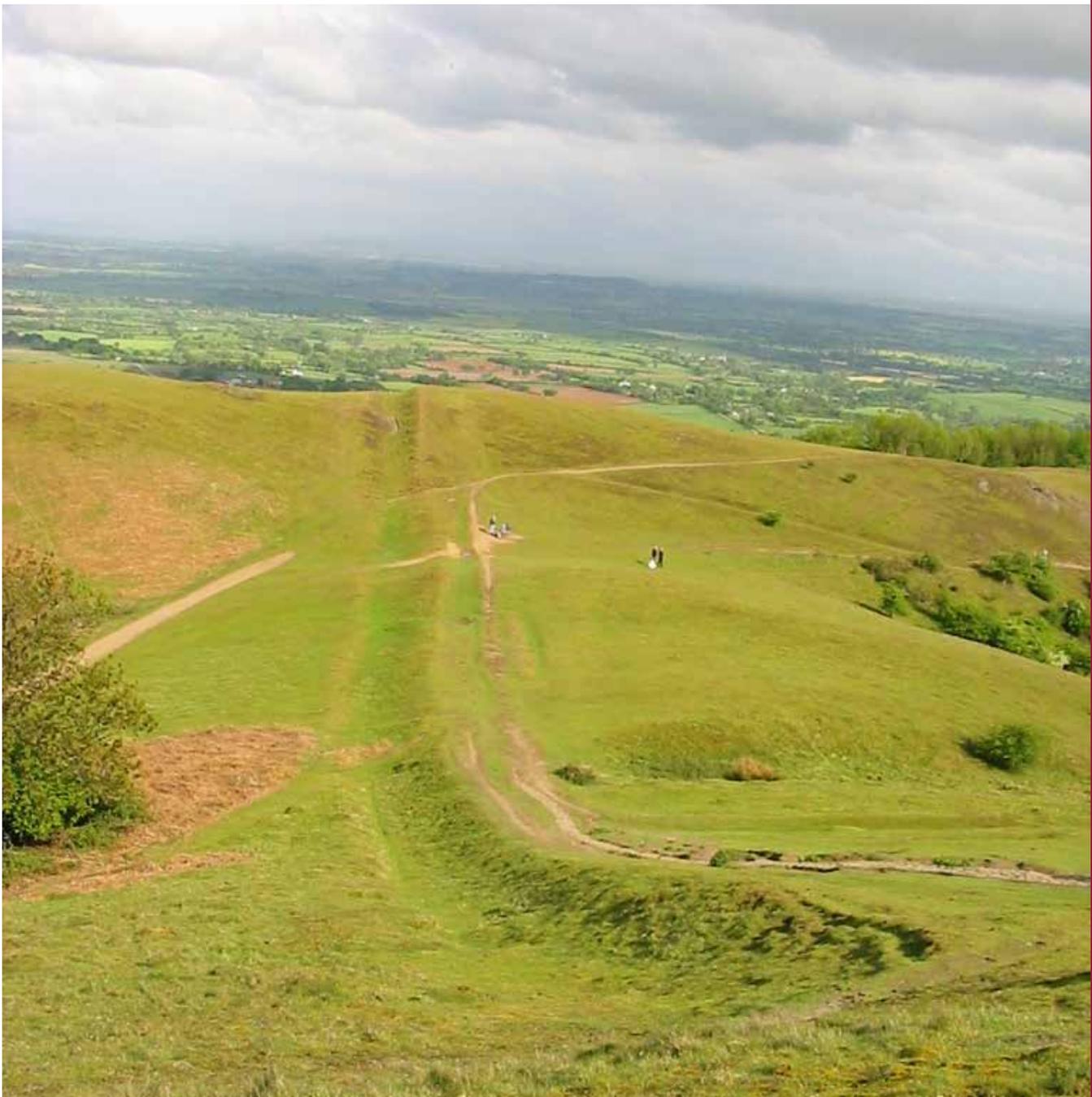
The Shire Ditch

HISTORIC AND BUILT ENVIRONMENT: Condition of Scheduled Monuments

HISTORIC AND BUILT ENVIRONMENT:
Condition of Listed Buildings, Parks and Gardens

Overview

Listed buildings are buildings or other structures officially designated by Historic England as being of special architectural, historical or cultural significance. Late in 2013, a randomly selected sample of 88 (25%) of the 344 listed buildings in the AONB were visited and a rapid external assessment of their condition was carried out. In summer 2018, this exercise was repeated to effect a comparison of condition with the situation found in 2013[2].

Registered Parks and Gardens are also designated by Historic England, for reasons similar to those for listed buildings. There are two registered parks and gardens in the AONB. In 2018 Historic England provided summary information on the condition of these two historic assets.

Current Condition

i) Listed buildings

Overall, listed buildings within the AONB are in good condition (Table 7). Only 8 structures were in the poor / very bad categories which indicate a risk of structural failure. These were overwhelmingly situated in rural areas and included milestones and church monuments. This reflects a general trend, also evident in the 2013 survey, whereby buildings in more built up areas tend to be better maintained than those in rural situations.

Table 7: Condition of buildings in the Malvern Hills AONB by administrative authority

Local Authority	Number of buildings (by condition status)				Total assessed sample
	1: Very Bad	2: Poor	3: Fair	4: Good	
Herefordshire	3	4	8	33	48
Malvern Hills District	0	0	6	23	29
Forest of Dean District	0	1	4	1	6
AONB Total	**3**	**5**	**18**	**57**	**83**
AONB Percent Total (%)	**3.6**	**6**	**21.7**	**68.7**	**100**

ii) Parks and Gardens

In 2018 one of the two registered parks and gardens in the AONB is described by Historic England as being 'not at risk' and under a good management regime. There is evidence of active repairs being undertaken, funded by Countryside Stewardship and guided by a Conservation Management Plan. The other registered park and garden has not been formally assessed but is regarded by Historic England as being at the lower end of medium (vulnerable) risk. Principal risks identified include out of character planting, lack of succession planting and the absence of a management plan.

2   In fact only 83 buildings were surveyed in 2018 since one of the buildings was found to have been removed from the national list, one was being worked on and in one case an owner denied access.

Trend in Condition

Comparisons from the 2013 survey reveal a picture of little overall change in the condition of listed buildings in the AONB (Table 8). A trebling in the percentage of buildings in very bad condition can be largely attributed to the vagaries of the random selection process, with more milestones and church monuments included in the 2018 survey. It is also worth stressing that the 3.6% sample in very bad condition represents just 3 structures. The 2018 figures reveal an increase in the number of buildings in good condition and a similar % reduction in buildings in fair condition, but overall the % of buildings in the fair and good conditions remains very similar when compared with 2013.

In 2018 one registered park and garden in the AONB is deemed to be in stable condition. This is borne out by the fact that the 2018 assessment of 'not at risk' is the same as that recorded in 2013. The second park and garden is assessed as being at medium (vulnerable) risk in 2018 which is also the same as that recorded in 2013. From this perspective this asset could also be described as stable, albeit that it is clearly not in a desirable condition. In the 2013 State of the AONB report, it was stated that a comprehensive management plan was needed to address the condition of this park and garden and this remains the case today.

Table 8: Trend in condition of listed buildings 2013-2018

Year	% of buildings (by condition status)			
	Very bad	Poor	Fair	Good
2013	1.1%	6.9%	31.0%	60.9%
2018	3.6%	6.%	21.7%	68.7%

St Wulstan's Church

HISTORIC AND BUILT ENVIRONMENT: Condition of Listed Buildings, Parks and Gardens

TRANQUILLITY:
Darkness of the night sky

Previous State of the AONB reports in 2009 and 2014 used a tranquillity index produced by the Campaign to Protect Rural England (CPRE) as an indicator of tranquillity in the area. This was based on a range of factors and demonstrated that the Malvern Hills AONB had areas which were valuable for lack of disturbance and for the presence of natural features. Unfortunately, CPRE has not repeated its tranquillity mapping exercise since 2006. Therefore, this current report uses 'darkness of the night skies' as a replacement indicator of tranquillity in the area. Being able to see the stars at night is commonly cited as a positive factor in tranquillity. CPRE itself has continued to map dark skies and more information can be found at http://www.nightblight.cpre.org.uk/maps/

Overview

In 2012 the Malvern Hills AONB Unit commissioned local astronomer Dr Chris Baddiley to carry out a survey of the brightness of the night sky above and from the Malvern Hills AONB. Dark sky readings were taken once a month from September to December at a range of locations where a significant clear horizon is visible. For each year since 2012, regular dark night sky brightness monitoring has been carried out at one of these locations, providing comparable data. From 2015, the samples have been taken at 2-minute intervals continuously on many nights over all seasons. Since 2016 this monitoring has been extended to include all weather conditions.

Current Condition

Figure 6 summarises the brightness of the night sky overhead (near zenith) 2016 to 2018. Data show that all-clear zenith brightness readings can achieve 20.1 magnitude per square arc second (0.39 mCd/m2) and occasionally 20.4 magnitude per square arc second (0.30 mCd/m2). These measurements indicate that the skies above the AONB are sufficiently dark to qualify for International Dark Skies Silver standard, with the Milky Way being clearly visible at 20% contrast to background when overhead. Occasionally this silver standard is exceeded.

There is no significant variation in Zenith brightness across the AONB in the same conditions on the same night. This is because, with few large settlements, the zenith brightness is a function of light pollution from distant cities rather than from local light sources.

The Milky Way above the AONB

© Christopher Baddiley

Figure 6: Average of all-clear nights for years 2016, 2017 and 2018 from dusk to dawn with reducing light levels into the early hours, (note: the lower the line, the darker the sky).
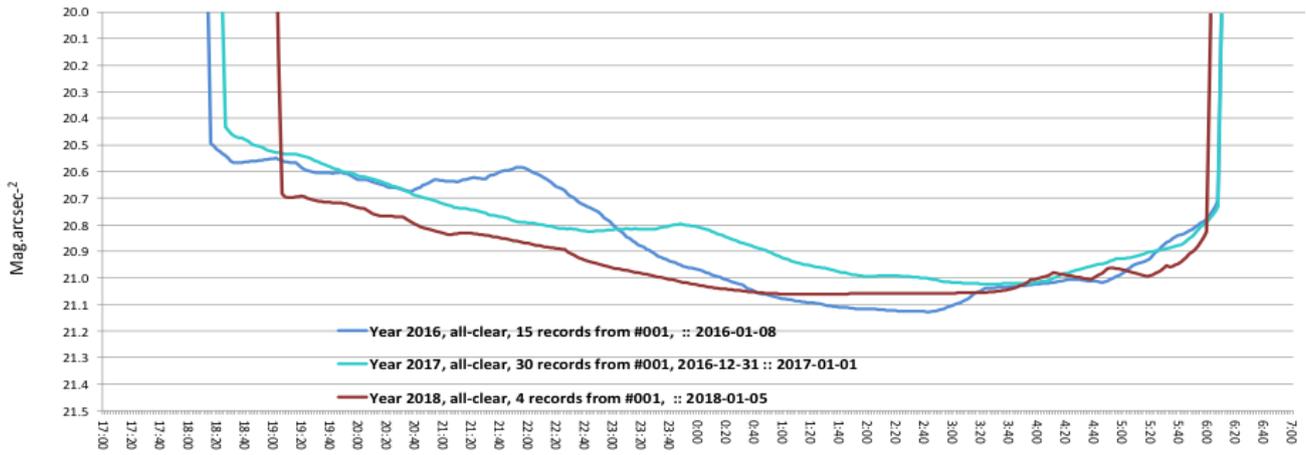
Zenith sky brightness, mag/arc second², moving averaged over average of sets where <20, vs time

The brightness of the sky at the horizon in 2017 and 2018 is unlike at the zenith in that the horizon varies significantly across the AONB. This is predominantly in response to proximity to local sources of light pollution. Horizon brightness is also heavily dependent upon weather conditions, in particular, when a high cloud base reflects artificial lights, or low distant mist causes scattering or absorption of light. The image below shows a typical scene with brighter skies visible on the horizon to the left (east) of the shot, close to light sources from Malvern, Worcester and the Severn Vale. The darker horizon is to the right (west). Some blue skyglow visible at approximately the 4 o'clock position is from bluish light reflected off the clouds over Hereford. If it reaches the sky, modern blue-rich LED lighting causes at least 8 times more scattering than pink-orange sodium lighting of the same visible ground brightness. Well-directed LED downward pointing lighting can avoid that.

A 360 degree view of the Malvern Hills AONB horizon

TRANQUILLITY: Darkness of the night sky

TRANQUILLITY: Darkness of the night sky

Trend in condition

Data collected between 2012 and 2018 reveals that, discounting variations attributable to weather and times of the night and year, there has been little change in the brightness of the night sky. A very small improvement in darkness over the last six years is discernible (by about 0.1 units) but this could be the result of increased data collection. This is despite the fact that during 2014/15 Herefordshire Council replaced all of its low pressure sodium street light luminaires with blue rich LEDs. It had been predicted that this replacement would lead to a decrease in light pollution since the new luminaires are very well directed and have a sharp cut off, minimising light reflection and scatter. However, the data reveal that brightness towards the horizon is unchanged, so it is likely that any gains from the new street lights have been off-set by increases in commercial and private uncontrolled, non-directional LED lighting. This appears to be the case particularly in the east of the AONB close to Malvern and the Severn Vale.
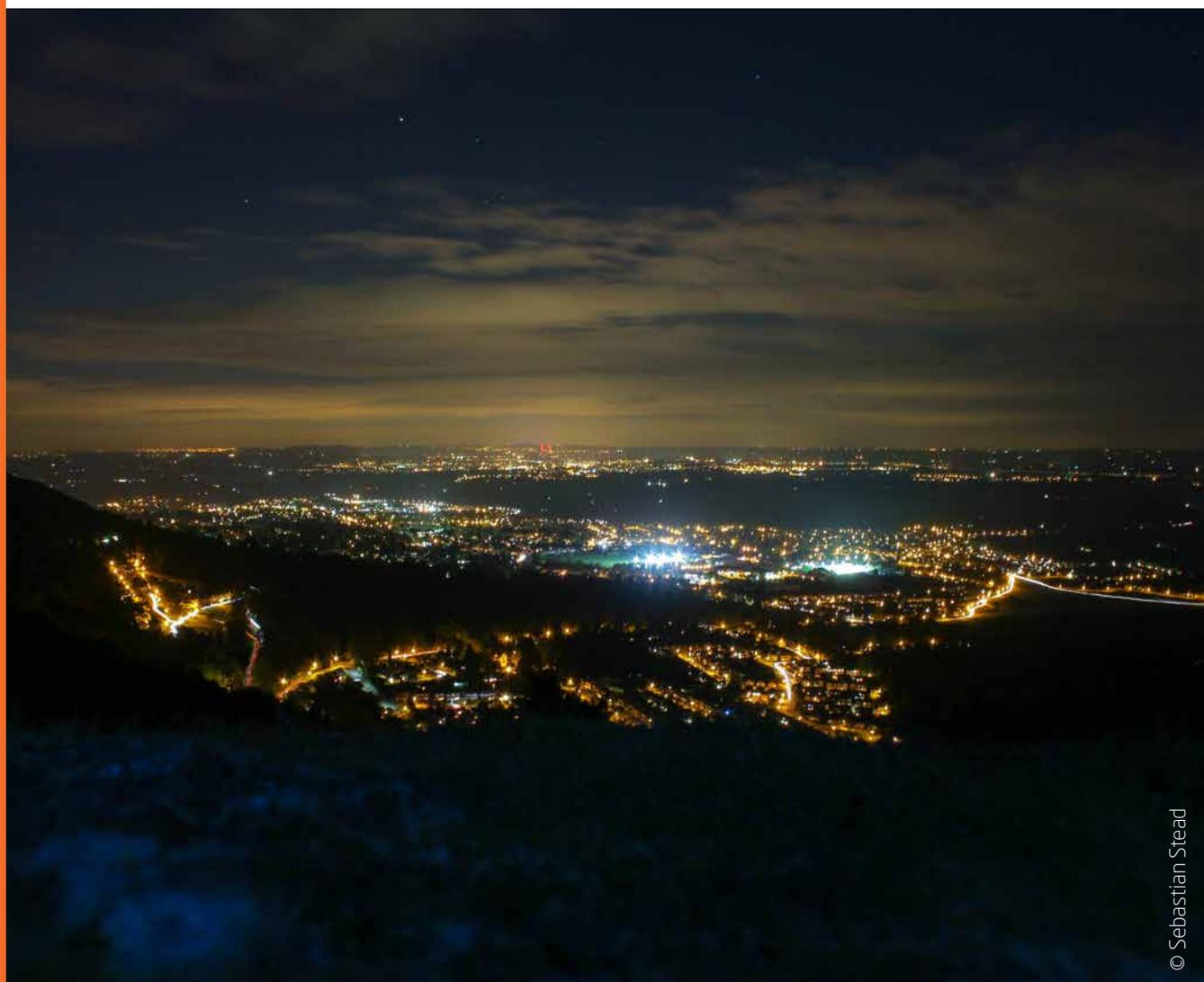
© Sebastian Stead

Urban lighting, from the Malvern Hills

The zenith (overhead) brightness is determined by the light emitted from distant cities such as Worcester and Birmingham rather than from local sources. Since zenith light levels are also unchanged during the monitoring period light pollution from these built up areas also appears to have been static.

Footnotes:

Readings were taken using a networked calibrated Unihedron Sky Quality Meter (SQM). In addition, a series of sky images were taken using a fisheye lens camera.

ENJOYMENT:
Condition of Rights of Way

Overview

In the autumn of 2018, a random sample of 5.7% of the total public rights of way network in the Malvern Hills AONB was selected for inspection of condition. This used a Best Value Performance Indicator (BVPI) 178 methodology; identical to that used in autumn 2013, when 5.4% of the network was surveyed, and in autumn 2008, when 5.6% of rights of way were selected.

Current Condition

The total pass rate for rights of way within the AONB was 77%, indicative of paths that are easy to use (Table 9). Worcestershire recorded the highest pass rate (83%), with Herefordshire achieving 81% and Gloucestershire 9%. It should be noted that some statistical effects are at work in the results. For example, in Herefordshire and Gloucestershire, paths are numbered in longer lengths, increasing the probability of failure being encountered along any one route. In Gloucestershire, only 2 path lengths were included in the survey. The longest of these failed at just one point: yet this one failure means that the whole path has failed. This has significantly skewed the Gloucestershire results.

Table 9: Condition of rights of way in the Malvern Hills AONB in 2019

County	Length of path surveyed (m)	Rights of way easy to use (m)	Rights of way easy to use (%)
Gloucestershire	1,351	122	9%
Herefordshire	7,398	6,005	81%
Worcestershire	9,923	8,264	83%
Malvern Hills AONB	18,672	14,391	77%

Trend in Condition

Table 10 shows that the condition of rights of way in the AONB overall in 2018 is almost identical to that in 2013. The condition of Worcestershire rights of way remained almost static (83.2% in 2013) and Herefordshire improved by 14.3% (66.7% in 2013). Condition decreased by 61.5% in Gloucestershire, although statistical effects are at work, as explained above.

In terms of longer trends within the AONB as a whole, there appears to be an end to the consistent increase in the ease of use of rights of way; a situation evident since 2002/3 (Table 10). In the State of the AONB report for 2013, it was stated that further improvements of the magnitude shown since 2002/3 could not be expected and this has indeed been proven in the latest figures.

Table 10: BVPI 178 trend results for % of rights of way that are easy to use within the Malvern Hills AONB

% path length easy to use	2002/3[3]	2005/6[3]	2008	2013	2018
Malvern Hills AONB	48.8	57.3	73.2	77.4	77%

3   Figures for 2002/3 and 2005/6 are estimates derived from total county statistics and extrapolated for the AONB. This is a minimum figure and subsequent survey work suggests that the totals should be up to 10% greater for the AONB in both time periods. Even if adjusted accordingly, the picture remains one of consistent improvement in the condition of rights of way in the Malvern Hills AONB.

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