

Nature Recovery Plan



March 2022

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EXECUTIVE SUMMARY

The Malvern Hills Area of Outstanding Natural Beauty (AONB) encompasses large areas of nature-rich habitat and is an important regional reservoir of biodiversity. However, it has experienced many of the same declines in nature and faces the same threats as those across England as a whole.

This Nature Recovery Plan aims to halt and reverse the loss of nature in the AONB, providing an inspiring prospectus of what is possible and practical solutions for achieving it. The Plan is for everyone who has influence over, and benefits from, nature in the Malvern Hills AONB – including public and voluntary bodies, farmers and landowners, local residents and visitors.

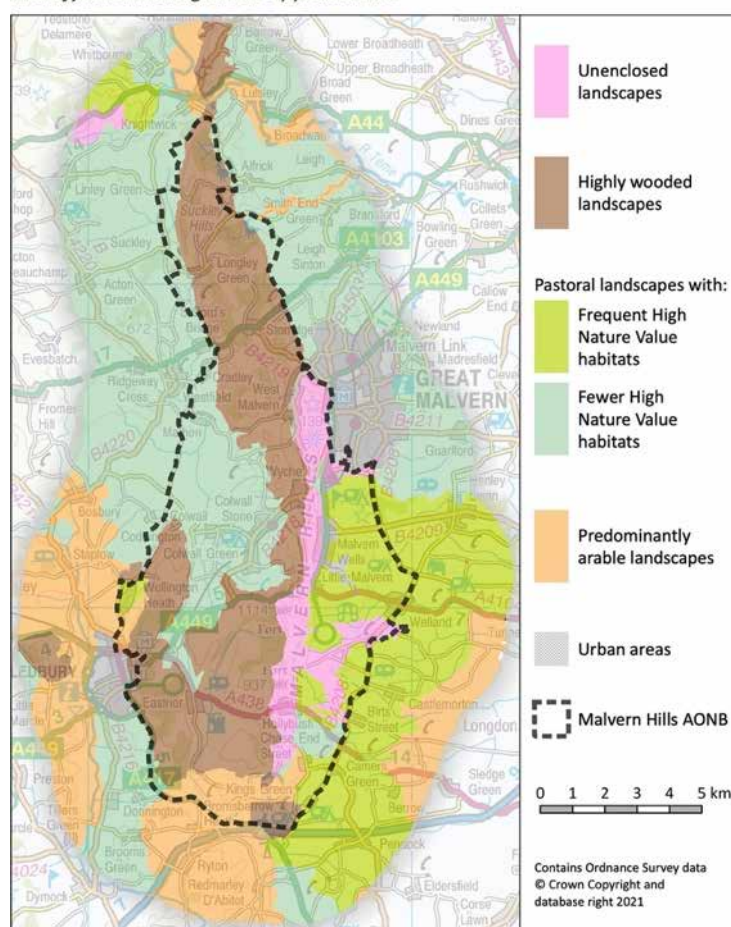
This Plan covers the 105 km² of the AONB and also takes account of its wider setting and connectivity, defined by the 3km-wide area around its boundary. The Plan area includes a wealth of natural habitats and features, including a long geological history, ancient woodlands, flower-rich meadows, traditional orchards and parkland. These areas provide a range of important benefits to society ('ecosystem services') and they will face significant challenges and opportunities in coming years. These include climate change, the impacts of development, the agricultural policy transition and support for local food production.

Our strategy for nature is driven by five guiding principles:

1. Ensuring better condition of what we have
2. Creating bigger and more joined-up habitats
3. Harnessing community support and action
4. Making steady and concerted progress
5. Recognising that the past isn't necessarily a guide to the future



The Nature Recovery Plan area, showing simplified landscape zones used to identify land management opportunities



The Plan identifies **three priorities for action**:

- A. The management of land for nature in the AONB.** This centres on guidance to landowners and managers on the actions they can take to conserve and enhance nature on their land. It does so under headings of five key landscape zones.
- B. Connections between people and nature in the AONB.** This highlights the benefits that local people and visitors, and society more widely, gain from nature, and the actions that are needed to enhance these services.
- C. The importance of the AONB in the Regional Nature Network.** This emphasises the importance of the AONB as a core area for nature of regional significance and the need to enhance and enlarge the habitat corridors and connections to other core areas.

The Delivery Action Plan describes a set of short-term actions for the AONB Unit and its partners.

The Plan concludes with a review of **monitoring indicators** for tracking progress with nature recovery.

INTRODUCTION

Nature in crisis

The UK has only half of its natural biodiversity left, making it one of the most nature depleted countries in the world.ⁱ The 2019 UK wide State of Nature reportⁱⁱ gives a sobering picture of the UK's wildlife. The climate crisis is disrupting natural systems, shifting climatic zones and exacerbating land degradationⁱⁱⁱ, increasing pressure on nature.

Despite its outstanding landscape, the Malvern Hills Area of Outstanding Natural Beauty (AONB) has not escaped these changes. Although it retains large areas of important wildlife habitats and is an important regional reservoir of biodiversity, it has seen the same declines as many other areas and faces the same challenges.

A plan to inspire action for nature

This Nature Recovery Plan aims to halt and reverse this decline, providing an inspiring plan for what is possible, and practical solutions for achieving it. It recognises and takes account of the other special qualities of the AONB including its historic environment.

This is a Plan for everyone who has influence over, and benefits from, nature in the Malvern Hills AONB. It seeks to guide the land management decisions of the many private landowners in the AONB and the policies and incentives provided by public bodies and environmental organisations. It also aims to influence the actions of local residents and visitors as consumers of what the countryside provides and as stewards of nature in their own gardens and neighbourhoods.

AONBs leading nature recovery

In the light of the climate and biodiversity crises, AONBs across the country made a collective statement on nature in 2019, known as the Colchester Declaration.^{iv} It states that AONBs should be places of rich, diverse and abundant wildlife. It also reaffirms the importance of Natural Beauty and its intrinsic value which means so much to people. It places nature recovery at the centre of the conservation and enhancement of natural beauty. A pledge was made to draw up Nature Recovery Plans for each AONB, of which this Plan is the Malvern Hills'.

In 2010 in his seminal report 'Making Space for Nature', Professor Sir John Lawton recommended that *"recovering wildlife will require more habitat; in better condition; in bigger patches that are more closely connected."*^v The Government's 25 Year Environment Plan

aims to deliver this recommendation by *"Developing a Nature Recovery Network to protect and restore wildlife, and provide opportunities to re-introduce species that we have lost from our countryside."*^{vi} This will be achieved by, amongst other things, linking existing protected landscapes, of which the Malvern Hills AONB is one.

What do we mean by nature?

Wildlife and the habitats that sustain them represent our biodiversity. This and the soils and underlying geology of the Malvern Hills AONB, are the focus of this Plan. By protecting and enhancing these, the Plan also recognises the many benefits that local communities and wider society can gain from thriving nature (often referred to as 'ecosystem services'). These include healthy food, clean water and air, resilience to the changing climate and access for recreation and enjoyment. The Plan therefore covers nature itself as well as the many services that nature provides us with.

Figure 1: The services we receive from nature



The interacting mosaic of habitats that provides a home for so many key species forms the landscape of the Malvern Hills AONB. The special wildlife of the AONB is closely related to thousands of years of farming and forestry traditions.^{vii} These actions and interactions between nature and people within the AONB has resulted in the distinctive character of the landscape.

This plan does not advocate 're-wilding' the AONB or wholesale change of the current landscape framework. This is because many of the special places that exist here – including ancient, unenclosed commons, traditional orchards, parklands and semi-natural

woodlands – can be rich in wildlife as well as culture. However, for nature to flourish, it will be important that land management practices that can conserve the nature-rich landscapes of the AONB, such as grazing, coppicing, and orchard management^{vii} are reinstated and/or able to continue. Recovering nature across the AONB also requires targeted change in the spaces between these special places.

The close relationship between nature and landscape character means that throughout the Plan references and information on landscape character and nature are used interchangeably.

However, landscape character is not, and never has been static. Such are the pressures facing the AONB, from climate change, development and changing agricultural priorities, that the characteristics of land use and management that provide its outstanding natural beauty will need to be revalued and, in some cases, reinterpreted.

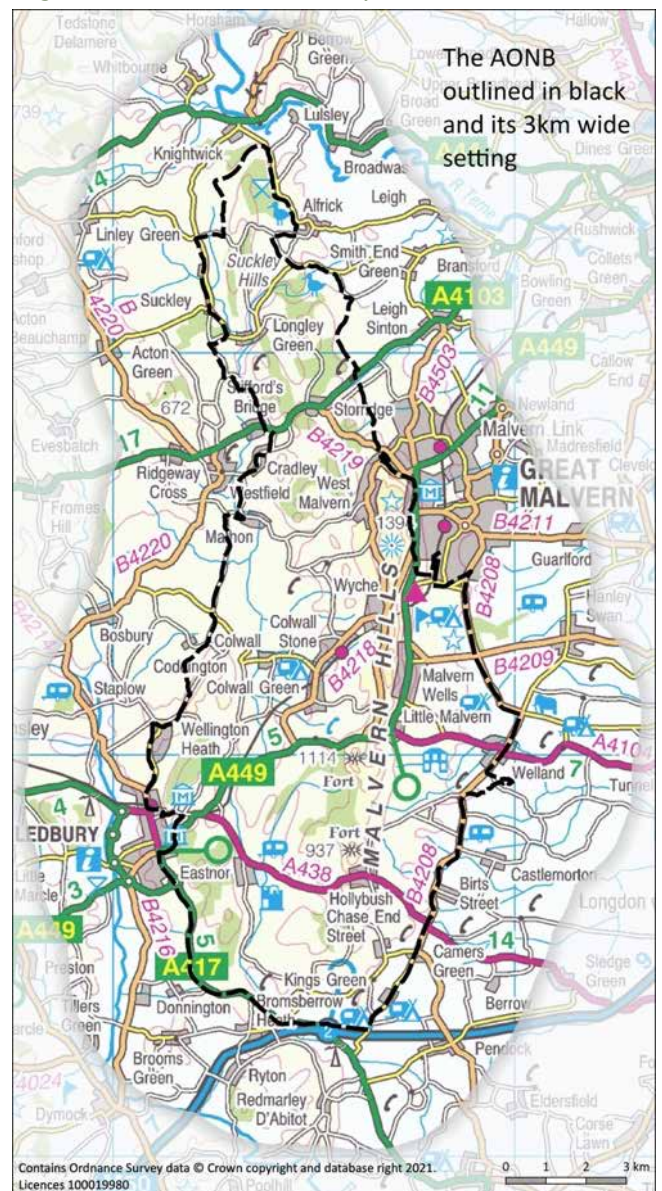
What is the area covered by this Plan?

This Plan is centred on the designated Area of Outstanding Natural Beauty, an area of some 105 km². It also takes account of its wider setting and connectivity, defined by a 3km-wide setting around the AONB boundary. More broadly, the Plan also recognises the broader regional context and the links for nature that need to be strengthened and extended through the surrounding countryside and urban areas. The ‘Strategies’ section of this Plan uses these three scales to describe key approaches and priorities for nature.

Relationship with other plans and policies

This Plan builds on a number of existing documents including the AONB Management Plan (2019-24) and Worcestershire Biodiversity Action Plan. There are many new initiatives under development that will also influence this Plan. These include the preparation of Local Nature Recovery Strategies, the design of the Environmental Land Management Schemes and the requirement for Biodiversity Net Gain provision as part of new development. As these new documents are developed, there will be a need to review and revise the strategy and actions in this Plan. In time, it is expected that this Nature Recovery Plan will form an integral part of the statutory five-year management plan for the AONB.

Figure 2: The Nature Recovery Plan area



THE NATURE OF THE AONB

Nature is at the heart of what makes the Malvern Hills AONB special. From the area's distinct and varied geology, celebrated by the Abberley & Malvern Hills Geopark, arise an array of natural habitats and species many of which are nationally rare.

A good understanding of nature starts with its geology. This section uses the geology to highlight the variation in nature in different parts of the Plan area.

The Malvern Hills

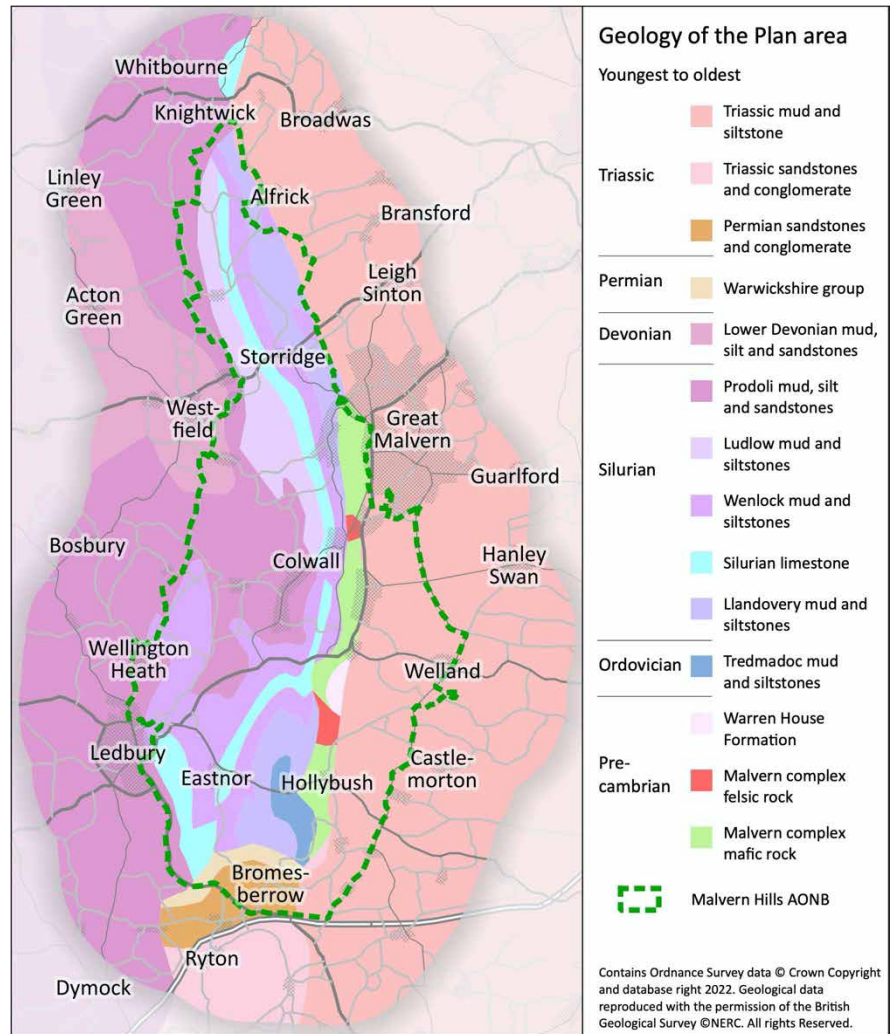
The Hills themselves are made from some of the oldest rocks that can be seen in England, dating from the pre-Cambrian period some 680 million years ago. These hard igneous and metamorphic rocks, extending eight miles from North Hill to Chase End Hill, have produced the steeply sided ridge that dominates the landscape and provides panoramic views in all directions.

The hardness of these ancient rocks has resulted in the thin and acid soil on the top of the Hills, supporting acid grassland and wildflowers such as heath bedstraw, sheep's sorrel and harebell. Rarities include upright chickweed and spring cinquefoil. A few areas of heathland, including heather and bilberry, occur such as around the Worcestershire Beacon. In pockets of less acid soil, flowers such as wild thyme and lady's bedstraw occur. Birds that breed, or have bred, on the open grassland include the meadow pipit, wheatear and skylark.



Wheatear

© Anne Burgess



On the more sheltered sides of the Hills where deeper soils have accumulated there is bracken, scrub and woodland. These support birds such as whitethroat, willow warbler, tree pipit and sparrowhawk. Under the Hills, a disused tunnel is home to one of the largest known winter colonies of the lesser horseshoe bat in England.

Water that is stored in the fractures of these ancient rocks emerges from the many springs and wells around Malvern. Malvern water has been valued for its purity and constancy since at least the 17th century and this led to the development of Great Malvern as a Spa town with its 'water cure' during the 19th century.

There are a number of large disused quarries around the sides of the Hills, such as Gullet and Tank Quarries. These allow the geological stratigraphy to be seen and support unusual plants such as fenugreek, buck's-horn plantain, carline thistle and Smith's pepperwort.

West and north of the Hills

Moving on through geological time, during the Silurian period, the Malvern Hills marked the eastern edge of a shallow sea that extended across what is now Herefordshire and Wales. The rocks to the west of the Hills were laid down in this sea, with subsequent geological folding producing bands of limestone, mudstones and siltstones, often containing marine fossils.



The bands of limestone, being formed of harder rocks and less agriculturally productive soils, create the wooded ridges to the west of the Hills, from Ankerdine Hill in the north, along the Suckley Hills to Eastnor in the south. This area provides an important ecological connection for lime-loving plants and insects between the limestone outcrops of the Cotswolds and Wye Valley/South Wales.

Most of the woodlands in this area are ancient (probably wooded continuously since the ice age) and many, such as Hay Wood (Ankerdine), Halesend Wood (Storridge) and Ridgeway Wood (Eastnor) have a rich flora and fauna, especially where the understorey has a long history of being coppiced.

Notable woodland plants include the nationally rare large-leaved lime, and flowers such as herb-Paris and bird's nest orchid. The ancient woodlands are an important habitat for animals such as dormice. Where grasslands on the limestone have not been agriculturally improved, they contain a particularly rich flora including carline thistle, autumn gentian, fairy flax and dyer's greenweed. Uncommon birds found in this area include the redstart and lesser-spotted woodpecker.

Wood pasture and parkland, in which ancient trees support many birds insects and lichens, are another important features of the area to the west of the Hills, including significant areas at Eastnor Castle and Hope End. This side of the Hills also supports a dense

network of large hedgerows, water courses and shelterbelts, amidst generally small fields, creating an ancient (pre-enclosure) farmed landscape that can be rich in nature.

To the north, the river Teme is a Site of Special Scientific Interest due to its aquatic species and geomorphology. Whippets Brook is home to one of the last populations of white-clawed crayfish in Worcestershire.

Grazed orchards, grown particularly for cider apples, are a significant landscape feature and wildlife habitat, particularly in the Teme Valley in the north of the area and through parishes such as Colwall. In the early part of the 20th century almost every farm had its own orchards, often placed close to the farmhouse producing cider and eating apples for their own use and for sale.

A survey undertaken in the 1930s shows over 2,400 ha of orchards in the Plan area, covering 8% of the land. The area of traditional grazed orchards has now reduced to 470 ha and the remaining areas are some of our most important places for nature, supporting wildlife including wild daffodils (which have their national heartland in this area) and uncommon birds such as woodpeckers and bullfinches.

South of the Hills

To the south of the Hills around Bromsberrow is an area of sandstone rocks formed during a period of arid desert and sand dunes during the Permian period. The sandstones have created deep rich soils, giving rise to the most productive agricultural land (grades 1 and 2) found in the Plan area. Amongst the mostly arable fields there are a number of traditional orchards, including perry pears and cherries.



East of the Hills

Later still in geological time, during the Triassic period, the eastern side of the Hills was an area of broad mud-flats and wide rivers which produced heavy Mercia mudstone soils across much of the Severn Vale. Much more recently, during the Ice Age, a layer of clay, silt, sand and gravel was deposited on both sides of the Hills. These have been reshaped on the eastern side by the River Severn, leaving terraces of free draining gravels over the heavier subsoils.

At the base of the Hills, many of these gravel terraces support poor soils and have remained as unenclosed commons (Castlemorton, Hollybed and Malvern Commons), with common rights to use the land held in local properties. These commons include a matrix of habitats, from dry grassland to wetlands and scrub. One of the characteristic features of these commons are the Black Poplar trees which are nationally rare but occur frequently here.



The distinctive red catkins of the Black Poplar

© Bob Embleton (cc-by-sa/2.0)

Many of the small streams that rise on this side of the Hills, flowing east to the Severn, support important aquatic and wetland species.

Much of the farmland to the east of the Hills is a relatively modern landscape, established through parliamentary enclosure in the 17th and 18th centuries. Farmland consists mainly of improved pasture and arable divided by narrow trimmed hedges or fences, with relatively little woodland.

A special feature of the area is the scattering of traditional hay meadows which include plants such as the green-winged orchid, yellow rattle, and adder's tongue fern, all of which rely on the late cutting of hay to set seed.



Large white butterfly feeding on yellow rattle

© Linda Bailey (cc-by-sa/2.0)

Habitats of Principal Importance found in the AONB*

- Lowland mixed deciduous woodland
- Lowland dry acid grassland
- Lowland calcareous grassland
- Lowland meadows
- Traditional orchards
- Wood pasture and parkland
- Rivers and streams
- Hedgerows and hedgerow trees
- Wet woodland
- Ponds

Species of Principal Importance found in the AONB*

- Noble chafer
- High brown fritillary butterfly
- Grayling butterfly
- Bullfinch
- Skylark
- Song thrush
- Adder
- Great crested newt
- Dormouse
- Polecat
- Bats: lesser horseshoe, Barbastelle, soprano pipistrelle and Bechstein's

* as defined under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Source: Malvern Hills AONB Management Plan, 2019-24.

THE STATE OF NATURE IN THE AONB

In recent decades, the AONB and the area surrounding it have been subject to the same pressures and declines in nature as those across Britain as a whole. National data shows that 97% of wildflower meadows were lost between the 1930s and 1984 and 90% of lowland ponds were lost in the 20th Centuryⁱⁱ.

In the area covered by this Plan, 80% of the traditional orchards present in the 1930s have gone, unenclosed heathland has declined by 30% and almost all the flower rich meadows have been replaced by agriculturally improved pasture and arable, the latter having increased significantly. Many of the remaining areas of habitat have become isolated, disconnecting their small populations of plants and animals.

The area of woodland in the Plan area has increased significantly in the last 80 years. This is partly due to the self-seeding of woodland onto steep ground on the edges of the Hills (leading to a loss of acid grassland which is a valuable habitat) and partly due to new planting on farmland in areas such as Longley Green, Mathon, Beggar's Ash and Bromesberrow Heath.

The lack of comparable data makes a precise figure on the increased woodland difficult to obtain. The map on the following page shows change between the 1930s and present day (note that the 1930s map does not show narrow belts of woodland but these are shown in the 'Now' map). An overall increase in woodland of around 40% is likely.

Designated sites of national importance

The AONB contains many areas that are considered of national importance for their biodiversity or earth science which are designated as Sites of Special Scientific Interest (SSSI). There are 16 SSSIs lying partly or wholly within the AONB. These represent 10.9% of its total area (11.45 square kms)^{vii} which is a density that is far higher than in most of the surrounding counties.

Assessments by Natural England show that half of the area of these SSSIs is in favourable condition for its biodiversity and most of the other half is in unfavourable but recovering condition. 'Recovering' condition indicates that suitable management is in place but this does not guarantee success.

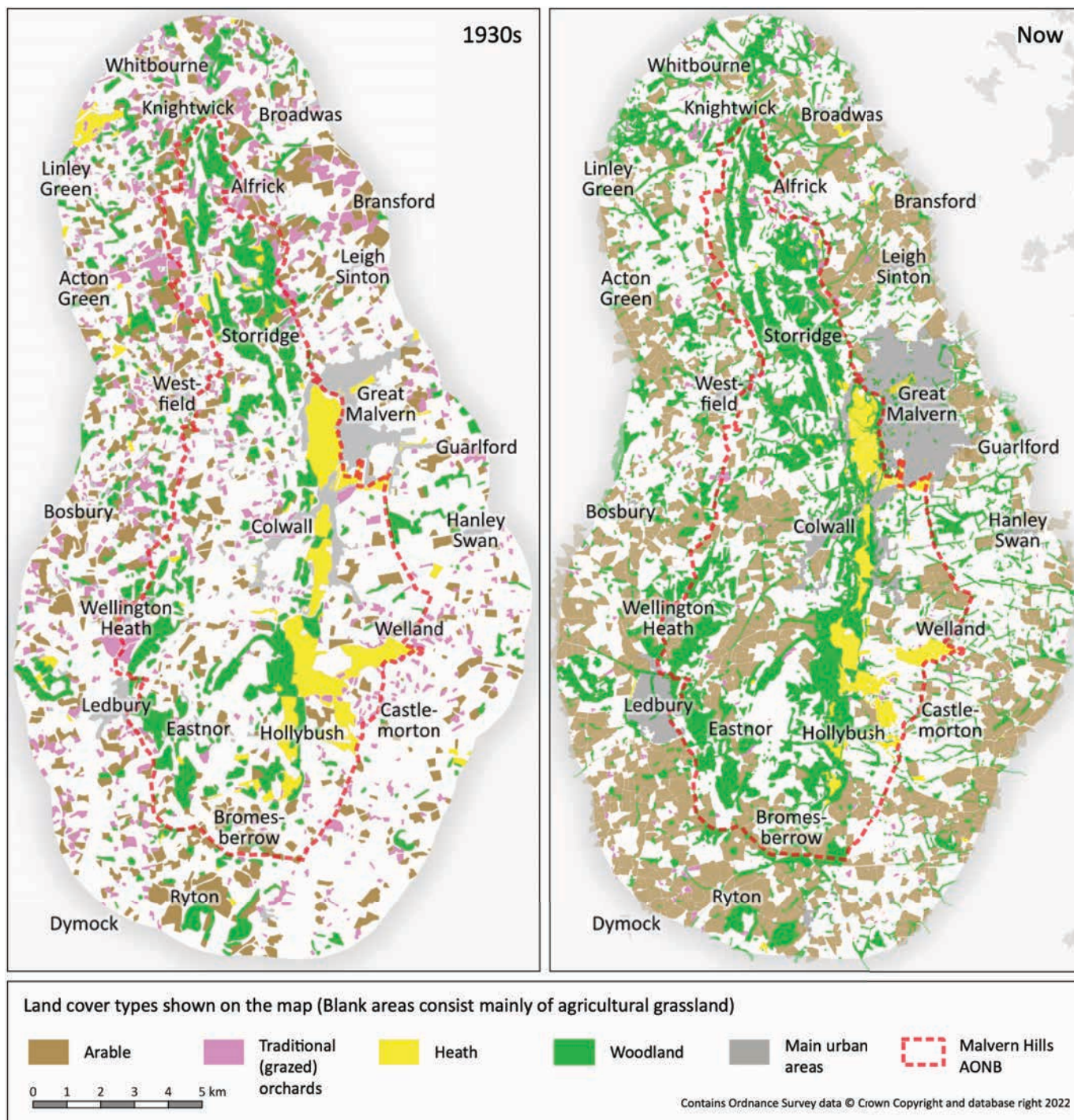
Sites of local importance

Areas that are considered of at least county importance for their biodiversity and geology are designated as Local Wildlife Sites (LWS) and Local Geological Sites (LGS).

These sites occur more frequently across the landscape than nationally designated sites and are often of equal quality to SSSIs if managed favourably. Local Wildlife Sites are key elements of the ecological network spanning the AONB and their restoration, management and integration into a more biodiverse landscape will be an important consideration in delivering the plan objectives.



Change in land cover between the 1930s and the present



Sources for these maps:

The 1930s map uses The 1930s Land Utilisation Survey of Britain. This was carried out under the leadership of Professor L. Dudley Stamp. The surveying was done largely by volunteers including schoolchildren who shaded maps of the fields in their surrounding area. The data have been digitised for this Plan from scans of the original maps © L. Dudley Stamp/Geographical Publications Ltd, Audrey N. Clark, Environment Agency/DEFRA and Great Britain Historical GIS.

The current map is based on available land use and habitat data undertaken by the Gloucestershire Centre for Environmental Records. Sources include the National Forestry Inventory (FC), Priority Habitats (NE), Land Cover Map 2019 (UKCEH) and local habitat surveys (WCC and HC).

The condition of key natural assets

- **Agricultural soils.** Most arable soils have significantly depleted levels of organic matter and microbial activity and a poor structure, reducing their productivity and ability to hold water and carbon. This is the result of continuous cropping and the use of agrochemicals. Soils under permanent pasture are in better condition but may be locally compacted.

Many farmers are now adopting soil management and grazing practices which will improve soil health.

- **Water and wetlands.** The Environment Agency measures the status of waterbodies based on a range of measures including their ecological, chemical and physical status.

The latest (2019) data for the rivers and streams in the Plan area shows that their condition is not good, largely as a result of diffuse pollution and sediment run-off. The majority (81%) of monitored stretches of river are in moderate condition), 14% in poor condition (the Bushley and Longdon Brooks flowing into the Severn and the Sapey Brook flowing into the Teme) and 6% were in the worst, bad, condition (the Suckley Brook).

Climate change is adding to the problems facing rivers and wetlands, causing more frequent and intense flooding and also low summer flows which exacerbate problems for aquatic life.

- **Woodlands.** It is estimated that only 55% of woodland in the Malvern Hills AONB is actively managed.^{viii} Many tree species are coming under acute stress from new pests and diseases and periods of intense weather (e.g. storms and drought). Loss of key species such as ash will accelerate change, particularly in unmanaged woodland.
- **Habitat diversity.** Variety in the structure and species composition of common habitats such as farmed grassland, hedgerows and watercourses is crucial in providing food and shelter for wildlife.

Loss of this diversity and of key habitats such as traditional orchards and meadows is one of the main reasons for the declines in diversity and abundance of once common groups such as birds, small mammals and moths.

Current and future pressures

Nature in the AONB will face significant pressures for change over the foreseeable future.

Climate change

Average UK temperatures have already increased by nearly 1°C since the 1980s and the trends predicted by climate science are proving accurate. As well as rising average temperatures, periods of low rainfall, interspersed by intense rainfall are creating difficult conditions for our native wildlife, and are testing some types of farming and forestry. In the AONB habitats most susceptible to harm are the rivers and streams, heathland and wet woods^{ix}. Examples of the impacts on nature include pest and diseases (ash dieback being a new and highly visible example); changing timings of seasons; low summer river flows; and damage to vegetation from high winds. Many of these impacts are likely to accelerate in the short term. The longer-term effects will depend on measures by governments and individuals over the next few years.

Built development

The Government has a goal of significantly increasing the rate of house building in England and of ensuring that negative environmental impacts of these developments are mitigated. The AONB itself is unlikely to see new developments at the same scale as surrounding areas. However, there is likely to be a reduction in the tranquillity that can be experienced in the AONB (for instance dark night skies) and growing numbers of recreational users, putting pressure on its natural environment. Changes to air quality, arising from traffic, industry and also agriculture, may also occur. There are also likely to be opportunities to create new habitats using funding from development in nearby areas through the proposed requirements for 'Biodiversity Net Gain' (described further below).

The agricultural transition

Farming in the AONB is starting to go through a period of major change as the support schemes that were funded by the EU's Common Agricultural Policy (CAP) are replaced by a new domestic policy based on supporting public goods from land. Defra is developing three new Environmental Land Management Schemes but their content and suitability to the AONB is currently not known. Other factors that will influence how farmland is managed include the costs of agricultural inputs; the availability of labour; promotion of low carbon / net zero farming techniques; pests and diseases (including bovine TB); and changes to farming export markets.

New opportunities

Whilst these pressures continue, the policy context within which nature recovery sits is rapidly changing. This presents significant opportunities to create positive change for nature, but also requires adjustments to the new policies and funding mechanisms that can facilitate nature recovery.

Some key emerging opportunities for nature recovery are:

Environmental Land Management schemes

The delivery of public goods under the three proposed Environmental Land Management (ELM) schemes and the need for priorities to be spatially targeted means that there is an opportunity for the Nature Recovery Plan to influence landowners and their advisors in their delivery of nature and other public goods (Figure 1). The Plan should be a key influence on ELM delivery and a source of guidance to farmers and their advisers.

Biodiversity Net Gain requirements

The introduction of mandatory Biodiversity Net Gain (BNG) will require developers to create new habitats for those removed by land use change. This Plan can start to guide and co-ordinate where these new habitats can be located to provide greatest benefits to nature, local communities and the other special qualities of the AONB.

The AONB aspires to implement a more stringent requirement than 10% net gain (many Local Authorities have already raised the requirement to 20%).



Carbon Markets

New markets are emerging that put a tradable value on carbon in soils or vegetation and in other 'nature-based solutions'. These private investment markets may be of interest to some landowners. This Plan could have a role in shaping use of these markets, ensuring synergies with landscape and nature recovery.

Local Food Markets

As noted in the AONB Management Plan, the area has a relatively affluent population with an above average income (and high carbon footprint) – and it can be assumed a high interest in local products. Food production in the AONB is significant and some of the production systems that are of particular value to nature are under threat e.g. orchards.

Closing the gap between food production and the local population is a way to help lower the AONB population's carbon footprint, support nature as well as protecting some of the most important agricultural systems in the AONB that underpin the landscape and livelihoods. This avenue of business and nature-based solutions in the AONB could be explored further through the Plan.



Community interest

The AONB and the communities that live and work in and around it are inextricably linked. Some of these connections are well understood and relationships established - for example, recreational use of the AONB and the work of the Malvern Hills Trust.

However, other connections need strengthening. For example, the link between personal consumption patterns and land use or between choices relating to private property and nature and other public goods (such as areas of hard surfacing, fencing and outdoor lighting). This Plan can start a process of engaging with the community on these issues and identifying spatial opportunities for suitable interventions.

A changing place for Nature

Change to the landscapes and habitats that make up the AONB are inevitable given the climate crisis and other pressures on the area. The challenge is to shape this change so that nature can recover from past harm and adapt to the future. Nature can help us address many of the pressing issues facing society such as poor health and climate change ('nature-based solutions') and we need to give nature the space to do so.

We may need to alter our perceptions of treasured landscapes, for instance welcoming increases in tree cover or accepting flooding in areas that can cope with it. Thinking about the needs of wildlife (as well as our own) as the climate crisis takes hold, will help us evaluate what is special about our cherished landscapes and reimagine them for the future.

A particular challenge for the MHAONB is to balance this need for change with the purpose of the AONB designation which is to conserve and enhance natural beauty. The 'special qualities' of the area justify its designation and identify the characteristics that should be conserved and enhanced.

Some of MHAONB's special qualities relate to its distinct and dramatic geology that will be less sensitive to change from sources such as the climate or changing agricultural practices. However, other special qualities particularly those that relate to land use, wildlife and how people use and relate to the AONB are very likely to be susceptible to change.

It will be important to understand whether or which of the AONB's special qualities are 'non-negotiable' (their loss fundamentally threatening its status) and which others might be reimaged or adapted for the future.

There will always be trade offs between nature and people but through enhancing ecosystem services a new more balanced future for this landscape can be found.



Gapping up in a traditional orchard, Hollybed

© Malvern Hills AONB Unit

OUR STRATEGY FOR NATURE

This section of the Nature Recovery Plan consists of two parts.

- The first part is a set of guiding principles, describing the approaches that should be taken to safeguard and restore nature in the AONB.
- The second part contains three priorities to shape the way land is used and managed for nature. Each of these operates at a different scale.

Part 1 - Guiding principles

The Malvern Hills AONB is fundamentally a 'cultural' landscape where nature and people have evolved together over thousands of years, particularly through the actions of farming and forestry. The following principles recognise that nature recovery must work with the functions and fabric of the landscape, and through the owners, managers and users of the land, many of whose livelihoods depend on it.

1. Ensuring better condition of what we have

Protecting and conserving the nature we have is the starting point for helping it to recover. Every effort should be made to limit further loss of habitats, deterioration of soils and water resources, and harm from invasive species and other external pressures. Reinstating and maintaining sympathetic management practices such as extensive livestock grazing, woodland coppicing and restoration of species-richness in grasslands can be a challenge but is essential to nature recovery in the area, supporting diversity and abundance of wildlife.

2. Creating bigger, more & more joined-up habitats

Strengthening our ecological networks is the best way to overcome the past fragmentation of habitats and give nature greater resilience to threats like climate change. A planned spatial approach, expanding and buffering existing core habitats and creating corridors for wildlife between them, will be most effective. A draft ecological network map for the AONB is shown later in this Plan (page 18).

3. Harnessing community support and action

This Plan is for everyone who lives and works in and around the AONB. Many different groups of people have a role to play, including owners and managers of land, consumers of food and drink, recreational users, regulators or advisers. Figure 3 shows how the Plan provides the means to co-ordinate appropriate actions in the area using the resources and guidance from national and local policies and schemes.

Figure 3. How the Plan joins top-down policies to bottom-up activities



Those involved in both bottom-up activities and top-down policies have to want change to happen, and this 'will' needs to be fostered in order for solutions to be delivered. Public interest can be a positive influence on both the policy making process and encouraging the uptake of new ideas in land management, industry and commerce. An example is changing public attitudes to road verge management which is now driving change in practice by highways authorities and others.

4. Making steady and concerted progress

Given the scale of the biodiversity crisis, nature recovery can seem like a daunting, formidable task. The first step to change can be the hardest. However, the impact everyone has in making small changes is cumulative. Individuals and organisations start at different stages of understanding, engagement, will and ability (either financial, operational or technical) to make changes. This stepping-stones approach helps to remove barriers to participation whilst inspiring a longer-term commitment to action. All need to play their part if nature recovery is to become a reality.

5. The past isn't necessarily a guide to the future

The climate crisis means that change to the wildlife, habitats and landscapes of the AONB is inevitable. A new direction must be found; one that allows nature to recover and flourish into the future at the same time as ensuring that the qualities that make the AONB special are revalued or reimagined. Our landscapes will need to be dynamic and revaluating them for the future is essential if they are to survive as special places.

Part 2 - Priorities for nature

On the following pages, the Nature Recovery Plan advocates three key sets of Priorities for nature in the AONB and the area it serves. These are as follows:

Priority A. The management of land for nature in the AONB

This considers the guidance to landowners and managers on the actions they can take to conserve and enhance nature on their land. It does so under headings of five key landscape zones.

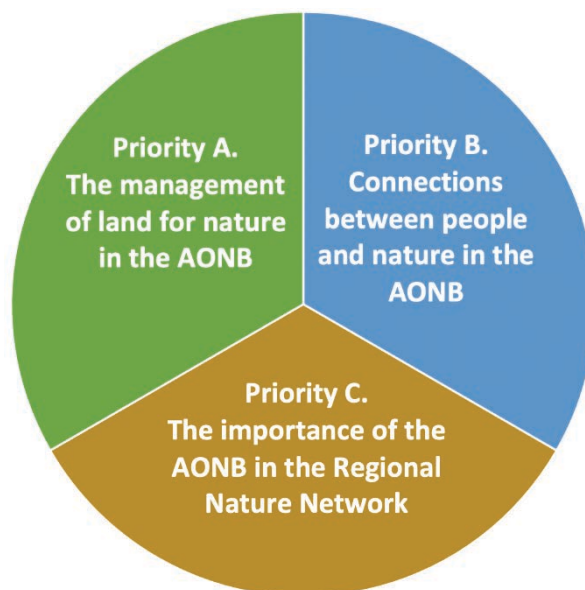
A map showing the connectivity of different types of habitat across the whole area is also used to suggest how the nature network can best be reinforced.

Priority B. Connections between people and nature in the AONB

This emphasises the benefits that local people and visitors, and society more widely, gain from nature, and the actions that are needed to enhance these services.

Priority C. The importance of the AONB in the Regional Nature Network

This recognises the importance of the AONB as a core area for nature of regional significance and the need to enhance and enlarge the habitat corridors and connections to other core areas.



In contrast to the five Principles on the previous page (which are about ‘how’ the Plan will be achieved), these three Priorities focus on the outcomes or long term results that it seeks to deliver.

Each of these Priorities operates at a different scale. Priority A focusses on land management in the AONB and its immediate setting. Priority B looks to the way people living in and visiting the AONB value and care for its nature. Priority C focusses on the contribution that the AONB makes to nature at a regional scale.



Priority A. The management of land for nature in the AONB

This set of priorities provides guidance to landowners and managers on the actions they can take to conserve and enhance nature on their land.

It will involve activity with and by individual farmers and landowners to develop appropriate action for nature on their land and also collectively across land-holdings to strength the nature networks.

Land management opportunities are suggested for five key landscapes which are mapped in Figure 5. These areas are based on the landscape character typology for the AONB and its surrounding areas (See Appendix 2 for details).

A starting place for dialogue

The suggested land management opportunities are intended as a starting place for discussion with landowners and managers. Not all will be applicable, and within each landscape area, it may be that special features and relatively uncommon land holdings require

a different approach informed by available evidence. The priorities focus mainly on maintaining and enhancing existing nature value and landscape character, but they should not preclude more radical land use change where this is justified by adaptation and mitigation for climate change or the incentives that will be offered through Defra's Environmental Land Management schemes.

Planning for nature between habitats ...

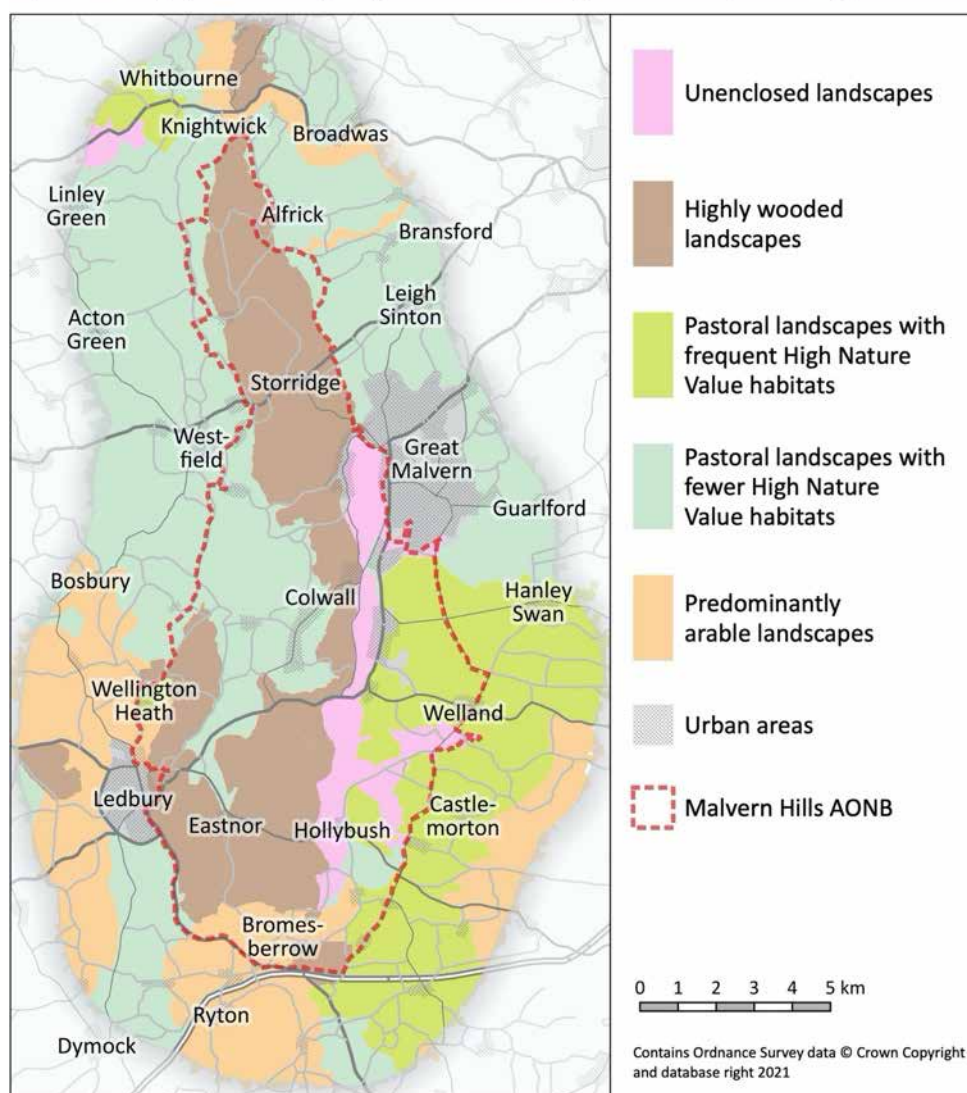
This Plan recognises the value for nature of transitions between habitats (known as 'ecotones') which can support different species and are an essential component of a wildlife rich landscape. Examples of these transitional areas include woodland edges and glades, wood pasture, scrub and rough grassland edges around arable fields. Helping the AONB's biodiversity will involve enhancing and creating more of these often overlooked areas in the countryside.

... and across landscapes

There is a risk that, in subdividing land management opportunities between separate landscape areas, the need to enhance connectivity for nature across the whole area is overlooked. To address this, this section concludes with an ecological network map for the whole Plan area.

This map suggests priority areas for open and wooded habitats based on the distribution of core, highest value, habitat. Co-ordinated effort by groups of landowners in an area is essential to recovering nature at a landscape scale. The Malvern Hills AONB Partnership provides training, advice and support to clusters of land owners and managers for this purpose.

Figure 5. Simplified landscape types used to identify land management opportunities

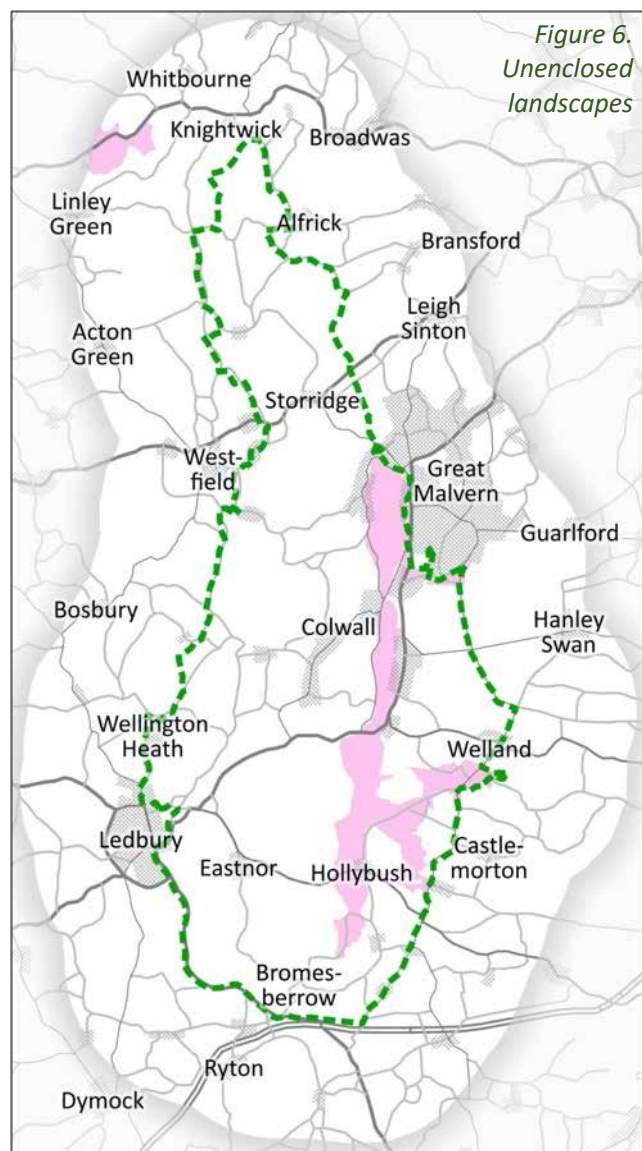


Unenclosed landscapes

This landscape zone consists of unenclosed acid grassland and heathland on the tops of the Malvern Hills and on Castlemorton and Hollybed Commons. There is also a smaller area at Bringsty Common in the north west of the Plan area.

These areas are of high nature and landscape value and provide high levels of many ecosystem services. Over half is designated as a Site of Special Scientific Interest (SSSI) due to their biodiversity and/or their geology and three quarters is registered common land, often providing open public access.

They are of high historical interest, both as medieval common land and because of the hill forts and other archaeology. Castlemorton and Hollybed Commons deliver high levels of water regulation (absorbing rainfall and reducing flood risk) and their soils are a good store of carbon.



The Malvern Hills Trust plays the main role in managing most of these areas, where appropriate working with registered commoners and volunteers.

Land management priorities for nature in these areas will include:

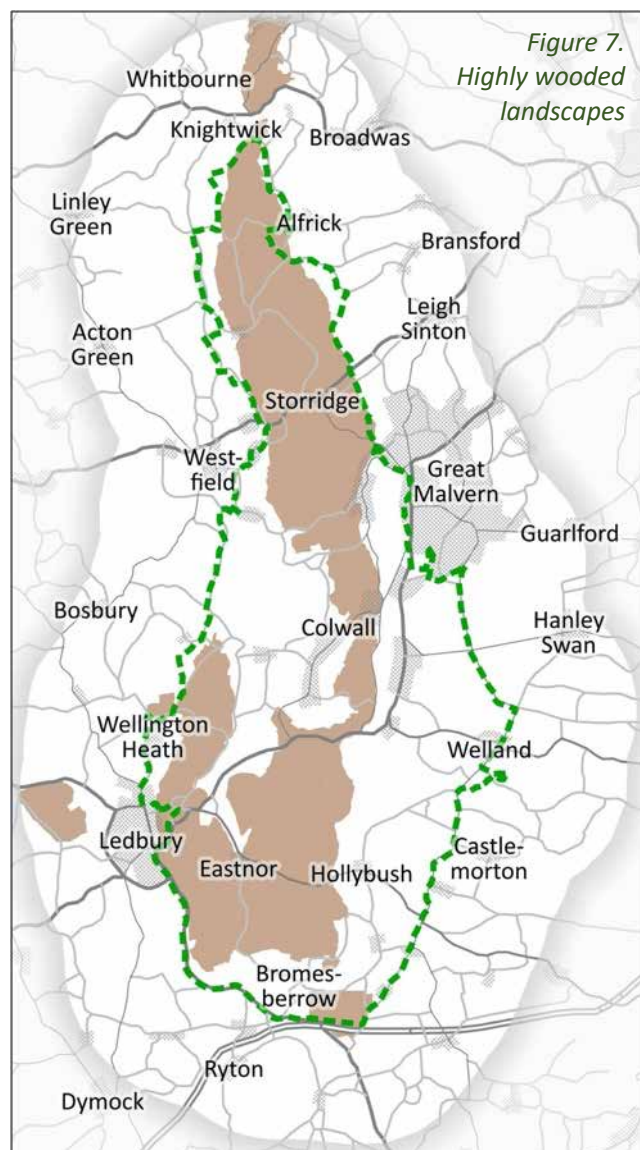
- Maintaining the extensive cattle and sheep grazing on the Hills and lowland commons, supporting diverse sward structures.
- Managing a harmonious balance between livestock and people in areas of high levels of public access. On the lowland commons this includes avoiding conflicts between drivers on the public roads, livestock, and recreational users.
- Using grazing and scrub clearance to maintain a balance between open land, scrub and, where present, woodland. Managing grazing levels can provide nesting and foraging areas for ground nesting birds such as skylark.
- Regular management will be needed to keep a mosaic structure on the slopes where bracken and brambles may otherwise dominate.
- Protecting the heritage value of rock outcrops, keeping them clear of soil and vegetation so they can be studied and appreciated, also enabling dependent species such as the Grayling butterfly to thrive.
- Maintaining an access strategy to reduce soil erosion, vegetation damage and disturbance to wildlife in sensitive areas.

Highly wooded landscapes

Large areas in the northern and southwestern parts of the AONB are highly wooded. Smaller areas occur outside the AONB in the 3km setting area north of Knighwick and west of Ledbury.

In these landscapes near 40% of the land area is covered by woodland, most of which is broadleaved. The wooded character is further strengthened by the dense network of large hedgerows, and areas of parkland, wood pasture and traditional orchards. Alongside wooded habitats these areas have high concentrations of permanent pasture.

These areas provide high levels of many ecosystem services including biodiversity, scenic and historical value, soil health, carbon storage and water regulation.



Land management priorities in these areas include:

- The introduction or continuation of sustainable forestry practices based on agreed Management Plans.
- In ancient woodland, the reintroduction or continuation of historical practices such as coppicing and new planting to reconnect fragmented areas. Where ancient woodlands have been planted with conifers, their replacement with native broadleaves.
- Conserving the diversity and carbon storage potential of all older permanent pastures and meadows using managed livestock grazing and later cutting of hay.
- Enhancing the diversity and species richness of previously 'improved' grasslands through the introduction of wild flower and grass seed, ideally from local sources.
- Conserving remaining traditional orchards, using restorative pruning to prolong the life of old trees as well as restocking with traditional varieties on standard rootstocks.
- Similarly, conserving veteran trees in parkland and wood pasture and restocking with new trees.
- Protecting the geological heritage value of quarries, keeping rock faces clear of soil and vegetation.
- Exploring opportunities to create and manage transitional habitats such as scrub within and on the edge of wooded areas.
- Buffering narrow or small woodlands with new tree planting.
- Reinstating and managing the historic enclosure pattern of hedges and watercourses. This includes allowing hedges to grow bushy and/or taller and ensuring a diverse age structure of hedgerow trees to provide strong habitat connections between woodlands and to shelter orchards and hops.
- Managing watercourse vegetation to provide both shade and light.

Pastoral landscapes with frequent High Nature Value habitats

This landscape zone is dominated by grassland farming (60% of land cover as permanent pasture). It has significant areas of high nature value open habitats (principally unimproved neutral grassland and some traditional orchards). It has relatively low levels of woodland cover (as low as 4%) and a quarter of farmland is under arable cultivation. There are many watercourses and streams, and farm ponds are also frequent.

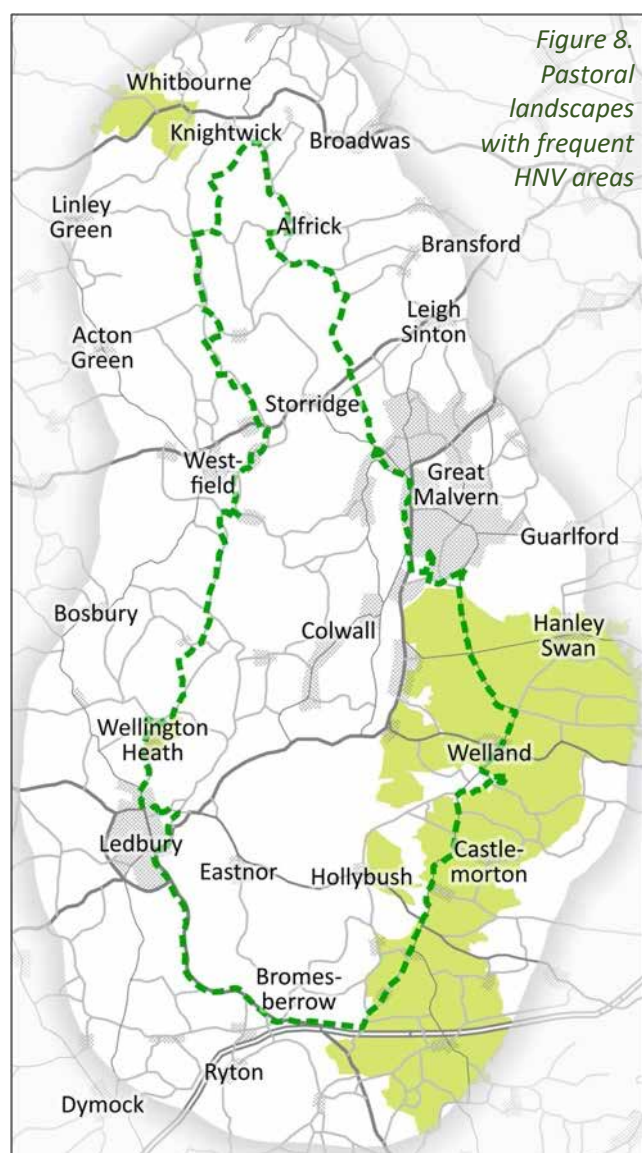
These areas occur in the southeastern part of the Plan area, in the 3km setting to the AONB and a smaller area in the north west of the Plan area.

These areas provide high levels of many ecosystem services including biodiversity, scenic value, food provision, soil health and water regulation.



Land management priorities for nature in these areas will include:

- Conserving the diversity and carbon storage potential of all older permanent pastures and meadows using managed livestock grazing, including traditional/regenerative techniques. Cattle and hardier native breeds of sheep are important where rougher vegetation is present/desirable.
- Enhancing the diversity and species richness of previously 'improved' grasslands through the introduction of wild flower and grass seed, ideally from local sources.
- Low or no inputs of fertiliser and later cutting of hay in flower-rich meadows (where appropriate) is recommended.
- Maintaining the historic enclosure pattern of hedges and watercourses, including two or three yearly trimming of hedges where possible and ensuring a diverse age structure of hedgerow and field trees.
- Planting new hedgerows and / or allowing small hedgerows to grow bigger, providing new corridors for wildlife.
- Retaining and protecting field ponds and wetlands, ensuring clean natural water supplies and periodic cutting back of overhanging trees.
- The creation of appropriately sized new woodland, connecting existing woodland and other habitats, integrating trees into productive land through agroforestry or silvopasture.
- Conserving remaining traditional orchards, using restorative pruning to prolong the life of old trees as well as restocking with traditional varieties on standard rootstocks.



Pastoral landscapes with fewer High Nature Value habitats

This landscape zone has high levels of grassland farming (permanent pasture accounts for nearly half of land use) and, unlike the previous types, relatively few areas of high nature value such as unimproved grassland or wetlands. Woodland cover is around 8% and much of this woodland is ancient semi-natural in character. Arable cropping takes place on a third of the land. Field boundaries are frequently low annually trimmed hedges. There are many watercourses and streams, and farm ponds are also frequent. There are also areas of wood pasture and small traditional orchards.

This landscape zone occurs in the central west-ern part of the AONB between Mathon and East-nor and covers most of the northern part of the 3km setting around the AONB.

The ecosystem services provided include food provision, scenic value and water regulation.

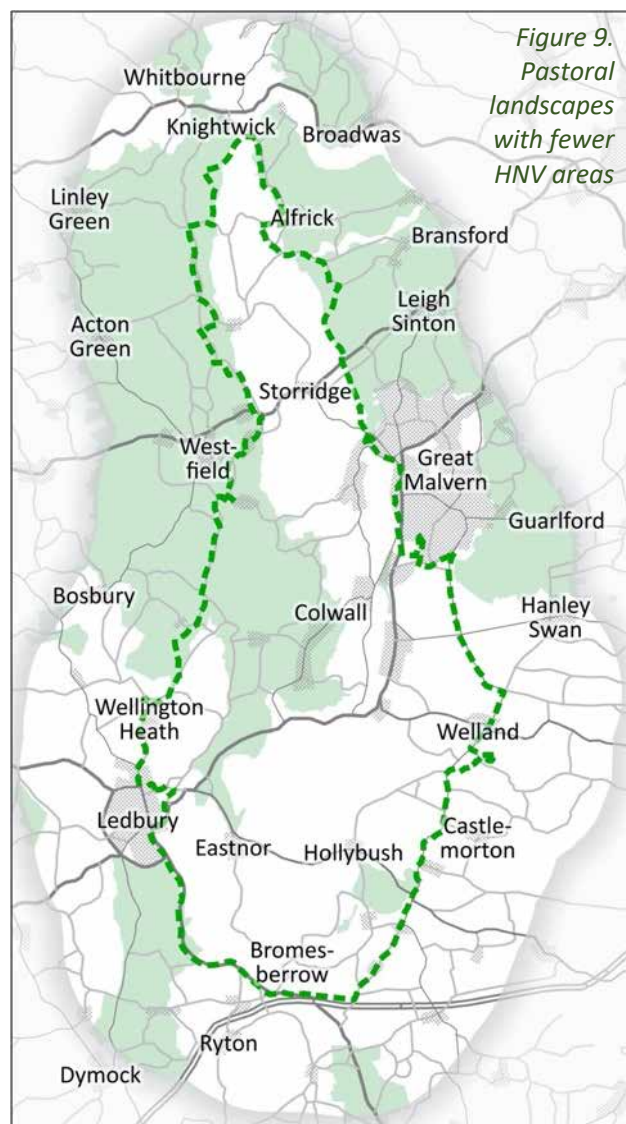


New tree planted in a broad native hedgerow, Castle Morton

Land management priorities for nature in these areas will include:

- Conserving the diversity and carbon storage potential of all older permanent pastures and orchards using managed livestock grazing, including traditional/regenerative techniques.
- Enhancing the diversity and species richness of previously 'improved' grasslands through the introduction of wild flower and grass seed, ideally from local sources.
- Protect and sympathetically manage roadside verges that are rich in wildflowers and restore to species richness those that could become so.
- Low or no inputs of fertiliser and later cutting of hay in flower-rich meadows is recommended.
- Where appropriate, revert arable areas to permanent pasture to help realise multiple ecosystem benefits.
- Maintaining the historic enclosure pattern of hedges and watercourses, adopting two or three yearly trimming of hedges where possible and rejuvenating old and tired hedges.
- Leaving a wider margin around pasture fields for the hedgerow to grow out and create a corridor of rough grassland.
- Planting hedgerow and field trees to achieve a diverse age structure, providing shade for livestock, ecological variety and contributing to landscape character.
- Retaining, protecting and expanding watercourses, field ponds and wetlands areas, ensuring clean natural water supplies.

The creation of new woodland in blocks or belts, connecting existing woodland and other habitats. Including shrubs/scrubby vegetation on the edges of new woodland areas creates a valuable transitional habitat for many birds and insects.



Predominantly arable landscapes

Areas where arable farming is the dominant land use (accounting for half of land cover in these areas), occur around the southern edge of the AONB and also in the valley floor of the River Teme to the north of the AONB. Agriculturally improved permanent pasture accounts for about a quarter of land cover and woodland is found on about 8% of the area.

In many of these areas, field boundaries consist of low annually trimmed hedges, often beside watercourses and streams.

The ecosystem services provided by this landscape zone include food provision and water flow regulation.



Combine harvester, Mathon parish

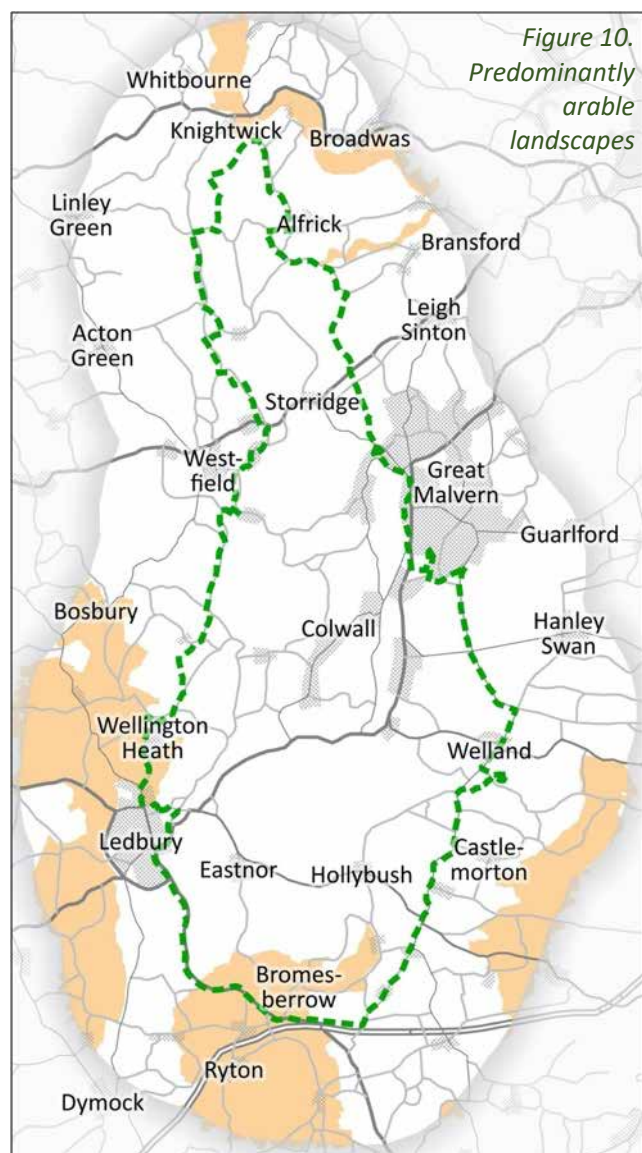


Figure 10.
Predominantly
arable
landscapes

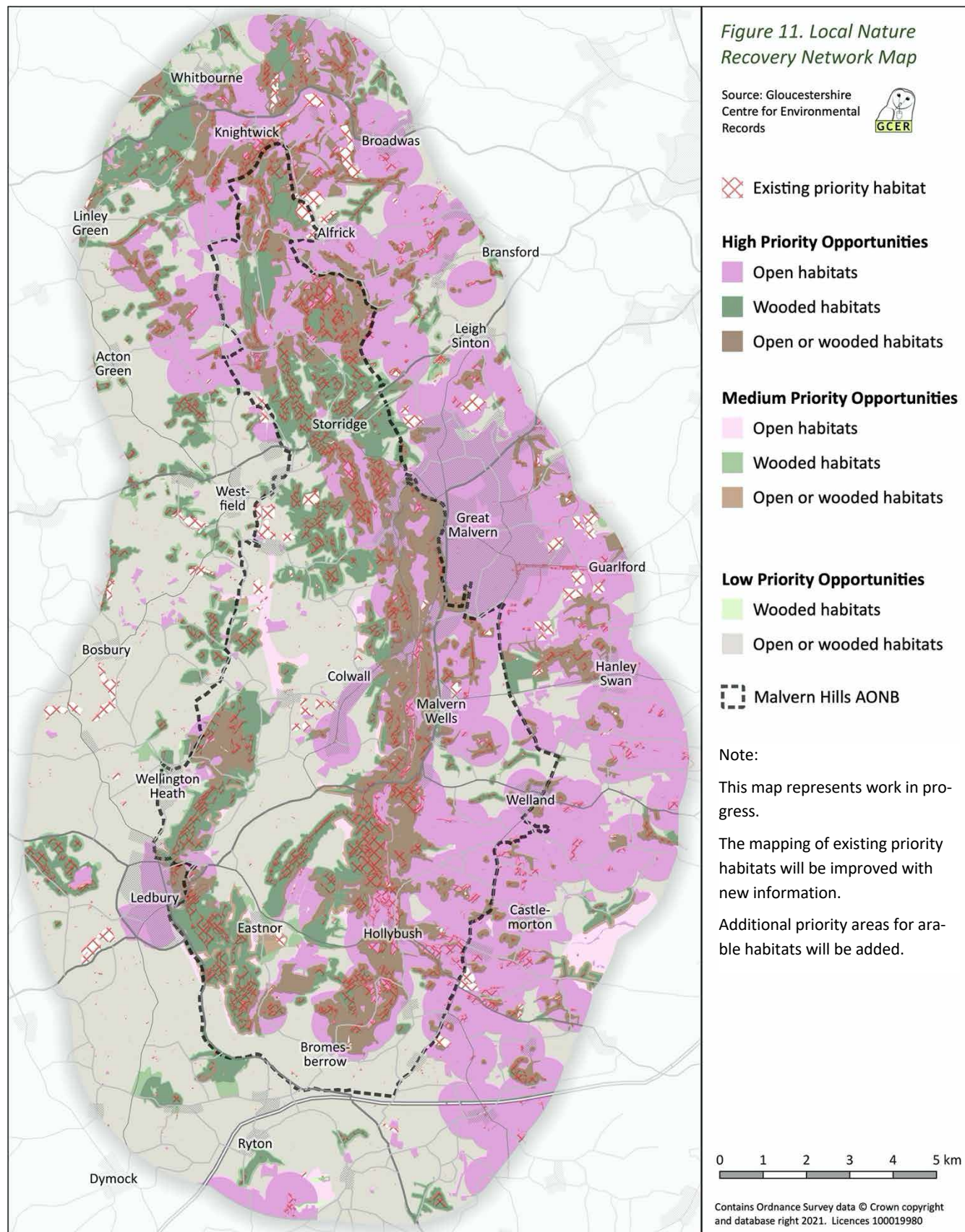
Land management priorities for nature in these areas will include:

- Monitoring soil health and adopting measures to increase soil organic matter where needed including incorporating straw and stubbles and using minimum tillage to establish crops.
- Leaving unfertilised rough grass margins (ideally sown with wildflower and grass seed) around all fields to buffer hedges and watercourses, provide winter shelter to wildlife and food for insects.
- Maintain soil cover in winter (autumn sown crops, stubbles and cover crops) to reduce erosion, soil capping and emissions of nitrous oxide and provide food for wildlife.
- Minimising the harmful impacts on nature of pesticides and fertilisers, especially close to non-cropped areas and watercourses, reducing diffuse pollution.
- Maintaining the historic enclosure pattern of hedges and watercourses, adopting two or three yearly trimming of hedges where possible.
- Maintaining a diverse age structure of hedgerow trees, establishing new trees in anticipation of the loss of ash trees due to ash die back.
- Not ploughing, cultivating or cropping under the canopy of field trees, providing protection to the shallow roots.
- Seeking opportunities to replace important landmark veteran trees in appropriate locations.
- Creating new woodland in blocks or belts, connecting existing woodland and other habitats. Including shrubs on the edges of new woodland areas creates a valuable transitional habitat for many birds and insects.

Enhancing the nature recovery network across the whole Plan area

The map below shows the areas where there is highest priority for expanding or creating different habitat types, based on the location of existing habitats and the way key species move between them. The AONB has large areas with a high priority as native woodland and open habitats (grassland and heathland). To the east,

there is a high priority for expanding or creating open habitats, and to the west it is either for woodland or open habitats. The map should be used, alongside the area based priorities, when considering and planning for change on the ground.



Priority B. Connections between people and nature in the AONB

Reinforcing people's relationships with nature and the benefits they gain from it is central to achieving nature's recovery. The AONB's Colchester declaration^{iv} recognises this and pledges to "create opportunities within AONBs for people to make an emotional connection to nature". Functional connections to nature in the MHAONB and its setting are clear from the wide range of services and benefits that local people, visitors and wider society receive from it. **Appendix 1** sets out a series of maps of how well the AONB and setting is doing at providing some of these services.

Whilst the public are at different stages in their understanding and willingness to adopt change, public awareness internationally is now at an all-time high of how our actions have harmed nature and how this is changing the world to our detriment. Even amongst the people in this AONB who are already aware of the biodiversity crisis and the need to act, there may still be uncertainty about what they can do individually or as a community.

Understanding the benefits we all gain from nature, whether pollinating the crops we eat, providing a place of tranquillity to visit, filtering the air we breathe or protecting our historic landscape character, is an important step to reinforcing these connections.

Everyone has a role to play, whether as purchasers of food that can be produced locally and sustainably, recreational users of the countryside, policy makers and regulators, or owners and managers of land.

The priorities for connecting people to nature in the AONB and its setting are:

- **Connect and join up activities on the ground for nature:** Bringing individuals together and encouraging community organisation and activity can be powerful and effective ways of encouraging change. This can include showcasing diverse voices from different generations and backgrounds. It is important to understand the values that people have and to recognise that values and aspirations differ.
- **Partnership working for a unified approach for nature recovery:** Top-down organisations can also play a role by organisations coming together and speaking with one united voice, delivering a consistent message and advice, this will increase trust, reduce ambiguity and in still confidence in those seeking to take action.

Case study 1: Colwall Orchard Group – bringing the community together for their orchards

Colwall Orchard Group (COG) is a great example of a volunteer community group that is supporting nature. It's objective is to restore, promote and celebrate traditional orchards. It owns two community orchards which showcase good land management practices for wildlife and community use. Working in partnership with organisations such as MHAONB, COG have extended their work into neighbouring areas creating new or restoring traditional orchards and giving advice to orchard owners to enhance the future health and condition of their orchards.

COG started the Traditional Orchards for the Future Initiative (TOFI) in 2020 in partnership with the MHAONB and so far have planted of over 200 trees to create new, or gap up existing, traditional orchards. In addition in the last 2 years COG have assisted in the purchase of almost 400 orchard trees to be planted locally. The majority of the 30 traditional orchards in Colwall Parish, and 20 or so garden orchards, have benefitted from their management activities. As an entirely volunteer-run group, the contribution of volunteer time to helping local orchards is usually in excess of 3,000 hours annually.

The local community has benefitted from COG's activities in a variety of ways. In addition to the 200 members, local communities have been actively engaged through annual events such as the Wassail and education activities. These include trips to COG's orchard wildflower meadows, tree planting, apple picking and juicing. Local food production is actively promoted and in 2020/21 over 400 jars of jam, jelly and chutney, together with over 500 litres of apple juice were made and sold by COG. <https://colwallorchardgroup.org>



Children from The Downs School Colwall harvesting apples

Case study 2: Transition Malvern Hills – fostering local action on global issues

Transition is a global movement where communities step up to address the big challenges they face by starting local and coming together to create solutions through local, community-led initiatives. It is hoped that this helps people become happier and the towns and villages they live in become more sustainable, stronger and more resilient.

Practical local action to tackle climate change and build a sustainable community

Transition Malvern Hills is an active group of local people that have had a number of successes such as establishing a car club, a garden-share scheme and reskilling workshops. It provides a mechanism for people and organisations to work in partnership, raise awareness and share ideas to



make the Malvern Hills a better place. One focus of Transition Malvern Hills work is around food including supporting local food. Recent meetings include A call for action on food, which included sharing information on plant-based diets, local foods and food waste in order to tackle climate change and build a sustainable community.

Case study 3: Geological Site Volunteer Group

Since 2014 a volunteer group supported by the MHAONB and drawn from the Herefordshire and Worcestershire Earth Heritage Trust (EHT) and three local geology clubs have made a significant difference to the quality of earth heritage within the AONB. In 2008 75.6% of Local Geological Sites in the AONB were in 'desirable' condition, declining to 61.5% in 2013. By 2018 this decline was reversed to 83.3% of sites in 'desirable' condition, thanks to the work of the volunteers.

Almost fifty geological sites have been substantially improved and made accessible for researchers and the interested public by an investment of about 300 volunteer days, together with some additional work supported by the Malvern Hills Trust.

Most of the sites the Geological volunteers have worked on in the AONB are SSSIs or Local Geological Sites, such as Dingle Quarry SSSI in West Malvern which excellently showcases local geology including a variety of igneous rock types and structures such as intrusions and faults. Formerly regularly used for student visits it had become



Volunteers at work in Dingle Quarry

overgrown and was unable to be used for this purpose. However, annual maintenance sessions held by the volunteers mean that the main features are clearly visible and educational visits are resuming.

Priority C. The importance of the AONB in the Regional Nature Network

The map below shows where there are concentrations of high nature value habitat (dark green shapes) in the AONB (which is ringed in red) and in surrounding areas.

The lines of crosses on the map show how the AONB is connected to other core biodiversity areas. These closely following the 'B-lines' developed by Buglife (shown as pale purple lines). These potential nature corridors show how important the AONB is as a reservoir of core habitats and as a cross-roads for connectivity to other regionally important areas.

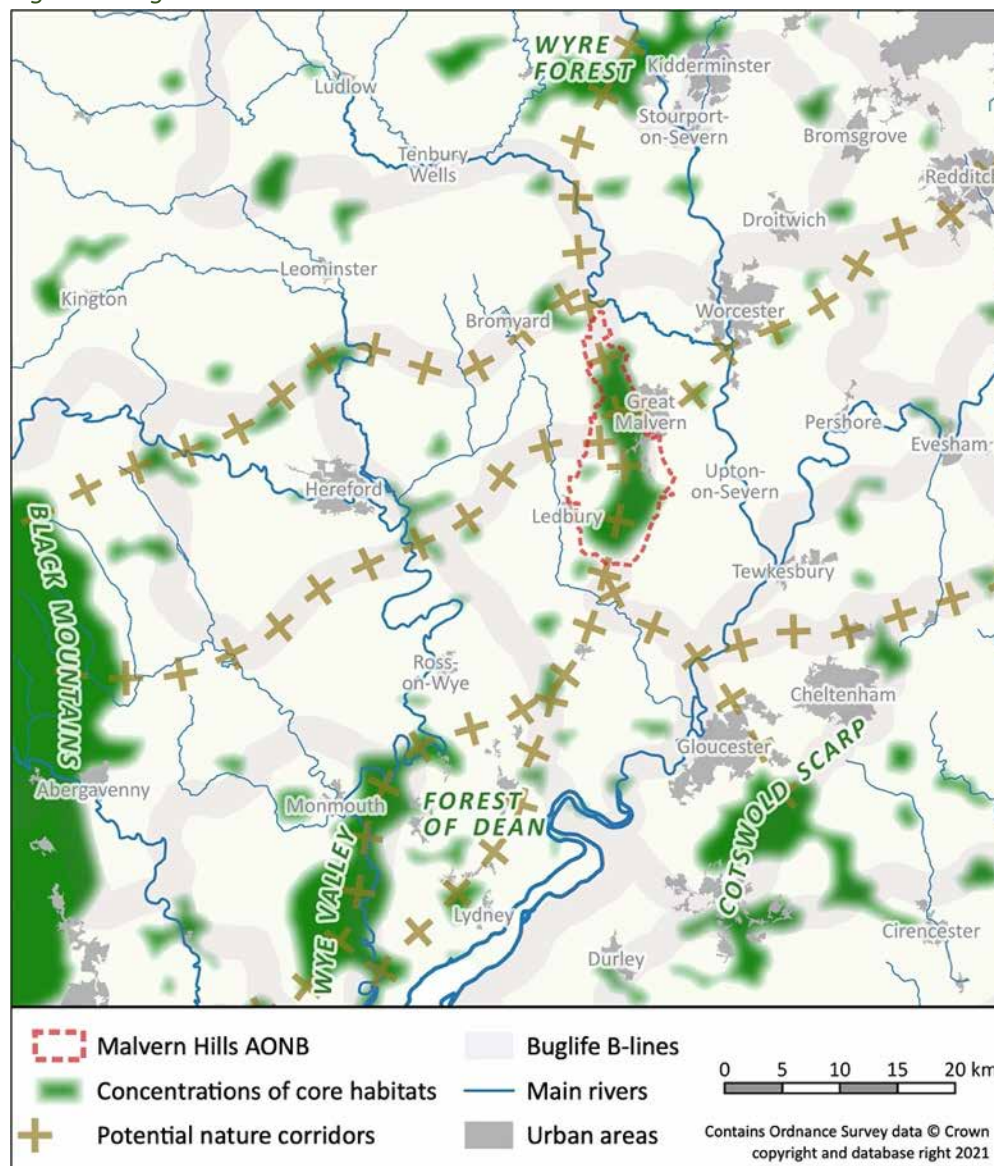
These key connections are:

- To the north: The Wyre Forest (ancient woodland and heathland),
- To the east: The Forest of Feckenham (species-rich meadows, wood pasture and ancient woodland),
- To the south: The Cotswold scarp (beech woodland and calcareous grassland), Forest of Dean (broadleaved woodland and heathland) and Wye Valley (ancient woodland), and
- To the west: The Black Mountains (moorland and acid grassland).

The Priorities for safeguarding nature at this regional scale are:

- To recognise the importance of the AONB as a core area for nature of regional significance.
- To promote, with partners including other protected landscapes, the strengthening of **connections to other regionally important areas**.

Figure 4. Regional Nature Connections



Note: The 'concentrations of core habitat' shown in this map are areas where more than 40% of land cover is classified by Natural England as a priority habitat, such as semi-natural woodland, heathland, grazing marsh or acid grassland).

The 'Buglife B-lines' are aspirational 'insect pathways' running through our countryside and towns which have been identified by the charity Buglife.

DELIVERY ACTION PLAN

This section sets out a series of actions for each of the strategic themes and priorities described earlier in this Plan. Due to the significant changes expected in national policy, the timescale for these actions covers the two years 2022 and 2023. It is intended that the Actions Table will be reviewed and updated during this period.

Theme and priority	Action	Lead bodies	Priority
Priority A. The management of land for nature in the AONB			
A.1. Work with and support individual farmers and land-owners to develop appropriate action for nature on their land, supporting them through the Government's Agricultural Transition.	A.1.1. Ensure the Farming in Protected Landscape programme for the Malvern Hills AONB is used to support nature and the delivery of this Plan	MHAONB	High
	A.1.2. Continue to hold/build on demonstration and training events on farms and estates to promote beneficial land management and promote uptake.	MHAONB and AONB Partners including MHT	High
	A.1.3. Identify and promote suitable Local Nature Recovery Scheme actions , working with LNRS convenors.	MHAONB with Local Nature Partnerships	Medium
	A.1.4. Promote and support the development of high value sustainably produced products from the land.	AONB Partners	Ongoing
A.2. Work with farmers and landowners at a large scale across the AONB and its setting to strength core areas and networks for nature	A.2.1. Continue and build on cluster group working with farmers and landowners across the AONB following the end of current funding for the Farm Facilitation Groups in March 2022.	MHAONB	Medium
	A.2.2. Investigate with Defra and local partners the potential for a Landscape Recovery Scheme project to strengthen nature connectivity within the AONB.	MHAONB Partners	Low
	A.2.3. Explore opportunities for coordinated land management initiatives that could benefit key habitats at the landscape scale, e.g. establishment of a Deer Management Group.	MHAONB Partners	Medium

Theme and priority	Action	Lead bodies	Priority
Priority B. Connections between people and nature in the AONB			
B.1. Connect and join up activities on the ground for nature	B.1.1. Research the need for and explore the opportunities to develop and promote an online resource for local organisations and community groups to post information about their own activities assisting nature in the AONB. This could include a directory of contacts, events and services offered by groups interested in nature in the AONB and its surrounds.	MHAONB	High
	B.1.2. Explore a one-day celebration event for local organisation and groups to showcase their activities and aspirations for nature, seeking to generate longer term networking and coordination between interested individuals, businesses, and communities.	MHAONB	High
B.2. Partnership working for a unified approach for nature recovery	B.2.1. Convene a meeting of appropriate authorities and organisations to plan for coordinated delivery of related policies and programmes including Biodiversity Net Gain and other private sector investment, woodland establishment, ELM schemes, catchment/water activities and related initiatives.	WCC	High
	B.2.2. With Partners, agree focal points and local lead organisation responsibility for different issues related to nature.	MHAONB	Medium
	B.2.3 Support the work of local citizen science/volunteer groups which can support nature recovery in the AONB and surrounding areas		

Theme and priority	Action	Lead bodies	Priority
Priority C. The importance of the AONB in the regional nature network			
C.1. Recognise the importance of the AONB as a core area for nature of regional significance.	C.1.1. Engage with Natural England and the NRN network in the West Midlands to raise awareness for and promote the importance of core high value habitats (woodland, unimproved grassland, orchards, etc.) in the Malvern Hills AONB.	MHAONB	High
	C.1.2. Use the preparation of the Local Nature Recovery Strategies in the three counties to advance knowledge of, and enhance, regional connectivity between the AONB and other regionally important areas. The Strategies must address cross-border priorities and opportunities.	Local Nature Partnerships (Herefordshire, Worcestershire and Gloucestershire)	High
	C.1.3. Coordinate and work closely with other organisations who promote a regional approach to biodiversity (such as Buglife's B lines projects) to identify how the AONB can become a hub for these existing projects, amplifying the impact of these projects.	AONB Partners	Medium
C.2. Promote, with partners including other projected landscapes, the strengthening of connections to other regionally important areas.	C.2.1. Work with other protected landscape bodies (Cotswolds and Wye Valley AONBs and Brecon Beacons NP) and authorities in other high nature value areas (Wyre Forest and Forest of Dean) to identify how they can work together to promote the connections between their areas.	Protected Landscape Bodies (AONBs and NP)	Medium
	C.2.2. Take forward the Severn Treescapes initiative , creating a 60 miles N-S corridor across the 3 counties, from the Lower Wye Valley to the Wyre Forest.	Gloucestershire Wildlife Trust (with Herefordshire and Worcestershire WTs)	Medium
	C.2.3. Explore with Natural England what practical information on climate change adaptation plan could be made available in the AONB and surrounding areas. If appropriate, commission new work to better understand the pressures and opportunities of climate change for nature and the AONB's special qualities more widely.	MHAONB	Medium

MONITORING PROGRESS WITH NATURE RECOVERY IN THE AONB

The AONB Management Plan 2019-24 describes the suite of indicators that are regularly monitored and reported on in State of the AONB Reports. These include measures that are relevant to nature recovery such as:

- the proportion of woodlands in active management;
- the condition of SSSIs; and
- the ecological status of waterbodies.

The Government is developing a framework of indicators to monitor progress with its 25 Year Environment Plan. These are still under development but several indicators in the wildlife, natural resources and natural beauty / engagement sections of the framework are relevant to nature recovery in the AONB and may be able to be tracked in the Plan area using national or local data sources. These are shown below.

National 25 Year Environment Plan indicators that could be tracked locally in the AONB in future

D1	Quantity, quality and connectivity of habitats
D2	Extent and condition of protected sites – land, water and sea
D3	Area of woodland in England
D4	Relative abundance and/or distribution of widespread species
E7	Healthy soils
G1	Changes in landscape and waterscape character
G2	Condition of heritage features including designated geological sites and scheduled monuments

In the meantime, while these indicators are under national development, information can be collected by the AONB Unit on progress with initiatives locally.

Local indicators for interim monitoring of progress in the AONB

- 1 **Public investment in nature recovery projects** through the Farming in Protected Landscapes fund and, when introduced in 2024, the Local Nature Recovery Scheme.
- 2 **Ongoing land use and habitat surveys** monitoring changes in the extent and condition of sites.
- 3 **Engagement with and between local groups** interested in nature, including meetings, events and conservation volunteering activities.



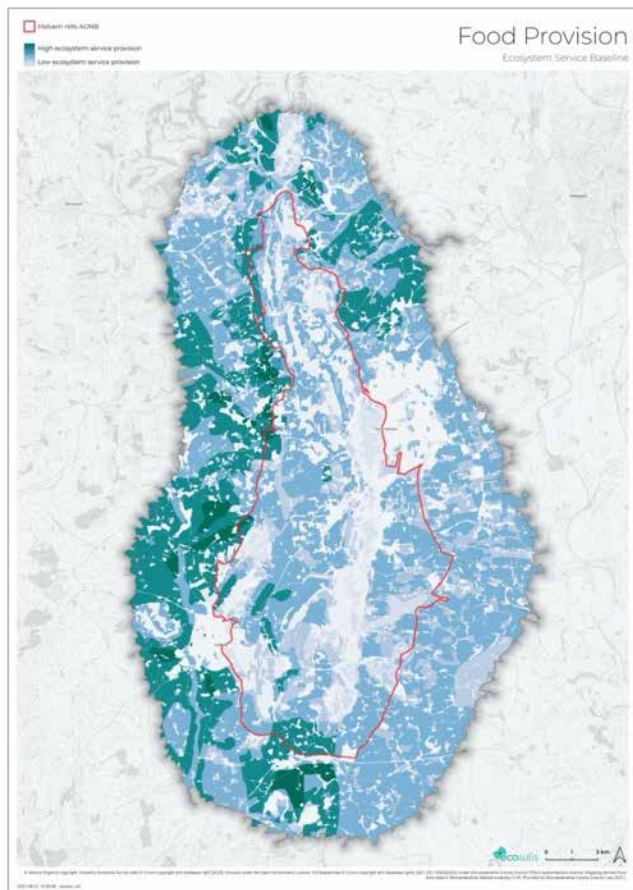
Appendix 1. State of Nature – Provision of Ecosystem Services

This appendix presents a set of six maps of ecosystem service provision, prepared for the AONB and its setting in 2021, to assess where and how well these services are being provided to local people, visitors and wider society.

A total of 13 maps of baseline ecosystem service provision have been produced for the Malvern Hills

AONB. These maps and full details of the methodology and matching sets of opportunity maps are provided in the research report: Ecosulis (2021). *Natural Capital and Ecosystem Service Mapping for the Malvern Hills AONB. Methodological approach and output specifications^x*.

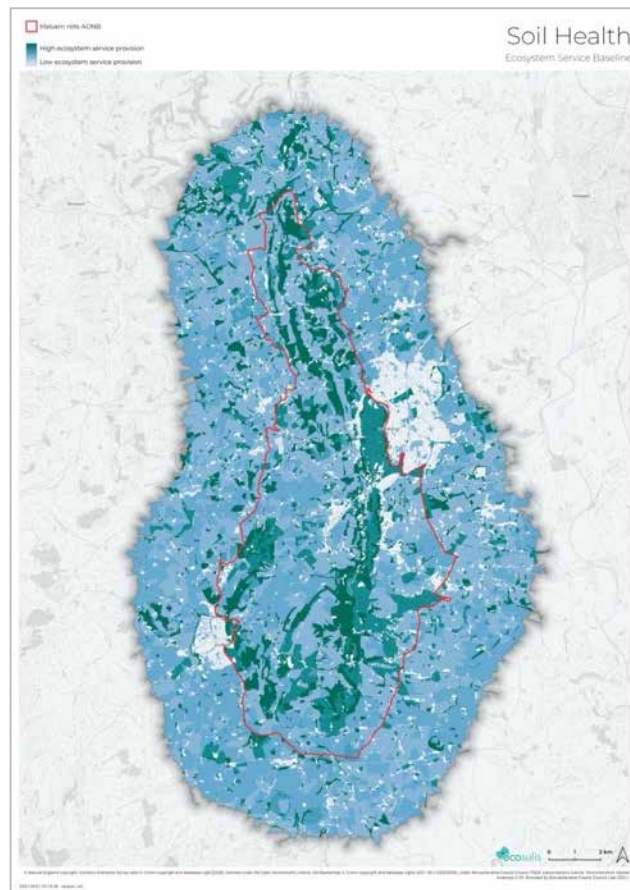
Food provision



This map is based on a Habitat Service Scoring Matrix with each habitat scored on its ability to produce food. For example, modified grassland and arable habitats are very important for food provision and so score 10 for food provision whereas bracken only scores a 1 (the lowest value possible). These data were then modified using the Agricultural Land Classification (ALC) data produced by Natural England.

It shows that the greatest opportunity for food production, based on the Agricultural Land Classification, occurs outside the AONB in the western, southern and north eastern parts of the 3km setting around the AONB.

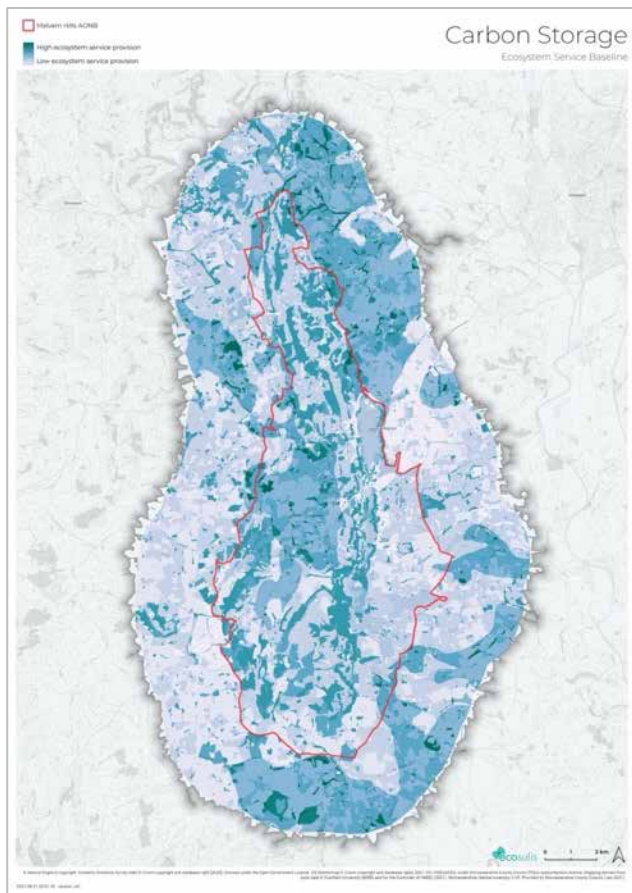
Soil health



This map is based on the Habitat Service Scoring Matrix.

It shows that soil health is high to medium throughout most of the Malvern Hills AONB and surrounding area. High-quality woodland and grassland habitats offer the greatest contribution to the soil health baseline in the area, while sealed surfaces within settlements represent the lowest scoring areas.

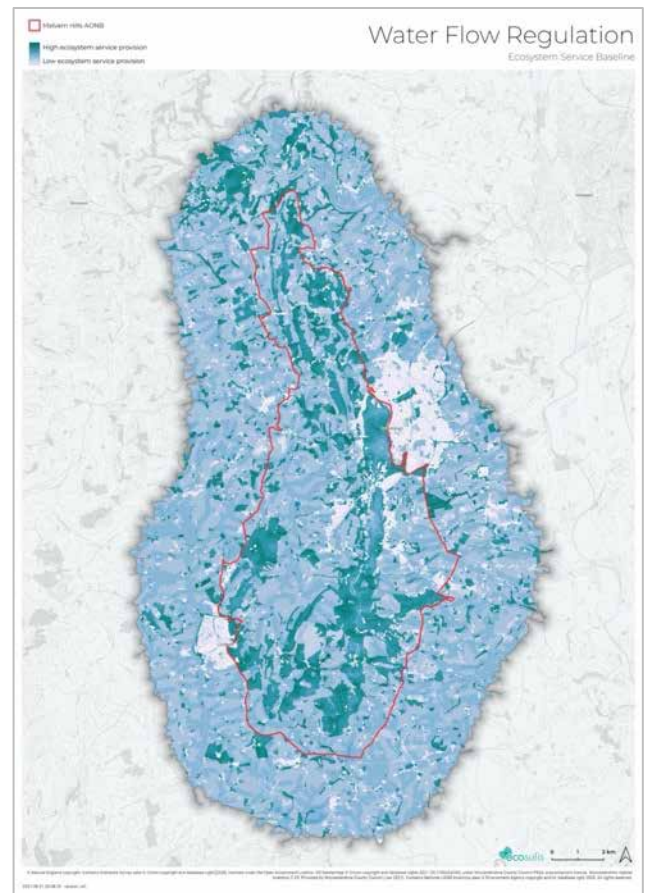
Carbon storage



This map is based on the Habitat Service Scoring Matrix with each habitat scored on its ability to store carbon. As a modifier to identify the contribution of soils below 30cm depth, National Soil Map (Cranfield University, 2021) classifications were used to identify deep soils.

It shows that areas of high carbon storage are concentrated within the woodland of the AONB and surrounding areas, alongside areas where soils have been classified as deep. Areas of lower carbon storage provision are located within the cropland and urban areas of the study area.

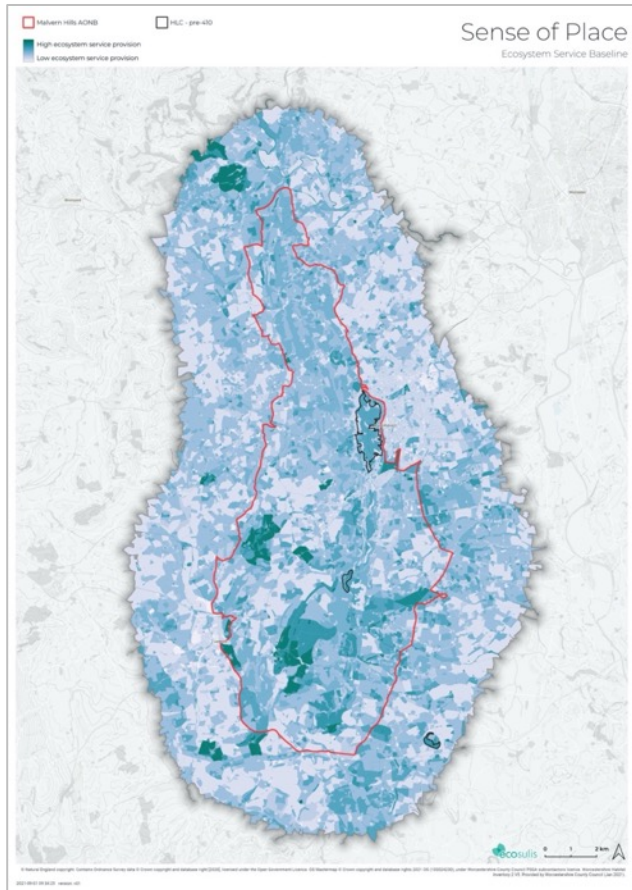
Water flow regulation



This map is based on the Habitat Service Scoring Matrix with each habitat scored on its ability to regulate water flow. A spatial modifier has been applied to the water flow regulation baseline using flow pathways (a 2m-resolution digital surface model derived from LiDAR data).

It reflects the high scoring of woodland habitats within the Habitat Service Scoring Matrix, with these habitats being the areas of highest water flow regulation in the AONB and surrounding area – in particular where woodlands are in close proximity to flow pathways.

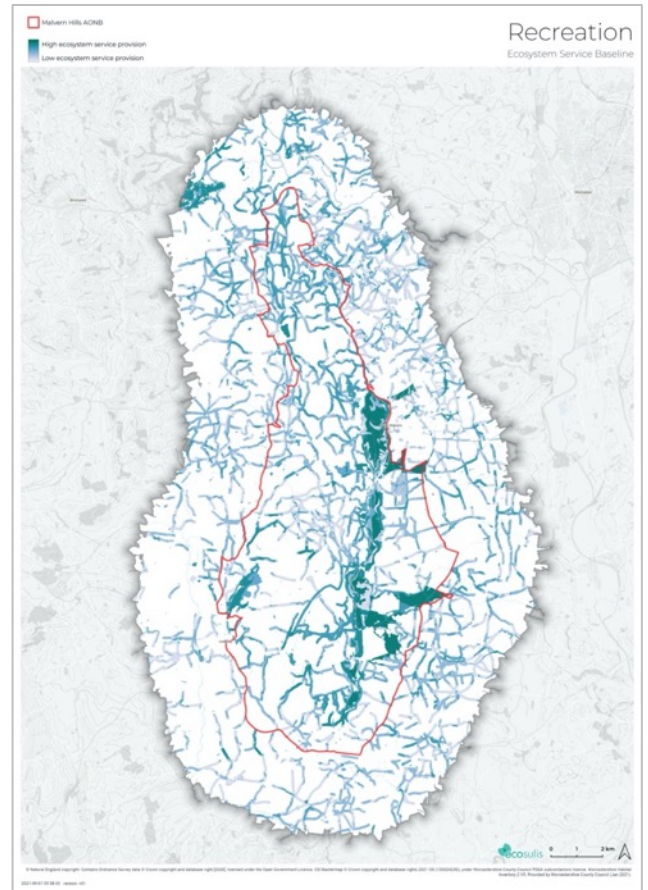
Sense of place



This map is based on cultural ecosystem service analysis with each habitat scored on its contribution to sense of place. A spatial modifier was applied by integrating historic environment record (HER) data with sense of place scores.

It shows that provision of the sense of place service is relatively uniform throughout the AONB and surrounding areas. There are, nonetheless, several areas that stand out as supporting a high level of ecosystem service provision. These are often associated with specific areas of historical importance, for example, Eastnor Castle, Bromesberrow Place, and Hope End Park. Provision of the sense of place ecosystem service is typically lowest in the improved grassland habitats which surround the AONB.

Recreation

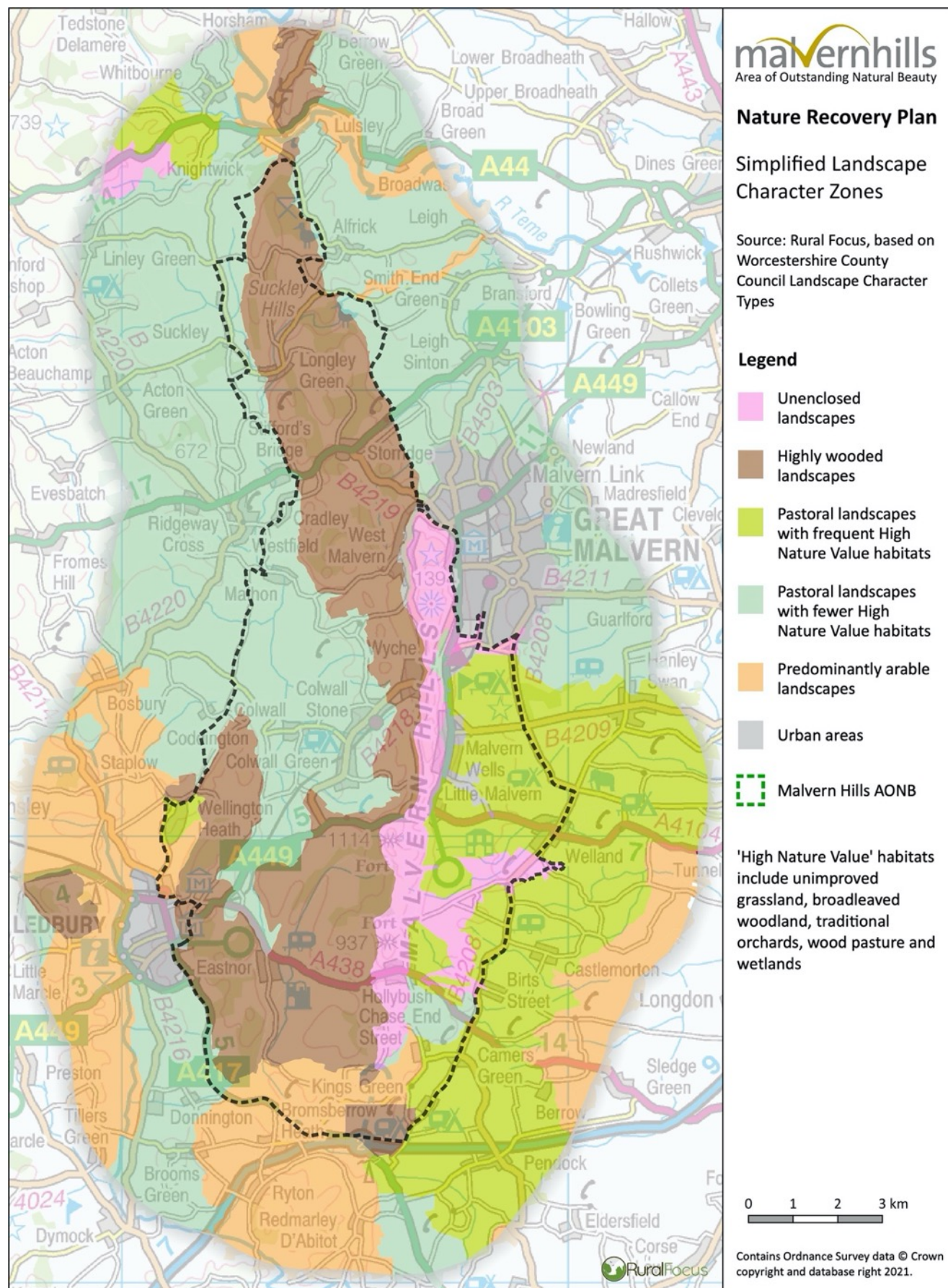


This map is based on cultural ecosystem service analysis with each habitat scored on its ability to provide recreation. A spatial modifier was applied to recognise the accessibility of land to people, distinguishing between open, semi-restricted and restricted access.

It shows that that provision of recreational access varies most notably between semi-restricted and open-access land, with the majority of high-scoring areas being located within open-access land. These areas are mostly located along the Malvern Hills and commons, though small patches of open-access land are also dispersed across the study area.

Appendix 2. Simplified Landscape Zones

This Plan uses six simplified landscape zones to identify the areas where discrete sets of land management actions are likely to provide most benefits to nature. The map below shows these areas and the table on the following page provides a statistically summary of their areas and land cover.



Summary land cover statistics for simplified landscape zones

Simplified landscape zone	Unenclosed landscapes	Highly wooded landscapes	Pastoral landscapes with many High Nature Value habitats	Pastoral landscapes with fewer High Nature Value habitats	Predominantly arable landscapes	Urban areas	The AONB	Whole NRP area
Constituent landscape character types	High hills and slopes, Unenclosed commons, Principal wooded hills, Wooded hills, Wooded hills and farmlands, Wooded estatelands, Enclosed commons	Principal wooded hills, Wooded hills, Wooded hills and farmlands	Wooded estatelands, Enclosed commons, Settled farmlands with pastoral land use, Forest smallholdings & dwellings	Principal timbered farmlands, Timbered plateau farmlands, Unwooded vale	Estate farmlands, Low hills and orchards, Principal settled farmlands, Riverside meadows, Sandstone estatelands, Settled farmlands on river terrace, Wet pasture meadows	Urban		
Proportion of the AONB area	11%	47%	13%	22%	5%	2%	100%	
Proportion of the whole NRP area	4%	18%	17%	39%	18%	5%		100%
Percentage land cover in each simplified landscape zone across the whole NRP area								
High Nature Value open habitats	54%	19%	22%	11%	6%	6%	21%	15%
Woodland	26%	38%	5%	8%	8%	3%	23%	13%
Agriculturally improved permanent pasture	4%	29%	39%	35%	29%	6%	28%	31%
Arable	0%	8%	23%	33%	48%	1%	17%	26%
Built up areas and gardens	8%	6%	9%	8%	6%	84%	8%	11%
Other land cover	8%	1%	2%	4%	4%	1%	3%	3%

Photo credits

Page	Attribution
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6	Woodland management, Bromesberrow. MHAONB Management Plan 2019-24, page 52. © Malvern Hills AONB Unit
9	Bumblebee on Forget-me-not flower. MHAONB Management Plan 2019-24, page 54. © Mel Mason.
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12	Tree planting, Mathon. © Malvern Hills AONB Unit
14	Cattle grazing on End Hill. Creative commons licence cc-by-sa/2.0 - © Richard Law - geograph.org.uk/p/1540179
15	Glade clearance in ancient semi-natural woodland, West Malvern. © Malvern Hills AONB Unit
16	Species-rich hay meadow, Suckley. © Malvern Hills AONB Unit
16	New tree planted in a broad native hedgerow, Castlemorton. © Malvern Hills AONB Unit
18	Combine harvester, Mathon parish. MHAONB Management Plan 2019-24, page 49. © Malvern Hills AONB Unit
20	Children from The Downs School Colwall harvesting apples © Malvern Hills AONB Unit
21	Volunteers at work in Dingle Quarry. © Malvern Hills AONB Unit
26	Replanting parkland trees, Mathon Park. © Malvern Hills AONB Unit

Footnotes

ⁱ Natural History Museum (26/09/20) “UK has led the world in destroying the natural environment – analysis of the Biodiversity Intactness Index (PREDICTS: Projecting Responses of Ecological Diversity In Changing Terrestrial Systems). <https://www.nhm.ac.uk/discover/news/2020/september/uk-has-led-the-world-in-destroying-the-natural-environment.html> (accessed 1/10/21)

ⁱⁱ Hayhow DB, Eaton MA, Stanbury AJ, Burns F, Kirby WB, Bailey N, Beckmann B, Bedford J, Boersch-Supan PH, Coomber F, Dennis EB, Dolman SJ, Dunn E, Hall J, Harrower C, Hatfield JH, Hawley J, Haysom K, Hughes J, Johns DG, Mathews F, McQuatters-Gollop A, Noble DG, Outhwaite CL, Pearce-Higgins JW, Pescott OL, Powney GD and Symes N (2019) The State of Nature 2019. The State of Nature partnership.

ⁱⁱⁱ IPCC, 2019: Summary for Policymakers. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Die-men, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)].

^{iv} Colchester Declaration (2019). The National Association for Areas of Outstanding Natural Beauty. <https://landscapesfor-life.org.uk/projects/colchester-declaration>

^v Professor Sir John Lawton CBE FRS (Chair) (2010) Making Space for Nature: A review of England’s Wildlife Sites and Ecological Network Submitted to the Secretary of State, the Department for Environment, Food and Rural Affairs on 16 September 2010

^{vi} HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

^{vii} Malvern Hills Area of Outstanding Natural Beauty Management Plan 2019-2024

^{viii} Malvern Hills Area of Outstanding Natural Beauty Management Plan 2019-2024

^{ix} Natural England (2020). Climate Change Adaptation Manual. Evidence to support nature conservation in a changing climate. 2nd edition published 2020

^x Ecosulis (2021). *Natural Capital and Ecosystem Service Mapping for the Malvern Hills AONB. Methodological approach and output specifications*^x. See: https://www.malvernhillsaonb.org.uk/wp-content/uploads/2021/12/211220-Malvern-Natural-Capital-Report-full-report_v4_issue.pdf



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