



Land Management Plan

for the land under the jurisdiction of the Malvern Hills Trust 2021-2026





‘For what a many-sided pleasure there is in looking at a wide view anywhere in England, not simply as a sun-drenched whole fading into unknown blue distances, like the view of the West Midlands plain from the top of the Malvern Hills...

but in recognising every one of its details name by name, in knowing how and when each came to be there, why it is just that colour, shape or size, and not otherwise, and in seeing how the various patterns and parts fit together to make the whole scene’

W.G.Hoskins. ‘The Making of the English Landscape’, 1955.

Draft2

MALVERN HILLS TRUST - LAND MANAGEMENT PLAN

April 2021-March 2026

What is this document?

This document is a management plan for the land under the jurisdiction of the Malvern Hills Trust* (MHT). It provides information about the land management that MHT will be delivering in the next five years and the reasons for it. It is an updated, revised version of the LMP 2016-2021.

The document broadly follows the format recommended by the Countryside Management System consortium (Alexander, 2008). It provides this information in three parts; Part 1 takes a look at the framework in which MHT's work must sit, including the legislative drivers. It then describes the land under MHT's jurisdiction. Part 2 evaluates what has been described to help identify priorities before Part 3 clarifies what the goals are and how MHT will go about achieving them. The whole document should therefore provide a transparent link between theory and legislation, and the practical tasks undertaken on the ground.

It is a working document intended for those managing MHT land. But it will also be publicly available and may be of interest to anyone wishing to know how the Hills and Commons are managed and why. It should help to answer questions about the way in which our land is managed and inform people about works that may affect them in the near future. A summary will also be made available.

This management plan has been informed by multiple consultations with the public, local groups, non-government organisations and public bodies, all of whom will play a role in delivering this plan.

This document does not cover the internal workings of the Board of Trustees nor MHT as an organisation. These are covered by the Malvern Hills Acts of Parliament and the MHT Business Plan. All of which are available on the MHT website.

www.malvern hills.org.uk

The information in this plan has been made as accurate as possible using existing information and building upon previous management plans (1989, 2006, 2016). This document will be continuously updated.

*Malvern Hills Trust is the adopted, working name of the Malvern Hills Conservators.

Contents

PART 1 – Setting and Description	
1.1 Introduction	page 1
1.1.1 Introduction to the Hills and Commons	page 1
1.1.2 Map of the land under the jurisdiction of Malvern Hills Trust	page 1
1.1.3 A brief history of Malvern Hills Trust	page 1
1.2 Setting	page 3
1.3 Description of the Holding	page 7
1.3.1 General Information	page 7
1.3.1.1 Location and site boundaries	page 7
1.3.1.2 Zones	page 8
1.3.1.3 Tenure	page 10
1.3.1.4 Status of the Site	page 13
1.3.1.5 Site Infrastructure	page 14
1.3.1.6 Map coverage	page 14
1.3.1.7 Photographic coverage	page 14
1.3.2 Environmental Information	page 14
1.3.2.1 Climate	page 14
1.3.2.2 Geology and geomorphology	page 15
1.3.2.3 Soils	page 19
1.3.2.4 Hydrology	page 20
1.3.3 Biological Information - flora, fungi & fauna	page 21
1.3.4 Landscape	page 35
1.3.5 Cultural Heritage	page 38
1.3.5.1 Archaeology	page 38
1.3.5.2 Past land use	page 40
1.3.6 People	page 42
1.3.6.1 Stakeholders	page 42
1.3.6.2 Access and Recreation	page 46
1.3.6.3 Interpretation and Education	page 49
PART 2 – Evaluation	
2.1 Evaluation of Features and Qualities	page 52
2.2 Ideal Management Objectives	page 55
2.3 Factors	page 56
PART 3 – Objectives and Work Programme	
3.1 Vision and Guiding Principles	page 64
3.2 Feature Objectives	page 80
3.3 Work Programme	page 187
Map index	page 85

MHT LAND MANAGEMENT PLAN

PART 1: SETTING AND DESCRIPTION

1.1 Introduction

1.1.1 Introduction to the Hills and Commons

“The long narrow ridge rising majestically from the plain and presenting a skyline unique in Britain” The Royal Commission

The Malvern Hills and Commons are an iconic and cherished landscape of England. Their geology, nature and past land uses by man have created a unique and varied place that today acts as a green space, habitat, aquifer, historical reference, vista and much, much more. It is a landscape that has inspired poets, artists and composers and plays an important part in thousands of people’s lives. The future aesthetics, character and quality of this landscape are dependent upon its users, its management and on the wider world too. The management of this land is a complex balancing act, with many requirements, issues and stakeholders involved, but it is one that must be delivered for it is in the nation’s interest to do so.

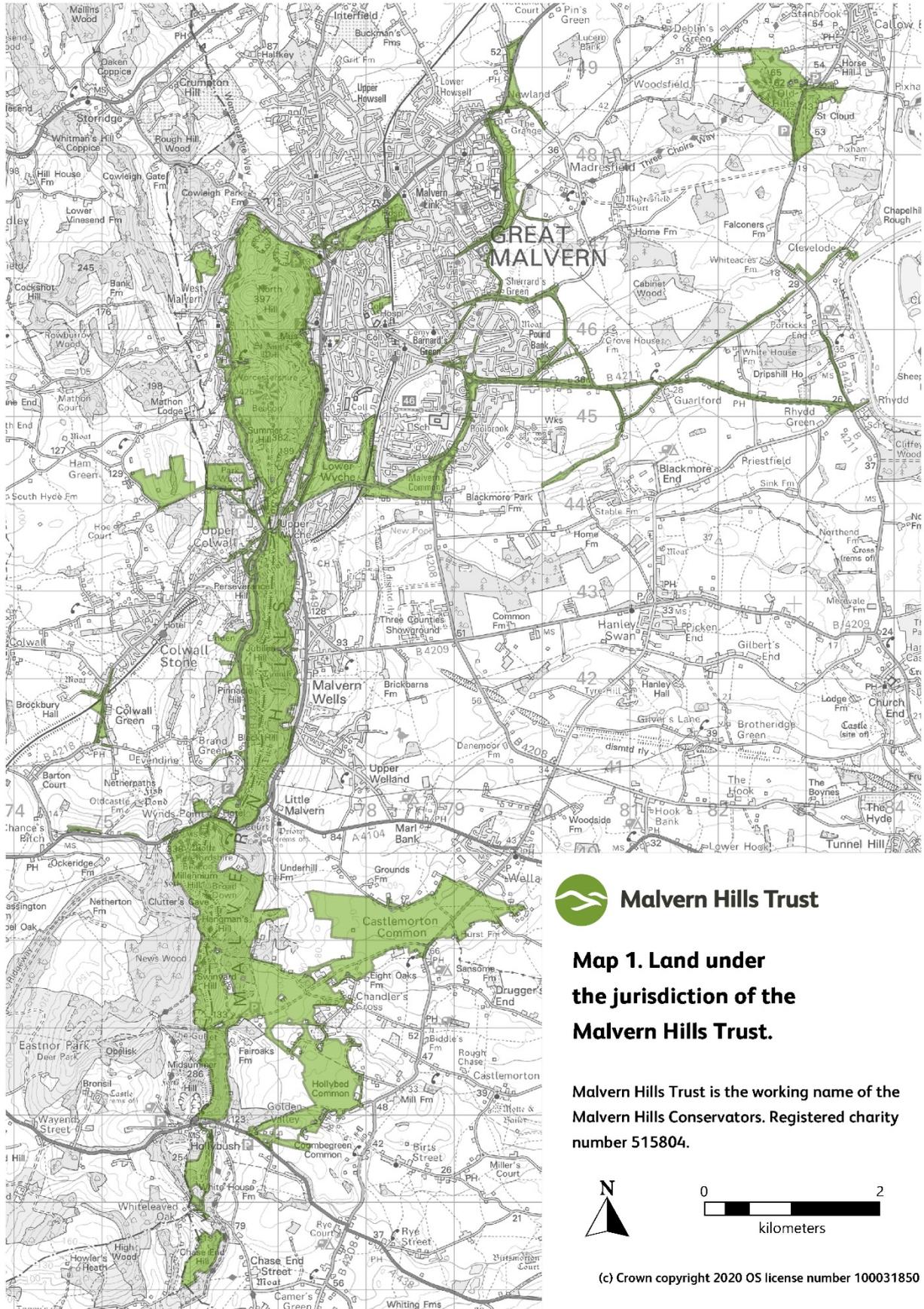
1.1.2 Map of MHT jurisdiction – see Map 1.

1.1.3 A brief history of the Malvern Hills Trust

The Malvern Hills Conservators was set up under Act of Parliament in 1884. This was a time when the nation was taking action to protect its landscapes, wildlife and heritage in the face of change. New legislation, the creation of clubs and societies, such as the Commons Preservation Society in 1865, and the establishment of national bodies such as the National Trust in 1895 and several Boards of Conservators across England and Wales, all played a part.

The Malvern Hills Act was a major achievement. Chiefly it established a right of access across the Hills and Commons for the public. Secondly, it created protective measures to prevent enclosure and encroachment on common land (i.e. the removal of land from public use and taking it into private ownership) and to manage the increase in tourism. The Act provided for the appointment of a Board of Conservators to manage and supervise the Malvern Hills in accordance with the provisions of the original and subsequent Acts.

Over the years the Board has employed staff to undertake practical work, liaise with commoners, warden the land and to advise the Board members. As the pressures on the Hills and Commons have increased, so too has the number of staff with ~18 present today. While the goal is still the same, the Trust’s work of today takes place in a very different context to 137 years ago.



Map 1. Land under the jurisdiction of the Malvern Hills Trust.

Malvern Hills Trust is the working name of the Malvern Hills Conservators. Registered charity number 515804.



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Map 1. Land under the jurisdiction of the Malvern Hills Trust

1.2 Setting

This section answers the question of ‘why are MHT here?’ It also gives information on the organisation and takes a quick look at how this land management plan relates to other relevant documents.

The Malvern Hills Trust has an explicit reason for existing as defined in the unique legislation that created it. Like many landowners, MHT is also subject to obligations from national law. Here follows a brief summary of the key legislative drivers behind the work of MHT (please follow the internet links for further information):

The Malvern Hills Acts of Parliament

The Malvern Hills Conservators was established under the Malvern Hills Act 1884. There have been four subsequent Acts in 1909, 1924, 1930 and 1995. The Malvern Hills Acts were set up to protect the Hills and Commons and establish a right of access for the public. Under these Acts, the Malvern Hills Conservators shall manage the Hills to:

- Preserve the natural aspect
- Protect and manage trees, shrubs, turf and other vegetation
- Prevent unlawful digging and quarrying
- Keep the Hills open, unenclosed and unbuilt on as open spaces for the recreation and enjoyment of the public

These Acts apply to all MHT land. The full text of the Malvern Hills Acts of Parliament is available at the MHT office (Manor House, Grange Road, Malvern WR14 3EY) or online at: http://www.malvern hills.org.uk/manage/acts_of_parliament.aspx

MHT is a statutory body, i.e. a body created by an act of Parliament and reliant on that act, and subsequent acts, for its powers and duties. It is also a body corporate, meaning it is a legal entity identified by a particular name and separate from the individuals who make up the Board.

Charities Act, 2011

The Malvern Hills Trust is a charity which was registered in November 1984 (charity no. 515804) and is thus regulated by charity law and the Charity Commission. The charitable object is listed as ‘*the preservation for the benefit of the public all the natural aspects and features of the Malvern Hills and the provision of recreational facilities in the interest of social welfare for the public benefit*’.

As well as to deliver the Malvern Hills Acts, the Charity Commission entry also states to that MHT is here to ‘*conserve and enhance biodiversity, SSSIs and Scheduled Monuments on its land*’.

MHT is a charity that exercises some public functions.

National Parks & Access to the Countryside Act, 1949

A large proportion (86 %) of the MHT holding is within the Malvern Hills Area of Outstanding Natural Beauty (AONB). This designation means the landscape is of such high quality that it is in the interest of the nation to safeguard it. An AONB Joint Advisory

Committee and staff work to conserve and enhance the natural beauty of the designated area that covers 10,500 hectares. www.malvernhillsaonb.org.uk

Under the National Parks and Access to the Countryside Act 1949, MHT has a statutory duty imposed upon it. Specifically, the legislation states that, "*in exercising or performing any functions in relation to, or so as to affect, land in these areas, relevant authorities shall have regard for the purposes of the AONB*". Relevant authorities are also expected to be able to demonstrate that they have fulfilled these duties.

The International Union for the Conservation of Nature (IUCN) determines all AONB landscapes as 'Category 5 protected areas', defined as:

'A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values' (IUCN, 2014). As such, the AONB area is of international importance.

Commons Acts (several) / Rights of Common

90 % (1018 hectares) of MHT land is registered common land. This means MHT's rights are subject to statutory control and the commoners' interests. Commoners have a legal right to exercise their rights of common on common land as prescribed by the Commons Registers (see Tenure).

Wildlife and Countryside Act, 1981

The Wildlife and Countryside Act is the primary legislation which protects animals, plants, and certain sites in the UK. This protection means that some land management has to be done in a certain way in compliance with this Act. Many species that are present on MHT land and, in some cases, their dwelling places too are protected by this legislation.

Adequate planning, survey, timing and execution of tasks is needed to avoid intentional or reckless harm to protected species.

This Act (as amended by the Countryside and Rights of Way Act (CROW), 2000) also places a duty upon section 28G authorities with regard to Sites of Special Scientific Interest (SSSI). *'The duty is to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest'*.

If MHT, as with any other SSSI landowner, fails to work towards favourable condition for the notified features of the SSSI land, they can be liable to enforced management and/or ultimately court action. Alternatively, the appropriate management would be organised by Natural England and the costs charged to MHT.

This duty applies to the three SSSIs that together cover a total of around 62 % of MHT's holding. Further information about these designations is presented in Status 1.3.1.4, or can be found at www.naturalengland.org.uk

Ancient Monuments and Archaeological Areas Act, 1979

This Act *'protects nationally important heritage assets by inclusion on the Schedule of Monuments, which regulates works to them through a consent procedure. To carry out works without consent is a criminal offence. Historic England maintains and enhances the Schedule, provides advice and support for owners of monuments, provides advice to local planning authorities and manages the consent procedure'*.

<https://historicengland.org.uk/listing/what-is-designation/scheduled-monuments/>

Occupier's Liability Acts, 1957 and 1984

These Acts impose on all landowners including MHT, a duty of care both to legitimate visitors and to trespassers.

Equality Act, 2010

This Act legally protects people from discrimination in the workplace and in wider society. It also contains a 'public sector equality duty' that applies to public bodies and those carry out a public function. This duty is to have due regard to the need to: *'eliminate unlawful discrimination, harassment, victimisation and any other conduct prohibited by the Act; advance equality of opportunity between people who share a protected characteristic and people who do not share it; and foster good relations between people who share a protected characteristic and people who do not share it'*.

This *'ensures that public bodies consider the needs of all individuals in their day to day work – in shaping policy, in delivering services, and in relation to their own employees'*. This process could involve making reasonable adjustments to meet the need of disabled people.

Health and Safety at Work Act, 1974 & Regulations, 1999

All operations carried out on this site must comply with this Act. This will include the completion of hazard identification, assessments and reviews, and specific activity risk assessments (generic or site specific) will be completed for all activities.

Countryside and Rights of Way (Crow) Act, 2000

The CROW Act introduced a public right of access on foot on areas of open country and registered common land across England. However, there was a pre-existing legal right of access over the common land in the Trust's holding under the Malvern Hills Acts. The Hills and Commons therefore fall under Section 15 of the CROW Act because they are *'an area with public access rights under a local or private Act, or under a scheme of regulation made under the Commons Act 1899'* therefore the CROW rights and restrictions do not apply and this land category is managed by *'bylaws or other statutory controls'*.

The Natural Environment and Rural Communities Act, 2006

Section 40 of this act establishes 'the biodiversity duty' on public authorities. *Its definition of the latter includes: 'a body carrying out functions of a public character under a statutory power'*. This duty is: *'to have regard to conserving biodiversity as part of your policy or decision making. Conserving biodiversity can include restoring or enhancing a population or habitat'*.

Forestry Act 1967. Note: MHT is exempt under paragraph 9 subsection 2b) from needing a felling licence from the Forestry Commission. The Malvern Hills Act 1884 identifies the land as ‘public open space’.

There are many other pieces of legislation that affect the way in which MHT operates. For reference these include:

Control of Substances Hazardous to Health Regulations 2002 (COSHH).
The Provision and Use of Work Equipment Regulations 1998 (PUWER).
United Nations Conference on Sustainable Development (The Rio Conference, 1992).
The Conservation of Habitats and Species Regulations, 2010.
The Highways Act 1980.
Land Drainage Act 1991.
Environmental Protection Act 1990.
The Weeds Act 1959 and the Ragwort Control Act 2003.
Cross Compliance (Basic Payment Scheme).

In May 2019 the UK Government declared a climate change emergency to reduce carbon emissions by 80 % by 2050. Recent scientific research has further highlighted the global significance of this issue since the last LMP.

Government guidance through public policies and circulars at both central and local level is also noted. Further information about UK legislation can be found at:

www.legislation.gov.uk

The management of the Hills and Commons also sits within a framework of the local government planning system. Key documents are:

- Worcestershire County Council – Waste Core Strategy, Minerals Local Plan.
- Malvern Hills District Council – adopted South Worcestershire Development Plan and National Planning Policy Framework.
- Herefordshire Council – adopted Local Plan – core strategy.

Summary

The key legislative drivers behind the land management of the Trust are the Malvern Hills Acts (1884-1995) and several pieces of national legislation that relate to the environment (biodiversity, landscape character, cultural and earth heritage). As a result, it can be summarised that:

MHT have the twin purposes of keeping the Hills and Commons open for the public and to conserve the landscape, its important features and special qualities.

1.3 Description of the Holding

This section provides basic information under various headings about all of the land under the jurisdiction of MHT. It aims to answer the question ‘what have we got?’ The description only includes statements of fact that will provide the basis for evaluation and decision making in Parts 2 and 3.

1.3.1 General Information

1.3.1.1 Location and site boundaries

See Map 1.

The land under the jurisdiction of the Conservators is located in the English West Midlands region. It totals 1130 hectares (2800 acres) with 969 ha in Worcestershire (86 % and 161 ha in Herefordshire (14 %). A small area of the Hills in Gloucestershire, owned by a private estate, is covered by a joint arrangement with MHT (see Tenure). MHT may acquire land within 9 miles of Great Malvern Priory.

The relevant local authorities are: Worcestershire County Council, Herefordshire Council, Gloucestershire County Council, Forest of Dean District Council and Malvern Hills District Council. The relevant Parish Councils are: Malvern Wells, West Malvern, Newland, Mathon, Castlemorton, Colwall, Guarlford, Madresfield, Hanley Castle, Welland, Powick, Little Malvern, Eastnor & Donnington and Malvern Town Council.

Table 1. Areas of MHT land by parish

Parish	Area (hectares)	% MHT holding
Berrow	26.6	2.3
Castlemorton	307.9	27
Eastor	28.7	2.5
Colwall	106.2	9.4
Hanley Castle	0.1	0.01
Little Malvern	91.4	8
Malvern	190.7	16.9
Malvern Wells	150.6	13.3
Mathon	20.1	1.8
Powick	55.6	4.9
Guarlford	14.2	1.2
Madresfield	0.4	0.04
Newland	7.9	0.7
West Malvern	129.6	11.4
TOTAL	1130	100

The land is extensive and varied and as such a variety of boundaries are present. The northern half of the Hills and many of the road verges are adjacent to hundreds of private dwellings, both urban and rural, and some farm holdings. The southern half of the Hills, Old Hills and Castlemorton are mainly neighboured by farm holdings and large estates with scattered domestic dwellings. As much MHT’s land is common land, the boundary

features are normally in private ownership and there is a presumption for neighbouring landowners to fence against common land. Blue stone MHT boundary markers can be found in places.

In UK law there are certain boundaries where, unless evidence to the contrary is present, the following ‘hedge and ditch presumption’ can be made; where two properties are divided by a hedge, bank and ditch, there is a presumption that the boundary is along the opposite side of the edge of the ditch from the hedge or bank. This is known as the hedge and ditch rule. This only applies to man-made ditches.

For boundary information please refer to the original documents and deeds at MHT offices.

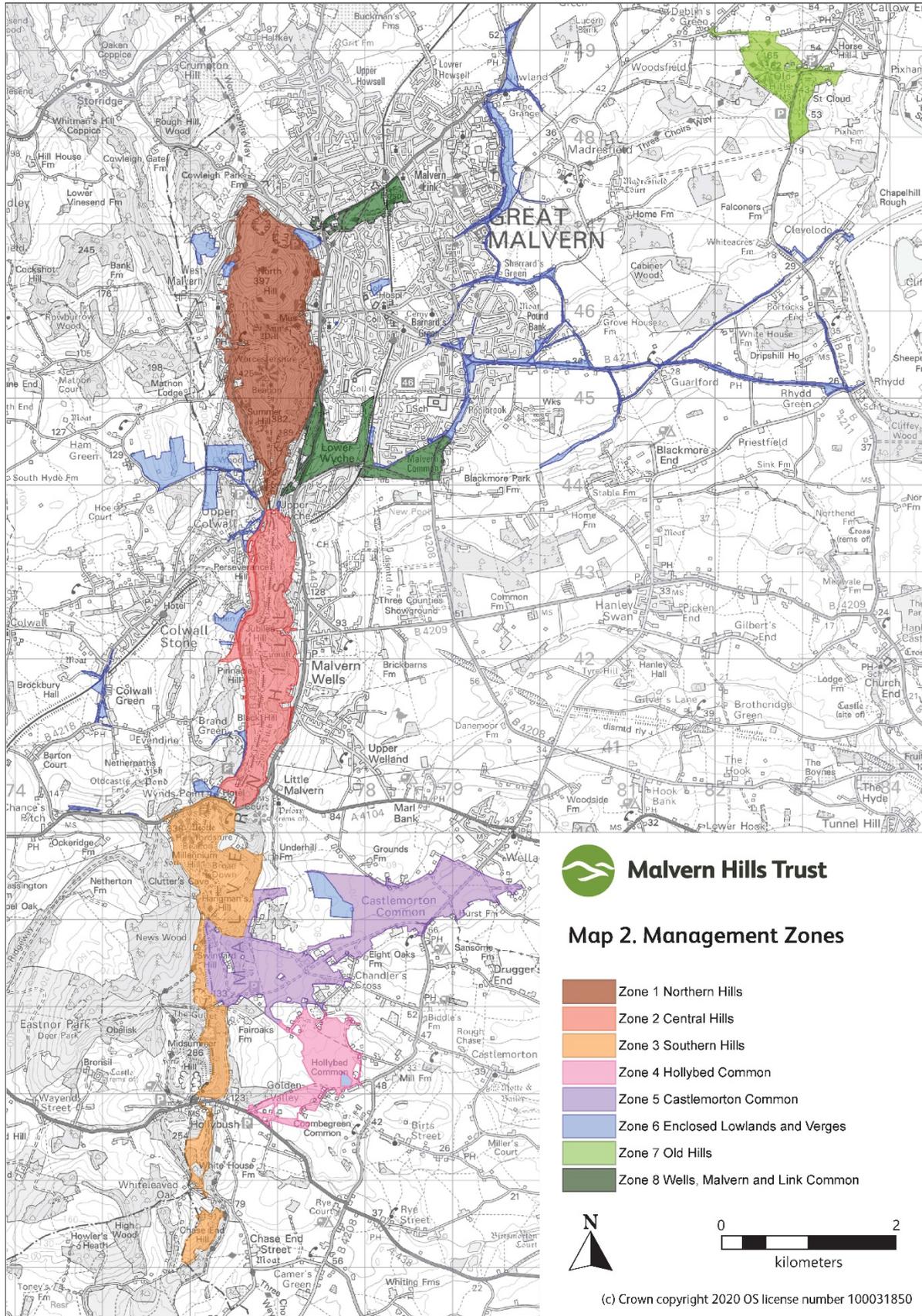
1.3.1.2 Zones

The land has been divided into 7 zones to facilitate the remainder of this plan. The zones used are those detailed in previous management plans (Alma, 1999 and Havard, 2006) and it makes sense to continue their use.

Table 2. Management Zones

Management Zones:
1. Northern Hills
2. Central Hills
3. Southern Hills
4. Hollybed Common
5. Castlemorton Common
6. Enclosed lowlands, Colwall Green, Bowling Green meadow and the roadside verges
7. Old Hills
8. Wells, Malvern and Link Commons

They are presented on Map 2.



Map 2. Management Zones.

1.3.1.3 Tenure

This is not a legal document. Please refer to the original tenure documents before taking any decision or any action which may have legal implications. These documents are located at the MHT offices.

Much of the holding is owned by MHT as freehold (~85 %) and registered with HM Land Registry. However, significant sections are owned by other parties but placed under MHT jurisdiction by the Malvern Hills Acts.

Other minor areas are held under leasehold and other arrangements. A summary map of the freehold and leasehold position is to be produced but key arrangements include:

Table 3. Tenure of holdings

Land / asset	Tenure
Land around British Camp reservoir, including Broad Down.	Under MHT jurisdiction.
Water reservoir and infrastructure near Tank Valley.	Owned by Severn Trent Water but located on or under MHT land.
Colwall Green (part)	Land owned by Colwall Parish Council but under MHT jurisdiction.
Land at eastern Black Hill and part of the southern hills	Under a 99-year lease from the Little Malvern Estate.
Land at Chase End Hill owned by Bromesberrow Estate	Under a joint Higher-Level Stewardship agreement with Bromesberrow Estate.
Land at Ragged Stone Hill and Chase End Hill	MHT owns the lordship of the Manor

Easements

An easement is a non-possessory right of use and/or entry onto the property of another, most easements across MHT land give access to a residential property. The Malvern Hills Conservators have the power to grant easements under Section 8 of the Malvern Hills Act 1995. As such, over 100 easements exist over MHT land. Applications for new easements are considered by the Board according to the Easement Policy and Guidelines. An easement, once granted, typically is attached to a property rather than a person.

Wayleaves

A wayleave is a means of providing rights for a company to install and retain their infrastructure such as cabling, piping or pylons across private land usually in return for annual payments to the landowner. Tens of wayleaves are in existence mostly with utility companies. MHT can't grant over ground easements to run services, but can grant wayleaves.

Further information on specific easements and wayleaves is held at MHT offices.

Public Rights of Way

The Holding contains 70 kilometres of public rights of way, including 56.5 km of bridleway and 13.5 km of public footpaths. Under the Highways Act and Cross Compliance, MHT has a responsibility to *'provide and maintain stiles or gates; cut back overhanging vegetation that may obstruct the PROW; ensure that paths are left free from cultivation for the legal minimum width of 1.5 metres for a public footpath and 3 metres for a public bridleway'*.

Lord of the Manor

Lords of the Manor have been present in the area and across England for hundreds of years. The title may have passed across to MHT with the purchase of land (these should appear in the conveyances). However, being Lord of the Manor does not itself carry or confer any legal obligations or rights.

Manorial rights such as fishing, shooting or mining typically come with a freehold but they can be detached and sold separately. Several past Lords of the Manor have sold land to Conservators whilst retaining certain manorial rights. The 1924 Act gave the Conservators the power to purchase these manorial rights held over MHT land. Manorial rights over MHT land may still be held by other people; however, it is extremely unlikely they can be used as they would conflict with the Malvern Hills Acts that cover all of MHT land. Both the conveyance and the presence of manorial rights over MHT land need confirming.

Common Land / Commoners' Rights

Most common land is privately owned. Owners of commons enjoy largely the same rights as other landowners, except that common land is subject to 'rights of common' held by other individuals (commoners) over the common, and to the special statutory controls that may apply under commons legislation. *The ambiguous term 'common' refers to the rights held in common by certain people to use the product of the soil. Commons are a remnant of the manorial system which, from mediaeval times, has been the basis of the country's economy (Clayden, 2007).*

Owners of certain properties and/or parcels of land are entitled to exercise rights of common on certain areas of common land as detailed in the County commons registers (held and maintained by the county councils).

Fourteen units of pastoral common land that are registered with the County Councils are partly or wholly owned by MHT. The areas are presented below:

Table 4. Common Land units

Common Land (CL) unit no.	Name	Registered Area (ha)	Calculated Area (ha)#
9	Castlemorton (incl Shadybank, Hollybed)	275.82	275.82
10	Chase End Hill and land to the north	12.95	30.10
11	Ragged Stone Hill	12.95	31.20
12	Herefordshire Beacon-Hangman's Hill	67.18	148.80
13	Roadside verge, Brand Green	0.20	0.25
14	Land in Colwall / Little Malvern	91.06	152
15	Land in Parish of Colwall (the Purlieu)	1.82	1.82
16	Worcestershire Beacon / Sugarloaf	72.44	238.70
17	Wells (Malvern) Common	70.82	42.70
18	Malvern Common and roadside verge	20.24	54.40
19	Malvern Link Common	24.28	24.28
28	The Old Hills	57.19	57.19
29	Newland Common (south)	5.26	6.90
119	Newland Common (north)	0.81	0.81

the registered areas of common land units are believed inaccurate. Areas have since been re-calculated (Aitchison *et al*, 2000).

A variety of common rights exist including the following: estovers, turbary, piscary but the most frequent right is that of pasturage; whereby each commoner can graze a certain number of livestock on common land as per the Commons Register. Without commoners' rights such activities are undertaken by members of the public only at the discretion and authorisation of MHT.

National Trust Covenants

Approximately a third of Conservators' land is covered by 7 covenants owned by the National Trust. These covenants date from the 1930's. They were created to protect the landscape by imposing restrictions on building, quarrying and tree works within the covenanted areas. Any work of this type may need permission from the National Trust before commencing. Copies of the covenants and relevant maps are held at MHT offices.

1.3.1.4 Status of the site

The holding is covered by the following permanent legal designations:

Table 5. Legal designations

DESIGNATION / SCHEME	AREA	DATE	MORE INFO AT:
Malvern Hills AONB	All except Old Hills, Link Common, certain verges.	Designated in 1959	www.malvernhillsaonb.org.uk
Malvern Hills SSSI	723.3 ha	Designated in 1954, re-notified in 1990	www.naturalengland.org.uk
Castlemorton Common SSSI	79 ha	Designated in 1955, re-notified in 1986	www.naturalengland.org.uk
Malvern Common SSSI	20.748 ha	Designated in 2018	www.naturalengland.org.uk
Nitrate Vulnerable Zone – surface water type. No. 583	Zone 6	Designated in November 2013	www.environment-agency.gov.uk
Nitrate Vulnerable Zone – surface water type. No. 581	Zones 6, 7	Designated in November 2013	www.environment-agency.gov.uk
Groundwater source protection – zone 1	Zones 1,2,3	2015	www.environment-agency.gov.uk
Groundwater source protection – zone 2	5.68 square km Zones 1,2,3	2015	www.environment-agency.gov.uk
Scheduled Monument	Herefordshire Beacon / British Camp		Historic England www.historicengland.org.uk
Scheduled Monument	Shire Ditch		Historic England
Scheduled Monument	Tumuli, Pinnacle Hill		Historic England
Council conservation areas	Newland, Trinity, Great Malvern, Malvern Wells (MHDC). Malvern Wells (HC)		MHDC Herefordshire Council

1.3.1.5 Site infrastructure

This management plan does not cover MHT staff buildings nor their associated grounds as these are covered in MHT's Business Plan. Site infrastructure includes the following:

Access infrastructure (car parks, signs, paths, walls, gates/barriers, bins, benches, railings)

Safety infrastructure (fences, safety equipment)

Grazing infrastructure (fences, water troughs, signs, cattle grids)

Hydrological infrastructure (pipes, ditches, culverts, grills, spouts, springs, wells)

Interpretation and education infrastructure (toposcopes, interpretation boards)

Other infrastructure (memorial stones, Mill Pond dam)

1.3.1.6 Map coverage

The site is covered by Ordnance Survey maps; Explorer 190 and Landranger 150.

1.3.1.7 Photographic Coverage

A large photographic and postcard collection is held at MHT offices. This has been grouped by location and indexed. The collection provides articles from 1806 to today.

1.3.2 Environmental Information

1.3.2.1 Climate

Shielded by Wales from the most persistent rain, drier than the southern Cotswolds and west Birmingham, but not as dry as much of the east Midlands, the Malvern Hills are favourably located to enjoy some of the most pleasant weather in England.

The average annual rainfall (using 1981 to 2010 data) on the upper slopes is around 780mm, falling to 720mm at the foot and around 650mm in the valleys of the Wye and Severn. On average, the driest months are February, March and April, each with around 50 to 60mm on the higher ground, and the wettest are August, October and November, each with around 80mm, but there is a wide variation from year to year. In spite of recent concerns over a possible trend to more extreme rainfall, this is not strongly confirmed by the data. The wettest year since records began in 1889 is still 1924 (1083mm) and the driest is still 1921 (469). The wettest month was August 1912 (241mm) and the driest was April 1957 (nil).

Temperatures have shown more definite trends. The average annual temperature is now about 1.3C higher than a hundred years ago. However, the warming has not been gradual. There was a warming trend from 1912 to 1937, cooling from 1938 to 1965, warming from 1966 to 2006 and recently another cooling. For example, there were eight days in July 2006 when the temperatures exceeded 30C. It did not reach 30C again for seven years. There is still uncertainty over the cause of these oscillations.

Daytime temperatures on the hills are typically 2 or 3°C lower than along the foot, but at night there is often a downslope or katabatic drift which keeps the slopes some 2 to 3°C warmer than on surrounding low ground. This reduces frost damage to tender trees and shrubs in, say, Gt. Malvern compared with Malvern Link. It also reduces the frequency of fog when there is a light wind from the west. With light easterly winds, however, fog over the Severn Valley is trapped by the Malvern Hills. This often leads to the well-known feature of the upper slopes being in sunshine while the lower slopes and valleys are shrouded in fog. The top of the fog is typically between 400 and 700ft above sea level in the morning but gradually rises before it clears, so the effect becomes less impressive later in the day.

Sunshine duration per year is less than in southern England, especially at the coastal resorts, but more than in the majority of areas elsewhere. The average on the hills is around 1530 hours. At lower sites, there is a lot of variation due to losses caused by trees, buildings, and the shadow of the hills themselves early or late in the day, but a reasonably open site can expect about 1440 hours. The sunniest years were 1929 and 2003 each with around 1800 hours.

Snow is extremely variable from one winter to another. In general, there is less snow in Worcestershire than in counties further north and east. On low ground around Malvern, snow is observed to fall on an average of 13 days per year, but this has varied from nil (in 1989/90 and 2013/14) to 33 days in 1984/85 and 2009/10. Snow falls more frequently above about 800ft ASL (averaging 20 days) and in the worst winters has lain for 40 to 50 days, although the main roads are kept clear on most days. (Hill, 2014)

The global climate is changing, the International Panel on Climate Change (IPCC) states that *'warming of the climate system is unequivocal and since the 1950's many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished and sea level has risen'* (IPCC, 2014).

1.3.2.2 Geology & geomorphology

The solid geology of the Malvern Hills has long interested the professional and amateur geologist with the first paper appearing in 1811 by Leonard Horner. Despite this, the geology is still not completely understood but advances in knowledge are ongoing. The Malvern Hills are the product of the Earth's geological activity over hundreds of millions of years in which sedimentation, tectonic activity, volcanics and metamorphism have all played a part in creating this complex and multi-phased site. The Malvern axis is a line of geological weakness in the Earth's crust along which movement has taken place over hundreds of millions of years, pushing up the old Precambrian rocks, steeply folding the sedimentary rocks to the west and dropping down the younger rocks to the east by 2.5km. this horst structure has formed the spectacular scenery and shaped all that we see today.

Geological exposures come in the form of natural rock outcrops and man-made quarries and cuttings. The geology underpins Malvern landscape, ecology, hydrology and many other qualities.

The geological resource is summarised below in chronological order. For more detailed accounts of Malvern geology and its formation please see:

- Barclay, W.J et al. 1997. 'Geology of the country around Worcester'. Memoir of the Geological Survey of Great Britain, Sheet 199, 156pp.
- Worssam, B.C. et al. 1989. 'Geology of the country around Tewkesbury'. Memoir of the Geological Survey of Great Britain, Sheet 216, 57pp.)

The main north-south line of the Malvern Hills is comprised of rocks of Precambrian age (between 560-677 million years ago). They are split into two distinct groups; the Malverns Complex and the Warren House Volcanics. The former group of plutonic rocks makes up 95 % of the Hills' bedrock and consists predominantly of diorites, tonalites and hybrids, together with some granite and ultrabasic rocks. The corresponding metamorphic rocks are also present including schist, gneiss and amphibolite. Some of these rocks have been intruded by younger rocks, principally dolerites. These rocks are of low pH (acidic).

The Warren House Volcanics cover only 5 % of the Hills including Broad Down and Hangman's Hill. These are volcanic rocks including basalt, trachytes, and ignimbrites with dolerite and calcite veins. Pillow lavas can be found at Clutter's cave. These rocks are of higher pH (more alkaline).

Only a handful of exposures of Precambrian rock exist in England and the Malvern Hills therefore hold an important resource that allows scientific study of this period of Earth's history. In 1970's the Joint Nature Conservation Committee (JNCC) undertook the Geological Conservation Review across the UK. This piece of work aimed to provide the scientific rationale and information base for the conservation of important geological sites, helping establish SSSIs to protect that geological heritage. The work deemed the Malverns of national importance (GCR no. 744) and they were listed as notified features of the Malvern Hills Site of Special Scientific Interest. For further information please see the JNCC's Geological Conservation Review Series no. 20 <http://jncc.defra.gov.uk/page-2947>

The Malverns (Precambrian of England & Wales)

Site Details

GCR Number 744
 Name The Malverns
 Unitary Authority Herefordshire, County of
 Country England
 Grid Ref * SO760372
 Site Report No site report

* This is the approximate central point of the GCR site. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the site.

GCR BLOCK

PRE-EG-WL [Precambrian of England & Wales](#)

Publication details

Precambrian Rocks of England and Wales(2000)
 J.N. Carney, J.M. Horak, T.C. Pharaoh, W. Gibbons,
 D. Wilson, W.J. Barclay, R.E. Bevins, J.C.W. Cope
 & T.D. Ford, Geological conservation Review

Volume: 20

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Volume 20, Chapter 1 Introduction

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Location of The Malverns GCR site

Many of the geological sites are designated as Local Geological Sites too (see Table 1 below).

Cambrian rocks are represented by a sedimentary quartzite conglomerate called the Malvern Quartzite, succeeded by sandstones of the Hollybush Sandstone Formation and shales of the younger White-leaved Oak Shale Formation. These lithologies occupy only a very small part of MHT land on Ragged Stone and Midsummer hills.

During the Ordovician (510-435 mya), several volcanic intrusions into older rocks formed dykes and sills present on much of Eastnor Castle Estate's land but very little is present on MHT land.

MHT land to the west of the Hills including Park Wood, Old Hollow and Colwall Green are all on a bedrock of Silurian age (443-419 mya). Over millions of years a series of different sedimentary rocks were deposited in shallow marine and terrestrial environments. The rocks include: sandstones and conglomerates of the May Hill Sandstone Group, mudstones of the Coalbrookdale Formation; the fossiliferous Much Wenlock Limestone Formation; siltstones and mudstones of the Lower Ludlow Shales, limestones and mudstones of the Aymestry Limestone Formation; siltstones the Upper Ludlow Shales and siltstones and mudstones of the Raglan Mudstone Formation. Where exposed, these Silurian rocks provide a valuable palaeoenvironmental and palaeontological resource with fossils including brachiopods, trilobites and corals. One of the most important contacts in the UK between Silurian and Precambrian rocks can be found at Gullet Quarry.

All MHT land to the east of the Hills is located on Triassic bedrock (200-251 mya), dominated by the mudstones of the Mercia Mudstone Group with a small area of dolomitic siltstones at Old Hills. A linear band of Bromsgrove Sandstone Formation underlies part of central and North Malvern. Few exposures of these lithologies can be found today and much is overlain by much younger Quaternary deposits.

The most recent deposits have been made in the last 2.6 million years in the Quaternary and Holocene during which the area was periodically covered by ice in glacials which alternated with warmer interglacials when the ice retreated and life returned. Fossils from Pleistocene megafauna, including mammoth and woolly rhinoceros, have been found in Malvern indicating these animals' presence on the Hills. Periglacial processes such as solifluction, were in operation and have created features and deposits in unconsolidated, superficial layers. They include head deposits left on the lower slopes of the Hills spreading onto the lowlands. These can be 1m thick on Castlemorton Common where they are known as 'Malvern gravels'. Some evidence of silts and tills of the Anglian Stage have been deposited in the area but with only minor evidence on MHT land.

River deposits and a series of river terraces from the Avon and Severn rivers can be found on Castlemorton and Hollybed Commons. The active streams present today are creating bars, cliffs, meanders and other geomorphological interest features.

Table 6: Designated geological and geomorphological features

Geological resource name & location	Geological resource type	Designation		
		Malvern Hills SSSI	Castle-morton SSSI	LGS
All of the Malvern Hills	Malverns Complex lithologies, landforms	✓		(some)
Wide Valley, Worcs Beacon	Dry valley, Pleistocene deposits, mass movements	✓		✓
Rushy Valley, Worcs Beacon	Dry valley, Pleistocene deposits, mass movements	✓		✓
Clocktower Car Park	Malverns Complex lithologies	✓		✓
North Quarry	Malverns Complex lithologies	✓		✓
Swinyard Hill Quarry	Malverns Complex lithologies	✓		✓
Tank Quarry, North Hill	Malverns Complex lithologies	✓		✓
Little Malvern Quarry (Beringtons quarry)	Malverns Complex lithologies	✓		✓
Westminster Bank Quarry	Malverns Complex lithologies	✓		✓
Gullet Main Quarry, Swinyard	Malverns Complex & Silurian lithologies	✓		✓
Gullet Top Quarry	Malverns Complex & Silurian lithologies	✓		✓

Ivy Scar Rock, North Hill	Malverns Complex lithologies	✓		✓
Broad Down Quarry	Warren House Volcanics	✓		✓
Park Wood Quarries	Silurian lithologies			✓
Brockhill Stream Section	Silurian lithologies			✓
Brockhill Quarry	Silurian lithologies			✓
West of England Quarry, Worcs Beacon	Malverns Complex lithologies	✓		✓
Upper Tolgate Quarry (upper Wyche car park)	Malverns Complex lithologies	✓		✓
Dingle Quarries, West Malvern	Malverns Complex lithologies	✓		✓
Earnslaw Quarry, lower Wyche	Malverns Complex lithologies	✓		✓
Gardiners Quarry, Jubilee drive	Malverns Complex lithologies	✓		✓
Clutters Cave	Warren House Volcanics	✓		✓
Sycamore Tree Quarry	Malverns Complex lithologies and Silurian (Miss Phillips' conglomerate)	✓		✓
White-leaved Oak Quarry	Malverns Complex & Cambrian Sandstone Unc	✓		✓
Chase End Quarry	Malverns Complex lithologies	✓		✓
Castlemorton Common	Mercia Mudstone and Quaternary mass movement deposits (head) River geomorphology		(✓)	✓
Broomhill Quarry, West Malvern	Malverns Complex lithologies Silurian lithologies	✓		✓
Dogleg Quarry (Hayslad Quarry)	Malverns Complex lithologies	✓		✓
Wyche Cutting and quarry to SE (not all parts are on MHT land)	Malverns Complex lithologies	✓		✓
White-leaved Oak lane quarry	Cambrian Hollybush Sandstone	✓		✓
				29

1.3.2.3 Soils

The soils of the main ridge are free-draining, acidic, brown podsollic soils with little fertility in them. This type of soil covers just 2.6 % of England but makes up 23 % of Wales. The foothills of the Hills are covered by head deposits that have acidic, stagnogley soils and acidic, skeletal argillic and silty brown earths. Land further west has similar soils to the foothills. They are of low fertility and are seasonally wet owing to their highly impeded drainage.

To the east of the Hills, lowland commons and road verges also have clayey soils including argillic pelosols, stagnogley soils and silty brown earths. The majority of these soils have impeded drainage, however, they are more base-rich (alkaline) and of moderate fertility. These soils are seasonally wet and are vulnerable to compaction and poaching.

Finally, Old Hills has soils classified as slightly acidic loams with some clay. These soils are of moderate to high fertility with slightly impeded drainage. (Soil Survey of England and Wales Sheet S074) (Cranfield Soil and Agrifood Institute, 2014).

Agricultural land classification maps recognise the main Hills as grade 5 (very poor), the foothills and much of the lowland commons as grade 4 (poor). Minor areas are also classified as grade 3 (good to moderate).

1.3.2.4 Hydrology

The geological outcrop of the Malvern Hills covers an area of approximately 7 square kilometres. The majority of MHT land is within the Severn catchment with a watershed along the ridge of the hills, the western side of which water flows west into tributaries of the Teme. The outcrop is a bedrock aquifer meaning the body of rock receives, stores and releases rainwater. Rainfall is received directly onto rock or infiltrates into the soils and from here it enters the aquifer. The hard igneous and metamorphic rock types are not permeable but their highly fractured and fissured nature mean that water travels quickly through this network of voids.

The aquifer is classified as a fracture flow aquifer with fast travel times which can vary from days to weeks (for comparison it can take water several years to pass through a chalk aquifer). Malvern Water is famous for 'containing nothing at all' as there has been little time for the rainwater to interact with the minerals of the rocks.

Almost any activity such as erosion, walking, grazing by animals and land management can add other substances to the water such as sediment or pollutants that would travel through the aquifer suspended in the water.

Water leaves the aquifer at springs, streams, wet seepages and where man has manipulated it at boreholes, spouts, wells, quarries and ponds. Today many local residents and tourists still use the numerous springs in the area for drinking water. Commercially, Holywell Malvern Spring Water Ltd bottle and sell water from Holywell near Malvern Wells.

MHT is not a supplier of public drinking water. The Malvern springs are classified as private drinking water supplies and are sampled for their quality on behalf of Malvern Hills District Council by Worcestershire Regulatory Services. The Regulatory Service sample for select chemical and bacteriological parameters for drinking water quality reasons. Evendine Spring is monitored by Herefordshire Council Environmental Health Department. To help protect groundwater the Environment Agency have designated 5.68 square km of the main Hills as a type 2 Groundwater source protection zone and the areas immediately surrounding (100m radius) the springs as a type 1 (highest risk). Land management should acknowledge this information and follow guidance to protect the water.

The Malvern Hills and the surrounding district are in a designated groundwater drinking water protected area under the Water Framework Directive 2000. Drinking Water Protected Areas (DrWPAs) are water bodies where 'raw' water is abstracted for human consumption at a rate of at least 10m³/day or where over 50 people are served. 50 properties are supplied with water from the Hills.

The lowlands are covered by drift deposits that are classified as superficial aquifers with shallow water tables. Significant rainfall here travels into the soils and into the fluvial network of ditches and streams which ultimately feed into the Severn or Teme. There is a role played by these lowland commons such as Castlemorton in storing water and helping to prevent flooding further downstream (extracts from: Brown, 2014).

1.3.3 Biological information

Flora – Higher Plants

The flora of the Malvern Hills and Commons has attracted botanical study for hundreds of years with works such as Edwin Lees' 'The Botany of Malvern', 1868. They contain habitats and species highly unusual for the English Midlands and are particularly notable for their grasslands and a number of coastal plants present, leftover from a time when the Severn estuary reached as far north as the Malvern Hills. The varied vegetation of woods, grasslands, scrub, heath, ponds and meadows play a huge role in making an attractive landscape for people, a livelihood for graziers and providing natural services, such as clean air and carbon dioxide sequestration that helps combat climate change.

This section describes the vegetation types present on the MHT holding. These vegetation types, called communities, are largely based on a survey undertaken in 2013 (RSK, 2013) which used the National Vegetation Classification methodology (JNCC, 2014). Each description includes a community name in brackets, typical species, area, more unusual species, and where an example of this community may be found on the Trust's land. Also highlighted are any nationally rare or scarce plants (nationally rare is defined as occurring in ≤15 hectads (a hectad is a 10x10km square), nationally scarce as occurring in ≤100 hectads (Botanical Society of the Britain & Ireland, 2014)) largely based on 'Notable Flora' (Barnett and Garner, 2013).

Grasslands

The main ridge and upper slopes of the Hills, from End Hill to Chase End Hill, contain distinctive upland grassland communities that are dominated by acid grasslands. In general, the grasslands of the northern and central hills and Herefordshire Beacon are dominated by tussocky swards of Wavy Hair Grass *Deschampsia flexuosa* with some Tormentil *Potentilla erecta*, Sheep's Sorrel *Rumex acetosella* and Heath Bedstraw *Galium saxatile* present (NVC community: U2 *Deschampsia flexuosa*). Such a sward can be found on Sugarloaf Hill. Smaller areas of grassland that comprises of Sheep's Fescue *Festuca ovina*, Yorkshire Fog *Holcus lanatus*, Common Bent *Agrostis capillaris* (U4 *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile*) can also be found here. Musk Storks-bill *Erodium moschatum* is rare in Worcestershire and a single colony is found on Beacon Road.

From Midsummer Hill southwards the acid grasslands of the upper slopes are instead dominated by grasses of the Bent family often with a large amount of lichen and moss but no Wavy Hairgrass. Other common species include Common Bent, Harebell *Campanula rotundifolia* and Cladonia spp (U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella*) which makes for an intricate sward on sites including Ragged Stone Hill.

Throughout the Hills on ground of very thin, rocky soils such as the exposed hilltops, only small, hardy plants can persist. This specialised community is recognised as a subcommunity of U1. Species include Early Hair-grass *Aira praecox* and Silver Hair-grass *Aira caryophyllea* along with spring flowering ephemeral plants including the rarities Little Mouse-ear *Cerastium semicandrum*, Common Cudweed *Filago vulgaris*, Knotted Clover *Trifolium striatum*, Bird's Foot Clover *Trifolium ornithopioides*, Annual Knawel *Scleranthus annuus* and Early Forget-me-not *Myosotis ramosissima*. Certain species have a very localised presence with Shepherd's Cress *Teesdalia nudicaulis* on Worcestershire Beacon only, and the uncommon Smooth Cat's Ear *Hypochoeris glabra* restricted to Ragged Stone Hill, its numbers fluctuating greatly from year to year.

Together the upland acid grasslands cover an area of 102 hectares (9 %) of the Trust's holding. The communities U1, U2, U4 are all notified features of the Malvern Hills Site of Special Scientific Interest (SSSI).

Locally interspersed with the upland grassland communities on the northern hills are plants more typical of a heath community (H12 *Calluna vulgaris - Vaccinium myrtillus / U20b Pteridium aquilinum-Galium saxatile*) which contains, and is often dominated by, Bilberry *Vaccinium myrtillus*. This bilberry heath totals over 1 hectare (0.1 %) and it is expanding even displacing Bracken. Common Heather *Calluna vulgaris* can be found in patches from British Camp to Swinyard Hill. The heath community is a notified feature of the Malvern Hills Site of Special Scientific Interest (SSSI).

A single more calcareous stretch of grassland can be found on the southern hills. Located on the Warren House volcanics geology, an unusual mix of calcifuge (calcium-hating) and calcicole (calcium-loving) plants are present together. Many of these plants are spring ephemerals. Commoner species in this community (CG10a *Festuca ovina-Agrostis capillaris*) include Red Fescue *Festuca rubra*, Common Bent *Agrostis capillaris*, Wild Thyme *Thymus polytrichus* and Sheep's Fescue *Festuca ovina*. More unusual species include Common Rock-rose *Helianthemum nummularium* and Early Forget-me-not *Myosotis ramosissima*. In spring, certain small patches are emblazoned with the yellow of the nationally scarce Spring Cinquefoil *Potentilla tabernaemontani*. This vegetation community covers just 2.87 hectares (0.3 %).

Parts of the Hills' mid-slopes and large areas of the lowlands including the roadside verges, urban commons and Old Hills are predominantly vegetated by mesotrophic grasslands (meaning of moderate fertility). These grassland communities are more luscious and nutrient-rich compared to the upland acid grasslands and are far more prevalent across the UK.

Frequent grazing on improved and semi-improved land, dominantly on Castlemorton and Hollybed Commons, has created a sward of common hardy grasses including Crested

Dog's Tail *Cynosurus cristatus*, ryegrass species and herbs including White Clover *Trifolium repens* and Daisy *Bellis perennis* (MG6 *Lolium perenne*-*Cynosaurus cristatus*). However, in places of least agricultural improvement, but not necessarily less grazing pressure, more species-rich variations are found. More calcareous areas include Autumn Ladies Tresses *Spiranthes spiralis*, Quaking Grass *Briza media*, Upright Brome *Bromopsis erecta* and Dwarf Thistle *Cirsium acaule*, whilst in more acidic areas this includes the coastal species Fiddle Dock *Rumex pulcher*, Pale Flax *Linum bienne* and the nationally scarce Slender Hare's Ear *Bupleurum tenuissimum* in its only inland site in Britain. Castlemorton and Hollybed grasslands are a rich mosaic of different grassland communities. Petty Whin *Genista anglica* is very rare in Worcestershire and now thought to be lost from its site near Welland. MG6 communities are found on 141 hectares (12%).

Grasslands dominated by False Oat-grass *Arrhenatherum elatius* and other species indicative of high nutrients such as Common Nettle *Urtica dioica* (MG1 *Arrhenatherum elatius*) are found mostly on the lowlands although small areas can be found on the Hills even in close proximity to the ridge. Typically, this community is species-poor although some sub-communities found were more species-rich with Common Knapweed *Centaurea nigra*, Common Bird's Foot Trefoil *Lotus corniculatus* and, at the Bowling Green Meadow, Clevelode, the nationally scarce Spreading Bellflower *Campanula patula* is present. MG1 communities cover 67 hectares (5.8%) of MHT land.

Regular hay cutting has created a grassland community akin to traditional hay meadows (MG5 *Cynosurus cristatus*-*Centaurea nigra*). They include a wide variety of grasses such as Common Bent, Crested Dog's tail and a substantial proportion of herbs including Bird's Foot Trefoil, Common Knapweed and White Clover. More uncommon species are Downy Oat Grass *Helictotrichon pubescens*, Common Spotted and Southern Marsh Orchids *Dactylorhiza fuchsia* and *D. praetermissa* and their hybrid. This community covers about 15 hectares (1.3%) and makes a colourful summer display that is much appreciated by local people on sites including Malvern Common. In areas that are regularly trampled and mown, hardy species dominate in leys that comprises of Perennial Ryegrass *Lolium perenne* accompanied by broad-leaved herbs such as plantains (MG7 *Lolium perenne*). In areas of even greater trampling this community grades into an open vegetation of either Scented Mayweed *Matricaria chamomilla*, Greater Plantain *Plantago major* and Annual Meadow-grass (OV21 *Poa annua*-*Plantago major*) or Perennial Ryegrass and Cock's Foot grasses (OV23 *Lolium perenne*-*Dactylis glomerata*). These three communities cover 52 hectares (4.5%) of the holding.

In the wetter areas of MHT's land, grassland is characterised by Tufted Hair Grass *Deschampsia cespitosa*, Bent grasses, and rush and sedge species (MG9 *Holcus lanatus*-*Deschampsia cespitosa*). This often grades into wetter mire communities. On the muddy margins of pools and tracks Water Purslane *Lythrum portula* can be found, a rare plant in Worcestershire. This community covers 45 hectares (4%). The final mesotrophic grassland community is a rushy pasture found on Old Hills and other permanent pastures with poor drainage (MG10 *Holcus lanatus*-*Juncus effusus*). This comprises a low sward that contains commoner coarse grasses with a moderate to high amount of Soft Rush *Juncus effusus* and herbs including Creeping Buttercup *Ranunculus repens*. It covers 1.67 hectares (0.1%).

Mire

Only one vegetation community here can be defined as a mire (M23 *Juncus effusus/acutiflorus-Galium palustre*). This community is characteristic of poorly drained and agriculturally unimproved pasture and grades into other drier habitats on both Malvern and Castlemorton Commons, and in small flushes on the Hills. Many of these flushes have been lost due to capping and piping to create collection spouts.

Typical species include Yorkshire Fog *Holcus lanatus*, Soft Rush *Juncus effusus*, Sharp-flowered Rush *J. acutiflorus*, Common Marsh Bedstraw *Galium palustre*, Meadow Brome *Bromus commutatus*, Water Mint *Mentha aquatica* and Ragged Robin *Silene flos-cuculi*. Less common species which have been recorded are Few-flowered Spike-rush *Eleocharis quinqueflora*, Slender Spike-rush *E. uniglumis*, Star Sedge *Carex echinata*, Green-ribbed Sedge *C. binervis*, Distant Sedge *C. distans*, Tawny Sedge *C. hostiana*, Southern Marsh Orchid *Dactylorhiza praetermissa*, Tubular Water Dropwort *Oenanthe fistulosa* and Parsley Water Dropwort *Oenanthe lachenalii* which is rare inland in the UK.

In seasonally dry parts of mire habitat, specialist plants such as Lesser Marshwort *Apium inundatum*, the pungent tasting Water Pepper *Persicaria hydropiper* and its nationally scarce relative Tasteless Water Pepper *P. mitis* can be found. Narrow-leaved Water Dropwort *Oenanthe silaifolia*, also nationally scarce, is found in the mire and watercourses of Castlemorton Common. The mire community covers 10ha (0.9 %). This habitat is a feature notified in all three of the SSSIs.

In very small areas on the slopes of the Hills, principally Swinyard Hill, remnants of bog communities can be found often linked to flushes. Today they contain Bog Pimpernel *Anagallis arvensis*, Marsh Valerian *Valeriana dioica*, Marsh Arrowgrass *Triglochin palustris* and Sphagnum mosses. However, records exist to show that these bogs were once more extensive and contained a wealth of bog specialist species including the charismatic Sundew *Drosera* sp. and Cotton Grass *Eriophorum angustifolium*. These have been lost to changes in hydrology and drainage, and to scrub encroachment but a seed bank may persist in the soils.

Woodland

From remote woodland, orchard, wood-pasture and tree-lined hedge to lime avenue in the heart of Malvern town, the majority of the MHT estate has tree cover providing a different habitat, a more intimate experience for visitors and often hiding clues to historic cultural activities. Woodlands provide wider ecosystem services including improving air quality and carbon sequestration, the latter being of particular importance in a time of global climate change (see 1.3.2.1 Climate).

In 2013 woodland, as a distinct habitat, covered an area of over 341 ha (30 % of MHT holding) this figure contrasts strongly with the recent history of the 'bald' hills where, in 1930, tree cover on the MHT estate stood at under 50 ha (4 %). The late 20th century saw a great increase in tree cover here due, in the main, to the decline in local commoner's activities chiefly out-pasturing of livestock on the Hills and Commons.

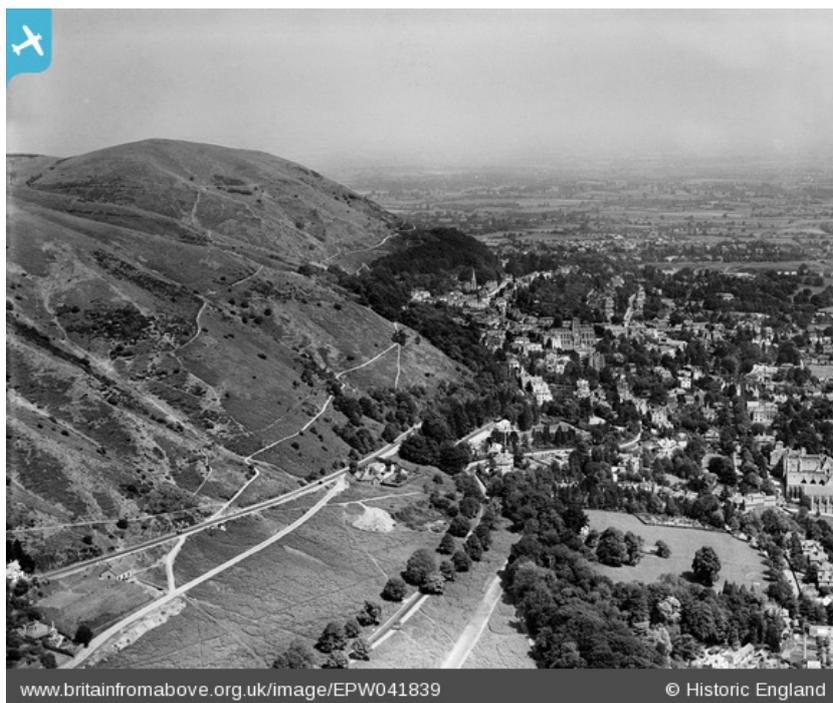


Photo: Wells Common and North Hill, devoid of trees in 1933. (Historic England)

MHT's tree cover is also considerably higher than the national figure of 10% (England). The local area also benefits from large woods on adjacent estates such as News Wood, owned by Eastnor Castle estate. Connectivity between woods is good, with a ring of woodland forming a necklace around the entire foothills.

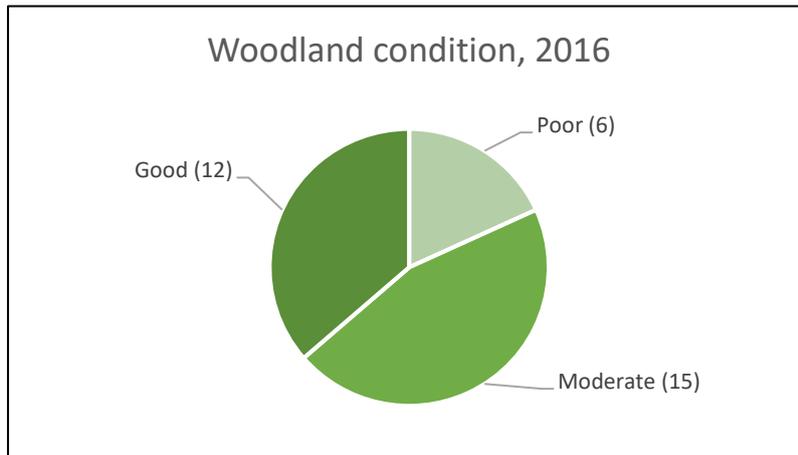
MHC has various types of woodland present reflecting edaphic factors and past land uses. In 2013 a botanical survey recorded the following woodland communities on MHT land, using the national vegetation classification (NVC):

Table 7. NVC communities

NVC community	NVC code	Area (ha)	Proportion of MHC land %
Ash woodland.	W8	133	12
Oak and Birch woodlands.	W16 W10	106	9
Other semi-natural woodlands (OSNW) (unattributable under NVC)	-	99	8.6
Wet woodlands.	W2 W6 W7	3	<1
Beech woodland.	W12	<1	<1
Total		341	30%

Certain woods have been present for over 400 years qualifying it as ancient woodland. Typically, these are the woodlands of highest conservation value. Ancient woodland totals 33 ha (2.76%) comprising: Hollybush Roughs (a notified feature of the Malvern Hills SSSI), Fishpool Leys Coppice, Park Wood, Horsecroft Coppice, Knell Coppice and Walmspout Coppice. Unfortunately, the latter two of these ancient woodlands have been badly degraded by historic sheep grazing although recent measures for restoration have been taken.

The remainder of MHT woodlands are much younger with varying degrees of naturalness. They have been planted or have grown up naturally on previously open land, both types qualifying them as secondary woodlands. All of these woods can be classed as semi-natural having a significant component of native flora (even Thirds Wood plantation). There is huge variation in condition – some have varied structure, mixed age and a good range of native species including in ground and shrub layers. Other woods, in contrast, are uniform monocultures of Sycamore with a poor structure and low species diversity.



The MHC woodland resource has been divided into 33 compartments. Their condition has been assessed with the results shown in the adjacent chart.

Woodland assessment was based on 'Common Standards Monitoring Guidance for Woodlands' (JNCC, 2004) and considered: extent, structure and natural processes, deadwood, regeneration, species composition and local distinctiveness.



Photo: A woodland of poor condition - an even-aged Sycamore monoculture.

The key reasons for the poor condition of Malvern woods are: 1) the presence of invasive, non-native species (chiefly Cherry Laurel *Prunus laurocerasus* and *Rhododendron ponticum*), 2) little variation in structure and 3) low species diversity.

In some places, secondary woodland has replaced or degraded nationally important open habitats, such as acid grasslands, or they have obscured archaeology including scheduled monuments. Where this is the case trees will be felled to conserve and restore the more important features and deliver legal obligations.

Here follows a more detailed look at the woodland communities present.

Several different woodland communities are recognised with the most expansive, at 144 hectares (13 %), being Ash woodland (W8 *Fraxinus excelsior*-*Acer campastre*-*Mercurialis perennis*), a woodland dominated by Ash trees with an understorey of Hazel *Corylus avellana* and Field Maple *Acer campestre*. This woodland is typically found on more alkaline sites including Park Wood. Here, twenty-one species of ancient woodland indicators were found including Wood Anemone *Anemone nemorosa*, Woodruff *Galium odoratum* and Herb Paris *Paris quadrifolia*. Rarer species include Bird's Nest Orchid *Neottia nidus-avis*, Violet Helliborine *Epipactis purpurata* and the nationally scarce Wood Barley *Hordelymus europaeus*. The vegetation in Park Wood is partly the result of the historic quarrying and woodland industries of this area including coppicing.

Sites on more acidic substrates tend to hold Oak and Birch woodlands (W16 *Quercus spp*-*Betula spp*-*Deschampsia flexuosa* or W10 *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus*). Here Pedunculate, Sessile and hybrid oaks overshadow an understorey of Downy Birch *Betula pubescens*, Rowan *Sorbus aucuparia*, Holly *Ilex aquifolium*, and Honeysuckle *Lonicera periclymenum*. This includes ancient woodland at Hollybush Roughs - here thirteen species indicative of ancient woodland were found including Golden-scaley Male Fern *Dryopteris affinis*, Bluebell *Hyacinthoides non-scripta* and Dog's Mercury *Mercurialis perennis*. Oak woods cover 106 hectares (9 %) of the holding. When clearings are made in either woodland type the nationally scarce plant Narrow-leaved Bittercress *Cardamine impatiens* can be found colonising the open ground until it is outcompeted. These native broadleaved woods are a feature of the SSSI notification.

On wetter sites two wet woodland communities can be found. Willow woodland (W2 *Salix cinerea*-*Betula pubescens*-*Phragmites australis*) can be found where mire and rushy pasture vegetation have succeeded to woodland. Grey willow *Salix cinerea* and Downy Birch *Betula pubescens* make up the canopy with a variety of rushes, reeds and herbs below including Greater Tussock Sedge *Carex paniculata*, Meadowsweet *Filipendula ulmaria*, and Yellow Flag *Iris pseudacorus*. Along streams and in valleys a eutrophic (nutrient rich) woodland community characterised by Alder can be found (W6 *Alnus glutinosa*-*Urtica dioica* and W7 *Alnus glutinosa*-*Fraxinus excelsior*-*Lysimachia nemorum*). It is a rather species-poor community with some willow, Rough Meadow Grass *Poa trivialis* and Cleavers *Galium aparine* making up the ground layer. Alder woodland is a notified feature of the SSSI. Black Poplar *Populus nigra* (subspecies *betulifolia*) are characteristic of damp, alluvial ground and are a rare tree in the UK. These wet woods occupy about 1ha (0.1 %).

Much woodland on the Hills (99ha 8.6 %) was not attributable to any NVC community. This includes the mixed woodlands of the mid and lower slopes of the Hills. The majority are not ancient woodlands and their origins lie in a mixture of planting, natural succession

and garden escapees making them highly variable. Species include Sycamore *Acer pseudoplatanus*, Pines, European Larch *Larix decidua*, Sweet Chestnut *Castanea sativa*, Rowan *Sorbus aucuparia*, Turkey Oak *Quercus cerris*, Horse Chestnut *Aesculus hippocastanum*, Beech *Fagus sylvaticus*, Birch (*Betula*) species, Holm Oak *Quercus ilex* and more. The understorey is also highly variable and can include Laurel *Prunus laurocerasus*, Rhododendron species and, in places, a developing native ground flora. Much of these mixed woodlands, such as Thirds Wood plantation and the hill-side edge of Great Malvern, have been present for decades but some, especially on the mid-slopes of the Hills where it has invaded open habitat, is fairly young.

Orchards

Individual fruit trees can be found scattered across the holding, some planted such as the avenue along Guarlford Road and some grown perhaps from a discarded fruit core. Beside Black Hill car park a cider apple variety called 'Herefordshire Redstreak' can be found. This variety dates back to the 1600's.

Four small orchards are present. The first is an old, traditional orchard found adjacent to Hollybed Common, just south of the Mill Pond called Morgan's Orchard. Around 25 fruit trees are present including local apple and pear. There's a mixed age of trees including some veterans. A second orchard was planted in 2011 adjacent to North End Lane, Malvern. It contains twenty fruit trees of local variety such as Worcester Permain apple and Madresfield Court apple. A small number of mixed age local varieties make up the third orchard at Ballards Land. The final orchard is a remnant plum orchard adjacent to the railway line beside Malvern Common. Few trees remain and much is overtaken by bramble. The varieties are unknown, though look like yellow egg plums.

Notable trees

There are a wide variety of individual trees and groups of trees on MHT land that have significant cultural, ecological and landscape values; these are termed notable trees. They include some veteran, ancient and heritage trees, and can be found throughout the holding. A total of 284 pollards have been recorded. Examples of notable trees include ancient Willows at Clevelode, veteran Hawthorns scattered across the Hills, the iconic avenues of trees, mainly Limes, on Link Common and along Guarlford Road, the Black Poplar pollards of Castlemorton Common and the amazing Sweet Chestnut and Beech beside the zigzag path downhill of St Ann's Well. Some of these trees are protected through Planning Conservation Areas and 15 Tree Preservation Orders (concentrated in Great Malvern).

Aquatic vegetation

A variety of open waterbodies exist on the MHT holding including mill ponds, disused quarries, stock ponds and watercourses. Although small in extent these water bodies hold a range of floral communities associated with water. The floating community dominated by Lesser Duckweed (A2 *Lemna minor*) is found on many ponds and quite often mixed with White and Yellow Waterlily communities (A7 *Nymphaea alba* and A8 *Nuphar lutea* respectively), Fringed Waterlily *Nymphoides peltata* and Water Starwort communities (A16 *Callitriche stagnalis*). The invasive non-native New Zealand Pygmyweed *Crassula helmsii* and Water Fern *Azolla filiculoides* are present on certain water bodies, dominating

the flora in places. Giant Hogweed *Heracleum mantegazzianum* is also found on many of the watercourses near the Pool Brook.

Near to waterbodies a wet grass and herb community can be found dominated by Red Fescue, Creeping Bent and Silverweed (MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina*) or mats of Creeping Bent and buttercups (OV28 *Agrostis stolonifera-Ranunculus repens*). At the edge of water bodies vegetation that is capable of coping with periodic inundation can be found with species such as Water Purslane and Lesser Spearwort (OV35 *Lythrum portula-Ranunculus flammula*). Ponds gradually fill in through natural processes and as they do so they hold various transition communities including swamp vegetation. Two swamp communities have been found; the first dominated by Reedmace *Typha latifolia* and the second by Common Spike-rush (S12 *Typha latifolia* and S19 *Eleocharis palustris*). In muddier, more enriched waters the vegetation can be dominated by Floating Sweet-grass (S22 *Glyceria fluitans*). More unusual species from the aquatic floras are Thread-leaved Water Crowfoot *Ranunculus trichophyllus*, Floating Club-rush *Eleocharis fluitans* and Water Purslane *Lythrum portula*, all rare in Worcestershire and Herefordshire. In total aquatic floras cover 0.8 hectares (0.1 %).

Tall herb and Bracken communities

In between woodlands and grassland are a range of other vegetation communities including scrub, tall herbs and Bracken *Pteridium aquilinum*. These communities are found throughout the holding, often grading into each other and woodlands and grasslands. Bracken is a widespread fern species that is well known especially as its changing hues contribute much to the landscape through the year. Bracken can be found with herbs and grasses such as Sheep's Fescue *Festuca ovina*, Sweet Vernal Grass *Anthoxanthum odoratum* and Heath Bedstraw *Galium saxatile* (U20 *Pteridium aquilinum-Galium saxatile*). However large, dense stands of Bracken leave little resources for any other species and some significant areas are solely Bracken. When found with Bramble *Rubus fruticosus*, an impenetrable stand of vegetation can be formed called an under-scrub (W25 *Pteridium aquilinum-Rubus fruticosus* community). This can include woody species such as Hawthorn and Ash saplings too where the community is succeeding to woodland. Herbs present can include Bluebell, Wood Sage *Teucrium scorodonia*, Common Nettle, Ivy *Hedera helix* and Yorkshire Fog. These communities can easily be found, such as the well-visited Bluebell site on Jubilee Drive, and on areas of the Old Hills. They cover an area of 175 hectares (15 %).

On disturbed, nutrient-rich ground thistles and nettles can become dominant in tall herb communities which can be found in small patches throughout the holding such as on old fire sites. Typical species include Common Nettle, Cleavers, Great Willowherb *Epilobium hirsutum*, Rosebay Willowherb *Chamerion angustifolium* and Foxglove *Digitalis purpurea*. The latter two species make some striking floral displays attracting visitors and photographers. Four of these communities are recognised (OV24 *Urtica dioica-Galium aparine*, OV25 *Urtica dioica-Cirsium arvense*, OV26 *Epilobium hirsutum* community and OV27 *Chamerion (Epilobium) angustifolium*) totalling 17 hectares (1.5 %).

Scrub

Scrub is often defined as vegetation dominated by woody shrubs or bushes typically less than 5 metres in height. Scrub communities can be permanent features or most often a temporary feature that is gradually replaced by woodland through ecological succession. Openings made in scrub are often quickly colonised by Climbing Corydalis *Ceratocarpus claviculata* a very scarce species in the West Midlands.

Gorse scrub is present on the Hills and many of the lowland commons. It is easily recognised and can be found flowering at most times of years with a coconut scent. Two Gorse species can be found with Common Gorse *Ulex europaeus* almost exclusively on the lowland commons and Western Gorse *U.gallii* on the Hills, often with Bramble present (W23 *Ulex europaeus-Rubus fruticosus*). While the densest stands have no accompanying species and a thick litter of gorse on the ground, the more open stands can yield Broom *Cytisus scoparius*, Bramble, acid grasses and herbs including Foxglove *Digitalis purpurea*, Heath Bedstraw and Common Mouse-ear *Cerastium fontanum*. Gorse scrub covers 26 hectares (2.3%). The habitat called 'ffridd' comprises a mosaic of scattered trees, gorse, grass and bracken (RSPB, 2014) which has declined much on the Hills and Commons.

However, the most common type of scrub is that dominated by Hawthorn with some Blackthorn *Prunus spinosa* (W21 *Crataegus monogyna-Hedera helix* scrub). This community is typically dense when mature and when young it often forms mosaics with grasslands, this is often because neglected grasslands readily develop into Hawthorn scrub. Bramble is abundant in the field layer with Rose species, Ivy and grassland species still hanging on. This community covers most hedgerows within the area too. Any hedges or scrub comprised entirely of Blackthorn are identified as a separate community (W22 *Prunus spinosa-Rubus fruticosus*). In some areas, typically next to woods and scrub, large areas can be found that are dominated by Bramble (W24 *Rubus fruticosus-Holcus lanatus*) with some tree saplings and rank grasses present such as Yorkshire Fog, Cock's Foot and False Oat-grass *Arrhenatherum elatius*. This is typically a low but dense underscrub that's great for blackberries in autumn. The nationally scarce Small-leaved Sweet Briar (*Rosa agrestis*) can be found in such a community on Malvern Common.

These three scrub communities total 59 hectares (5.2%).

Quarrying has left a lasting legacy on the Malvern Hills and the rocky, exposed habitat created provides a niche for certain well-adapted plants including Navelwort *Umbilicus rupestris* and the uncommon Hoary Cinquefoil *Potentilla argentea*, Spear-leaved Willowherb *Epilobium lanceolatum* and, historically, the nationally scarce White Horehound *Marrubium vulgare*.

Flora – Lower Plants

The lower plants are of relatively simple or primitive characteristics, especially those which are not vascular plants, i.e. bryophytes, algae, mosses and liverworts.

One well-recorded notable species known about is the nationally rare clubmoss *Diphasiastrum x. issleri*. This species has occurred for some years on one fragment of acid

grassland near British Camp where it is the only extant population of this plant in England and Wales and the only known locality in lowland Britain. However, it was last recorded here in 1997 and thought to have been lost to the spread of more competitive plants but it may still persist in some state.

Five nationally scarce and two nationally rare lichens have been recorded. Further information on the lower plants needs to be obtained.

Fungi

The Malvern Hills and Commons provide habitat for a wealth of fungi, both common and rare. Over 100 species have been recorded so far, but species new to the holding continue to be discovered. Of particular note is the critically endangered Berkley's Earthstar *Geastrum berkleyii*, once thought to be extinct, it was recorded at Old Hills during the late 1990's near to old Elm *Ulmus* sp. stumps.

An important assemblage of waxcap fungi is seen right across the Hills and Commons, some 33 different species of waxcap species are associated with unimproved grassland, including the Pink Waxcap *Hygrocybe calyptiformis*, Parrot Waxcap *H. psittacina* and the Spangle Waxcap *H. insipida*.

Together with fairy clubs, four species of spindles, two species of earth-tongues and a wealth of Entoloma species, this diversity achieves a national importance for grassland fungi. According to Rald, an internationally renowned mycologist, the definition of high conservation value grassland is a minimum of 17 different species of waxcap recorded (Rald, 1995), so on waxcap species alone the area's importance for grassland fungi is well founded. The areas that are most notable for their waxcap fungi are Old Hollow, Castlemorton Common, Golden Valley and Herefordshire Beacon.

As well as adding to the diversity of life on the holding, fungi provide a unique point of interest and foraging opportunity for local people (extracts from Spence, 2014).

Fauna – Amphibians and Reptiles

Waterbodies and their surrounding habitats support populations of five amphibians here. Common Frog *Rana temporaria*, Common Toad *Bufo bufo* and all three species of newt; Palmate *Lissotriton helveticus*, Smooth *L. vulgaris* and the Great-crested *Triturus cristatus*, are found on the holding. The latter species is heavily protected under UK and European law and is a priority UK species (under the NERC Act, 2006), together with Common Toad, owing to recent widespread decline over its range. National declines are due to habitat loss and direct mortality on roads whilst travelling to breeding ponds in the spring.

Four species of reptile are present. Common Lizard *Zootoca vivipara*, Slow-worm *Anguis fragilis* and Grass Snake *Natrix natrix* are all widespread across the holding. A regionally significant population of Adder *Vipera berus* is present in the southern and central hills. All of these reptiles are priority UK species. They depend upon mid-successional habitats with a variety of structure, typically provided by grasses, bracken, bramble and scrub.

For further detail on adders see 'Malvern Hills reptile survey 2006-2008', Hand 2008 and update report of 2020.

Fauna – Fish

Quarry lakes and larger ponds support native and non-native freshwater fishes. Native species include: Roach *Rutilus rutilus*, Rudd *Scardinius erythrophthalmus*, Three-spined Stickleback *Gasterosteus aculeatus*, Dace *Leuciscus leuciscus*, Tench *Tinca tinca* and Bream *Abramis brama*. Watercourses have populations of Minnow *Phoxinus phoxinus* and, in the River Severn, Pike *Esox lucius*.

In British Camp reservoir there is a large population of mature European Eels *Anguilla anguilla* that is thought to have been stocked there and is now trapped.

Fauna – Birds

With a diverse range of habitats present there is a corresponding diverse avifauna although several species have been lost in the last 60 years. 121 species were recorded on the holding during the period 1985-2006, with 82 of these breeding (Duncan, 2008). The woods, especially the ancient woodland, support an excellent woodland bird assemblage with Pied Flycatcher *Ficedula hypoleuca*, Lesser Spotted Woodpecker *Dendrocopus minor*, Spotted Flycatcher *Muscicapa striata*, Marsh Tit *Parus palustris*, Willow Tit *Parus montanus*, Redstart *Phoenicurus phoenicurus*, Song Thrush *Turdus philomelos*, Woodcock *Scolopax rusticola*, and Wood Warbler *Phylloscopus sibilatrix* are all particularly notable (although both of the latter two species have been lost as breeding species). Larger areas of scrub and open habitats on the Hills and lowlands support small populations of scarcer species including Stonechat *Saxicola torquata*, Willow Warbler *Phylloscopus trochilus*, Reed Bunting *Emberiza schoeniclus*, Tree Pipit *Anthus trivialis*, Yellowhammer *Emberiza citrinella*, Grasshopper Warbler *Locustella naevia*, Skylark *Alauda arvensis*, Meadow Pipit *Anthus pratensis*, Cuckoo *Cuculus canorus*, Linnet *Carduelis cannabina* and, in the mature scrub, Turtle Dove *Streptopelia turtur*. In the very open areas found on the lowland commons Lapwing *Vanellus vanellus* and Curlew *Numenius arquata* have bred up until the last few years.

Many species range over much of the holding with notable species including Goshawk *Accipiter gentilis*, Kestrel *Falco tinnunculus*, Peregrine *Falco peregrinus*, Barn Owl *Tyto alba* and, following recent re-colonisation, Raven *Corvus corax*. All of the species above are listed as red or amber status nationally (Eaton *et al*, 2015) and many are UK priority species (see Part 2).

The Hills and Commons provides a large, continuous area of semi-natural habitat that supports many widespread and familiar bird species such as Blue Tit *Cyanistes caeruleus*, Moorhen *Gallinula chloropus*, Green Woodpecker *Picus verdis* and House Sparrow *Passer domesticus*. The accessible nature of the land and presence of green spaces within settlements gives great opportunity for people to encounter these commoner species and to enjoy nature.

The area also provides habitat to migrating birds and over-wintering birds with regular species including Redwing *Turdus iliacus*, Fieldfare *T. pilaris*, Ring Ouzel *T. torquatus*, Snow Bunting *Plectrophenax nivalis*, Lesser Redpoll *Carduelis cabaret* and occasionally Yellow Wagtail *Montacilla flava* and Great Grey Shrike *Lanius excubitor*.

Fauna – Mammals

In terms of the UK's true native mammal fauna, the Malverns hold just a shadow of the native species assemblage (no pine marten, red deer, wild cat, beaver, wolf etc). But the species diversity present here fares better than in the wider countryside.

Breeding mammal species included Hedgehog *Erinaceus europaeus*, European Mole *Talpa europaea*, Red Fox *Vulpes vulpes*, Badger *Meles meles*, Weasel *Mustela nivalis*, Stoat *Mustela erminea*, Yellow-necked Mouse *Apodemus flavicollis*, Wood Mouse *Apodemus sylvaticus*, Field Vole *Microtus agrestis*, Bank Vole *Myodes glareolus*, Pygmy Shrew *Sorex minutus*, Common Shrew *Sorex araneus*, Water Shrew *Neomys fodiens* and the non-native Rabbit *Oryctolagus cuniculus* (Mediterranean) and Grey Squirrel *Sciurus carolinensis* (North American).

Recent years have seen an increase in numbers of the non-native Reeve's Muntjac *Muntiacus reevesi*. Sightings of native Roe Deer *Capreolus capreolus*, Brown Hare *Lepus europaeus* and Fallow Deer *Dama dama* are uncommon.

Rarer mammals present that are recognised as priority species under the NERC Act, are the Harvest Mouse *Micromys minutus*, Hazel Dormouse *Muscardinus avellanarius*, Polecat *Mustela putorius*, and Otter *Lutra lutra*.

All bat species are also priority species. They include; Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Leisler's *Nyctalus leisleri*, Whiskered/Brandts *Myotis mystacinus / brandtii* and Daubenton's *Myotis daubentonii*, Brown Long-eared *Plecotus auritus*, Lesser horseshoe *Rhinolophus hipposideros*, Noctule *Nyctalus noctula*, Natterers *Myotis nattereri*, Barbastelle *Barbastella barbastellus* and Bechstein's *Myotis bechsteinii*.

The latter two species are categorised on the IUCN's red list as globally 'near threatened' making them some of the rarest species on the Malverns.

As the area has become more and more wooded, it has become increasingly important for bats. Greater Horseshoe *Rhinolophus ferrumequinum* bats are now also present bringing the total number of bat species to 13 of the UK's 17 breeding species.

Fauna - Invertebrates

Given the diversity of habitats, longevity of extensive land management and continuity of habitats and features, such as veteran trees, it is highly likely that the holding contains a diverse and significant range of invertebrates. The Hills are known for their relict species

and their ability to collect and assemble convected and windblown insects (Whitehead, 2014). However, few records are held for most invertebrate groups.

Butterflies and moths (Lepidoptera) are well recorded. Around 33 species of butterflies are present with rarer species including Dingy Skipper *Erynnis tages*, White Admiral *Limenitis camilla*, Small Heath *Coenonympha pamphilus*, White-letter Hairstreak *Satyrion w-album* and Grayling *Hipparchia semele*. The presence of Small Pearl Bordered *Boloria selene* and Pearl Bordered *Boloria euphrosyne* Fritillaries is uncertain as only very low numbers are recorded in some years. Unfortunately, the endangered High Brown Fritillary *Argynnis adippe* has been lost from the area. All of the above butterflies are UK priority species. An excellent range of commoner butterflies of the wider countryside are supported including Comma *Polygonia c-album*, Small Skipper *Thymelicus sylvestris*, Speckled Wood *Pararge aegeria* and Common Blue *Polyommatus icarus*.

A total of 1117 species of moth have been recorded. This range of moths includes some spectacular species, such as Elephant Hawkmoth, common and widespread species and many rarities. Rarer species include the Pauper Pug *Eupithecia egenaria* (red data book), Drab Looper *Minoa murinata* and Silver Cloud *Egira conspiciellaris* (both nationally scarce).

Lepidoptera associated with the acid grasslands and woodland are features of the SSSI notification.

A large population of Turkish Crayfish *Astacus leptodactylus* are present in Gullet Quarry lake. Seine netting of a pond on Castlemorton Common found a healthy breeding population of Swan Mussels *Anodonta cygnea*.

Uncommon bees, wasps and beetles, such as the dung beetle *Onthophagus similis*, have been recorded on the Hills. They have an association with the long history of livestock grazing.

Further work is necessary to obtain invertebrate records from more taxonomic groups and take these into account during management. In particular, recent surveys have suggested the area be of particular importance for ancient trees, deadwood and a saproxylic invertebrate fauna. Further work to establish the true importance of this would be welcome.

Non-native species

As with much of the UK, this holding is home to many species of both 'naturalised' species and recent introductions from other countries. Many of these species have been mentioned in the text already but the following have not.

A recent audit of the non-native plants (Garner & Barnett, 2014) found 81 species of recent (post 1500 AD) non-native plants. Certain plants can host diseases, invade and dominate native vegetation or hybridise with native species and are therefore of conservation concern.

Non-native animals include, feral hybrid geese, various Carp spp, and Canada Goose. Release of the non-native Pheasant *Phasianus colchicus* by local estates in autumn can result in large numbers of these birds on Trust land. Research suggests that they can have a detrimental effect on plants, invertebrates and reptiles through their habitat of pecking small moving things. This issue is a particular concern for fragile populations of reptiles such as Adders.

To replicate the larger herbivorous fauna that have been lost from the UK (the extinct Tarpan and Auroch for example), surrogate large graziers are used to provide natural processes and maintain open habitats. These include native breeds of Sheep *Ovis aries*, Cows *Bos taurus* and ponies *Equus ferus*.

A list of all native species recorded on MHT land and their conservation status is presented in Part 2: Evaluation.

1.3.4 Landscape

The dramatic nine-kilometre ridgeline of steep-sided hills contrasts so strongly with much of the surrounding landscape and offers such breath-taking, panoramic views that, combined with a significant impact upon English culture from Elgar's music and the Malvern Water, the Malvern Hills have long been an iconic and cherished English landscape. Their existence and shape are down to geology whilst the overlying tapestry of woods, commons and fields that we see today results from thousands of years of interaction between nature and mankind. As a Royal Forest/Chase and common land this area has not experienced the dramatic re-ordering of the countryside layout that the surrounding countryside has endured especially during the Enclosure Acts. It thus retains many of its features accumulated over thousands of years, typical of what is known of as 'ancient countryside' (Rackham, 2000).

In 1959, the MHT estate and the wider landscape were deemed special enough to be designated as an Area of Outstanding Natural Beauty (AONB) under the National Parks & Access to the Countryside Act, 1949 meaning the conservation of this landscape is of national importance. 960 hectares (86 %) of MHT land makes up 11 % of the 10,500 ha protected AONB landscape.

The task of describing what makes up the landscape of the Malvern Hills and Commons has been undertaken and updated several times. All studies have identified that the Malvern Hills are a distinct landscape worthy of its own 'National Character Area'. (Profile 103, Natural England, Oct 2012). This profile identifies the following as key characteristics that are relevant to this landscape chapter:

- *A prominent, narrow north–south ridge of high, unenclosed, rounded hills of igneous and metamorphic rocks, which rise abruptly from the Severn Vale along a fault plane to form a highly visible dominant landmark, visible from a long distance. The ridge is offset by several faults, which have been eroded to form prominent passes through the hills.*

- *A varied geology, which is reflected in the soils, which range from thin, acidic soils on the Malvern Hills, through deeper, neutral soils over the Old Red Sandstone to calcareous soils on Silurian shale and siltstone.*
- *Along the Malvern Hills ridge there are a number of dramatic historic sites, including the bronze-age barrows, iron-age hill forts at British Camp and Midsummer Hill, and the Shire Ditch.*
- *The high hills and the surrounding area are dominated by unimproved grassland, heathland and bracken, with encroaching scrub from the woodlands below.*
- *There is a high density of public rights of way and an extensive area of open access land.*
- *To the north and west of the hills there are wooded limestone ridges, separated by vales of mixed shale. The lower slopes and ridges – particularly the steeper ones – are densely wooded, with blocks of ancient woodland and occasional plantations. Many field boundaries are species-rich and also of medieval origin.*
- *Redundant quarries and sandpits providing relatively rare standing water habitats.*
- *On the steep sides of the Malvern Hills are distinctive Victorian and Edwardian buildings. (Natural England, Oct 2012)*

Old Hills and the lowland commons and road verges to the east of the Hills all form a part of a second, larger National Character Area profile; 106 ‘the Severn and Avon Vales’ (Natural England, July 2012). This profile identifies the following as key characteristics that are relevant to this landscape chapter:

- *West of the Severn the Mercia Mudstones predominate, producing poorer silty clay soils. Lias clays in the Avon Valley and east of the Severn create heavy but productive soils. River terrace gravels flank the edges of watercourses.*
- *Woodland is sparsely distributed across this landscape but a well wooded impression is provided by frequent hedgerow trees, parkland and surviving traditional orchards. Remnants of formerly extensive Chases and Royal Forests, centred on Malvern, Feckenham and Ombersley still survive.*
- *Small pasture fields and commons are prevalent in the west with a regular pattern of parliamentary enclosure in the east. Fields on the floodplains are divided by ditches (called rhines south of Gloucester) fringed by willow pollards and alders.*
- *Pasture and stock rearing predominate on the floodplain and on steeper slopes, with a mixture of livestock rearing, arable, market gardening and hop growing elsewhere.*
- *Unimproved neutral grassland (BAP lowland meadow) survives around Feckenham Forest and Malvern Chase. Along the main rivers, floodplain grazing marsh is prevalent. Fragments of unimproved calcareous grassland and acidic grasslands are also found. (Natural England, July 2012)*

The Worcestershire landscape character assessment (Worcestershire County Council, 2012), Herefordshire landscape character assessment (Herefordshire Council, 2006) and the Malvern Hills AONB Management Plan 2019 and ‘Landscape Strategy and Guidelines’ (2011) break the national character areas down into landscape character types.

Six landscape character types are present on the MHT holding. These are presented below along with their key characteristics:

Table 8. Landscape Character Types

Landscape Character Type	Key characteristics and example site
High Hills and Slopes (units 7, 13, 20) Within AONB	<ul style="list-style-type: none"> • Dominant, steeply sloping highland topography. • Shallow mineral soils supporting extensive areas of acid grassland and heath. • Exposed character with panoramic views. • Unenclosed rough grazing land with few signs of human habitation. • Ancient Precambrian geology with numerous accessible outcrops. • Water spouts and springs. • Heavily wooded lower slopes. • E.g. North Hill
Unenclosed Commons (units 21, 23, 28, 29) Within AONB	<ul style="list-style-type: none"> • Unenclosed rough grazing land. • Impoverished, poorly draining soils. • Extensive areas of shrubby acid grassland. • Patches of scrub and secondary woodland. • Wayside dwellings, often red brick, located around the perimeter of the commons. • Small plots associated with dwellings. • E.g. Hollybed Common
Enclosed Commons (unit 12) Within AONB	<ul style="list-style-type: none"> • Gently rolling, lowland landform. • Impoverished, poorly draining soils. • A planned enclosure pattern of straight boundaries and roads. • Pastoral land use with some arable farming. • An open landscape with views through scattered hedgerow trees. • Strips of linear tree cover along watercourses. • E.g. land adjacent to Castlemorton Common
Urban	<ul style="list-style-type: none"> • E.g. Link Common
Principal Wooded Hills (units 4,5) Within AONB	<ul style="list-style-type: none"> • Varied, often steeply sloping landscape. • Ancient mixed geology with narrow bands of limestone. • Frequent, narrow wooded valleys, or dingles. • Large, interconnecting, irregularly shaped blocks of ancient broadleaved woodland. • Organic pattern of thickly hedged pastoral fields. • Patches of rough grassland and scrub. • Sparsely settled pattern of farmsteads and wayside dwellings. • Small limestone quarries. • Long-distance views framed by woodland. • E.g. The Hacketts

Principal Timbered Farmlands	<ul style="list-style-type: none"> • Low-lying rolling topography with occasional steep-sided hills. • Organic pattern of small-medium sized fields bounded by mixed species hedgerows. • Irregularly shaped woodlands of ancient character. • Filtered views through scattered mature, hedgerow trees. • Irregular network of winding lanes with thick roadside hedges. • Clustered pattern of farmsteads, rural dwellings and occasional small villages. • Traditional and commercial orchards. • E.g. Old Hills
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Landscape can be further investigated through the use of the ‘Worcestershire Historic Landscape Characterisation’ (WCC, 2012).

Dark night skies are recognised as a key part of an area’s tranquillity. Dark night skies have been mapped by the Campaign for the Protection of Rural England (CPRE). Their mapping shows that the northern & central hills and suburban commons are polluted by artificial light from nearby urban areas. The remainder of the estate has very little pollution producing high-quality dark skies with plenty of stars visible. One site within MHT’s estate has been identified as a great place for star-gazing, termed a ‘Dark skies discovery site’, at Mill Pond car park.

Work to protect dark night skies is undertaken by the Malvern Hills AONB partnership.

1.3.5 Cultural heritage

1.3.5.1 Archaeology

Mankind has had a long relationship with the Malvern Hills area. The dramatic landscape, natural boundary and source of spring water has given it special attention throughout time and this is still the case today.

The Hills we know today are a palimpsest landscape, meaning that signs of man’s activities from a range of different ages can still be seen today. The archaeological evidence for the use of the Hills through time, including landforms and artefacts, and inferences on the importance of the area to religious, spiritual and other cultural interests are discussed elsewhere, such as ‘The Malvern Hills An Ancient Landscape’ (English Heritage, 2005). The following text here describes what archaeological features can be found on MHT land.

Early prehistory and Neolithic periods are only represented by finds and no structures are known of so far. The first structures are from the Early Bronze Age, they are identified as two barrows or cairns found on the ridge of Pinnacle Hill. The barrows have been disturbed in more recent centuries, but would have originally been used as funerary monuments for the burial of the dead. These features are designated as a Scheduled Monument making them nationally important (Scheduled Monument reference number HE177).

Further evidence of Early Bronze Age activity was identified during excavations on Midsummer Hill Camp. These identified an earlier banked enclosure on Hollybush Hill predating the Iron Age hillfort and therefore of potential Bronze Age date. Similarly, the Shire Ditch is a well-known linear feature running along much of the length of the Malvern Hills ridge. While it was thought to be Medieval in age, recent research suggests it lies on top of an older demarcated boundary structure dated to the Late Bronze Age. The Shire Ditch is also designated as a Scheduled Monument (Scheduled Monument reference numbers HE 244 for Herefordshire and WT 244 for Worcestershire).

The two great Iron Age Hillforts of Midsummer Hill and Herefordshire Beacon/British Camp dominate the archaeological landscape of the Malverns, the first being in National Trust ownership and the second in MHT ownership. The hillforts have their own management plans written by Herefordshire Archaeology that detail the site features and management. These details are not repeated in this plan. Both hillforts are Scheduled Monuments (British Camp list entry 1003814). The scheduled area includes the pillow mound just to the south of British Camp hillfort. The hillfort management plans can be seen at: www.malvern hills.org.uk/hills-and-commons/cultural-heritage/

The Roman period left little in terms of fixed structures on MHT land. Roman artefacts have been found and their management of woodlands through coppicing, although much less widespread, is still undertaken today as at Park Wood.

The Medieval period saw the further development of Herefordshire Beacon with the addition of the castle ringworks, banks, bailey and ditches. It also saw the remodelling of the Shire Ditch as we know it today. *'Change throughout the Medieval period was profound...a heavily wooded landscape was cleared and cultivated in the 12th and 13th centuries'* (English Heritage, 2005). In this period small shrines and chapels were erected around the many springs by Holy people. In woodlands platforms for the burning of charcoal and sawpits also form part of the mediaeval legacy. It is thought that this time of settlement and cultivation may have resulted in the division of the Hills into management units.

Springs continued their importance into the post-Medieval period. Their fame as the 'water cure' attracted many visitors and saw the development of Malvern as a Victorian Spa Town. This increase in tourism initiated a suite of developments changing the character of the Hills. The construction of St Ann's Well pump room and octagon in the 19th century. This is protected as a listed building. Further Edwardian and Victorian structures include many of the surfaced paths and their associated drainage and walls, follies such as Clutters Cave, carriageways, lampposts, the toposcope, various water piping and storage structures including the now defunct artificial stream and waterfall near Tank Quarry. Tree planting, often involving non-native species, also took place as part of Edwardian and Victorian landscaping.

Not all of the archaeological features of the Hills and Commons are understood. Very little is known about certain features and it is highly probable that entirely new features await discovery.

1.3.5.2 Past land use

The very oldest ways in which man used the Hills and surroundings can only be inferred from archaeological remains. The area was certainly occupied in the Bronze and Iron Ages as evidenced by the settlements and burial mounds. With settlement came livestock, hunting and clearance that cut small swathes into woodlands. This continued into Roman times.

In 1080, all of the land within MHT's holding, with the exception of Old Hills, became a part of one of William the Conqueror's Royal hunting Forests through 'afforestation' (Forest meaning an area specifically concerned with the protection of deer and their habitats for royal hunting purposes, not an area of dense woodland). The King's Malvern Forest, with all the legal implications of that status, was to restrict development of an extensive area for the next 550 years (Hurle, 2007). The Royal Forest became a Chase (an area for nobility to hunt deer) in the thirteenth century and the area continued to be managed primarily for deer. Local people did eke out a living so long as it did not interfere with the deer and Forest law.

Clearance or development on Forest land required the King's permission, but both happened unlawfully through the centuries opening up the landscape further. Local people exercised common rights including collecting dead wood, catching fish and grazing livestock on the wastelands. Some minor arable land was also present. Clay was dug locally for pottery and construction.

The protected status of the land was removed in 1632 by Charles 1 through disafforestation. Charles II took a third of the former Chase to sell off as private land, leaving two thirds open and free to be used by local people and so the main land use changed from hunting for the elite to small-scale farming by local people.

For the last two centuries it is possible to be a bit more specific about land use.

The Malvern Hills saw changes to accommodate tourism particularly in the northern and central hills during the Victorian and Edwardian eras. Many paths were constructed including several carriageways, such as Lady Howard de Walden drive, used by walkers, donkeys and carriages. Some of these activities conflicted with the use of the same land for grazing hundreds of animals. Edwin Lees writes, in 1868, of Hills that were dominantly grassland. Unlawful encroachments and enclosures still afflicted the area, this coupled with increasing conflict between recreation and farming, led local people to take a Bill through parliament to protect the Hills and establish the Malvern Hills Conservators in 1884.

MHT staff regulated the grazing and other historic rights such as gorse and bracken cutting and took legal action on land theft.

In the twentieth century road building and quarrying became significant land uses. Modern roads including several busy B-roads now cut across or border much of MHT land. The Hills are crossed in four places and roads divide most of the flat commons too. Quarrying ceased in the 1970's and left a legacy on the land including many small

quarries and five large quarries. Commemorative tree plantings took place for aesthetic reasons, to hide quarry faces and for commemorations; Thirds Wood (a Larch plantation) was planted for Queen Victoria's Golden Jubilee.

Castlemorton and Hollybed Commons were much less in the tourist spotlight and these commons changed less, traditional grazing by commoners continues today. Localised gravel digging and pollarding occurred. During the Second World War parts were cultivated and grew potatoes and oats. These commons were purchased in the 1960's by MHT. Parts of Malvern Common were also ploughed in 1947 and local children were made to pick the potatoes.

The dominant land use of Old Hills, the roadside verges and the urban commons was livestock grazing, mainly sheep, by local people. This also included grazing by tethered horses.

Since the Second World War the amount of grazing has been in decline throughout the holding. The urban commons are no longer grazed and Old Hills sees just a few tethered horses. Livestock grazing on the Malvern Hills stopped around 1990.

With the decline in grazing and harvesting, new legal designations and a more environmentally conscious zeitgeist, the MHT have increasingly had to undertake alternative forms of conservation land management to conserve the landscape. Mechanical works and new projects have had to fill the hole left by the loss of grazing. A hay cut is now taken from Malvern Common, the verges and Old Hills. Controlled burning has also been used up until the 1980s.

Significant areas are now bracken rolled or mowed. MHT field staff and volunteers work to reduce and control invasive scrub and trees. Grazing has been reintroduced onto the Hills after funding was secured to support local graziers. The balancing act between recreation and maintaining the Hills and Commons and protecting against encroachment is just as challenging today as it has been in the past.



Castlemorton Common and the Hills, 1950.

1.3.6 People – stakeholders, access & recreation

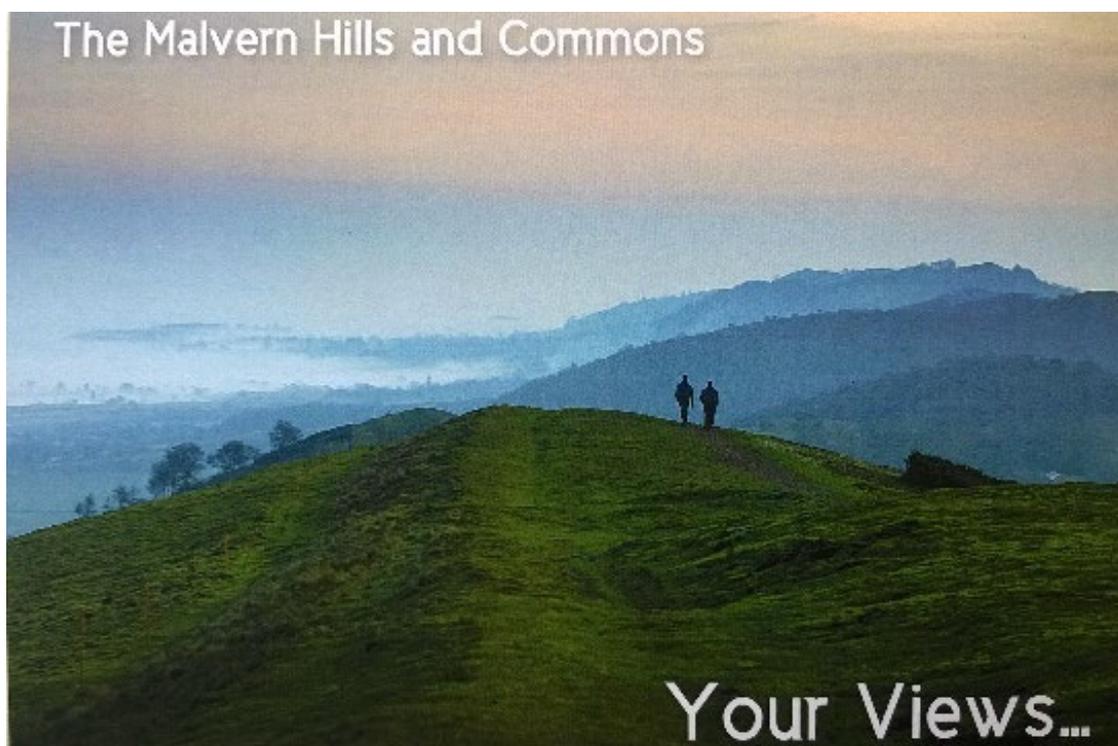
1.3.6.1 Stakeholders

The Malvern Hills and Commons are a large, complex and popular landscape that has a high number and variety of stakeholders (i.e. any individual, group, or community living within the influence of the site or likely to be affected by management decision or action, and also any individual, group or community likely to influence the management of the site (Alexander, 2008)). To manage the land successfully, stakeholders must be identified and worked with. They include:

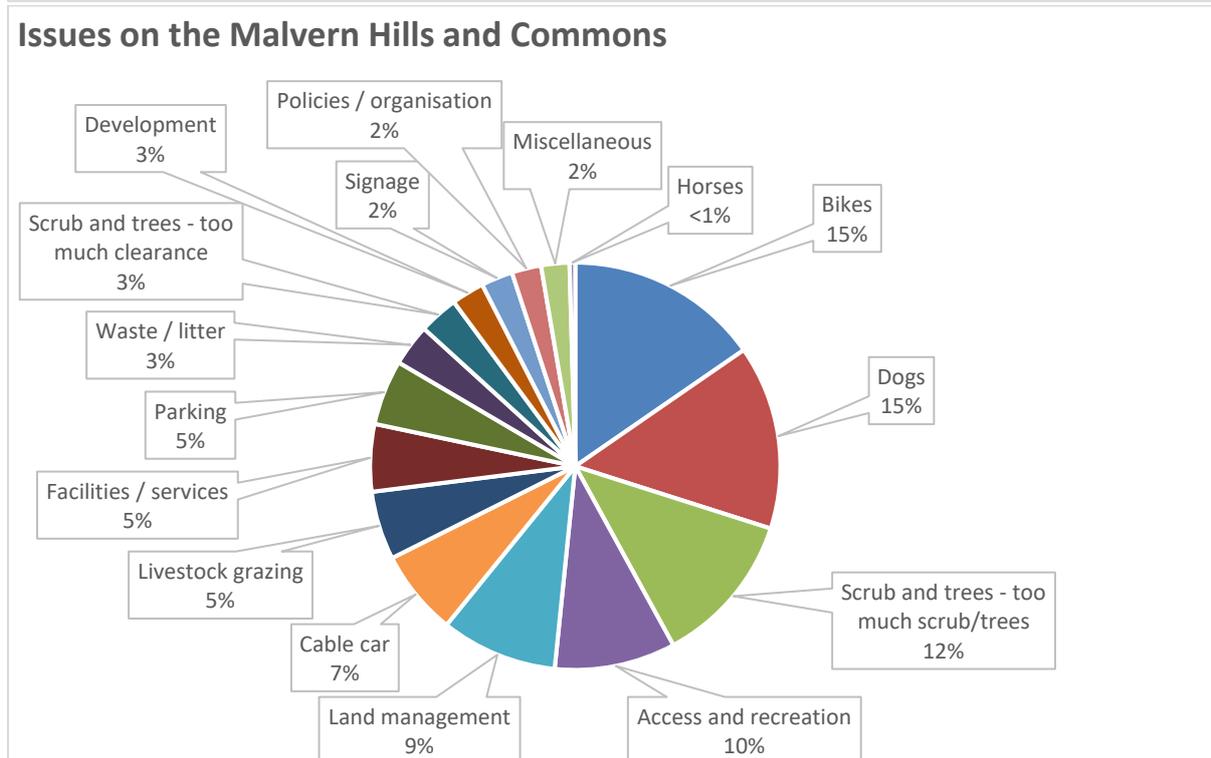
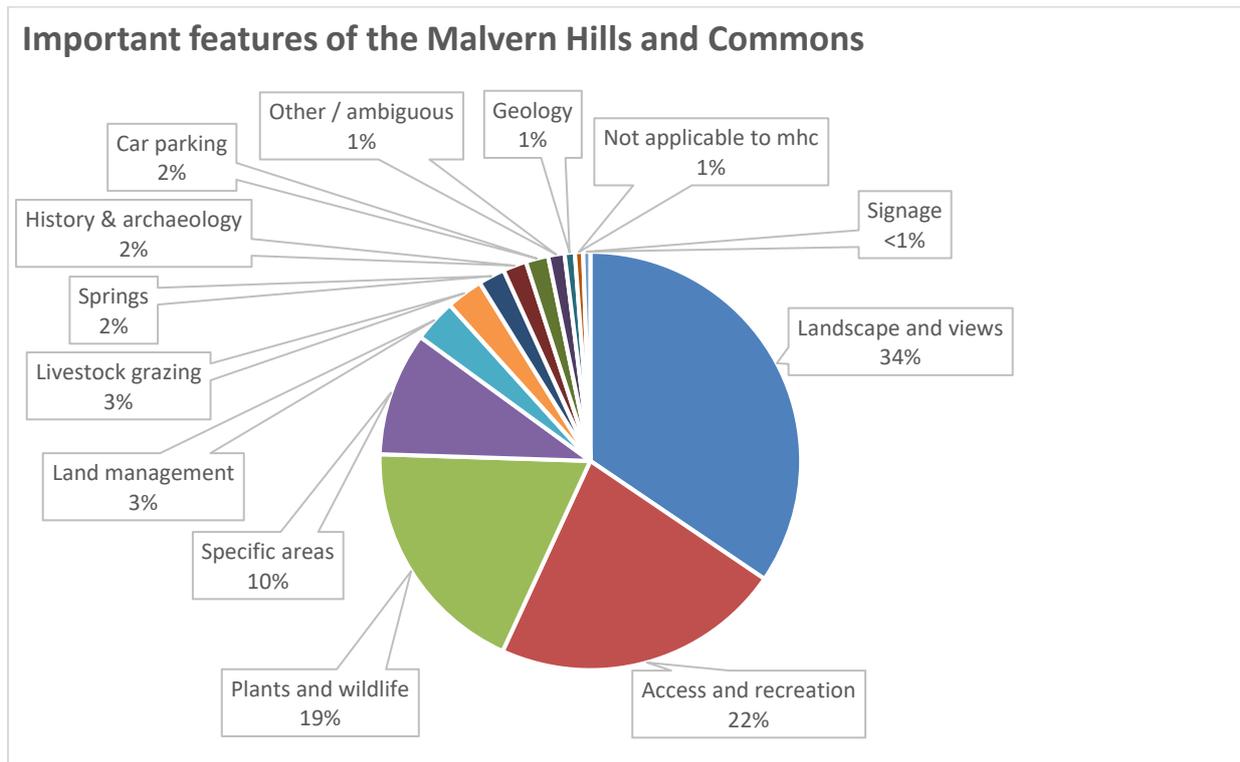
- Local residents, including precept payers
- People with Commoners' rights and the Castlemorton Common Association
- Visitors

- Graziers
- Local interest groups such as Malvern Spa Association, Beacon Camera Club, H&W Earth Heritage Trust, the Wildlife Trusts, Malvern Hills Arts and Crafts Guild
- Education institutes including Malvern College, Worcester University, Schools
- Recreation clubs e.g. Malvern Hang Gliding Club
- MHT Staff, Wildlife Panel, Recreation Panel, Board Members, Volunteers
- Utility companies including Severn Trent Water, British Telecom
- Councils and affiliates including Worcestershire County, Herefordshire, Malvern Hills District, Highways agencies, Land Drainage Partnerships, Parish Councils and Tourist Information Centres.
- Neighbouring landowners including Bromesberrow Estate, Eastnor Estate, the National Trust, Little Malvern Estate.
- Local businesses including shops, pubs, cafes, bed & breakfasts, hotels, walking tours, Malvern Outdoor Elements.
- Public bodies including the Rural Payments Agency, Defra, Natural England, Historic England, Environment Agency, Forestry Commission, Malvern Hills AONB.

The Malvern Hills and Commons are seen in many different ways and valued for many different things by a huge range of people. To help inform this management plan MHT ran a consultation in 2014 called 'Your Views'. This asked stakeholders to identify their top three important features of the Hills and Commons and their top three issues. 461 replies were received giving 1420 responses to the first question and 1122 responses to the second. The aggregated results of what stakeholders said are presented here in two pie charts.



Results of the 2014 'Your Views' consultation:



Stakeholders may also see the future of the Hills and Commons and its management in as equally diverse set of ways. Here is a selection of views...

"As bee keepers, my husband and I really value the diversity of flora on the hills and commons, especially the horse chestnut trees, lime trees and rosebay willow herb. The gorse is also good for its pollen. However, as we live closest to the Peachfield Road, Malvern Common we are disappointed in the huge swathes of bracken that have taken over in recent years. We would like to see this removed or at least reduced over the next few years.

Heather has been introduced on the hills and we would enjoy seeing more areas covered in the purple tones of heather.

Willow is good for nectar and pollen for all types of bee, so if some could be planted near the water courses on the commons that would be helpful as well as being attractive".

H.F., Malvern

"In 5-10 years' time I would wish to see the Malvern Hills free of tree encroachment on the upper slopes and well managed by grazing livestock. An increase in the acid grassland and bilberry/heather vegetation would be welcome and a reduction of bracken cover. It would be good to have strengthened populations of the rare and scarce plants and animals which live on the Malverns.

I would not wish to see the café rebuilt or a cable car or similar infrastructure erected on the hills – this would greatly detract from the natural beauty of the landscape".

H.W., West Malvern

"Management should be tree friendly. However, I am aware of the need for some control in certain areas. The visual effect, of tree clearance is quite depressing, this is particularly the opinion of some locals who find the tree shaded walk they do regularly is now an open area dotted with stumps where the trees once were.

Above a certain contour the grassland should be managed. If this contour is about where we currently have the tree line there will be less tree work to do.

There are areas where grass is extending down to lower levels. There should be an ongoing sapling removal project that could preserve the mature ash, birch and oak and the landscape trees. Trees should not be removed to 'open up the views' as this is not conservation".

S.P., Barnard's Green

"I would like to see the accessibility to the hills and commons remaining as open as possible to everyone who wants to enjoy them. They must be managed in a way that balances ALL the different recreational uses so that no one sector dominates and new uses can be accommodated. Regular critical review and feedback should be a fundamental part of the management plan and just because something did or did not work in the past should not be a reason for excluding it from review.

Health and safety should remain an important concern but should not be allowed to dominate how an area is managed. Incentives for, and education of the public should be encouraged to enhance the stewardship of the land (volunteering, open days, walks and talks etc.) and new technology should be embraced in achieving this wherever appropriate.

As a runner, good way-marking, properly maintained paths, stiles and gates, and clearly defined 'no go' areas, would be well received as would encouragement of dog walkers to keep their dogs under control and mountain bikers to respect other users of the bridleways".

J.P., Great Malvern

Neighbours and local residents are key stakeholders that both support and impact the Hills and land management works. Generally, the nearer a home is to MHT land, the more likely those residents are to use or affect the Hills and Commons in some way. Analysis of registered addresses provides the following demographics:

- The Hills and Commons have 1889 residential or commercial neighbours (addresses within 25m of MHT land). These are estimated to house 1123 dogs and 1443 cats.
- There are 14,488 residential properties / 33,322 people within 500m of MHT land.
- There are 17,969 residential properties / 41,328 people within 1km.
- There are 127,752 residential properties / 293,829 people within 15km.
- There are 503,126 residential properties / 1,157,189 people within 30km.

(Residential property data from Worcestershire County Council. Household averages from Office for National Statistics, May 2020)

1.3.6.2 Access and Recreation

The majority of the holding is easily accessible both in terms of getting to it and exploring the site once there. The Malvern Hills Acts determine that all MHT land is open to the public for recreation with certain constraints provided by the byelaws. Whilst walkers and horse riders may go anywhere cycling is only permitted on public bridleways or permitted routes. Areas can be excluded from public access for reasons of safety or conservation.

This large expanse of publicly accessible space means surrounding populations enjoy the highest standards of access provision in the county as shown in green infrastructure work by Worcestershire County Council (WCC, 2014).

The land is criss-crossed by public footpaths and bridleways (see Tenure). The Worcestershire Way long distance footpath finishes on the northern hills. Paths from Earnslaw, Beacon Road and Black Hill car parks and, following recent works, a circular route around North and Sugarloaf Hills, are all easier-access routes; allowing buggies and those who are less mobile to experience the quarries, lakes and views of the Hills.

Access is facilitated through the provision of access infrastructure including 22 car parks, bins, signage/interpretation and land management that maintains footpaths and keeps the land open. Three public toilets are available at the Herefordshire Beacon (maintained by Herefordshire Council), the Wyche Cutting (owned and maintained by Herefordshire Council but on MHT land) and near St Ann's Well. A private café business is run from the MHT owned building at St Ann's Well.

Because the land can be readily accessed at any place and any time, gaining an understanding of the amount of people accessing the land is difficult. No specific measures are in place to count the number of users but it is possible to gain some understanding of numbers and trends through proxy indicators.

Information collected in the 2018 visitor survey included details about the average group size and the frequency of visits. The estimated number of visitors have been calculated using these figures and data on the number of car park tickets and passes purchased per year:

	Estimated number of visitors per year			Average
	2016/17	2017/18	2018/19	
Pay and display visits				
British Camp	70,303	69,702	71,024	70,343
Black Hill	18,124	15,315	15,072	16,170
Beacon Road	12,448	15,883	18,364	15,565
Gardiners Quarry	10,032	7,909	6,871	8,271
Earnslaw Quarry	11,101	10,402	9,642	10,382
North Quarry	11,045	10,454	11,456	10,985
West of England	6,250	4,555	5,380	5,395
Swinyard	2,906	4,056	3,792	3,585
Jubilee Drive	2,427	3,046	2,864	2,779
Total	144,636	141,322	144,456	143,474
Pass visits				
Residents Passes	939,051	849,126	839,354	875,844
Annual Passes	79,807	80,230	93,600	84,545
Total	1,018,858	929,356	932,954	960,389
TOTAL VISITS	1,163,494	1,070,678	1,077,419	1,103,863

Anecdotal evidence from long-serving staff concurs that these are the busiest car parks. Staff also identify those busiest parts of the holding as: the ridgeline of the Hills, Gullet Quarry, the Mill Pond, Old Hills, Worcestershire Beacon and Herefordshire Beacon. Those doing longer walks and sponsored walks tend to walk the ridgeline with a resultant eroded trail running along the ridge. In contrast, the southern hills and several of the smaller sites such as Bowling Green Meadow are much less visited. Numbers clearly vary through the year with summer and bank holidays being particularly busy times.

From the most recent visitor survey in 2018 the majority of people visiting the Hills can be classed as on local day trips, (60 %).

Most visitors tend to spend 2-3 hours on the Hills. The majority (85 %) of respondents were repeat visitors with 25 % reporting that they visited weekly and 28 % visited monthly. One in 10 respondents visited daily. This, suggests that a large number of visitors are local. Those visitors travelling further to reach the Malvern Hills would be expected to spend more time on the Hills.

Further data relating to other visitor demographics such as age, ethnicity are not currently held.

The majority of visitors travel by car/van/motorcycle (88 %) or walk (8 %) from their homes. Road and rail networks are numerous and capacious surrounding the northern and central hills. Here too coaches are able to park. Whereas the southern hills, Castlemorton

and Hollybed Commons are served by fewer roads and no railway station and there are no MHT car parks large enough for coaches.

For information about visitors to the wider area please see: [Malvern Hills and Commons Visitor Survey 2018 report](#).

The Hills and Commons are used for a large range of recreational activities by people. These include the legal activities of:

- Walking (including group walks and sponsored walks)
- Dog walking
- Mountain biking
- Horse riding
- Hang gliding / paragliding
- Climbing
- Jogging / running
- Orienteering / geocaching
- Foraging (blackberries etc.)
- Fishing
- Photography
- Barbeques / picnics
- Hunting / ferreting (only with authorisation)
- Arts/painting/crafts/music
- Model aeroplane flying
- Birdwatching / natural history
- Scuba diving (only with authorisation)
- Snow and grass sledging
- Yoga / Tai chi
- Research and study
- Kite flying

It also includes the unlawful activities of:

- Swimming (an offence under the bylaws)
- Camping (an offence under the bylaws)
- Drone flying

Many of the legal activities shown above, are done as part of a group or society and several of these are represented on MHT's Recreation Advisory Panel. One particularly notable event that is now a part of the area's culture is the annual well dressing event run by the Malvern Spa Association.

1.3.6.3 Interpretation and Education

Interpretation

Leaflets produced by MHT provide some information for visitors and are available from the local Tourist Information Centres and the MHT office. The majority of these publications are also available on the MHT website. There are specific interpretation publications relating to easier access trails on the Hills, open access, walking trails, and management of the Hills and Commons. Codes of conduct are also available providing information for use of the Hills. A 'Good Neighbours' Guide' has recently been produced and distributed to all local residents in 2018.

The MHT website has a large array of information including the Acts of Parliament, byelaws, latest news, recommended walks, survey information etc.

www.malvern hills.org.uk

Social media accounts (Facebook and Twitter) provide information in brief every week.

<https://twitter.com/malvhillstrust>

<https://www.facebook.com/MalvernHillsTrust/>

Several QR (quick response) codes are present at popular localities. They provide local information to certain mobile phones. They are not provided by MHT.

Interpretation boards are also present at a number of the main car parks around the Hills. The majority provide a small amount of information relating to the Malvern Hills Trust, a map, and information concerning the features of interest or history of the area. For example, interpretation at Park Wood provides some information on the history of the lime kilns and the management technique of coppicing within the woodland. Some areas such as Old Hills and the urban commons do not have any interpretation provisions. Much of the interpretation has been re-done in the last couple of years and several more will be updated soon.

Education

The holding is readily used by many schools and other educational bodies. While some information is provided as above, there is no bespoke educational material.

A small area of woodland above Westminster Bank is currently used as a 'forest school' by St James C of E Primary School for outdoor teaching and learning.

An annual programme of public events organised by MHT in 2013 onwards offer guided walks and training using local experts and MHT staff. These are well attended every year.

Students from Worcester University, and occasionally universities elsewhere in the country, make requests to complete their research and thesis on the Hills and Commons. Typical focuses of study are the environment, land management and archaeology.

Boundless Outdoors, West Malvern, uses some areas of the Hills for teaching school and adult groups from the West Midlands area. Outdoor activities include abseiling, climbing and orienteering.

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