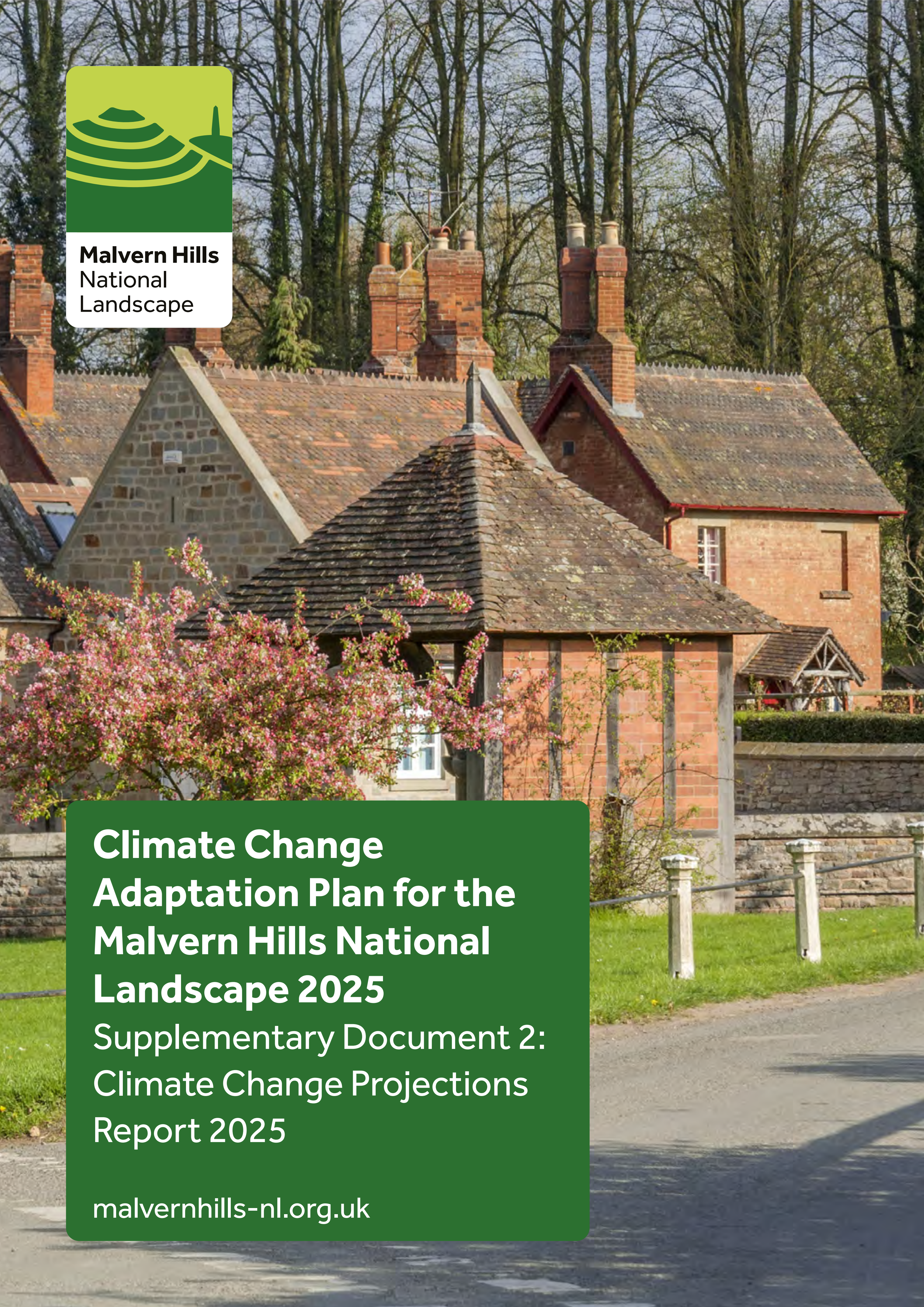


Malvern Hills National Landscape

Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025

Supplementary Document 2: Climate Change Projections Report 2025

malvernhills-nl.org.uk

Report information

Title: Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025: Supplementary Document 2: Climate Change Projections report 2025

Version: Final, March 2025

Customer: Malvern Hills National Landscape Partnership

Project Manager: Morgan Roberts (SWM)

Report Author: Morgan Roberts (SWM)

Project Contributors: Alan Carr (SWM) Louis March-Smith (SWM), Paul Esrich (MHNLP), numerous stakeholders and consultees who contributed to the development of the Plan.

Quality assured by: Alan Carr (SWM)

Disclaimer: This report represents the independent advice commissioned from Sustainability West Midlands and partners and not necessarily that of the funders.

Front cover image: Eastnor Village © Canva Kodachrome25

About Sustainability West Midlands

Sustainability West Midlands (SWM) was established in 2002 as an independent, not-for-profit company and our purpose is to help the West Midlands become more sustainable, greener and fairer for all.

Our vision is that the West Midlands is leading in contributing to the national target of Net Zero greenhouse gas emissions by 2050 whilst addressing health inequality and driving inclusive growth. We monitor the West Midlands Sustainability 2030 Roadmap which acts as a framework that all organisations based or operating in the region can use to help them make changes to their activities in the knowledge that they will contribute to wider regional ambition.

SWM's support our members and other local stakeholders in the public, private and third sectors to implement these changes by enabling them to demonstrate innovation and leadership and provide opportunities to collaborate and celebrate success.

www.swm.org.uk

Registered company No.04390508

Contents

Figure 1. Horses in the MHNL. ©pjmalsbury via Canva

1. Introduction

This document is a supplementary report to the Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025.

Other documents related to this project are:

- Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025.
- Supplementary Document 1: Detailed Methodology.

The purpose of this report is to provide information on the current climate and analyse how the climate may change in the Malvern Hills National Landscape in the short, medium and long-term future. Changes in climate can result in hazards including heatwaves, droughts, storms, heavy rainfall and subsequent flooding, and overall climatic variations, and so by building a picture of the change expected in the MHNL, we can better predict the likelihood and severity of impacts. As such, this work has been used to inform the climate change risk assessment and therefore the action plan in the aforementioned Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025.

The UK Climate Projections 2018 (UKCP18) guidance on Global Warming Levels shows us what average global temperatures we are likely to experience at different time periods from now to beyond 2100. The Met Office also provides information on how different levels of global average temperatures are likely to impact local weather and climate with data for the whole UK, broken up into 12km grid squares. These two sources of information have therefore been used to produce a series of climate change projections for the MHNL in the short-, medium-, and long-term future. An overview of the information used, and a full methodology, can be found in Annex A.

The key aspects of the climate that have been analysed for this project include temperature and precipitation changes, but also data made available by the Met Office that show various 'High Impact Weather Changes' that are most relevant to the MHNL. Explanations for each feature analysed, as well as headline findings and what this may mean for the risks and impacts for the MHNL, can be found in the forthcoming climate summaries. Unless otherwise stated, all data are from the Met Office UK Climate Projections (UKCP).

2. How is the climate in MHNL already changing?

In the Malvern Hills area, a long-running local weather station provides data reflecting the nature and pace of change. The wettest year since recording began in 1889 is 1924 (1,083 mm) and the driest is 1921 (469 mm). Until very recently the data do not show a trend towards more or less rainfall.

However, temperature records show more definitive trends. The average annual temperature is now about 1.3°C higher than a hundred years ago. There has been a notably warm spell in recent years, reaching a peak in 2022, where new records were set in across the UK. In Malvern, a temperature of 37.1°C was reached in July, (1.3°C above the previous record set in August 1990), and the mean temperature for the whole year was 12.02°C (0.36°C above the previous record, also set in 1990). Some examples of how these numbers translate into real-world impacts in or near to the MHNL are outlined below.

Case study: Wildfire on the Malvern Hills, July 2018

Disposable barbecue the cause of Malvern Hills wildfire with firefighters continuing battle at site

3rd July 2018, Worcester

Figure 2. Wildfire on Malvern Hills, July 2018

Figure 3. Wildfire on Malvern Hills, July 2018. © Dave Throup Flickr

On 2 July 2018, a fire broke out on the Malvern Hills started by a disposable barbecue, exacerbated by the high temperatures and dry conditions leading up to the event. Five acres of land were burned on both 2 and 3 July. The location on the Hills was typical considering the dry acid grassland, which is particularly vulnerable to catching fire, but this location also made combatting the fire extremely difficult. Bringing water up to this height to put the fire out created a significant challenge, with the fire service needing ten pumps to put out the blaze.

Case study: July Floods of 2007

In 2007, Worcestershire, Herefordshire and Gloucestershire each broke new records for the wettest summer recorded. Homes, businesses and farms were inundated with water, some of which had never flooded before. There were incidences of schools and care homes being evacuated.

Figure 4. Flooding in Credenhill, Herefordshire in 2007
© Dave Throup Flickr

Flooding on roads meant some towns or villages were extremely difficult to get in or out of, such as Ledbury and Colwall, or cut off entirely. High volumes of traffic made it difficult for people to reach home, work, or to collect children, such as was experienced at a nursery in Malvern where teachers looked after children in their own homes as parents were delayed reaching them.

Other than direct flooding, disruption came in the form of the traffic disruption described, power outages, and half of Gloucestershire's population having their water cut off due to flooding of a water treatment centre.

Many of the watercourses at the north of the NL were decimated, with the inundation of water completely changing the shapes of the brooks in the long-term, impacting nature and the landscape character.

3. Future climate change projections for MHNL

3.1 Overview

Future climate projections for the MHNL area show that average temperatures in the winter and in the summer are likely to continue to increase; summers may be around three degrees higher than the present day by the 2050s the next four decades, compared to an increase of one degree over the previous four decades.

Future projections also show that, as in many areas of the UK, MHNL is likely to experience wetter winters and drier summers in the National Landscape. Whilst these changes may not happen as rapidly as rising temperatures, in the long-term (looking to the 2080s), we can expect around 20% more precipitation in the winter months than we currently experience, but conversely in the summer we can expect anywhere from 20 to 40% less precipitation than present day. Hotter, drier summers and warmer, wetter winters shown in the results below could result in more intense and unpredictable flooding, more frequent and severe heatwaves and droughts and storms more extreme and damaging.

We are likely to see hotter, drier summers and milder, wetter winters in the MHNL.

To plan and deliver effective adaptation, the frequency and intensity of these events should be continuously reviewed as they occur to ensure adaptation measures are suitable for the actual changes experienced. The projections outlined above should be re-analysed regularly, perhaps with every management plan review, and/or when the Met Office release a new suite of projections or updated data. Table 1 shows a summary of the key data shown in this report.

Table 1. Summary of the key changes that MHNL is likely to experience in the coming decades

Factor	Baseline (1981 – 2000)	Future if global temperatures rise by 3°C (likely by 2080s)	Difference between baseline and 2080s
Annual temperature	10.27°C	12.83°C	+2.56°C
Summer temperature	16.38°C	19.45°C	+3.07°C
Winter temperature	4.74°C	6.80°C	+2.06°C
Summer precipitation	1.64mm	1.22m	-26.1%
Winter precipitation	1.99mm	2.24mm	+12.5%
Days per year above 25°C	16.7	54.5	+37.8 days
Nights per year above 20°C	0	0.7	+0.7 days
Annual Growing Degree Days	1993	2755	+38.2%
Drought Severity Index	7.2	14.3	+98.6%

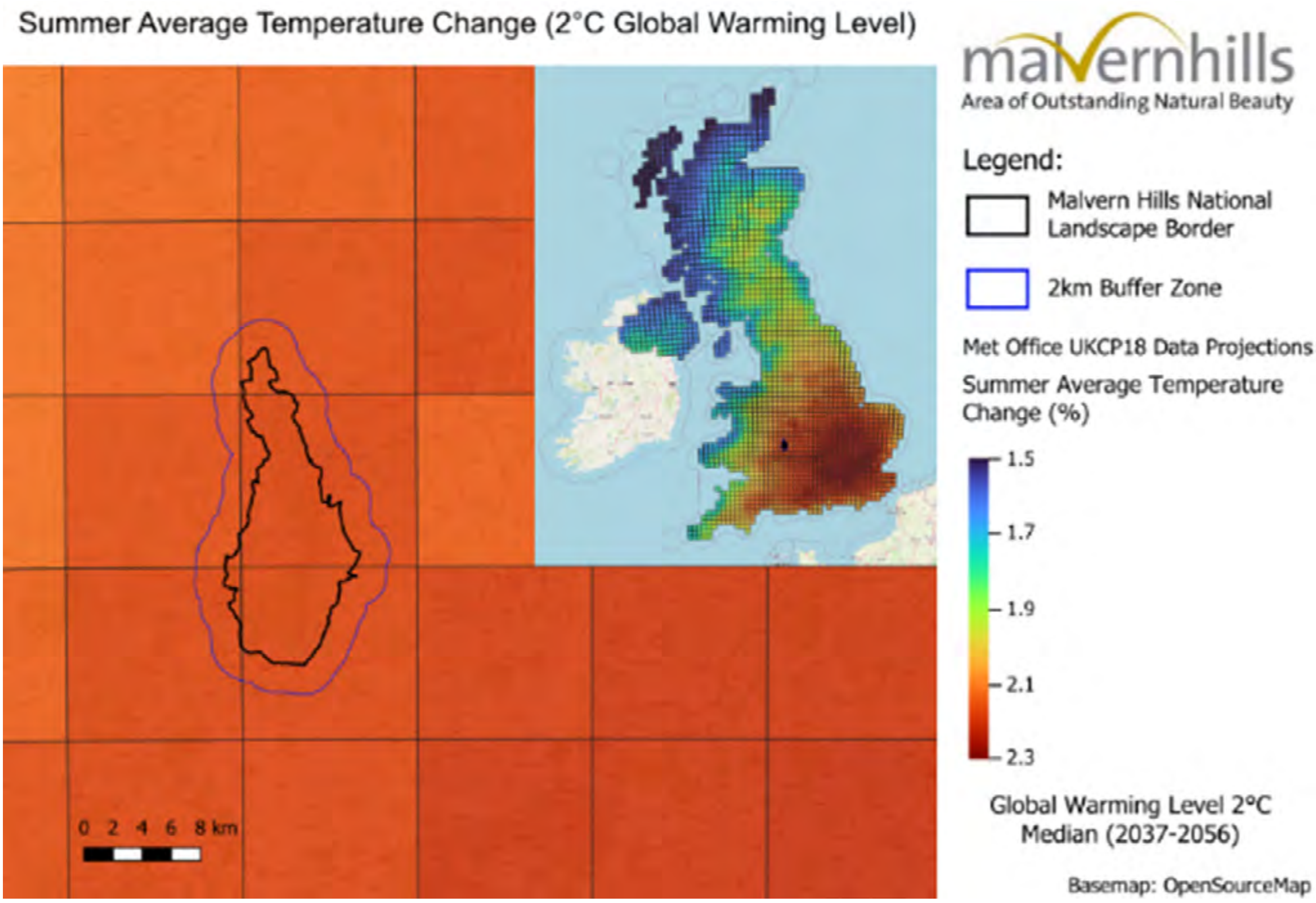
3.2 Temperature change

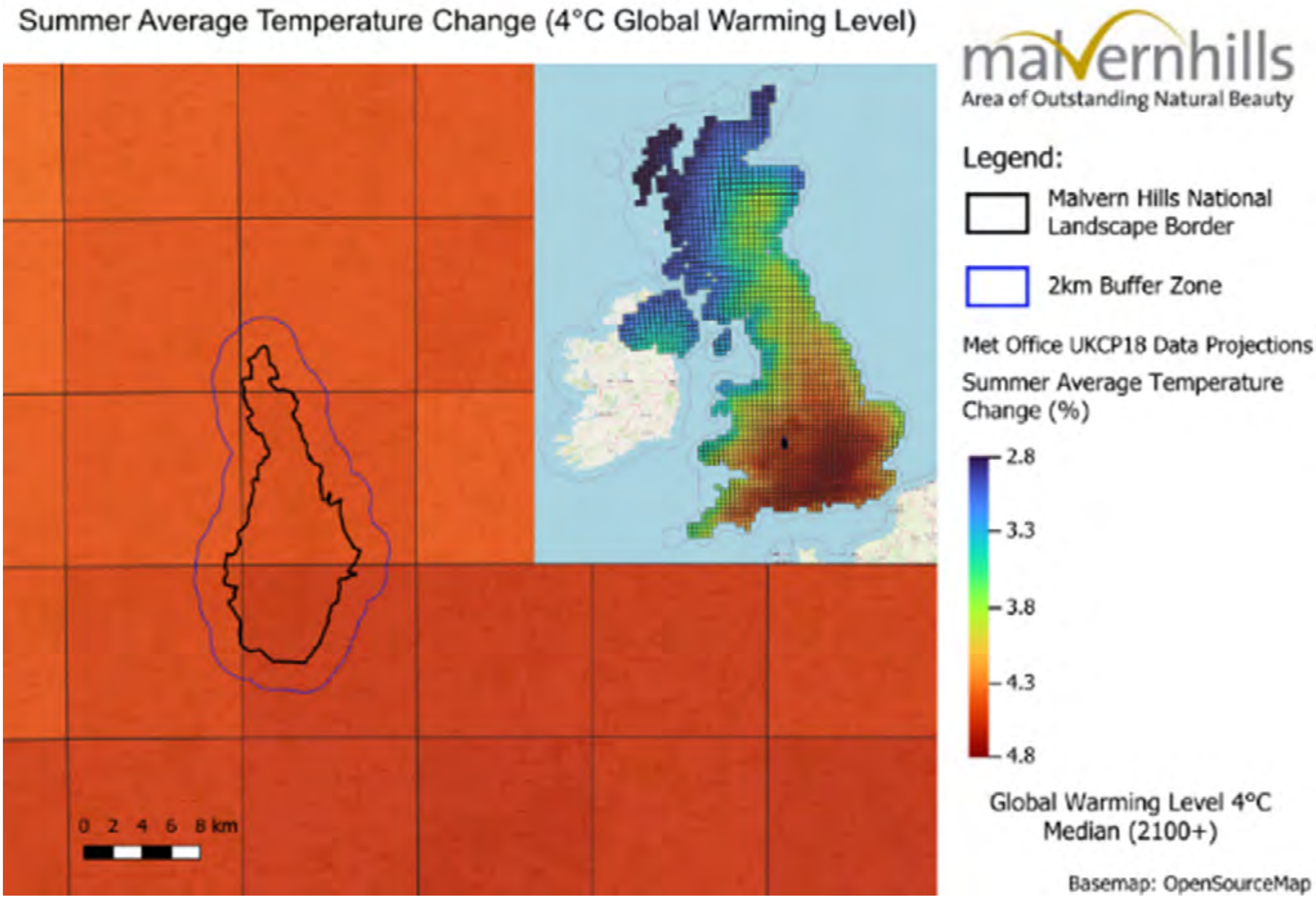
Data reflecting the MHNL area show that average temperatures are increasing annually and seasonally (summer and winter) and are likely to continue to do so. There has already been an increase in average temperatures of around one degree in the last four decades, but we may see summers three degrees higher than current day by the 2050s (see Table 2 below). The maps in Figure Error! Reference source not found. show MHNL is in one the areas of the country likely to experience the largest change in temperature in both the conservative (2 degrees of global warming) and worst-case (4 degrees of global warming) global emission scenarios.

The projections also show that this increase in temperature has already started to happen and adaptations should be considered that are effective from the present day.

Table 2. Temperature averages for the listed periods (annually, and for winter (Dec-Jan-Feb) and summer (Jun-Jul-Aug)). The top two rows in blue are recorded values and the bottom three rows are projected values. Source: Met Office UKCP.

	Winter average temperature (°C)			Summer average temperature (°C)			Annual average temperature (°C)		
Period	**Upper**	**Median**	**Lower**	**Upper**	**Median**	**Lower**	**Upper**	**Median**	**Lower**
Baseline (1981-2000)	4.74	4.74	4.73	16.40	16.38	16.37	10.27	10.27	10.26
Recent-Past (2001-2020)	5.80	5.36	5.16	17.91	17.51	17.28	11.27	11.04	10.98
Near-term (1.5°C by 2030s)	6.01	5.68	5.40	18.67	17.77	17.52	11.70	11.40	11.25
Medium-term (2°C by 2050s)	6.56	6.01	5.53	19.34	18.57	18.25	12.24	11.99	11.63
Long term (3°C by 2080s)	7.18	6.80	6.18	20.31	19.45	19.37	13.11	12.83	12.64





Figures 4a and 4b. Summer temperature change maps for a 2-degree global warming scenario (above) and a 4-degree global warming scenario (below). Source: Met Office UKCP.

Figures 4a and 4b above show maps generated from UKCP18 that show projected summer temperature changes using 12km grid squares. The MHNL boundary is shown with a 3km buffer around it to allow consideration for rivers and urban areas around the MHNL where extreme weather may have a knock-on effect on the MHNL from. It shows the grid squares that cover this area (as generated by UKCP18) and their respective values of projected average summer temperature change compared to the baseline of 1980-2000. Noting the difference in scale, the map at the top shows the projected change under a 2-degree scenario, and the map at the bottom shows the projected change under a 4-degree scenario.

Smaller maps of the UK are in the top-right of each Figure, showing the whole country using the same 12km grid square methodology. They show that MHNL is an area with one of the higher projected changes in summer average temperature nationally.

What do these figures mean for the MHNL?

In the summer, higher temperatures can exacerbate the frequency and intensity of heatwaves, posing health risks, especially for individuals with existing vulnerabilities, as well as risks to animal welfare. Whilst we may experience reduced heating needs in winter as it becomes milder, consideration for whether our residential, commercial and agricultural buildings are suited for higher temperatures can help reduce energy and financial costs as cooling demands in the

summer increase. Elevated temperatures can also result in water scarcity, a particular issue for water-intensive practices such as agriculture and put a strain on cooling systems and power grids, leading to higher energy costs and potential outages.

Some habitats and species rely on cold conditions and so may be disrupted by warmer winters, such as our native oak and other broadleaf trees which cannot germinate without a bout of cold weather, or pollinators such as bees who rely on specific climatic conditions at different stages in their life cycles. Additionally, fewer cold days can lead to increased survival rates of pests and diseases, which may negatively affect health and agriculture. Reduced snowfall and altered precipitation patterns could impact water availability.

As well as the specific impacts that come from hotter summers and milder winters, temperature change is critical for understanding the broader impacts of climate change, as consistent warming can lead to more extreme weather events, including storms and heavy rain. Infrastructure and communities in the MHNL need to be prepared for more intense and more frequent storms and the high winds and rain that come with them.

Monitoring these temperature changes allows stakeholders to prepare and adapt strategically to these evolving environmental conditions. Planning for these changes is crucial for infrastructure adaptation, improving food and economic security, managing health risks and maintaining ecological balances.

3.3 Precipitation Change

The data show that, as in many areas of the UK, the MHNL is likely to see wetter winters and drier summers.

Figures 5 and 6 show that, in the long-term, we can expect around 20% more precipitation in the winter months than we currently experience, but adversely in the summer we can expect anywhere from 20 to 40% less precipitation than present day. Figure 5 shows that, in the higher end of likely scenarios (reflected by the top of the red range bars on each point), changes in summer average rainfall would be minimal in the first half of the century, but then the drop by the 2080s would be dramatic. This demonstrates how important it is to look further into the future, and to regularly review these projections to ensure the MHNL is prepared for various scenarios.

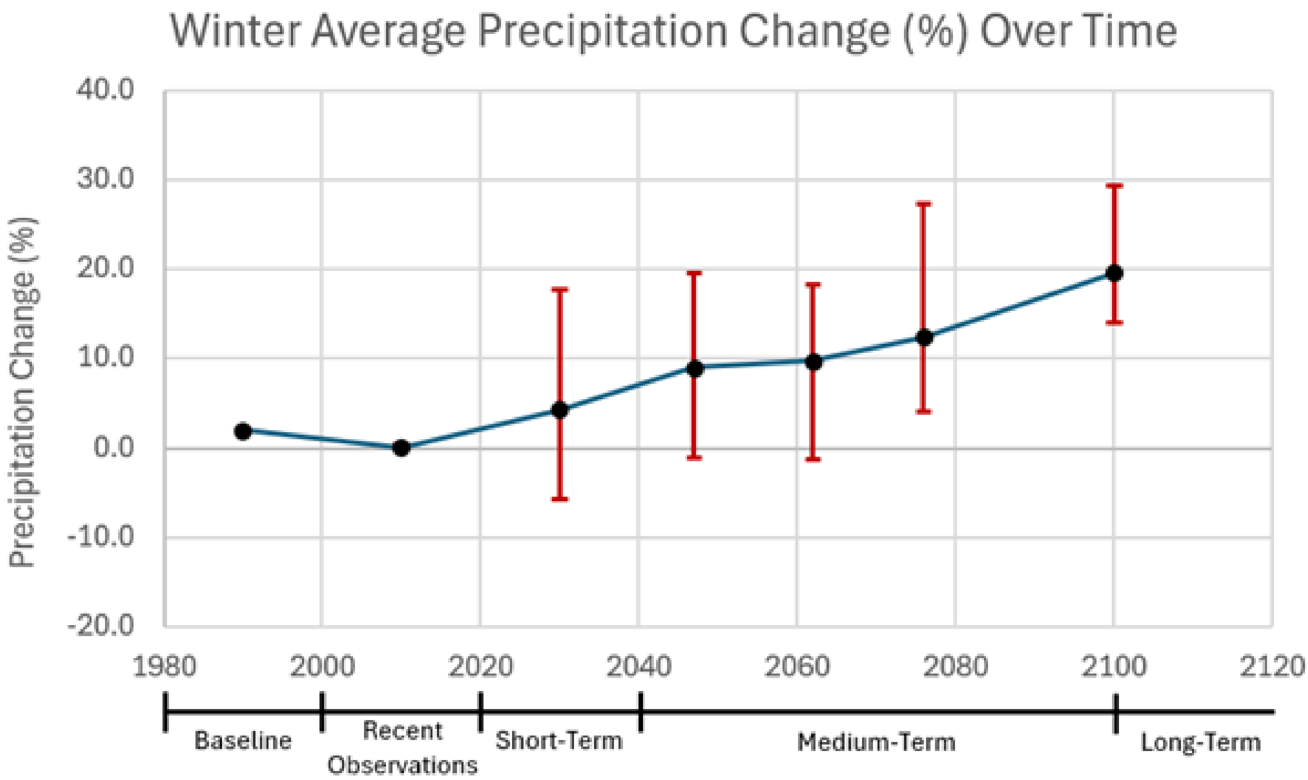


Figure 5. Graph showing the difference in average winter precipitation compared to recent observations for different time-periods in the MHNL, showing a steady increase between now and the end of the century where we are projected to experience around 20% more precipitation. Source: Met Office UKCP.

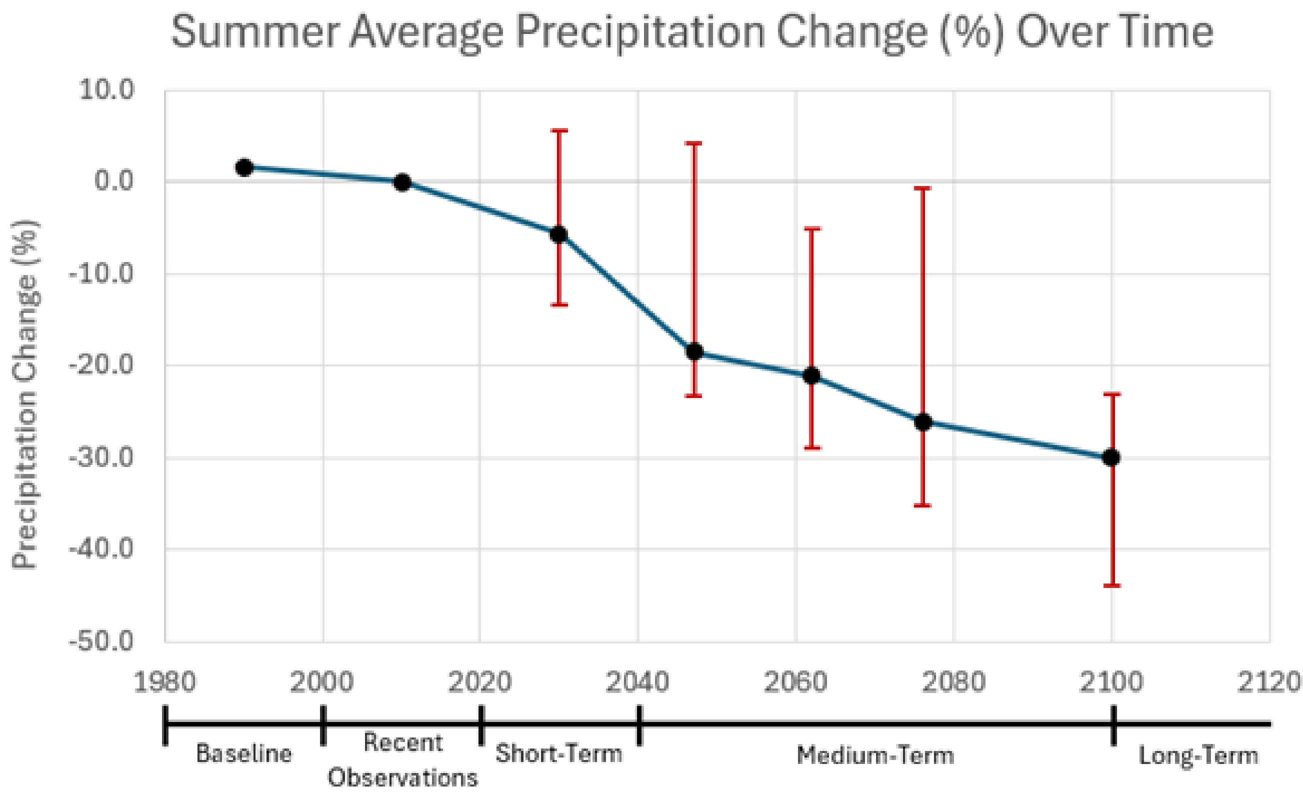


Figure 6. Graph showing the difference in average summer precipitation compared to recent observations for different time-periods in the MHNL, showing a decrease between now and the end of the century where we are projected to experience from 20 to 40% less precipitation. Source: Met Office UKCP.

What does this mean for the MHNL?

In the MHNL, land management affecting both the landscape and agriculture may be increasingly faced with the challenges of too much water in the winter and too little in the summer.

More frequent and intense rainfall events during winter months can overwhelm drainage systems, flood roads and properties and alter soil conditions, affecting crop planting and nutrient uptake. Waterlogged land can make planting unviable or kill existing crops and wildlife/plants, and the quality of our water is at risk due to agricultural run-off of pesticides and fertilisers and an increase in turbidity from soil erosion. Increasing pressures on agriculture from climate change resulting in an increase in pesticide and fertiliser use only exacerbates this issue. The dry acid grasslands at the top of the Malvern Hills are, by definition, vulnerable to erosion due to their upland location and free-draining soils overlying loose geological features such as acid rocks and sands. An increase in precipitation and heavy rainfall events could significantly accelerate erosion on these SSSIs and throughout uplands in the MHNL.

Effective adaptation plans for both excess rainfall and increased drought, including sustainable water storage and conservation practices as well as water management systems and flood defences, are all essential to mitigate these impacts and safeguard economic stability in the face of changing climatic conditions.

3.4 Days above 25°C

The 'days above 25°C' measure is formally known as the 'Annual Count of Summer Days' and is the annual number of days where the maximum daily temperature is likely to be above 25°C. Figure 7 shows that the number of days above 25°C are expected to increase in the MHNL; we may see around three times as many days above 25 degrees per year by the end of the century compared to the last few decades.

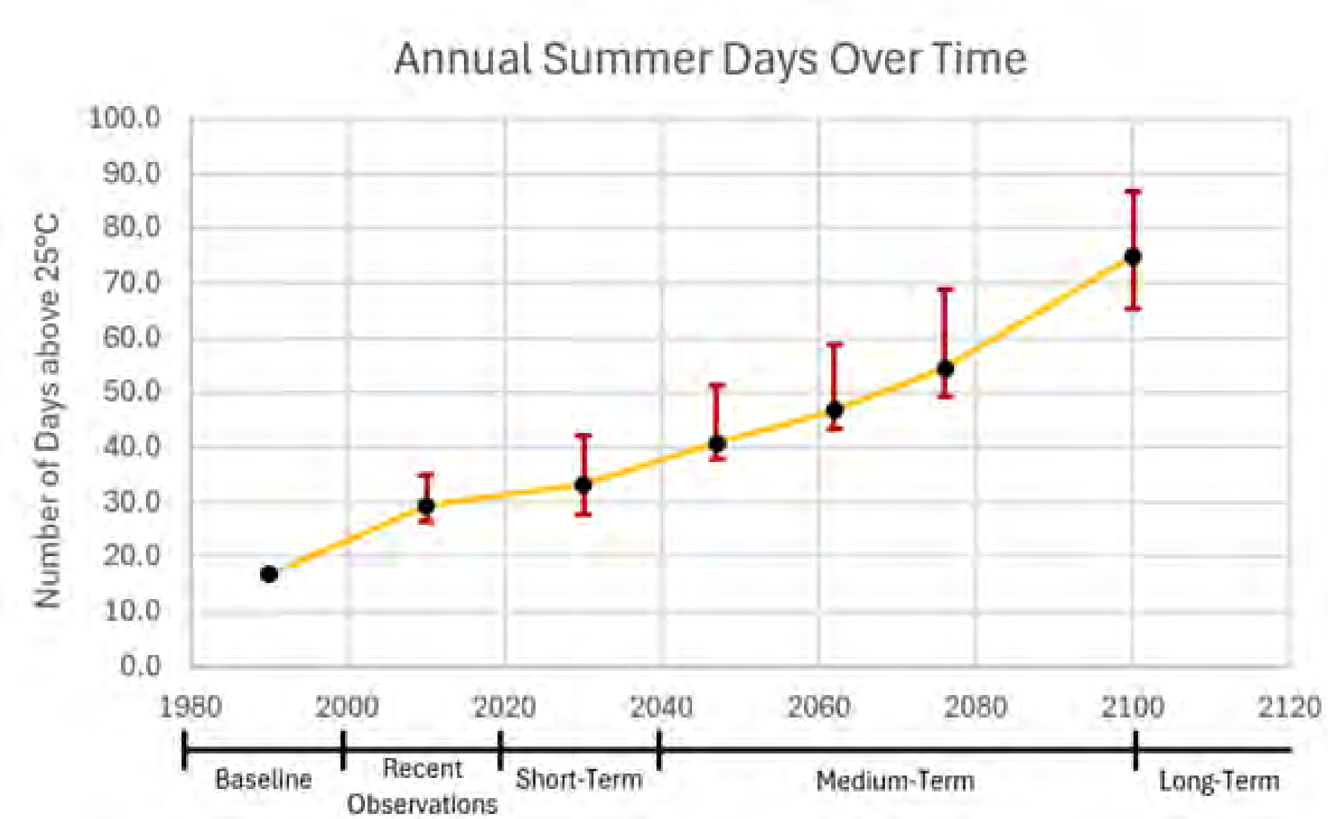


Figure 7. Graph showing the current and projected number of days above 25 degrees per year for different time-periods in the MHNL, showing a steady increase between now and the end of the century where we are projected to experience between 60 and 90 days above 25°C, compared to just 30 in recent observations. Source: Met Office UKCP.

What does this mean for the MHNL?

As the number of days above 25°C increases, there are likely to be increased heat-related illnesses (for people and for livestock), increased hospital admissions or deaths, transport disruption due to (e.g.) overheating of railway infrastructure, and damage to infrastructure from high temperatures. It is very important to note that these projections relate to external temperatures. People in residential properties or livestock in agricultural buildings are likely to experience much higher internal temperatures due to residual heat held in the thermal mass of the building. Buildings and outdoor infrastructure must take into consideration the risk of overheating going forwards to minimise these impacts.

3.5 Annual Growing Degree Days

Growing degree days (GDD) are a measure of heat accumulation across the year that help predict plant and animal development rates and therefore anticipate when different key events should occur during a growing season. A GDD considers the highest and lowest temperatures in a day and the temperature conditions a plant can grow in (but it does not consider other conditions such as moisture; see Annex A for more information). An actual day (24 hours) can contribute more than one GDD and so the annual sum of GDDs can be above 365.

Figure 8 below suggests a significant increase in the number of GDDs a year, projecting a gradual increase from the low 2,000s in recent decades to around 50% more at around 3,000 by the end of the century. The maps in Figures 9a and 9b show that the MHNL is in a region with a medium-to-high relative number of Growing Degree Days nationally, particularly compared to areas in the North of England and Scotland.

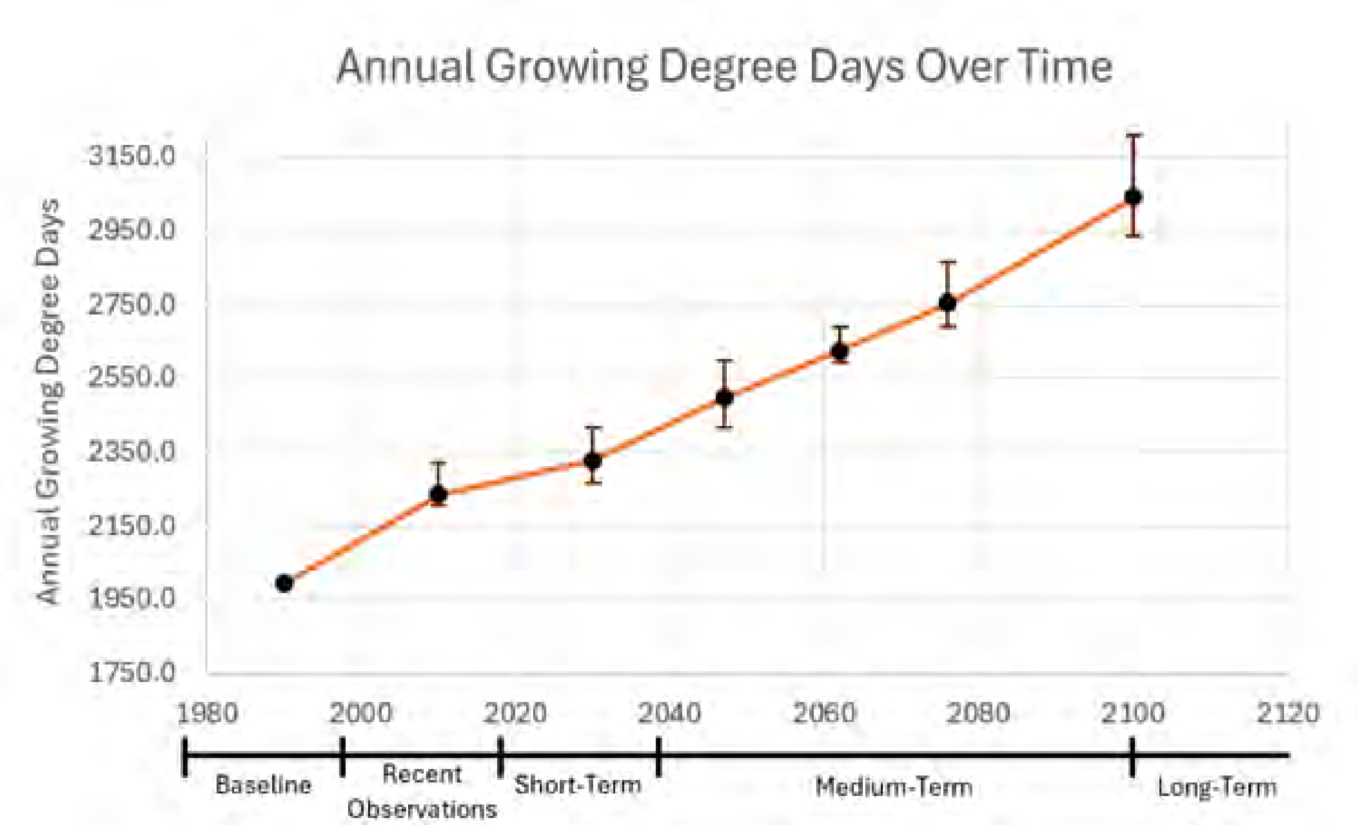
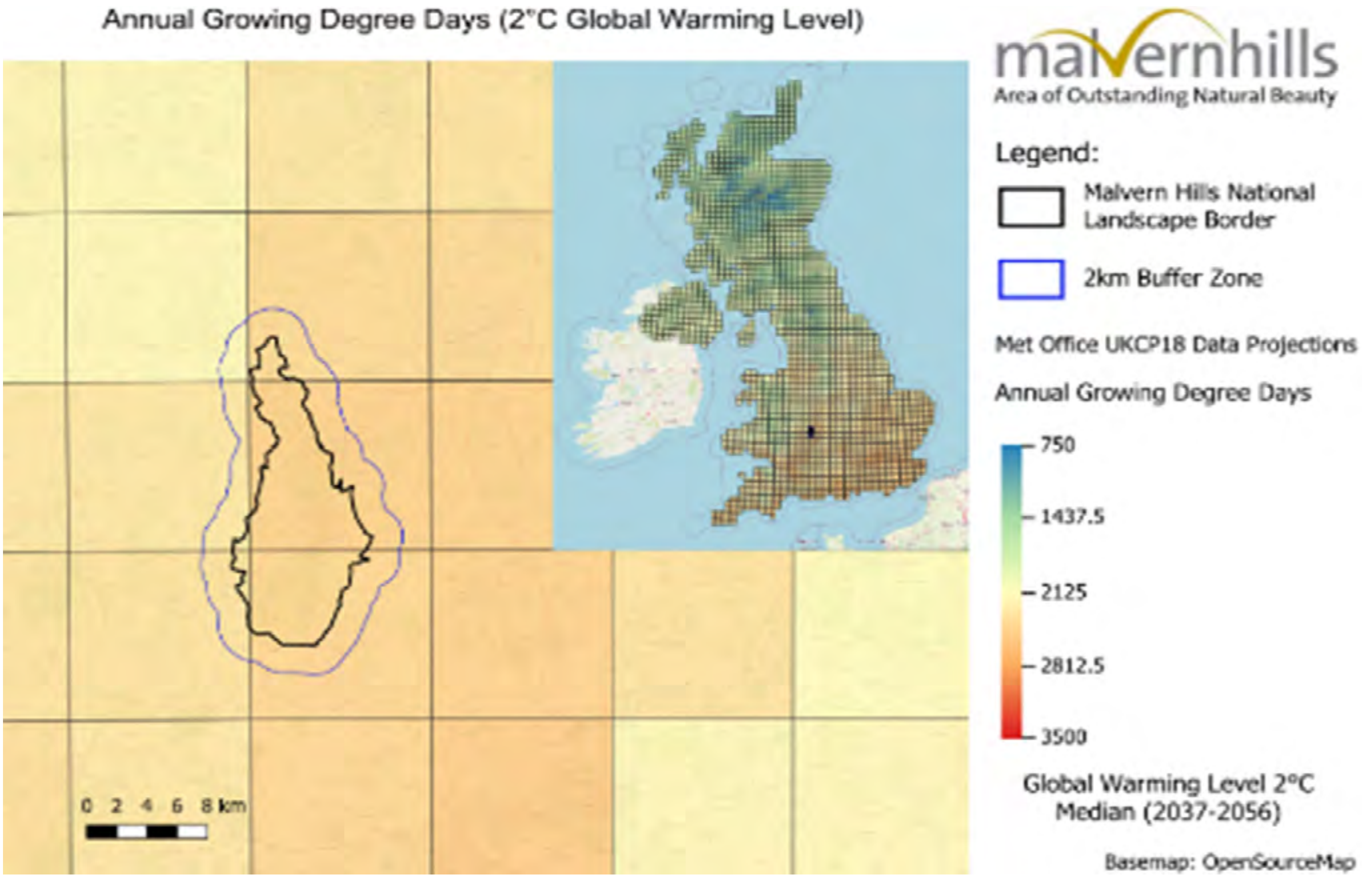
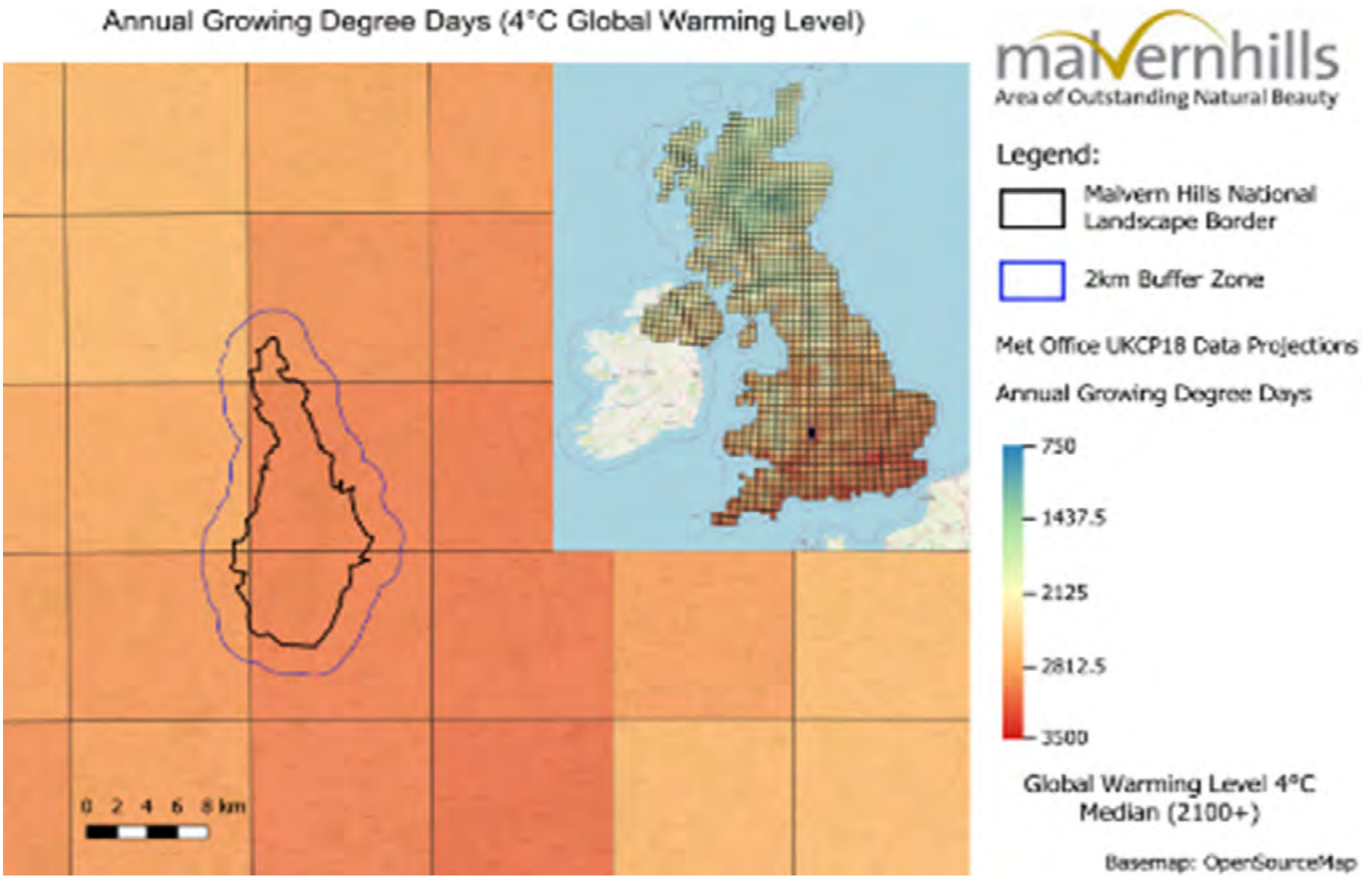


Figure 8. Graph showing the actual annual sum of Growing Degree Days in a year recorded or projected for the MHNL. The number of Growing Degree Days is projected to increase gradually from the low 2,000s in recent decades, to around 3,000 by the end of century. Source: Met Office UKCP.





Figures 9a and 9b. Maps showing the actual annual sum of Growing Degree Days in a year. Larger maps show the MHNL boundary with 12km grid squares, and top-right maps show 12km grid squares of the UK as a whole for comparison. Above shows projections for a Global Warming Level (GWL) of 2 degrees Centigrade, and below shows projections for a GWL of 4 degrees Centigrade. Source: Met Office UKCP.

What does this mean for the MHNL?

The data above suggest that there may be a significant increase in the conditions suitable for plant growth and potential for larger crop yields due to increased crop growth from warm temperatures, which will be of particular interest due to the high number of grasslands in the MHNL with respect to both maintaining landscape character and providing/maintaining grazing pastures for livestock.

This information must, however, be taken into consideration alongside all the other climate change projections in this section, as other factors such as water availability, soil quality and extreme weather will also have significant impacts on the viability of plant growth.

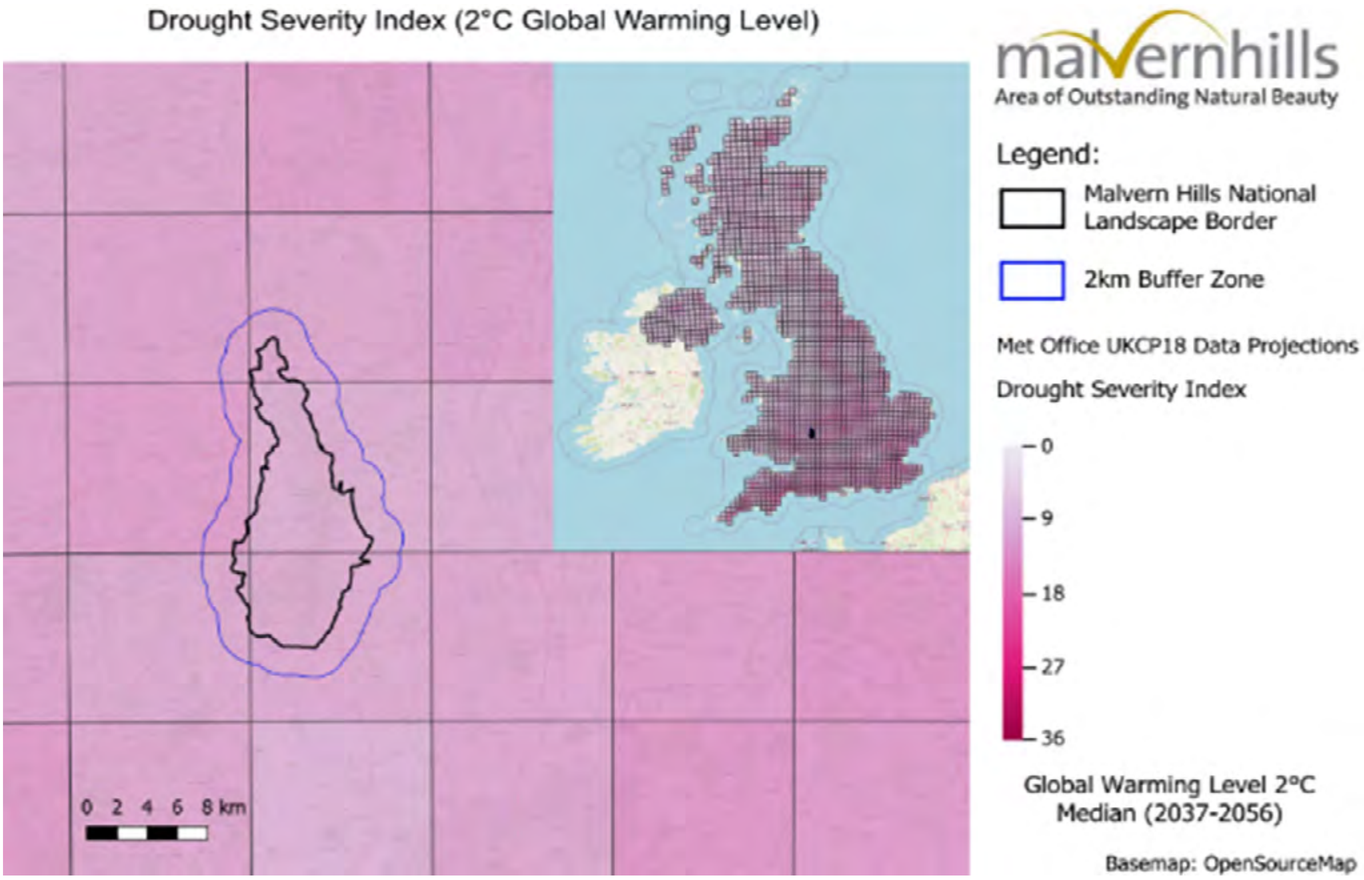
3.6 Drought Severity Index

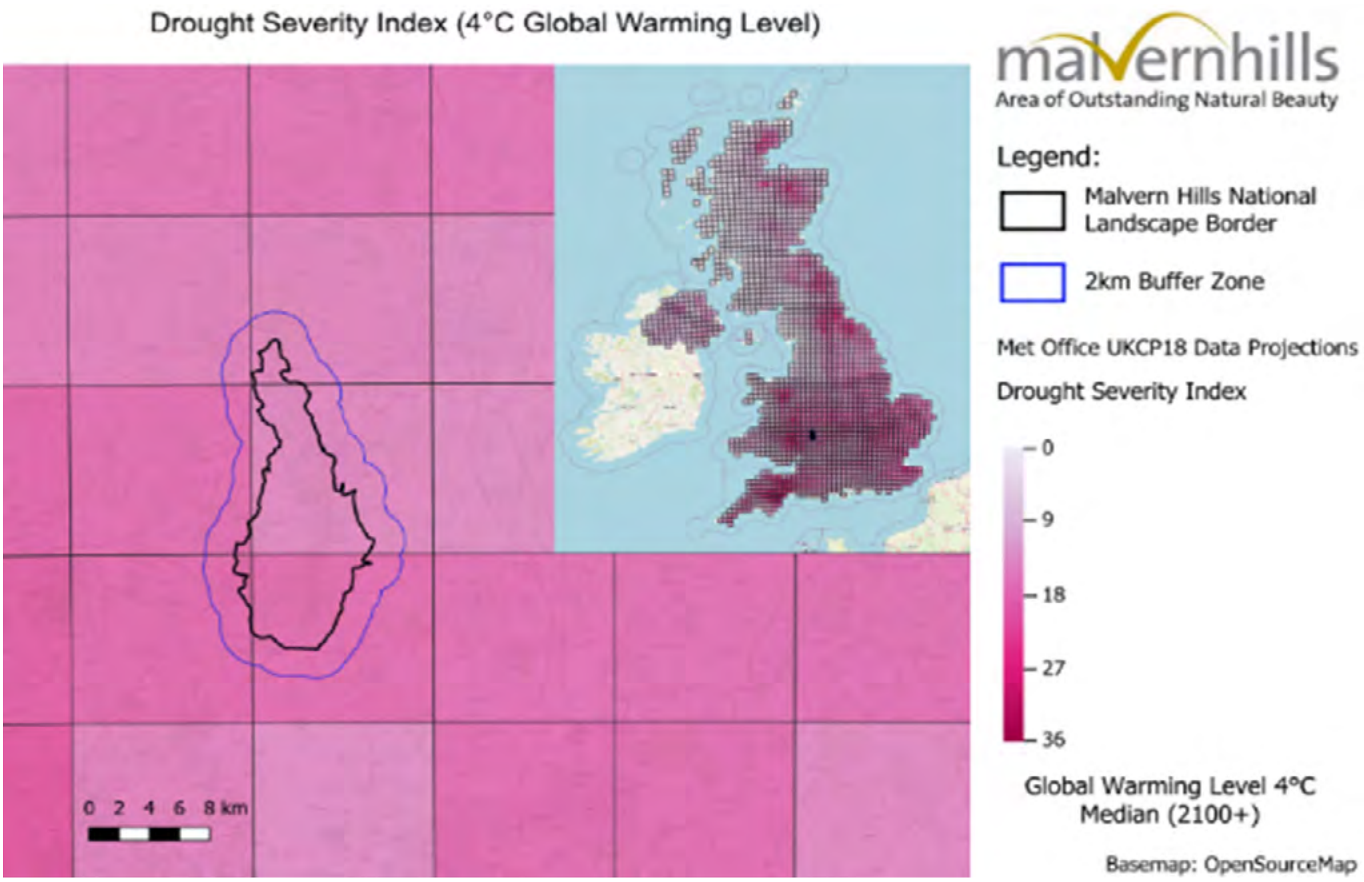
When we think of drought, we often think of agricultural or meteorological drought, which are periods of water scarcity usually lasting 3-12 months. When looking over a longer period of time, multiple smaller periods of water scarcity or drought accumulation can result in hydrological drought, which has more severe implications for water resources and the impacts of this. The Drought Severity Index (DSI) is calculated for a 12-month period and the data shown below indicates the severity (rather than the frequency) of hydrological drought.

Table 3 shows that MHNL has already experienced an increase in the DSI in recent years, and that water scarcity and drought will be at least as severe in future compared to the baseline in the 1980s-2000s, up to potentially more than twice as severe in future compared to recent decades. As with the Annual GDDs, Figures 10a and 10b show that MHNL is projected to experience levels of drought similar to much of Wales and the Midlands and Southwest of England.

Table 3. Average Drought Severity Index (DSI) values experienced or projected annually for the listed periods. The top two rows in blue are recorded values and the bottom three rows are projected values. Source: Met Office UKCP.

Period	Drought Severity Index		
	Upper	Median	Lower
Baseline (1981-2000)	9.0	7.2	6.0
Recent-Past (2001-2020)	15.1	8.0	6.0
Near-term (1.5°C by 2030s)	14.8	7.6	5.5
Medium-term (2°C by 2050s)	19.1	11.0	5.0
Long term (3°C by 2080s)	21.0	14.3	9.0





Figures 10 and 10b. Maps showing the average Drought Severity Index (DSI), with the darker pink the square, the higher the DSI. Larger maps show the MHNL boundary with 12km grid squares, and top-right maps show 12km grid squares of the UK as a whole for comparison. Above shows projections for a Global Warming Level (GWL) of 2 degrees Centigrade, and below shows projections for a GWL of 4 degrees Centigrade. Source: Met Office UKCP.

What does this mean for MHNL?

Severe droughts can lead to significant agricultural losses, water supply shortages and increased fire risks, all of which pose substantial challenges to economic stability and public safety.

People reliant on private water supplies of the NL, in particular throughout the Malvern Hills and Commons, will be particularly vulnerable to these instances, and agricultural productivity throughout the NL will also be at risk due to the water-intensive nature of the sector and the threats water scarcity poses to crop production, forestry and the welfare of livestock.

Significant depletion of water resources can also cause significant and sometimes long-lasting damage to the natural environment as habitats such as wetlands and around rivers and watercourses dry out. As groundwater is used to replace limited mains water supplies, there are risks of exacerbating these issues in natural habitats.

Utilities and the agricultural sector rely on accurate drought projections to implement water management strategies and mitigate the adverse effects on ecosystems and communities. Understanding this variable for the near- and long-term future is essential for developing responsive policies that enhance resilience to prolonged dry periods.

4. Closing remarks

It is clear that the impacts of extreme weather events could worsen over time in the MHNL, especially if the worst-case climate change scenarios (of reaching 4°C of warming globally) outlined in this report occur. Hotter, drier summers and warmer, wetter winters shown in Section 3 could result in more intense and unpredictable flooding, more frequent and severe heatwaves and droughts, and storms that are more extreme and damaging.

To plan and deliver effective adaptation, the frequency and intensity of these events should be continuously reviewed as they occur to ensure adaptation measures are suitable for the actual changes experienced. The projections outlined above should be re-analysed regularly, perhaps with every management plan review, and/or when the Met Office release a new suite of projections or updated data.

Annex 1: Methodology

Current climate

The information on how the climate is already changing in the MHNL has been taken from the MHNL Management Plan and is based on findings from a local weather station. The case studies included in the same section are based on information provided during the stakeholder engagement portion of this project and cross-referenced and supplemented with information online, for example from credible news sites. For further information, read Supplementary Document 2 that outlines the detailed methodology of the whole adaptation plan process.

Climate scenarios

The UK Climate Projections 2018 (UKCP18) guidance on Global Warming Levels shows the average global temperatures we are likely to experience at different time periods from now to beyond 2100. The Met Office also provides information on how different levels of global average temperatures are likely to impact local weather and climate with data for the whole UK, broken up into 12km grid squares. These two sources of information have therefore been used to produce a series of climate change projections for the MHNL in the short-, medium-, and long-term future.

The projections in this report are averages of the two 12x12 grid squares where the MHNL takes up more than 10% of the square, shown in the map below.

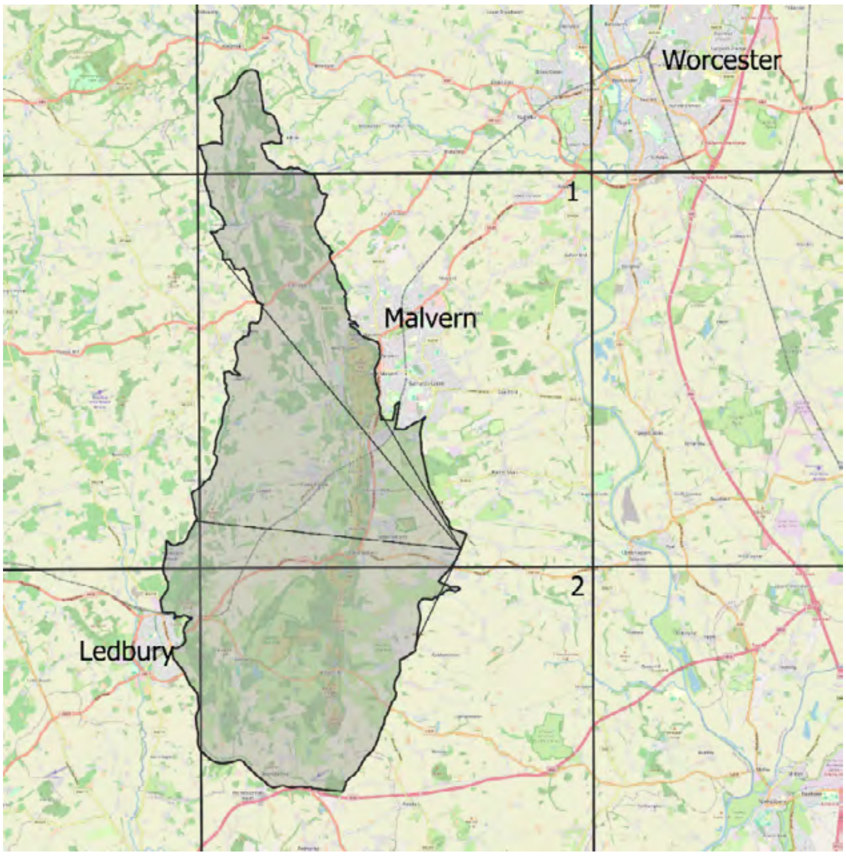


Figure 11. Map showing the 12x12km grid squares from the Met Office UKCP18 datasets that contain the MHNL. The MHNL is shown in grey with a black border, and the black straight lines show the grid squares. Data from grid squares labelled 1 and 2 on the map are those used in the climate projections.

The dates selected to represent the short, medium and long-term future come from the risk assessment template from the National Landscapes Association, although slightly amended to better correspond with GWL scenarios available. Table 4 shows the dates selected and the GWL level projections these correspond with, therefore explaining how we selected the datasets used.

Table 4. The dates selected for this report for short, medium and long-term timeframes and the Global Warming Levels used for these dates, with justification.

Timeframe	Dates selected for report	Global Warming Levels (GWL) used	Difference between baseline and 2080s
Short-term	2030s	1.5°C	Global warming levels (GWL) are projected to be 1.5 degrees above the pre-industrial (1850-1900) period between 2021 and 2040, so climate scenarios for the 2030s are based on this level of warming.
Medium-term	2050s	2°C	GWLs projected to be 2 degrees above the pre-industrial period between 2037 and 2056.
Long-term	2080s	3°C	GWLs projected to be 3 degrees above the pre-industrial period between 2066 and 2085.
End of Century	2100s	4°C	GWLs projected to be 4 degrees above the pre-industrial period after 2100.

Climate projection datasets

The key aspects of climate that were analysed for this project are:

1. average annual, winter (December, January, February), and summer (June, July, August) temperature in degrees Celsius (°C);
2. average winter (December, January, February), and summer (June, July, August) precipitation i.e., rainfall, snow, sleet, and hail;
3. annual days above 25°C
4. Annual Growing Degree Days (GDDs) and
5. Drought Severity Index (DSI).

The datasets come from the Met Office UK Climate Projections (UKCP), which provide recorded data and projected figures for the GWL scenarios laid out in Table 4 above. Further details on what datasets 3-5 in the list above mean is described henceforth.

Annual days above 25°C

The Days above 25°C measure is formally known as the 'Annual Count of Summer Days' and is the annual number of days where the maximum daily temperature is above 25°C.

Growing Degree Days

A Growing Degree Day (GDD) is a day in which the average temperature is above 5.5°C, which indicates if temperature conditions are suitable for plant growth. The value given is the number of degrees (not number of days) above the threshold of 5.5°C that counts as a GDD. For example, if the average temperature for a specific day is 6°C, this would contribute 0.5 GDDs to the annual sum. Alternatively, an average temperature of 10.5°C would contribute five GDDs. Given the data show the annual sum of GDDs, this value can often be above 365.

An increase in GDDs can indicate larger crop yields due to increased crop growth from warm temperatures, but crop growth also depends on other factors. For example, GDDs do not include any measure of rainfall/drought, sunlight, day length, wind strength, species vulnerability or plant dieback in extremely high temperatures. GDDs can indicate increased crop growth until temperatures reach a critical level above which there are detrimental impacts on plant physiology.

Drought Severity Index

The Drought Severity Index (DSI) is not threshold based. Instead, it is calculated with 12-month rainfall deficits provided as a percentage of the mean annual climatological total rainfall (1981–2000) for that location. It measures the severity of a drought, rather than the frequency.

Twelve-month accumulations have been selected as this is likely to indicate hydrological drought. Hydrological drought occurs due to water scarcity over a much longer duration (longer than 12 months). It heavily depletes water resources on a large scale as opposed to meteorological or agricultural drought, which generally occurs on shorter timescales of three-12 months. However, this categorisation is not fixed, because rainfall deficits accumulated over 12-months could lead to different types of drought and drought impacts, depending on the level of vulnerability to reduced rainfall in a region.

The following provide support to the Malvern Hills National Landscape Partnership:

Malvern Hills National Landscape
Manor House, Grange Road
Malvern, Worcestershire WR14 3EY

Tel: 01905 845057
Email: aonb@worcestershire.gov.uk
Web: www.malvernhills-nl.org.uk

Follow us on Facebook

March 2025