



Climate Change Adaptation Plan for the Malvern Hills National Landscape 2025

**Supplementary Document 1:
Detailed Methodology**

malvernhills-nl.org.uk

Report information

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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.

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1. Introduction

This document describes the method that was undertaken by Sustainability West Midlands to produce the climate change adaptation plan and risk assessment for Malvern Hills National Landscape.

2. Step one: Preliminary research

Upon commencing the project, our first task was to establish a baseline that analyses any existing relevant adaptation activity that is already being delivered, and how adaptation is being integrated into wider activities and priorities in the MHNL. The purpose of this is to ensure that any existing work can be built upon where appropriate, and that we consider actions that supplement, rather than contradict, other's efforts. To do this, we:

- Accessed and read [key strategies from the MHNL Partnership](#) (MHNLP), including the Management Plan and the Nature Recovery Plan;
- read information published by the three top-tier Local Authorities within which the MHNL sits, these being (Herefordshire Council (HC), Worcestershire County Council (WCC) and Gloucestershire County Council (GCC)), including [Herefordshire's Climate Change Adaptation Plan](#) and the climate change pages and resources on their websites where available and
- read the [UK 25 Year Environment Plan](#) and information published by key organisations such as [Historic England](#) (HE), the [Environment Agency](#) (EA), [Forestry Commission](#) (FC), and [Natural England](#) (NE) to ensure there were no specific references to activity in the MHNL.

In particular, we were looking to identify any projects already being undertaken that are already, or have the potential to contribute to improving the MHNL's resilience to climate change should they be slightly modified or adapted. This prevents unnecessary duplication of efforts and highlights potential areas for collaboration with other organisations already carrying out adaptation.

3. Step two: Climate projections analysis

Using the Met Office's latest UK Climate Projections published in 2018 ([UKCP18](#)), we were able to determine what the potential changes in climate are likely to be up to the end of this century. This allows us to identify what additional pressures are likely to manifest in the MHNL, by way of (e.g.) more intensive heatwaves and more frequent flooding. This allowed us to get a better feel for how past events that have occurred in the MHNL could intensify or increase in frequency in future.

The full methodology and results of the projections analysis are presented in a separate Climate Projections Report and are summarised in an early section of the Climate Change Adaptation Plan.

4. Step three: Stakeholder engagement

Key to ensuring that the Adaptation Plan is accurate, realistic and fit for purpose was effective and in-depth engagement with stakeholders. As experts on matters in the MHNL it was critical to speak to those working on the ground in the area to find out how severe weather and climate change is affecting them. We also spoke to organisations with a more high-level or strategic view of how climate change is impacting nature, people and place to provide insights on how this relates to the MHNL and how these organisations could support the Partnership.

1. Identifying stakeholders

We worked with the MHNL Team to undertake a stakeholder mapping exercise to identify a range of stakeholders. These contacts came from a variety of sources which included a series of local and national contacts already established by SWM and the MHNL Team, gained from years of working in this area. Table 1 on the following page outlines who we engaged with and how, with further details forthcoming on the nature of the type of engagement. 'y' indicates that the organisation was engaged with in this format.

Table 1. Stakeholders engaged throughout development of MHNL risk assessment and adaptation plan.

Organisation	Workshop	1-2-1 meeting	Consultation
Bearwood Associate Ltd			
Bromesberrow Estate			
Campaign for Protection of Rural England			
Cotswolds National Landscape			
Country Land and Business Association			
Eastnor Castle Estate			
Environment Agency			
Forest of Dean Council			
Forestry Commission			
Gloucester Council			
Gloucestershire County Council			
Hereford & Worcester Fire and Rescue Service			
Herefordshire and Worcestershire Chamber of Commerce			
Herefordshire and Worcestershire Earth Heritage Trust			
Herefordshire Council			
Herefordshire LNRS team			
Herefordshire Wildlife Trust			
Historic England			
Malvern Hills and Wychavon DCs			
Malvern Hills Trust			
National Farmers Union			
National Trust			
Natural England			
Worcestershire Biological Records Centre			
Worcestershire County Council			
Worcestershire Wildlife Trust			
Wye Valley AONB			

Within the list above, there were three organisations we contacted that, due to factors such as capacity within their teams at the time of the project, we were not able to engage with. Despite these omissions, we are satisfied that we managed to engage with all those stakeholders deemed most influential in the implementation of this Action Plan.

2. Stakeholder engagement programme

We wanted to provide a range of ways to engage with the development of this Adaptation Plan. As such, we provided a flexible and varied approach to stakeholder engagement that was realistic in the timeframe available as shown in Table 2 below:

Table 2. Overview of methods of engagement used throughout the development of the MHNL risk assessment and adaptation plan.

Method of engagement	Purpose	Date(s)
Online Workshop	<ul style="list-style-type: none">• Introduce climate change adaptation as a concept and its importance.• Identify how severe weather has affected the MHNL and its services/organisations in recent years.• Provide real-life examples of both severe weather impacts and climate change adaptation.	14 October 2024
1-2-1 online meetings	<ul style="list-style-type: none">• Gain a more in depth understanding on how each organisation/ service has been impacted by severe weather in the past few years.• Ascertain any existing activity that has taken place to adapt the MHNL to climate change impacts.	October - December 2024
Draft Consultation	<ul style="list-style-type: none">• Provide stakeholders the opportunity to provide feedback to a first draft of the final Adaptation Plan.	January - February 2025

3. Workshop structure (14 October 2024)

The workshop was the first opportunity to engage with a range of individuals about the importance of climate change adaptation and why it needs to be embedded into all aspects of work. The agenda below sets out the running order for the session and shows that it included first hand experiences from someone working in the MHNL, an adaptation case study, opportunities for engagement, and information on the background to climate adaptation.

- 10:00** Welcome and objectives of session
Morgan Roberts, Chair, SWM and Paul Esrich, Malvern Hills National Landscape
- 10:10** Project overview and an introduction to climate change risks and impacts
Morgan Roberts, SWM
- 10:25** Discussion: Your experiences of dealing with extreme weather
- 10:35** Activity 1: A climate change risk assessment for MHNL
- 11:15** Comfort Break
- 11:30** Extreme weather, climate change, and the MHNL
Jonathan Bills, Conservation Manager for the Malvern Hills
- 11:40** Case study: Examples of climate change adaptation
Jim Davies, Senior LNRS advisor, Environment Agency
- 11:50** Activity 2: Developing the adaptation plan
- 12:25** Next steps - Morgan Roberts, SWM
- 12:30** Close

Table 3 below details what happened in the two activity portions of the workshop.

Table 3. Activities carried out during MHNL stakeholder workshop 14 October 2024

Activity	Content
A climate change risk assessment for MHNL	<p>In two breakout rooms, look at a list of risks for two of the four Management Plan themes:</p> <ul style="list-style-type: none"> • Group 1: Natural Environment and Farming and Forestry, • Group 2: Built Environment and Community and Economy. <p>Discuss the risks using the following questions as prompts:</p> <ul style="list-style-type: none"> • Are there any risks missing? • Which risks are you most concerned about/are the most urgent to address? • Which species and habitats are most at risk? • Have any other risk assessments been carried out?
Developing the adaptation plan	<p>In two breakout rooms, discuss the following questions:</p> <ul style="list-style-type: none"> • Is there any work already happening to adapt the MHNL to climate change? • What risks are a priority to address? • What else could/should be done to address these? • What sort of activities could be carried out in the MHNL?

Overall, we were pleased with the attendance at this workshop, especially given workloads and pressures on people's time. Approximately 15 people attended, which represented the majority of organisations that were invited.

4. 1-2-1 meetings (October – December 2024)

The purpose of the meetings was to discuss how severe weather has impacted on stakeholders and the service they are responsible for, and to discuss whether they are considering adapting to climate change and what actions may have already taken place.

We developed a pro-forma for each 1-2-1 meeting so that we could fill in answers to the questions during an online call. We asked similar questions at each meeting, but there were some specific questions that focused on the area of expertise of each stakeholder. On the following page is a list of questions we asked during the meetings:

If they or their organisation operate directly in the MHNL e.g., the Malvern Hills Trust:

- What are your organisation/team's responsibilities that relate to the MHNL?
- Where within the MHNL do you operate, and what key characteristics of the MHNL do your site(s) include?
- From where do you obtain your guidance to decide how to manage risks to your operations?

If they or their organisation do not necessarily operate directly in the MHNL, e.g. Natural England:

- What work does your organisation do that includes/relates to land in the MHNL?
- How do/could the National Landscapes help your organisation carry out their work?

All stakeholders:

- Do you have specific examples of extreme weather events impacting the MHNL, or similar settings elsewhere?
- Do you have any data on the impacts of extreme weather and climate change that could be relevant to MHNL (e.g., farms flooded, costs to farmers, soil quality)?
- Are impacts in your areas covered sufficiently by the list of risks provided*?
- Which of these impacts are you most concerned about?
- What work are you already doing on adaptation that relates to MHNL?
- Which organisations have you worked with when preparing for, or responding to, the impact of an extreme weather event? Which would you like to?
- Can you give us an overview of any strategies and action plans your organisation/ service area is developing that could influence or be influenced by climate adaptation action (this could include adaptation plans)?
- What more do you feel your organisation/service needs to do to better respond to the impacts of extreme weather events in the MHNL? What barriers are there/what help do you need to do this?
- Do you have any further comments?
- Are you happy if SWM and/or the MHNLP keep you informed about the work on climate change adaptation going forwards? Yes or No.

* For the question that mentions 'the list of risks provided', this refers to risks taken from the draft risk assessment that had been developed by that point in the project (see Section 5) that related to each organisation. These were shared with stakeholders prior to the 1-2-1 meetings and used as prompts for discussion during the meeting.

It was the responses to these questions that provided the most useful information to inform this Plan and ensure that it was accurate and led by stakeholders as much as possible.

5. Step four: Development of a Climate Risk and Opportunity Assessment for the MHNL

5. Identifying risks

SWM was involved in the development of the third UK Climate Change Risk Assessment (UKCCRA3), the intelligence and evidence from which helped to develop the third National Adaptation Programme (NAP3) for England. These outputs are statutory as part of the Climate Change Act 2008.

SWM was directly responsible for producing the [England summary of CCRA3](#) and overseeing the completion of the [sector briefings](#). The former of these outputs included the list of climate related risks and opportunities that are projected to affect England, along with their urgency, magnitude and confidence, as put together by the Climate Change Committee (CCC) and other academic and consultancy experts. The latter provide summaries of the specific risks likely to affect a range of sectors, including to Agriculture and Food, Cultural Heritage and Land Use, Land Use Change and Forestry.

SWM compiled an initial list of potential risks and opportunities to the MHNL based on findings from the above evidence base, as well using an example climate change risk assessment from the [Blackdown Hills National Landscape](#), the [Herefordshire Adaptation Plan](#) (also developed by SWM), and the [Natural England Climate Change Adaptation Manual](#), a resource to help conservation managers and advisors to make informed decisions about adaptation with respect to nature, including UK priority habitats and species. This information was then combined with the knowledge and expertise of the stakeholders engaged throughout this project to ensure the risks and opportunities and their impact scores were as accurate as possible.

6. Developing the risk assessment structure

A risk assessment and adaptation plan template had been produced by [the National Landscapes Association](#), which SWM adjusted based on our past experience in writing similar risk assessments and adaptation plans.

Amendments made to the National Landscapes Association template:

- The short-term 'future' is classified as 2020 which is now in the past, so this was replaced with 2030s.
- The National Landscapes Association's template split risks into four categories: Natural Environment, Farming and Forestry, The Built Environment, and Community and Economy. Whilst remaining mostly the same, we changed these headings slightly, so the risks were split up by the MHNL Management Plan themes: Nature, Climate, People and Place (with some sub-categories to break up larger sections, such as focusing on Farming and the Historic Environment).
- The National Landscapes Association's template included the column headings 'area of impact,' 'headline projection' and 'projected impact.' We regrouped the risks to instead be split into 'risk receptor,' 'climate change factors' and 'nature of impact,' more in line with the UKCCRA headings.

The headings in the final risk assessment table are as follows:

- Thematic categorisation: Risks were categorised into MHNL Management Plan themes: Nature, Climate (Water), People, Place (Historic and Built Environment) and Place (Farming).
- Risk Receptor: This refers to the feature of the NL and its population that would be affected by this risk, e.g. key habitats, health and wellbeing, the economy and agricultural productivity.
- Climate Change Factors: This refers to features of climate change that result in this risk, e.g. rising temperatures, flooding, or other extreme weather events such as storms.
- Nature of Impact: This provides detail of the potential risk/opportunity.
- Risk Level: This provides calculating the likelihood, impact and therefore an overall score for each risk in the short-term (2030s), medium-term (2050s) and longer-term (2080s), with the colour-coded risk levels calculated by multiplying likelihood and impact scores together.

7. Determining risk level

Likelihood is scored on a scale of 1 to 5 and impact is scored on a scale of -5 to 5, with negative integers showing an opportunity and positive integers showing risks (see RAG matrix below). These scores have been determined by a combination of the UKCP18 climate projections and information from local stakeholders based on experience of previous extreme events and the changing climate being witnessed on the ground.

Table 4, Table 5 and Table 6 below summarise the likelihood and impact scoring, which are then multiplied together to give an overall risk score that is colour coded based on severity (green being an opportunity, and yellow to red showing low to high risk).

Table 4. Likelihood scoring

Number	Likelihood
1	Rare
2	Unlikely
3	Possible
4	Likely
5	Almost Certain

Table 5. Impact scoring

Number	Rating	Definition
5	Catastrophic	It would result in a huge negative impact to this feature, with immediate impacts lasting for several days/weeks and significant long-term impacts such as failure of businesses, destruction of homes or livelihoods, and damage to nature that will take months or years to repair.
4	Major	It would result in a significant negative impact to this feature, with immediate impacts lasting longer than a few days and/or some long-term impacts such as reducing business success that year or requiring intervention for nature recovery.
3	Moderate	It would result in a moderate negative impact to this feature, with immediate impacts lasting no more than a few days and minimal long-term impacts, for example the natural environment not needing intervention to recover, or business productivity for the year minimally impacted.
2	Minor	It would result in a small negative impact to this feature, such as disruption to business operations or residents for less than a day, with no long-term impacts.
1	Minimal	It would result in negligible negative impact to this feature.

Table 6. Red, Amber Green (RAG) Matrix showing the calculated risk scorings from likelihood and impact scores, colour coded by risk level.

Risk	5	Catastrophic	5	10	15	20	25
	4	Major	4	8	12	16	20
	3	Moderate	3	6	9	12	15
	2	Minor	2	4	6	8	10
	1	Slight	1	2	3	4	5
No Change	0	No Change	0	0	0	0	0
Opportunity	-1	Slight	-1	-2	-3	-4	-5
	-2	Minor	-2	-4	-6	-8	-10
	-3	Moderate	-3	-6	-9	-12	-15
	-4	Major	-4	-8	-12	-16	-20
	-5	Fantastic	-5	-10	-15	-20	-25
			Rare	Unlikely	Possible	Likely	Almost certain
			1	2	3	4	5
			Likelihood				

It should be noted that there are many risks from climate change that overlap and interact with each other, including many which are not within the MHNLP's remit to address and therefore are out of scope for this risk assessment. However, some risks that will impact the MHNLP 'out of scope' have still been included as they will be important for many stakeholders to understand and prepare for, even where they are not within the Partnership's remit to address. Some risks for features such as infrastructure networks, education and International Dimensions risks ([presented here](#) in the UK Climate Change Risk Assessment, Chapter 8) have not been included in this assessment as, in the main, these risks are UK-wide or international and unlikely to be influenced greatly by local circumstance, activity and/or policy.

6. Step five: Development of the Adaptation Plan and user advice

8. Identifying adaptation actions

The previous steps were all necessary to create as accurate, detailed and comprehensive an Adaptation Plan as possible. Extracting a range of stakeholder views throughout the process was fundamental to ensuring that the actions presented in the main part of this Plan are as relevant as possible, realistic in their delivery and tailored to and reflective of the MHNL.

Actions were identified by:

- collating actions from existing adaptation plans (see preliminary research section) that were relevant to the MHNL and adjusting these to be locally appropriate;
- considering the risks and opportunities identified (see Section 5) and ensuring there were adequate actions addressing these risks and
- capturing ideas from stakeholders over the duration of the research and engagement period of adaptation actions and suggestions on how to integrate adaptation into their existing activities.

We have also ensured that the actions listed do not (e.g.) contradict other local priorities, disadvantage vulnerable people, and consider cost and efficiency, rather than merely suggesting a set of unrealistic and potentially counterproductive actions that could lead to maladaptation, prioritising no-regret actions that can be taken forward regardless of precisely how the climate changes.

9. Making the Action Plan accessible

It was identified by SWM and the MHNL Team whilst developing the list of actions that any actions aimed at communities, farmers, landowners and businesses needed to be clear as to whom each action applies to. As such, rather than list all the actions in one large table, we created sections of the plan that are designed to be read by different audiences; these are local communities, land managers, tourism business and the historic environment sector, and the MHNL. These sections provide advice and actions for these audiences through:

- providing context on how addressing climate change relates to them;
- developing a list of recommendations on how best to apply adaptation actions to their circumstances, including when and where adaptation may be most appropriate, taking into consideration other priorities and
- providing a table containing adaptation actions that can be implemented to help individuals, businesses, communities and the wider MHNL prepare for and respond to the risks associated with a changing climate.

10. The structure of the adaptation plan tables

The adaptation plan document contains an action plan for each of the key audiences outlined above. This is in the form of a table, the structure of which is based on a combination of the template provided by the National Landscapes Association and the [West Midlands Climate Change Adaptation Plan](#) published by SWM in collaboration with the Environment Agency in 2021 and adapted several times since when developing plans for local authorities, [including Herefordshire](#).

The plans that SWM produces are structured and themed around the UK CCRA and include actions that respond to the risks presented by the CCRA and subsequently tailored to the relevant area. While it was largely appropriate to use this template in the development of the MHNL action plan tables, it was recognised that the MHNL is a unique setting with different responsibilities and priorities than a local authority, so some amendments were made to better suit MHNL. The action plan tables include:

- a headline summary of the action;
- further information and justification that provides more details on the action including references to existing work happening in the MHNL or potential best practice or guidance available elsewhere;
- relevant local stakeholders that could be responsible for implementing the action, recognising that adaptation needs to be a collaborative effort and that responsibility for maintaining and enhancing the natural beauty of the MHNL sits with everyone who uses and enjoys the area;
- potential funders that indicate who may or should be in a position to provide financial support for each action which the MHNLP can explore further when moving to implementation;
- indications of timescales, reflecting whether the action should be (either due to urgency or its simplicity) implemented in the short (within the next two years), medium (two-10 years) or long (>10 years) term;
- whether implementing this action is expected to be intense from a resourcing and cost perspective, from Low (L), Medium (M) to High (H) and
- each action was given a priority score, shown on the following page.

VH-I	Very High and Immediate
VH	Very High
H	High
M	Medium

This prioritisation was based on the following criteria:

- the urgency of the associated climate risk;
- the resource intensity and likely cost/benefit of implementation;
- potential financing options available;
- co-benefits, e.g. supporting Net Zero, biodiversity or health outcomes;
- the potential magnitude of the impact in the MHNL if no action is taken;
- whether the action builds on existing work and, therefore, could be accelerated;
- whether the action can be implemented quickly with minimal resource;
- whether there is stakeholder expertise on the relevant topic area and
- whether there is national/ policy backing to support implementation.

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



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