

Historic Environment and Climate Change in Wales

Sector Adaptation Plan Actions and Activities.

Evidence Gathering 2023



Volunteers clearing scrub at Tower Point Rath promontory fort, Pembrokeshire. This work is part of a wider archaeological monitoring and maintenance scheme led by the Pembrokeshire Coast National Park Authority.

Historic Environment Group

Climate Change Subgroup

January 2024

Overview



The former Deputy Minister for Culture, Sport and Tourism, Lord Elis-Thomas on 18 February 2020 at the launch of the Historic Environment and Climate Change in Wales Sector Adaptation Plan.

In February 2020, the Historic Environment Group (HEG) published the Historic Environment and Climate Change in Wales Sector Adaptation Plan (SAP) (available [here](#)) to help raise awareness of the risks and opportunities of climate change for the historic environment of Wales and the need for adaptation. In Section 6 of the SAP there are a series of headline actions with intended outputs and outcomes for the historic environment.

The main objective of the SAP is to encourage collaboration and action. We are now at the Year 4 'interim report of activity' stage of the 5-year Sector Adaptation Plan Monitoring and Evaluation Framework cycle (available [here](#)). This involves collecting evidence of adaptation activity that is relevant to the historic environment and was undertaken during 2023 to help us evaluate our progress against the published actions, and to identify gaps and priority areas that require further attention.

The evidence collected will help us to prepare a report in Spring 2024 for Welsh Government, HEG and the Historic Environment Sector. We hope the report will encourage further collaboration.

Interim Reports of Activity for 2020, 2021 and 2022 are available here. <https://cadw.gov.wales/advice-support/climate-change/adapting-to-climate-change>

How you can help

The table below sets out the headline actions published in Section 6 of the SAP with their intended outputs and outcomes for the historic environment. Each action has a reference number and there are 22 in total. The activity column of the table gives examples of current known work and activity to meet each action, as collated during the 2022 evidence gathering.

We would like you to share with us examples of further activity relevant to the actions that you are involved in or know about, undertaken in 2023. This may be several entries or just one or two. It can also be used as an opportunity to update progress on existing entries. If you did not submit activities for 2020, 2021 or 2022 and would like to, there is also an opportunity to.

You can submit your views and an example or examples of activity here:

<https://survey123.arcgis.com/share/0fedc895e38c4096b8eb6b9a731ad6a4>

Submissions are welcomed and encouraged from organisations, community groups, societies and individuals operating in Wales. Please share this request for evidence. **The consultation will close at 14:00 on 09 February 2024.**

Thank you on behalf of the HEG Climate Change Subgroup.

HEG is a high-level forum set up by the Welsh Ministers in 2004 to take a strategic overview of issues and opportunities in the historic environment and to promote common approaches. The HEG Climate Change Subgroup is charged with assessing and reporting to HEG on how the historic environment sector in Wales should address the challenge of climate change.



Actions and activity table

The table below sets out the headline actions needed to adapt to the impacts of climate change on the historic environment of Wales. They are arranged around the three overarching and linked objectives of increasing our knowledge, increasing our capacity and building our resilience, and are grouped under the following seven headings:

1. Knowledge exchange and collaboration
2. Mapping and monitoring
3. Research priorities
4. Dissemination and promotion
5. Collaborative working
6. Training and guidance
7. Taking action

Examples of current known work collected during 2022 evidence gathering are provided in the activity column. Details of any abbreviations and links to resources in the text can be found at the end of the document.

Knowledge: Increase our knowledge and understanding of the threats and opportunities for the historic environment from a changing climate					
	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
I. Knowledge exchange/collaboration					
1.1	<p>Dissemination, promotion and stakeholder engagement of the Historic Environment and Climate Change Sector Adaptation Plan.</p> <p>For example:</p> <ul style="list-style-type: none"> • Communication Strategy. • Stakeholder engagement with politicians and senior decision-makers. • Monitor and evaluate strategy. 	<ul style="list-style-type: none"> • Publication of the Historic Environment and Climate Change Sector Adaptation Plan. • Secured resources and practical actions to deliver the plan. 	<ul style="list-style-type: none"> • Raised awareness of the challenges posed by climate change on the historic environment. • Direct action to improve our knowledge, build capacity and increase the resilience of the historic environment to climate change. • Provision of a strategic framework to take forward adaptation actions. 	<ul style="list-style-type: none"> • HEGS – Group continued work and activities with representation from Cadw, NRW, RCAHMMW, GAT, NT, PCNPA, ENPA, GGAT, DAT, CPAT, AC-NMW. • HEGS – SAP Action Plan activity survey for 2021 initiated January 2022 and closed February 2022. • HEGS - Two Interim Reports of Activity against the SAP action plan covering 2020 and 2021 published. • HEGS – Continued promotion and awareness raising of SAP e.g. Paper published in CBAW Archaeology Wales 60 (2022) <i>Introducing The Historic Environment And Climate Change In Wales Sector Adaptation Plan</i>; social media activities during Wales Climate Week and the creation of a short film written and produced by the Royal Commission 'Heritage Responds'. • HEGS – Work continues towards developing a Communication Strategy. • BBNPA – Inclusion of SAP within Historic Environment Action Plan (public consultation in 2023). • RCAHMMW, AU, DP, GSI – CHERISH project Contribution to delivery of the SAP incorporated into project initiatives and workplan. • RCAHMMW – Contribution to delivery of the SAP incorporated into Operation Plan and reported against. • Cadw - New content has been added to the climate change section of the Cadw website. This includes a new case study resource; advice on building maintenance as the first step towards climate resilience and energy efficiency, and hosting of the Heritage Responds video. (5.3, 6.3) • Cadw – Continues to be a member of the WG Climate Change Network. It also acts as a link between the subgroup and the WG Climate Adaptation team. This includes providing WG colleagues with annual reports and other updates on progress against the actions in Prosperity for all: A climate conscious Wales and the SAP. (5.2) 	<ul style="list-style-type: none"> • HE1
1.2	<p>Establish a knowledge exchange group(s) for researchers and practitioners to share ideas, information and good practice, and to help identify future research and funding opportunities in Wales.</p> <p>For example:</p> <ul style="list-style-type: none"> • Establish a climate and heritage management group. • Establish a spatial mapping group. 	<ul style="list-style-type: none"> • Knowledge exchange group(s) established and active. • Identification of future research priorities for Wales. 	<ul style="list-style-type: none"> • A coordinated approach, maximising knowledge and resources, leading to capacity building and more successful adaptation. 	<ul style="list-style-type: none"> • Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and Dfc NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.3, 2.1, 3.1, 6.1, 6.3) • RCAHMMW, AU, DP, GSI – CHERISH project Looking to post-CHERISH future (2023 on) building on established partnership and new funding opportunities. • HEGS, WATs, Cadw – Exchange group meetings held to discuss Cadw funded WAT projects. • TTC – Established a Climate change Adaptation Programmes sub-committee, a heritage sub-committee. Have Elected Member representation on the Blaenau Gwent Heritage Forum and the VVP/Tredeggar Heritage Initiative and work collaboratively with partner agencies, e.g. Blaenau Gwent CBC and Valleys that Changed the World. 	<ul style="list-style-type: none"> • HE2 • MC4

1.3	<p>Participation from Wales in established UK and wider climate heritage groups and networks.</p> <p>For example:</p> <ul style="list-style-type: none"> Fit for the Future network. <ul style="list-style-type: none"> Historic Environment Adaptation working group. Climate Heritage Network. 	<ul style="list-style-type: none"> Welsh attendance at climate heritage groups and networks. 	<ul style="list-style-type: none"> Collaborative working maximising knowledge and resources, leading to capacity building and more successful adaptation. 	<ul style="list-style-type: none"> Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and DfC NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.2, 2.1, 3.1, 6.1, 6.3) Cadw - The Joint UK Heritage Agency Work Group (representatives from the four UK historic environment bodies, plus NT and Natural England) continues to meet quarterly to discuss and share developments in peatland restoration in relation to the historic environment. RCAHMW, AU, DP, GSI – CHERISH project Continue to Participate and liaise with other networks and bodies in relation to climate change and coastal heritage e.g. SCAPE, CITiZAN, FPAN. RCAHMW – continue as members of the Fit for the Future, Climate Heritage Network and from 2022 Climate Cymru. 	<ul style="list-style-type: none"> HE2 MC4
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	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
2. Mapping and monitoring of the resource					
2.1	<p>Improving baseline data. Develop standardised methodologies and assessment tools to both identify historic assets and prioritise those at risk. For example:</p> <ul style="list-style-type: none"> Wales spatial mapping work including environment/asset specific mapping and analysis. Data enhancement programmes. Use of soil moisture indexes to target aerial reconnaissance during dry periods. 	<ul style="list-style-type: none"> Improved baseline data sets. Improved consistency and comparability of data. Publicly available and regularly updated central repository of spatial mapping datasets. 	<ul style="list-style-type: none"> Improved understanding of the threats and opportunities for the historic environment from a changing climate. Improved evidence base for monitoring, statutory protection, decision-making and adaptation strategies. 	<ul style="list-style-type: none"> Cadw - Coast & Shoreline / Shoreline Management Plans. These refreshed plans include 928 actions detailing how the shoreline will be managed in the short term, medium term, and long term. The historic environment is a consideration of shoreline management, however, HER data which informs SMPs is not current, with the condition of most historic environment assets not updated since the Trust's coastal surveys of the mid-1990s. Cadw is funding GGAT, GAT and DAT to update data on historic assets in the areas covered by the action plans. (5.2, 6.3) Cadw – Rivers. Climate change and efforts to mitigate its impact have the potential to impact significantly on the historic environment, especially in areas where assets are poorly recorded or understood. Work in 2020-21 by DAT, followed in 2021-22 by pan-Wales project, identified rivers and riparian environments as being particularly vulnerable. Cadw is funding three projects with GGAT, DAT and CPAT that will continue to identify and record good quality baseline data, resulting in the enhancement of the HER for future land management and development control. EA -Developing mapping and data in relation to the River Severn catchment. RCAHMW - Continuation of work to enhance records of historic assets located in the inter-tidal and coastal zone, through 3D digital survey. It is intended that this survey work will provide much improved baseline information for future assessment of any impact from climate change, as well as providing a much enhanced record of the historic asset (2.2, 7.3) MADU – Continued research on shipwrecks including Welsh Wreck Research Project. RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (2.2, 3.1-2, 6.3, 7.3-4) RCAHMW – Met Office soil moisture indexes purchased annually for targeted aerial reconnaissance programme. 2022 was one of hottest summers on record. Targeted aerial reconnaissance took place across Wales with notable discoveries across the extensive parchmarks recorded in central and eastern Wales. NT, 3 Keel - matching NT HBSMR data with EA eroding coast data to analyse which monuments are most at risk (includes Wales). NT - Climate Change GIS Browser developed based on NT Hazzard Map – will ultimately be largely publicly available. Cadw - Ongoing work with the Climate Resilience Embedded Researcher and WG cross-departmental steering group to implement the recommendations from the Fellowship. This includes development of mapping and guidance tool (pilot to be tested by Registered Social Landlords) (3.1, 5.1, 6.3) Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and Communities NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.2, 1.3, 3.1, 6.1, 6.3) Cadw: Awarded funding for a second Fellowship. which is likely to commence in the Summer of 2023. The Fellowship is an opportunity to develop and test the Adaptation Pathways approach to climate change adaptation and to develop guidance and training for policymakers, asset owners and practitioners in the historic environment sector. (6.1, 6.2, 6.3) 	<ul style="list-style-type: none"> HE2 MC4

				<ul style="list-style-type: none"> ENPA – Carneddau Landscape Partnership Scheme continues. Community and volunteer work included lidar project training days. 	
2.2	<p>Establish and implement targeted monitoring regimes on identified historic assets.</p> <p>For example:</p> <ul style="list-style-type: none"> Develop and publish case studies to outline different monitoring approaches to ensure consistency of data and approach. Establish online/mobile application to record incidents/impacts e.g. of pests and disease. Establish a link to scheduled monuments and listed buildings at risk monitoring work. 	<ul style="list-style-type: none"> Targeted monitoring programme and condition data. Best-practice guidance document/technical notes for monitoring assets at risk drawing on case studies. 	<ul style="list-style-type: none"> Improved understanding of the threats for the historic environment from a changing climate. Provision of data for historic assets to assist the development of management strategies and prioritisation. 	<ul style="list-style-type: none"> PCNPA – Continues to monitor the condition of scheduled monuments within the National Park using volunteers (system set up in 2020). (3.1-2, 7.4) PCNPA – Continuation of Changing Coasts project using fixed point photography. Communities/public submit photographs at specific coastal path points to monitor change and erosion (see 3.1-2, 7.3-4). RCAHMW - Continuation of work to enhance records of historic assets located in the inter-tidal and coastal zone, through 3D digital survey. It is intended that this survey work will provide much improved baseline information for future assessment of any impact from climate change, as well as providing a much enhanced record of the historic asset (2.1, 7.3) BBNPA – Continuation of volunteer condition monitoring programme ongoing (see 3.1-2, 7.4) RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (2.1, 3.1-2, 6.3, 7.3-4) RCAHMW, AU, DP, GSI – CHERISH project continues. Repeat monitoring at a number of case-study sites, installation of permanent survey markers at 9 heritage sites for future monitoring (aligned and working with WCMC). (3.1) BU – PhD research (2021-24) 'Historic Shipwrecks and the Impacts of Climate Change' to address marine research priorities. Includes monitoring of 18 intertidal wrecks and patterns of uncovering and recovering in relation to beach profile changes. (3.1, 7.3) 	<ul style="list-style-type: none"> HE2 MC4

	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
3. Research priorities					
3.1	<p>Improve understanding of the interacting and cascading relationships, and cumulative impacts of climate risk factors. For example:</p> <ul style="list-style-type: none"> Building condition, location and socio-economic factors. Changing land use and redundancy of agricultural buildings resulting in a cumulative loss of historic landscape features and changed settings. Increases in invasive species that may impact on historic assets. Acidification of seawater and increase in marine species which pose potential threats to wrecks/timber structures in marine conditions. Measures to address chronic and acute pollution from historic mining. Risks to building fabric from increased humidity, moisture, wind and driving rain, and the knock-on impact on indoor air quality and the health of building occupants. Cumulative impact of successive extreme weather events on historic assets. 	<ul style="list-style-type: none"> Reports and recommendations. 	<ul style="list-style-type: none"> Adaptive actions take inter-relationships and cumulative impacts into account, thereby minimising the potential for maladaptation, leading to improved management of historic assets and the creation of best-practice guidance. 	<ul style="list-style-type: none"> PCNPA – Monitoring the condition of scheduled monuments within the National Park using volunteers (system set up in 2020). (2.2, 3.2, 7.4) PCNPA – Continuation of Changing Coasts project using fixed point photography. Communities/public submit photographs at specific coastal path points to monitor change and erosion (see 2.2, 3.2, 7.3-4).. BBNPA – Continuation of volunteer condition monitoring programme (see 2.2, 3.2, 7.4). RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (2.1-2, 3.2, 6.3, 7.3) RCAHMW, AU, DP, GSI – CHERISH project continues. Repeat monitoring at a number of case-study sites, installation of permanent survey markers at 9 heritage sites for future monitoring (aligned and working with WCMC). (2.2) NT - funded PhD looking at future wind/storm risk to veteran trees (Chirk Castle Registered Parkland) completed. Researcher also looked at climate magnified wildfire risks to peat (Migneint). NT, Exeter University - Research project correlating footfall at mansion properties with weather patterns to predict what visitor patterns might look like against future predicted weather patterns. BU – PhD research (2021-24) 'Historic Shipwrecks and the Impacts of Climate Change' to address marine research priorities. Includes coastal vulnerability assessment in relation to intertidal assets; mapping of predicted oceanic climate change trends for Welsh National Marine Plan area; and an ecological database of 27 underwater sites identifying species which are invasive or whose range is noted as changing with regard to warming seas. (2.2, 7.3) Cadw - Ongoing work with the Climate Resilience Embedded Researcher and WG cross-departmental steering group to implement the recommendations from the Fellowship. This includes development of mapping and guidance tool (pilot to be tested by Registered Social Landlords) (2.1, 5.1, 6.3). Further funding for additional monitoring to improve evidence base being sought. 	<ul style="list-style-type: none"> HE2 MC4

	<ul style="list-style-type: none"> The frequency, range and potential regional variations of extreme weather events and their impact on the historic environment. 			<ul style="list-style-type: none"> Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and DfC NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.2, 1.3, 2.1, 6.1, 6.3) 	
3.2	Research to improve knowledge of past and present climate change impacts on historic assets e.g. decay/erosion/accretion.	<ul style="list-style-type: none"> Research results, case studies and recommendations. 	<ul style="list-style-type: none"> Increased understanding of stages, timescales and outcomes leading to improved management and adaptation interventions to build resilience. 	<ul style="list-style-type: none"> PCNPA – Monitoring the condition of scheduled monuments within the National Park using volunteers (system set up in 2020). (2.2, 7.4, 3.1). PCNPA – Continuation of Changing Coasts project using fixed point photography. Communities/public submit photographs at specific coastal path points to monitor change and erosion (2.2, 3.1, 7.3-4). BBNPA – Continuation of volunteer condition monitoring programme ongoing (2.2, 3.1, 7.4). RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (2.1-2, 3.1, 6.3, 7.3) AU, RCAHMW, DP, GSI – CHERISH project continues. AU led work has focused on reconstructing coastal change, landscape development and climate variability at key sites around the Welsh coast. These include: Stackpole Warren, Cwm Dewi (Dinas Island), Cors Fochno and Ynyslas, Abersoch, Ynys Enlli, Dinas Dinlle, Morfa Dinlle, Llyn Coron / Aberffraw and Llyn Maelog / Traeth Llydan. Around Dinas Dinlle and Southwest Anglesey, our palaeoenvironmental research has provided new evidence for episodes of large scale sand movement and storm activity over the last three thousand years, including the more recent historical period. We have integrated, evidence of past sea level change, storminess and coastal landscape development with archaeological data. These records extending back millennia are a valuable basis for considering adaptation to climate change today. Member of Public - Undertaking research looking at Welsh history and the way that climate change may have shaped this in the past, focussing on the Iron age to the Middle Ages. 	<ul style="list-style-type: none"> HE2 MC4
3.3	Improve understanding of the positive and negative effects of a longer growing season on the maintenance and management of the historic environment.	<ul style="list-style-type: none"> Report and recommendations. 	<ul style="list-style-type: none"> Improved long-term adaptation and maintenance programmes. 		<ul style="list-style-type: none"> HE2 MC4
3.4	Work with UKCP18 projections to identify opportunities for the historic environment and the economy e.g. planting of woodland and forestry; establishment of new industries relating to adaptation; changing leisure opportunities; increased use of UK coastal resorts.	<ul style="list-style-type: none"> Identification of opportunities. 	<ul style="list-style-type: none"> A combined beneficial response to adaptation will encourage uptake and identification of new opportunities, including tourism investment. 		<ul style="list-style-type: none"> HE2

Capacity: Develop the methodologies, tools and guidance to work with others and build adaptive capacity					
CCW Indicator					
	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
4 Dissemination and promotion					
4.1	Creation of a steering group to oversee the delivery of the HEG SAP and to monitor and review progress. The steering group will establish and coordinate working/subgroups as necessary.	<ul style="list-style-type: none"> Steering group formed from representatives within Wales. 	<ul style="list-style-type: none"> The provision of a strategic framework through which the action plan is delivered. 	<ul style="list-style-type: none"> HEGS – Two Interim Reports of Activity against the SAP action plan covering 2020 and 2021 approved by HEG and published. HEGS – regular meetings to review SAP progress and coordinate promotion of the SAP. HEGS – Twice-yearly meeting with Cadw and WATS to discuss and inform Cadw-funded WAT projects. 	<ul style="list-style-type: none"> HE3
4.2	Creation of a dedicated (full-time equivalent) Climate Change Manager post for the historic environment sector in Wales.	<ul style="list-style-type: none"> Climate Change Manager in post. 	<ul style="list-style-type: none"> Direct action to help steer and guide the delivery of the HEG SAP and to play a central role in raising the profile 	<ul style="list-style-type: none"> HEGS – Discussions began within group. Job description was drafted. 	<ul style="list-style-type: none"> HE3

			of the climate change work across the historic environment sector in Wales.		
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	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
5. Collaborative working					
5.1	The steering group to coordinate and encourage stakeholder engagement and promote partnership working to ensure efficient use of resources across sectors.	<ul style="list-style-type: none"> Cross-sector partnerships and coordinated working will ensure resources are targeted effectively and efficiently. 	<ul style="list-style-type: none"> Effective delivery of the HEG SAP actions. Raised awareness of the historic environment across the wider sector which will help prevent secondary damage and maladaptation to the historic environment. Improved cross-sector working. 	<ul style="list-style-type: none"> RCAHMW, AU, DP, GSI – CHERISH project CHERISH project works cross-sector and with a variety of stakeholders and partners. The CHERISH exhibition was installed at the Senedd and officially opened by Julie James, Climate Change Minister, who hosted a reception and delivered a speech with the Irish Consulate. HEGS – Initial meetings and discussion with WG student placement programme about potential research opportunities and building links with Universities. Cadw - Ongoing work with the Climate Resilience Embedded Researcher and WG cross-departmental steering group to implement the recommendations from the Fellowship. This includes development of mapping and guidance tool (pilot to be tested by Registered Social Landlords) and targeted stakeholder engagement to try and embed climate change adaptation in standards and regulations, including Building Regulations, PAS2035, Net Zero Carbon Buildings Standard, etc. (2.1, 3.1, 6.3) 	<ul style="list-style-type: none"> HE3
5.2	The steering group/working group to work with officials across Wales to embed the HEG SAP in national and local government policy statements, plans and codes	<ul style="list-style-type: none"> The historic environment will feature in the Welsh Government Climate Change Adaptation Plan for Wales. The HEG SAP considerations will be linked and noted in, for example: <ul style="list-style-type: none"> Shoreline Management Plans. Relevant Planning Policy Wales supplements. 	<ul style="list-style-type: none"> Help prevent secondary damage and maladaptation to the historic environment. 	<ul style="list-style-type: none"> RCAHMW, AU, DP, GSI – CHERISH project Featured as a case study in WG progress report on Prosperity for All: A Climate Conscious Wales. HEGS – the SAP is embedded in the WG adaptation plan, Prosperity for all: A climate conscious Wales. Results from Action Plan activity survey 2020 and 2021 fed into WG progress report published in 2022. HEGS – Responded to consultations e.g. NHLF strategy and WG Draft strategy for engaging the general public in action on climate change. Cadw - Coast & Shoreline / Shoreline Management Plans. These refreshed plans include 928 actions detailing how the shoreline will be managed in the short term, medium term, and long term. The historic environment is a consideration of shoreline management, however, HER data which informs SMPs is not current, with the condition of most historic environment assets not updated since the Trust's coastal surveys of the mid-1990s. Cadw is funding GGAT, GAT and DAT to update data on historic assets in the areas covered by the action plans. (5.2.1, 6.3) Cadw – Continues to be a member of the WG Climate Change Network. It also acts as a link between the subgroup and the WG Climate Adaptation team. This includes providing WG colleagues with annual reports and other updates on progress against the actions in Prosperity for all: A climate conscious Wales and the SAP. (1.1) 	<ul style="list-style-type: none"> HE3
5.3	Provide, promote and maintain a publicly available case study resource to illustrate climate change risks and impacts affecting the historic environment and examples of adaptation. All should be able to contribute to this resource.	<ul style="list-style-type: none"> Case study resource. 	<ul style="list-style-type: none"> Raised awareness of the challenges posed by climate change and adaptation on the historic environment. Demonstration of a range of practices and evidence of direct action. 	<ul style="list-style-type: none"> HEGS – Adaptation Case Study Resource created and launched. The Story Map resource draws together a series of Case Studies from across the sector. Case studies also in the two Interim Reports of Activity (5.3) RCAHMW, AU, DP, GSI – CHERISH project study sites provide case study resources showcased on website, leaflets, through talks, blogs, CHERISH on-line 'chats', the travelling exhibition and films. Example Activity in 2022 working with PCNP to provide joint guided walks. NTC, Arts Council of Wales - commissioned artists Lauren Heckler and Alex Paveley, to engage Welsh communities in the Conwy catchment in conversation so we could build a picture of their experiences, thoughts, and concerns about the changing climate, and develop an understanding of how we might work together to adapt to these. A co-create film, exploring lived experiences of climate change and the environment combined workshop outcomes, interviews, and a record of the process, weaving together the landscapes, expressions and opinions of communities linked together by weather and water, was projected onto Conwy Railway Bridge. Cadw - New content has been added to the climate change section of the Cadw website. This includes a new case study resource; advice on building maintenance as the first step towards climate resilience and energy efficiency, and hosting of the Heritage Responds video. (1.1, 6.3) 	<ul style="list-style-type: none"> HE3

	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
6. Training and guidance					
6.1	Identify and support the training of historic environment practitioners specialising in the impacts of climate	<ul style="list-style-type: none"> Trained climate change historic environment practitioners. 	<ul style="list-style-type: none"> Raising standards to embed climate change considerations in the historic environment. 	<ul style="list-style-type: none"> NRW, WATs, Cadw - Peatland and historic environment training; National Peatlands Action Programme, Climate Change Emergency, priority action themes. NRW and partners - 2 River Restoration training and site-based seminar events. 	<ul style="list-style-type: none"> HE3

	change and adaptation of the historic environment.			<ul style="list-style-type: none"> • Cadw - Ongoing work with the Climate Resilience Embedded Researcher and WG cross-departmental steering group to implement the recommendations from the Fellowship. This includes dissemination of findings at conferences and other events. • Cadw - Set up online stakeholder event with presentation and panel discussion for Wales Climate Week on the theme of 'Building maintenance as the first step towards climate resilience and energy efficiency' (6.2) • Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and DfC NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.2, 1.3, 2.1, 3.1, 6.3) • Cadw: Awarded funding for a second Fellowship. which is likely to commence in the Summer of 2023. The Fellowship is an opportunity to develop and test the Adaptation Pathways approach to climate change adaptation and to develop guidance and training for policymakers, asset owners and practitioners in the historic environment sector. (2.1, 6.2, 6.3) 	
6.2	<p>Climate change historic environment practitioners to provide training and support within and across sectors in the impacts of climate change and adaptation of the historic environment. For example:</p> <ul style="list-style-type: none"> • Produce an e-learning module on the historic environment and climate change. • Organise slots at meetings, training events and workshops with other sectors. 	<ul style="list-style-type: none"> • Planners and developers can advise authoritatively through pre-application advice e.g. on the design and implementation of adaptation proposals. • Grant officers can ensure changes and adaptation actions are sensitive to the historic environment. • Owners can identify and implement management and adaptation opportunities. • Community groups established to develop programmes to identify, monitor and record historic assets at risk. 	<ul style="list-style-type: none"> • Raised standards to embed climate change considerations in the historic environment. • Improved cross-sector working, knowledge and understanding, decision-making and the quality of adaptation actions. 	<ul style="list-style-type: none"> • DAT - work with other organisations such as NRW and Coastal Engineering Groups to coordinate and help deliver aspects of the adaptation plan, including training. • PTWT - established short training courses in heritage masonry skills with students in construction at local Pembrokeshire College. Have a service level agreement with them to deliver these courses and develop and increase them in the future. Involved working with Cadw, the local authority and Tywi Centre. • RCAHMW – Provision of Marine Planning Advice for Marine Development to ensure that coastal/offshore development does not cause further impact on our cultural heritage. Collaborated with NRW to produce an area statement for marine historic assets and to provide training to enhance understanding of the marine historic environment and how it fits within the marine planning system, is impacted by climate change etc (6.3). • MADU – Providing talks and running educational training courses for the NAS. • RSPB - Peat Restoration at Lake Vrynwy and other sites. Have organised workshops and on-site visits to show how peat restoration can impact the historic environment, and also benefit it in the long term. • BBNPA – Response and input to consultations for developing land management strategies, woodland creation, riparian improvements, peatland restoration (see 6.3). • RCAHMW, AU, DP, GSI – CHERISH project continues. Work with community groups and individuals to monitor and records assets at risk (see 7.4). • NBGW - Promoting sustainable horticultural and land management practices to our 160,000 visitors per annum • NTC, Literature Wales - Lyrical Landscapes project inspiring young people across Wales to take action against climate change by connecting to nature, history, the outdoors and poetry. One site that really inspired was Bodnant Garden in Conwy where the children had the opportunity to go behind the scenes to learn more about the devastating effects of Storm Arwen in 2021, and the ongoing work to clear and restore this world-class garden. • Cadw - Set up online stakeholder event with presentation and panel discussion for Wales Climate Week on the theme of 'Building maintenance as the first step towards climate resilience and energy efficiency' (6.1) • Cadw: Awarded funding for a second Fellowship. which is likely to commence in the Summer of 2023. The Fellowship is an opportunity to develop and test the Adaptation Pathways approach to climate change adaptation and to develop guidance and training for policymakers, asset owners and practitioners in the historic environment sector. (2.1, 6.1, 6.3) • ENPA – Carneddau Landscape Partnership Scheme Community and volunteer work included scrub vegetation control at several scheduled monuments and lidar project training days. Volunteers and a group of MA and PhD students from the University of Sheffield undertook and measured survey, UAV and photogrammetry of historic environment features (7.4) • ENPA – Ardudwy historic rural dwellings and farmsteads project focussing on derelict and ruinous dwellings and farm buildings in the upland margins of Ardudwy. Working with local volunteers and will include messaging relating to marginality, settlement, climate change and land management in its engagement with local people. Project in development and pilot activities undertaken in 2022. 	<ul style="list-style-type: none"> • HE3

				<ul style="list-style-type: none"> DTP - Teaching and reviving traditional land management skill sets e.g. hedgerow management and laying to encourage more take-up and benefit to the natural and cultural environment. <i>Newly reported activity from 2021.</i> 	
6.3	Work collaboratively across sectors to develop and disseminate joint guidance/ advisory notes that increase the knowledge, understanding and resilience of the historic environment to climate change.	<ul style="list-style-type: none"> Guidance/advisory notes produced and promoted. Inclusion of climate change adaptation into all aspects of heritage management. Heritage management and business plans with climate change adaptation embedded. Management practices undertaken that showcase climate change adaptation. 	<ul style="list-style-type: none"> Improved cross-sector working, knowledge and understanding, decision-making and the quality of adaptation actions. Prevention of secondary damage and maladaptation to the historic environment. Improved management of the historic environment. A well-managed and appropriate programme of adaptation measures. 	<ul style="list-style-type: none"> RCAHMW – Provision of Marine Planning Advice for Marine Development to ensure that coastal/offshore development does not cause further impact on our cultural heritage. Collaborated with NRW to produce an area statement for marine historic assets and to provide training to enhance understanding of the marine historic environment and how it fits within the marine planning system, is impacted by climate change etc (6.2). NRW - Developing guidance for woodland managers on adapting forests and woodlands to improve resilience to climate change, applicable to ancient woodlands and historic landscapes. BBNPA – Response and input to consultations for developing land management strategies, woodland creation, riparian improvements, peatland restoration (see 6.2). RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (see 2.1-2, 3.1-2,, 7.3) RCAHMW, AU, DP, GSI – CHERISH project Guidance e-document Cherish: Sharing Our Practice: Investigating Heritage and Climate Change in Coastal and Maritime Environments. A Guide to the CHERISH Toolkit. Written in 2022 and layout began. To be published/launched at CHERISH conference March 21 2023 NT - Climate Change Adaptation Guidance published October 2022 includes section on the Historic Environment GC - Wales Slate World Heritage Site. Publication of Slate Communities of Gwynedd: Care and Conservation. Sections offering practical advice on maintenance, repairs and improvements, showing how to preserve and restore the character of a building, covering not only houses, but also shops or former chapels, and their surroundings. Also includes a section on Energy and Environment.. Cadw - Ongoing work with the Climate Resilience Embedded Researcher and WG cross-departmental steering group to implement the recommendations from the Fellowship. This includes publication of an Evidence Briefing for policymakers, the development of mapping and guidance tool (pilot to be tested by Registered Social Landlords) and targeted stakeholder engagement to try and embed climate change adaptation in standards and regulations, including Building Regulations, PAS2035, Net Zero Carbon Buildings Standard, etc.. (2.1, 3.1, 5.1) Cadw - Continues to work with partners from across the home nations HES, HE, EH, NT, NTS and DfC NI to pool research and expertise. The UK Heritage Adaptation Partnership was formally launched in the summer. The group is now developing a collaborative work programme. (1.2, 1.3, 2.1, 3.1, 6.1) Cadw - The Joint UK Heritage Agency Work Group (representatives from the four UK historic environment bodies, plus NT and Natural England) developing a checklist guidance for peatland restoration works and the historic environment (by the NT), and toolbox videos / talks, which will be shared across the UK heritage bodies in order to provide improved standardised guidance. Cadw - New content has been added to the climate change section of the Cadw website. This includes a new case study resource; advice on building maintenance as the first step towards climate resilience and energy efficiency, and hosting of the Heritage Responds video. (1.1, 5.3) Cadw: Awarded funding for a second Fellowship. which is likely to commence in the Summer of 2023. The Fellowship is an opportunity to develop and test the Adaptation Pathways approach to climate change adaptation and to develop guidance and training for policymakers, asset owners and practitioners in the historic environment sector. (2.1, 6.1, 6.2) ENPA – Conservation, forestry and agricultural department. Peatland restoration projects via the National Peatland Action Programme. Conifer removal (former commercial plantation on peatland or invasive escapees onto adjacent peat) and ditch/grip blocking. Consultation and monitoring has been undertaken to ensure against unintended adverse impact on historic environment features. (7.2) 	<ul style="list-style-type: none"> HE3

Resilience: Increase resilience of the historic environment by implementing actions to respond and adapt to the risks					
	Description of the action	Output(s) from the action	Broad outcome/impact	Activity 2022	CCW Indicator
7. Taking action					
7.1	Prepare and implement emergency/adaptation plans (utilising the principles and methods developed for conservation management plans) for vulnerable areas or sites as identified in 2.1 and 2.2. Plans to include multiple work streams if several agencies have identified the need for adaptation measures.	<ul style="list-style-type: none"> • Identification of significance, threat, vulnerability and adaptive action. • Partnership working with all agencies. 	<ul style="list-style-type: none"> • The prioritisation and effective management of resources. 	<ul style="list-style-type: none"> • PTWT – Developed a long term sustainable restoration and management plan for Pembroke's medieval town walls. Met with wall owners to develop Heritage Partnership Agreements to jointly seek funding and work to restore their walls. • PCNP – applications accommodated as much as possible involving adaptation to historic/listed buildings such as retrofitting, solar panels, double glazing timber windows etc. • EA - Working in partnership to develop a holistic approach to water management in the River Severn catchment; employing Natural Flood Management, land-use change, and sensitive engineered water management structures • CIW - Across each of the six Diocese' covering Wales, there are functioning Mission or Ministry Area structures including Property Committees with specific responsibility for the management and maintenance and inspection of our historic assets. Through this network that we intend to disseminate information about the effects of climate change on the historic environment, and associated guidance. • NRW - Pioneering tree felling operation at Dolaucothi Goldmines, climate adaptation includes restocking with broadleaved trees, avoiding historic features. • NRW - Stabilisation works at Venallt Iron works in the Vale of Neath. (7.3) • AC-NMW - The capacity of rainwater goods on Llwyn yr eos (one of the historic buildings at St Fagans National Museum of History) have been increased to cope with the larger volumes of rainwater we are experiencing. • RCAHMW – Has a priority recording and at-risk recording programme/strategy to respond to emergency. New thematic project 20th Century Wales. A Topography of Schools to deal with closure and demolition of this 'at-risk' building type, the result of new school building to meet WG decarb targets. Work includes enhancement of NMRW and recording of sites marked for demolition and those of architectural, historical and local significance. • LYC - Community project to undertake repairs and improvements to futureproof the Grade II* church in Ceredigion. Work has included parging in hot lime and new deeper leadwork on 2 sides of the church tower, which was suffering from water ingress and had to be closed. The Project runs between 2019 -2023 and is funded by the National Lottery Heritage Fund, the National Churches Trust and the Wolfson Foundation, and Ceredigion County Council. (7.3) • NBGW - Exploring more sustainable water capture and usage and improved management of water features within restored regency period water-park landscape. • NBGW - Turning down the temperature in glass houses and adjusting collections accordingly, heating glass houses and other buildings on site using CHP; improving the maintenance practice on all our traditionally constructed buildings on site to utilise both more sustainable and appropriate materials. • NTC, Cadw - Dinas Dinlle Hillfort. Consolidation of excavated roundhouse adjacent to eroding cliff edge to allow it to be left uncovered and viewable to demonstrate what we are about to lose. • BCBC - New Inn Bridge, Merthyr Mawr (Scheduled Monument). Suffered with washout to the abutments within the river Ogmere, and adhoc vehicle strikes. A scheme is in design to in fill in and protect the washout under the abutments with a view to works ongoing summer 2023. • ENPA – Carneddau Landscape Partnership Scheme continues. Land management and conservation work included peatland repair/restoration, progress with plans to exclude stock from 2 areas to improve Montane heath and low density scattered tree-planting. All work was undertaken with consultation and monitoring to avoid incidental impact on historic environment features. • NTC - Powis Castle Registered Garden. In response to an increase in water scarcity and a failing borehole the rainwater collection system at Powis Castle nursery was upgraded to incorporate a 25,000 litre steel tank, increasing storage capacity to 32,000 litres and new deeper guttering better suited to sudden heavy downpours. <i>Newly reported activity from 2021.</i> • BCBC – Overhaul and strengthening of the 19th Century Eastern Promenade Wall and Western Breakwater, Porthcawl to mitigate against long term flood risk and ensure the structures are strengthened to sustain future coastal impacts over the coming years. <i>Newly reported activity from 2021.</i> 	<ul style="list-style-type: none"> • HE4

7.2	Undertake programme of landscape and urban characterisation to inform management of change in both rural and urban areas.	<ul style="list-style-type: none"> Produce characterisation reports for areas at risk, and feed results into conservation management plans 	<ul style="list-style-type: none"> Improved conservation and management of change. 	<ul style="list-style-type: none"> CRDV AONB & NRW – Landscape and Nature Recovery in a Changing Climate Guide Landscape Institute Awards finalist Excellence in Tackling Climate Change. Relevance historic landscape character 	<ul style="list-style-type: none"> HE4
7.3	Prioritised work programmes relating to historic assets at risk such as those identified through 7.1, spatial mapping work (2.1), baseline monitoring (2.2) and through other local and national adaptation plans e.g. shoreline management plans. Where possible to be preceded by a management plan. Direct actions could range from survey, record and monitoring through to maintenance and conservation measures, erosion control or moving significant vulnerable assets to a place of safety.	<ul style="list-style-type: none"> Work programmes underway. Improved protection and preservation of historic assets. Improved management of historic assets. 	<ul style="list-style-type: none"> Mitigation and improved resilience of the historic environment. Acceptance of inevitable change. Partnership working and cross sector coordinated response. 	<ul style="list-style-type: none"> Cadw - Work we do to address other priorities is also helping to build the resilience of historic assets to climate change. One example is the Historic Buildings Grant Programme, the aim of which is to help secure a sustainable, long-term use for listed buildings which are 'at risk' or vulnerable through neglect and decay. GAT – Completion of community excavation of well-preserved large roundhouse identified in 2019-21 with Cadw and NT funding. Earlier CHERISH 2019 investigations reported in CBAW Archaeology in Wales Journal <i>Dinas Dinlle Hillfort, Llandwrog, Gwynedd. An Overview of Cherish Project Investigations 2019.</i> TTC – Monitoring and maintenance of the Town Clock, The Circle (Tredegar) as a Grade II Listed monument., and the War Memorial, Bedwelty Park (Tredegar) as a Grade II Listed monument and the Memorial Gates DAT – 5-week community excavation of Porth y Rhaw Promontory Fort, Pembrokeshire with Cadw funding and PCNP support.. Builds on 1990s, 2019 and 2021 excavations. PCNPA – Continuation of Changing Coasts project using fixed point photography. Communities/public submit photographs at specific coastal path points to monitor change and erosion (see 2.2, 3.1-2, 7.4). PCNPA – Carrying out maintenance work at sites at risk from climate change, including scrub clearance at scheduled promontory forts. RCAHMW - Continuation of work to enhance records of historic assets located in the inter-tidal and coastal zone, through 3D digital survey. It is intended that this survey work will provide much improved baseline information for future assessment of any impact from climate change, as well as providing a much enhanced record of the historic asset (2.1, 2.2) NRW - Early planning stages relating to managing and safeguarding historic assets on three sites with changing climate benefits. NRW - Stabilisation works at Venallt Iron works in the Vale of Neath. (7.1) BBNPA - Peatlands programme: 2022- 2023 of works ongoing, Archaeological Contractor appointed to inform and aid delivery of scheme. Paleoenvironmental assessment commissioned and completed. BBNPA - Active conservation management at a number of sites to improve resilience and promote condition including Garn Goch, Clydach Ironworks, Pontneddfechan Gunpowder Works, Bryn Oer tramroad. RCAHMW, AU, DP, GSI – CHERISH project continues. Targeting specific study areas in coast zone (includes seabed, intertidal, island and coast edge environments) to improve baseline data through technologies such as lidar, UAVs, GNSS, terrestrial laser scanning, marine survey for baseline and condition/change monitoring of coast zone. Includes data enhancement and archiving of freely available data and event reporting of project work to NMRW as central repository of data. (2.1-2, 3.1-2, 6.3) LYC - Community project to undertake repairs and improvements to futureproof the Grade II* church in Ceredigion. Work has included parging in hot lime and new deeper leadwork on 2 sides of the church tower, which was suffering from water ingress and had to be closed. The Project runs between 2019 -2023 and is funded by the National Lottery Heritage Fund, the National Churches Trust and the Wolfson Foundation, and Ceredigion County Council. (7.1) BU – PhD research (2021-24) 'Historic Shipwrecks and the Impacts of Climate Change' to address marine research priorities. Includes monitoring of 18 intertidal wrecks and patterns of uncovering and recovering in relation to beach profile changes. (2.2, 3.1) DV - Crowd-funded community excavation and geophysical survey at Caerfai Promontory Fort, Pembrokeshire. 	<ul style="list-style-type: none"> HE4 MC1
7.4	Establish stakeholder/community groups able to monitor assets and respond to significant events such as wild fires and storms to maximise the potential for the discovery of new historic assets and the recording and monitoring of them.	<ul style="list-style-type: none"> Stakeholder/community groups established. Monitoring regimes in place. 	<ul style="list-style-type: none"> Improved knowledge, management and resilience of the historic environment. Raised awareness and appreciation of the historic environment. 	<ul style="list-style-type: none"> PCNPA – Monitoring the condition of scheduled monuments within the National Park using volunteers (system set up in 2020) (see 2.2, 3.1-2). PCNPA – Continuation of Changing Coasts project using fixed point photography. Communities/public submit photographs at specific coastal path points to monitor change and erosion (2.2, 3.1-2, 7.3). MADU –Coflein Heritage Community Project pilot (working with RCAHMW) engaging NAS volunteers to visit, inspect and monitor shipwrecks. 	<ul style="list-style-type: none"> HE4 MC1

				<ul style="list-style-type: none"> • BBNPA – Continuation of volunteer condition monitoring programme ongoing (2.2, 3.1-2). • RCAHMW, AU, DP, GSI – CHERISH project continues. Work with community groups and individuals to monitor and records assets at risk (6.2). • ENPA – Carneddau Landscape Partnership Scheme continues. Community and volunteer work included scrub vegetation control at several scheduled monuments and lidar project training days. Volunteers and a group of MA and PhD students from the University of Sheffield undertook and measured survey, UAV and photogrammetry of historic environment features (6.2) 	
7.5	Encourage and implement new planting regimes where trees and hedgerows form a key component of the historic environment to reduce the impact of the spread of disease and increased storminess.	<ul style="list-style-type: none"> • New planting regimes that are responsive to plant health trends and are of suitable provenance. • The preservation of traditional field boundaries. 	<ul style="list-style-type: none"> • Reduced impact of the spread of diseases and storms. • Improved management and resilience of trees in the historic environment. • Retention and survival of historic character and integrity. 	<ul style="list-style-type: none"> • LTC – Maintenance of parks, areas left to wildflower and replanting of trees. • AC-NMW - Gardening team at St Fagans National Museum of History have adapted their planting schemes to favour deep-rooting plants for resilience against summer drought. • NBGW - Developing and transitioning living collections to be appropriate for future climatic scenarios according to tools available in the botanic gardens network, adjusting horticultural practices with regards to water and energy usage. • NBGW - Planting relevant taxa, implementing a robust plant health and compliance policy to prepare for new and emerging pests and diseases eg. pine processionary moth. • ENPA – Carneddau Landscape Partnership Scheme continues. Land management and conservation work included low density scattered tree-planting along water corridors and amongst craggy and scrub covered slopes, respecting historic tree presence/providing succession for existing mature trees and aiming to help increase biodiversity and slow water-flow rate. • NBGW - promoting meadow management techniques and spreading wildflower seed and green hay collected from Waun Las NNR (managed historic parkland) <i>Newly reported activity from 2021.</i> • DTP - hedgerow management <i>Newly reported activity from 2021.</i> 	<ul style="list-style-type: none"> • HE4
7.6	Build a resilient recovery from the COVID-19 pandemic.	<ul style="list-style-type: none"> • Organisational climate and sustainability plans, policies and actions. 	<ul style="list-style-type: none"> • New ways of working that reduce emissions and prepare for climate change. 	<ul style="list-style-type: none"> • BBNPA - Changed working patterns, reduced vehicle use, remote working, reduced paper usage. • RCAHMW – continues its Future Generations Group. A Biodiversity and Resilience of Ecosystems Duty Report and Forward Plan 2022-24 published in 2022. 	<ul style="list-style-type: none"> • HE4

Abbreviations

AC-NMW: Amgueddfa Cymru – National Museum Wales

AU: Aberystwyth University – Department of Geography and Earth Sciences

BBNPA: Bannau Brycheiniog National Park Authority

BCBC: Bridgend County Borough Council

BU: Bangor University – School of Ocean Science

CBAW: Council for British Archaeology: Wales

CIW: Church in Wales

CITIZAN: Coastal and Intertidal Zone Archaeological Network.

CPAT: Clwyd-Powys Archaeological Trust

CRDV AONB: Clwydian Range and Dee Valley Area of Outstanding Natural Beauty

DP: Discovery Programme, Ireland

DfC (NI): Department for Communities (Northern Ireland)

DTP: Dyffryn Tywi Project

DV: DigVentures

EA: Environment Agency

ENPA: Eryri National Park Authority

EH: English Heritage

FPAN: Florida Public Archaeology Network.

GAT: Gwynedd Archaeological Trust

GC: Gwynedd Council

GGAT: Glamorgan-Gwent Archaeological Trust

GNSS: Global Navigation Satellite System

GSI: Geological Survey Ireland

HE: Historic England

HEG: Historic Environment Group

HEGS: Historic Environment Group Climate Change Subgroup

HES: Historic Environment Scotland

LTC: Llandeilo Town Council

LYC: Eglwys a Threftadaeth – Llanfihangel y Creuddyn – Church & Heritage

MADU: Malvern Archaeological Diving Unit

NBGW: National Botanic Garden of Wales

NAS: Nautical Archaeology Society

NRW: Natural Resources Wales

NT: National Trust

NTC: National Trust Cymru

NTS: National Trust Scotland

PCNPA: Pembrokeshire Coast National Park Authority

PTWT: Pembroke Town Walls Trust

RCAHMW: Royal Commission on the Ancient and Historical Monuments of Wales

RSPB: Royal Society for the Protection of Birds

SAP: Sector Adaptation Plan

SCAPE: Scotland's Coastal Heritage at Risk Project

TTC: Tredegar Town Council

UAV: Unmanned Aerial Vehicle

WATs: Welsh Archaeological Trusts

WCMC: Wales Coast Monitoring Centre

WG: Welsh Government

Links to Resources

Cadw – Maintenance Matters!

<https://cadw.gov.wales/maintenance-matters>

Carneddau Landscape Partnership Scheme:

<https://www.snowdonia.gov.wales/looking-after/carneddau-partnership>

CHERISH Climate Change and Coastal Heritage project:

<http://www.cherishproject.eu/en/>

Clwydian Range & Dee Valley AONB - Landscape and Nature Recovery in a Changing Climate Climate:

<https://www.clwydianrangeanddeevalleyaonb.org.uk/wp-content/uploads/2016/06/Landscape-Nature-Recovery-ENG-Interactive.pdf>

Fit for the Future Network:

<https://www.fff.org.uk/home>

Historic Environment and Climate Change in Wales Sector Adaptation Plan:

<https://cadw.gov.wales/sites/default/files/2020-02/Adaptation%20Plan%20-%20FINAL%20WEB%20-%20English%20%281%29.pdf>

Historic Environment and Climate Change in Wales Sector Adaptation Plan Monitoring and Evaluation Framework:

<https://cadw.gov.wales/sites/default/files/2021-10/Historic%20Environment%20and%20Climate%20Change%20in%20Wales-Sector%20Adaptation%20Plan%20Monitoring%20and%20Evaluation%20Framework-June-2021.pdf>

Historic Environment and Climate Change in Wales Sector Adaptation Plan Monitoring. Interim Report of Activity: Year 1, 2020

<https://cadw.gov.wales/sites/default/files/2022-08/SAP%20Interim%20Report%201%202020%20FINAL%20ENGLISH.pdf>

Historic Environment and Climate Change in Wales Sector Adaptation Plan Monitoring. Interim Report of Activity: Year 2, 2021

<https://cadw.gov.wales/sites/default/files/2022-08/SAP%20Interim%20Report%202%202021%20FINAL%20ENGLISH.pdf>

Historic Environment and Climate Change in Wales – Case study Resource

<https://storymaps.arcgis.com/stories/b862abb4f5264a3f8693583770e4088b>

Historic Environment and Climate Change in Wales – Heritage Responds

<https://www.youtube.com/watch?v=2B5msvwx9g>

National Trust – Climate change adaptation guidance

<https://www.into.org/new-national-trust-climate-change-adaptation-guidance/>

Natural Resources Wales – Pioneering tree felling operation successfully preserves ancient goldmines

<https://naturalresources.wales/about-us/news-blog-and-statements/news/pioneering-tree-felling-operation-successfully-preserves-ancient-goldmines/?lang=en>

Pembrokeshire Coast National Park Changing Coasts project:

<https://www.pembrokeshirecoast.wales/get-involved/changing-coasts/>

RCAHMW - The Biodiversity and Resilience of Ecosystems Duty Report and Forward Plan 2022-24

<https://rcahmw.gov.uk/about-us/corporate-information/future-generations/biodiversity-report-and-forward-plan-2022-24/>

Eryri National Park Authority – Carneddau Landscape Partnership

<https://snowdonia.gov.wales/protect/conservation-work/carneddau-landscape-partnership/>

Wales Slate World Heritage Site - Slate Communities of Gwynedd: Care and Conservation

<https://indd.adobe.com/view/6fb37302-819e-4c6a-b721-8cdcad240645>

Welsh Government climate change adaptation plan - Prosperity for all: A climate conscious Wales

<https://gov.wales/prosperity-all-climate-conscious-wales>

Welsh Government climate change adaptation plan - Prosperity for all: A climate conscious Wales: Progress report

<https://www.gov.wales/prosperity-all-climate-conscious-wales-progress-report>

Welsh Government – Resilience of buildings to challenges associated with climate change: report

<https://www.gov.wales/resilience-buildings-challenges-associated-climate-change-report>