

## **Monitoring Framework (part 1)**

**Monitoring our Ecological Ceiling – Considering the state of our environment in relation to key planetary boundaries.**

**This document is part one of three part series, which in combination make up the Monitoring Framework for *Y Bannau: The Future the Management Plan for the Brecon Beacons National Park Authority (2023-2028)*.**

This section considers the sustainable management of natural resources with the Brecon Beacons.

Part two seeks to consider how you monitor the quality of life of the people who live and work within the Brecon Beacons.

Part three considers how the park fulfils its second purpose to provide opportunities for enjoyment and understanding of the National Park, without impacting our communities quality of life, or degrade our Natural Resources.

## Monitoring and reporting the five missions, - Doughnut indicators

The five missions adopted in *Y Bannau: The Future* are chosen because they are biggest shifts needed to achieve a sustainable future for the National Park.

It is therefore important to measure and report on progress towards achieving the missions, and on wider indicators of National Park sustainability - the extent to which ecological ceiling (Planetary Boundaries) and the social foundation (Sustainable Development Goals) are being breached.

A series of indicators have been selected as the best metrics for understanding and tracking change in the National Park in relation to the Doughnut Economics:

- Ecological ceiling (Planetary Boundaries)
- Social foundation (Sustainable Development Goals), and
- The 'safe and just space' in the middle of the ring which reflects ecological and human wellbeing in the unique context of Bannau Brycheiniog National Park.

The indicators have been chosen because they represent the best direct metric or proxy, and because it is envisaged that data will be available to track change over a long timescale.

Indicators were identified through detailed workshop sessions with expert contributions from BBNPA officers and the National Park's Stakeholder Reference Panel.

## Timescales

Several different timescales are important in considering the sustainable future of the National Park.

**Ongoing:** Updates on the BBNPA website and other platforms, and that of partners, sharing information about actions and outcomes, celebrating successes, and highlighting opportunities and challenges.

**1 year:** Annual Doughnut Economics assessment 'health check' of the National Park, and annual assessment of progress in achieving the missions.

**4 years:** State of the Park Report 2027 The State of the Park report is an important synthesis of all the data being gathered in relation to the doughnut. It is an important moment to reflect on the key issues facing the Park in order to inform the review of *Y Bannau*.

**5 years:** The duration of *Y Bannau: The Future* management plan. Used to focus near-term action towards achieving the missions.

**2030 and 2035:** The timescales to achieve the nature and water missions and the climate mission respectively.

**25 years:** The medium-term vision for the National Park.

**50 years:** Long-term change horizon. Used to track long-term sustainability as indicated by Doughnut Economics metrics.





Domain	Sub domain	Indicator	Current situation	Scale of shift needed to return to boundary levels									
Phosphorus and Nitrogen		Levels of freshwater nutrients against JNCC derived targets	<p>67% of the water bodies assessed within the Wye SAC catchment and 88% of the water bodies assessed within the Usk SAC Catchment fail for phosphorus concentrations against JNCC derived targets.</p> <p>Nitrogen levels to be determined</p>										
Invasive Non-Native Species		Instances of Invasive Non-Natives recorded within the National Park	There have been 59 INNS recorded within the boundaries of the Brecon Beacons National Park. As of February 2020 there are 4300 invasive species records held by the Local Records Centre (BIS) for the Park area										
Soil Quality		Soil ecology including organic matter, C, N, pH, microfauna/flora, hydrology, e-DNA	To be determined										
Land conversion		Area of park by principal land use	To be determined										

Domain	Sub domain	Indicator	Current situation	Scale of shift needed to return to boundary levels
Water Quality		Overall waterbody status (WFD)		<div style="display: flex; justify-content: space-between; width: 100%;"> <div style="width: 33%; background-color: red;"></div> <div style="width: 33%; background-color: white;"></div> <div style="width: 33%; background-color: white;"></div> </div>
Biodiversity loss	Species	Farmland bird numbers	30% decline in farmland birds from 1994 to 2018 (SOPR)	<div style="display: flex; justify-content: space-between; width: 100%;"> <div style="width: 33%; background-color: red;"></div> <div style="width: 33%; background-color: red;"></div> <div style="width: 33%; background-color: white;"></div> </div>
	Habitat	Condition of major habitat types	To be determined	<div style="display: flex; justify-content: space-between; width: 100%;"> <div style="width: 33%; background-color: gray;"></div> <div style="width: 33%; background-color: gray;"></div> <div style="width: 33%; background-color: gray;"></div> </div>

## Climate

<b>Principal domain</b>	Levels of GHG emissions compared with Paris aligned target.
<b>The most up to date data available</b>	<p>Residents' emissions were estimated at 0.561 million tCO<sub>2</sub>e, and visitors' emissions – from time spent in the Park and during travel to and from – were estimated at 0.264 million tCO<sub>2</sub>e.</p> <p>Paris aligned targets require a reduction of net annual GHG emissions totalling 1,263,122 tCO<sub>2</sub>e per year up until 2050</p>
<b>Why are we monitoring this sector?</b>	<p>Green House Gases (GHG) is a catch all term for a range of gases which are emitted into the atmosphere and result in the trapping of heat, leading to the phenomena usually referred to as global warming. An increase of human derived GHG as a result of activity since the Industrial Revolution is directly correlated with rising global temperatures. In turn rising temperatures have had devastating socio-economic-environmental impacts across the globe. Without a concerted effort to limit the emission of GHG, temperatures are predicted to keep rising, leading to the triggering of a range of environmental tipping points which threaten life on the planet as we know it.</p> <p>The Paris Agreement is a legally binding international treaty adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France on December 2015. Its overarching goal is to hold 'the increase in the global average temperature to well below 2 degrees celcus above pre-industrial levels' and 'pursue efforts ' to limit the temperature increase to 1.5degrees Celsius above pre-industrial levels.</p> <p>The National Park commissioned analysis to understand what our 'fair share' of contributing towards GHG reductions to help deliver on the Paris agreement.</p> <p>We monitor GHG emissions to understand</p> <ol style="list-style-type: none"> <li>What sectors of the economy/society are emitting GHG and how much are they emitting</li> <li>How much total GHG is being emitted by residents and visitors activity within the National Park</li> <li>Where further action is needed to better cut emissions to be on track to meet our fair share of Paris aligned reductions.</li> </ol>
<b>What we will report and when</b>	<p>Data is produced by the Department for Business, Energy and Industrial Strategy (BEIS), disaggregated to National Park boundaries showing territorial emissions by sector. This is updated regularly and our Annual Reports will provide this as trend data building on previous reporting.</p> <p>We will also update our 'consumption based' emission report one more time during the plan period. This consumption based report looks at those emissions referred to as Scope 3, this includes an understanding of the indirect emissions generated via visitors and residents from their lifestyle choices. It is anticipated this report will be published 2027 as part of the evidence gathering which supports plan review.</p>
<b>What picture we want to see if the plan is successful</b>	GHG reduction year on year, in accordance with the 'glide path' to net zero by 2035 shown in <a href="#">A Greenhouse gas emissions assessment and target scenario for the Brecon Beacons National Park</a> (Small World Consulting, Oct 2022)
<b>Boundary level</b>	Net zero GHG by 2035
<b>Related Mission Area(s)</b>	Climate People Place
<b>Related objectives</b>	Decarbonization Quality of life Collaborating in Place

<b>Related outcomes</b>	Sustainable transport Sustainable food and drink Sustainable energy Sustainable land use Future heat and power Future transport Resilient places Innovative places
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**Data Source:**

[A Greenhouse gas emissions assessment and target scenario for the Brecon Beacons National Park](#) (Small World Consulting, Oct 2022)

[UK local authority and regional greenhouse gas emissions national statistics](#) BEIS (2022)



## Climate (cont)

<b>Sub domain</b>	Estimated levels of CO2 removal resulting from Land use, Land use Change and Forestry compared with Paris aligned target
<b>The most up to date data available</b>	Paris aligned targets anticipate the removal of 17,773.6 tCO2e per annum arising from land use, land use change and forestry rising from -42,190 tCO2e sequestered in 2019 to 593,171.60 tCO2e by 2050.  Current(2019) LULCF sequestration is estimated to remove 42,190 tCO2e from BBNPA territorial emissions.
<b>Why are we monitoring this sector?</b>	Alongside reduction in activity which emits GHG into the atmosphere, activity to actively sequester, and remove carbon from the atmosphere will also be necessary to meet a fair share of the Paris aligned target.  Monitoring GHG removal via land use, land use change and forestry enables a picture to develop of the extent to which GHG removal is occurring within the National Park at scale and rate necessary to meet the net zero goal.
<b>What we will report and when</b>	Data is produced by the Department for Business, Energy and Industrial Strategy (BEIS), disaggregated to National Park boundaries showing GHG removal via LULCF
<b>What picture we want to see if the plan is successful</b>	GHG removal year on year, in accordance with the 'glide path' to net zero by 2035 shown <a href="#">in A Greenhouse gas emissions assessment and target scenario for the Brecon Beacons National Park</a> (Small World Consulting, Oct 2022)
<b>Boundary level</b>	Net zero GHG by 2035
<b>Related Mission Area(s)</b>	Climate
<b>Related objectives</b>	Sequestration
<b>Related outcomes</b>	Habitat restoration Land use change Sustainable Farming

### Data Source:

[A Greenhouse gas emissions assessment and target scenario for the Brecon Beacons National Park](#) (Small World Consulting, Oct 2022)

[UK local authority and regional greenhouse gas emissions national statistics](#) BEIS (2022)

## Air Pollution

<b>Principle domains</b>	Levels of harmful airborne pollutants in accordance with safe levels for humans/environmental protection			
<b>The most up to date data available</b>	Particulate	Particulate data Brecon (March 2023) PM2.5 – excellent PM 10 – excellent Average 20 AQI		
	Environmental Data point Craig Cerrig Gleisiad SAC	<b>Pollutant</b>	<b>2018-20 Data</b>	<b>Critical levels</b>
		Ammonia	0.92 µg/m <sup>3</sup>	1 µg/m <sup>3</sup>
		Nitrogen oxides	4.07 µg NO <sub>x</sub> /m <sup>3</sup>	30µg/m <sup>3</sup>
	Sulphur Dioxide	0.53 µg/m <sup>3</sup>	20µg/m <sup>3</sup>	
<b>Why are we monitoring this sector?</b>	Air pollution has the potential to significantly impact on habitats, species and human health. We monitor emissions to understand the extent to which polluting activity is endangering human and environmental health within the National Park. Although all forms of air pollution are damaging, in general we consider the impacts of particulates on human health and therefore impacts in our most populated area, whereas other forms of air pollution, especially that arising from Nitrogen are critical in relation to environmental protection, and hence we consider data from one of our protected sites.			
<b>What we will report and when</b>	For particulate we will monitor data relating to Brecon our Market Town with the largest resident population. For environmental impacts we will monitor Craig Cefn Gleisiad SAC a protected site located along the A470 opposite Pen Y Fan, a visitor honey pot. These two sites have been selected as they have the potential to be most significantly impacted by human induced air pollution issues. Data will be reported on for both elements on an annual basis			
<b>What picture we want to see if the plan is successful</b>	In general this sector is performing well against boundary levels. <i>Y Bannau</i> aims to bring about reductions in emissions, so hopefully with time we will see even better performance against these targets			
<b>Boundary level</b>	Excellent rating for particulates AQI 20 or lower No breach of critical load of airborne pollutants			
<b>Related Mission Area(s)</b>	Climate Place People			
<b>Related objectives</b>	Decarbonisation Sequestration Quality of life Collaborating in Place for a better future			
<b>Related outcomes</b>	Sustainable transport Sustainable Energy Sustainable Land Use Future transport Future Visitors Well planned places Healthy Places			

**Data Source:** [Air Pollution Information Service](#) data taken at grid reference 296090,221728 Craig Cefn Gleisiad SAC reporting period 2018-2020 and [Accuweather](#)

## Phosphorus and Nitrogen

<b>Sub domain</b>	Levels of freshwater nutrients against JNCC derived targets
<b>The most up to date data available</b>	67% of the water bodies assessed within the Wye SAC catchment and 88% of the water bodies assessed within the Usk SAC Catchment fail for phosphorus concentrations against JNCC derived targets. Nitrogen levels yet to be reported.
<b>Why are we monitoring this sector?</b>	The inorganic elements Nitrogen and Phosphorus are essential to all life on earth. As a key natural resource they form an essential building block of all life cycles, including our own. Drive for cheap food production and a growing population means that the natural nitrogen and phosphorus cycle have been critically distorted leading to the over nutrification of our soils and waters with consequential ecosystem collapse. The sources which lead to excess Phosphorus and Nitrogen are multiple and complex. The use of the resource is also highly extractive, and carbon intensive. At present we monitor levels of phosphate within freshwater riverine Special Areas of Conservation to allow us to understand the extent to which we are managing Phosphorus inputs. In time we hope to expand this area to look at Nitrogen levels in freshwater as well as nutrient levels within soils (see also soil quality below).
<b>What we will report and when</b>	There are a number of sources of data non of which is collated by the organisation. Core sources of data are derived by NRW's compliance reporting against JNCC targets, and SAGIS modelling undertaken by DCWW. We will report on any updates in the annual report which follows – using differences to report on trend.  The NPA and WUF are working together to monitor interventions on the afon crai – we will report on this data annually to demonstrate the impact of localised interventions.  We will also where verified, report annually on data being collected via citizen science projects with a focus on the river Usk (Upper/middle/lower_
<b>What picture we want to see if the plan is successful</b>	Success would be the reduction in phosphate levels entering our waterways. With the aim of all riverine SACs meeting JNCC targets for nitrogen and phosphate
<b>Boundary level</b>	100% of waterbodies within riverine SACs catchments falling within the NPA meeting JNCC targets for nitrogen and phosphorus
<b>Related Mission Area(s)</b>	Climate Water Nature People Place
<b>Related objectives</b>	Sequestration Adaptation Resilient catchments Ecosystem management Quality of life
<b>Related outcomes</b>	Habitat restoration Land use change Sustainable farming Nature restoration Resilient Infrastructure Nutrient levels Water flow Restored ecosystems Ecosystems services supported Ecosystems Rehabilitated Future Food Resilient Places

## **Data Source**

[Compliance Assessment of Welsh river SACs Against Phosphorus Targets](#) NRW 2021

[Update to phosphorus targets for water bodies in Special Area of Conservation \(SAC\) rivers in Wales](#) NRW 2022

[Updating the SAGIS River Usk Model 2023](#) (DCWW)

[Updating the SAGIS Upper Wye Model 2023](#) (DCWW)

## Invasive Non Native Species

<b>Principal domain</b>	Instances of Invasive Non Natives recorded within the National Park
<b>The most up to date data available</b>	There have been 59 INNS recorded within the boundaries of the Brecon Beacons National Park. As of February 2020 there are 4300 invasive species records held by the Local Records Centre (BIS) for the Park area.
<b>Why are we monitoring this sector?</b>	Invasive Non-Native Species can be really damaging to our native wildlife and habitats. By monitoring their instances we can understand the level of threat to our native wildlife and habitats
<b>What we will report and when</b>	There are two principle sources of data <ul style="list-style-type: none"> <li>- The data we hold as an organisation</li> <li>- The data held by the Powys Biodiversity Information Service.</li> </ul> Our data records instances within the boundaries of the National Park, areas where intervention has been implemented, and the success of those interventions. BIS hold records for all of the Park area based on the reporting of instances. In many instances there will be cross-over in our data, however we will consult both sources of data in our annual reporting, and provide an understanding of the extent of the problem throughout the park.
<b>What picture we want to see if the plan is successful</b>	Due to the nature of the problem, we would want to see a reduction in the instances of INNS across the Park.
<b>Boundary level</b>	No instances of INNS reported for the National Park.
<b>Related Mission Area(s)</b>	Nature Water
<b>Related objectives</b>	Species conservation Ecosystem management Resilient catchments
<b>Related outcomes</b>	Threats are reduced Ecosystems rehabilitated Restored ecosystems

### Data Source

[State of the Park Report](#) (BBNPA 2020) Indicator 12

## Biodiversity loss

<b>Principal domain</b>	Levels of indicator species	
<b>The most up to date data available</b>	Farmland birds	30% decline in farmland birds from 1994 to 2018
	Bats	Park level data to be determined
	Invertebrates	Park level data to be determined
<b>Why are we monitoring this sector?</b>	<p>Certain groups such as birds, bats and invertebrates provide a powerful indicator of overall health of species populations. We have in the past focused on farmland birds as powerful indicators of environmental health. Many birds sit at or near the top of terrestrial and marine food chains and understanding the drivers and impacts on their populations gives us an insight into the status of other wildlife.</p> <p>Bats are a similarly good proxy for environmental health, their use of environments differs from that of birds so provides a more nuanced picture.</p>	
<b>What we will report and when</b>	<p>We will update this schedule to identify indicators and data for bats/invertebrates by 2025. Reporting frequency to be determined in relation to the data being used and frequency of updates.</p> <p>We will seek to update the assessment with the BTO in 2026/7 to inform the update to State of the Park Report</p>	
<b>What picture we want to see if the plan is successful</b>	<p>The Plan seeks to reverse the decline of biodiversity and increase both the numbers and extent of key 'flagship' species. Bats, invertebrates and farmland birds fall within this category. For that reason for birds would hope to see a reversal of the decline discovered through the last assessment, and ideally an increase in farmland bird numbers.</p>	
<b>Boundary level</b>	Return to 1970 levels for farmland birds.	
<b>Related Mission Area(s)</b>	Nature	
<b>Related objectives</b>	Species Conservation	
<b>Related outcomes</b>	<p>Threats are reduced.</p> <p>Numbers have increased.</p> <p>Range has increased</p>	

## Data Source

[A summary of the state of terrestrial wild bird populations in and around the Brecon Beacons National Park based on data from the BTO/JNCC/RSPB Breeding Brd Survey, 1994 to 2018](#) (Barnes and Noble 2020)

[State of the Park Report: Biodiversity Indicators](#) (BBNPA 2020)

## Biodiversity Loss (contd)

<b>Supplementary domain</b>	Condition of major habitat types.	
<b>The most up to date data available</b>	Woodland / treescapes	To be determined
	Heathland/Upland acid grasslands	To be determined
	Lowlands dry acid grasslands	To be determined
	Neutral grassland	To be determined
	Calcareous grassland	To be determined
	Improved grassland	To be determined
	Marshy grassland / Rhos pasture	To be determined
	Peatlands	In accordance with Peatlands Restoration Strategy and National Peatlands Action Programme
	Rivers and Wetlands	To be determined
	Condition of Sites of Special Scientific Interest	Within the Park of the 197 SSSI features, 163 are biological features. In 2017 54% were in favourable condition, 34% unfavourable condition and 12% unknown. There was a slight deterioration of the % of features in favourable condition since between 2014 and 2017 (State of the Park Report 2020)
Protected Sites – Special Areas of Conservation	56% of SAC features within the Park are in unfavourable condition (State of the Park Report 2020)	
<b>Why are we monitoring this sector?</b>	<p>Habitats provide the building blocks to well-functioning, resilient ecosystems. Habitat loss and habitat degradation are fundamental causes of biodiversity loss at a global scale. The State of Nature Report for Wales identifies the widespread loss and degradation of habitats across Wales since the 1970s leading to widespread species loss. Although we don't have systematic data to corroborate this trend in the Park, we have no reason to believe that the picture is any different here.</p> <p>Although some data exists in relation to the condition of protected sites, we have not systematically monitored the state of key habitats across the Park.</p> <p>We recognise that this lack creates a significant gap in our understanding of the ecological condition and resilience of the Park and during this plan period we are aiming to rectify this gap in our knowledge with a planned series of 'vital signs' assessments for the key habitat types identified above.</p>	
<b>What we will report and when</b>	<p>The <i>Vital Signs</i> project looking at a light touch monitoring project of habitat condition across the Park is in development. We hope to be able to report on its findings in 2025, with annual updates each year following.</p> <p>By 2025 we will have commenced identifying areas to develop as Resilient Ecological Networks.</p> <p>Also, we will understand the National Park's role in safeguarding RENs and identifying and monitoring Nature Recovery Exemplar Areas, as well as the ecological condition of landscape character types (LCTs). By 2025, therefore, we aim to be able to record the Park's contribution to the resilience of ecosystems in accordance with its ecological Diversity, Extend, Condition, Connectivity and Adaptiveness (DECCA).</p>	
<b>What picture we want to see if the plan is successful</b>	The Nature mission seeks to restore the condition and extent of degraded habitat with the aim of improving the resilience of the Park's ecosystems. At time of writing our baseline understanding is missing, however as data emerges and trends become	

	apparent we would hope to see a year on year improvement of the extent and condition of key habitats across the park.
<b>Boundary level</b>	All habitats in good condition and ecosystem resilience is assured
<b>Related Mission Area(s)</b>	Nature
<b>Related objectives</b>	Habitat Recovery Ecosystem Management
<b>Related outcomes</b>	Decline halted. Sites of Special Scientific Interest conserved Degraded Habitat restored Nature has returned Resilience is enhanced Ecosystem Services supported Ecosystems rehabilitated.

#### **Data sources**

[Biodiversity indicators – State of the Park Report](#) (BBNPA 2020)



## Land conversion

<b>Principal domain</b>	Area of park by principal land use		
<b>The most up to date data available</b>	Areas classed as urban	5% of Park is classified as urban	
	Areas of conifer plantation	15% of Park is classified as woodland or conifer plantation.	
	Area of broadleaf woodland		
	Area of coed cae	No data	
	Area of enclosed grassland	Improved, semi-improved, unimproved	Alternative lay
<b>Why are we monitoring this sector?</b>	<p>Globally, land use has been identified by the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) as one of the key drivers of the Nature emergency (<a href="#">SoNaRR 2020</a>) (<a href="#">IPBES 2019</a>). To ensure that we are acting to sustainably manage natural resources, it is essential that we understand pressures on land use, how that manifest, and to ensure that through the management of the park we are acting to promote ecological resilience rather than deplete it.</p> <p>At present we have significant gaps in our understanding what the jigsaw of sustainable land use looks like. Previous iterations of the Management Plan have attempted to do this, but without an understanding of how such a target fits with the provision of ecosystem services, particularly cultural ecosystem services in relation to landscape character.</p>		
<b>What we will report and when</b>	<p>We will report on the areas of the park by key land use types as set out above. We will report on this annually, but data collected by others may not report on an annual basis.</p>		
<b>What picture we want to see if the plan is successful</b>	<p>Work is ongoing with Reading University to marry data relating to landscape quality with proposals for LULUCF sequestration and other key data sources such as LANDMAP.</p> <p>Once that work reports we will have a better understanding of the picture that needs to emerge if we are to be using land in accordance with the sustainable management of natural resources.</p>		
<b>Boundary level</b>	A boundary level for this sector is yet to be determined.		
<b>Related Mission Area(s)</b>	<ul style="list-style-type: none"> <li>Climate</li> <li>Nature</li> <li>People</li> <li>Place</li> </ul>		
<b>Related objectives</b>	<ul style="list-style-type: none"> <li>Decarbonisation</li> <li>Sequestration</li> <li>Adaptation</li> <li>Habitat Recovery</li> <li>Ecosystem management</li> <li>Quality of life</li> <li>Collaborating in Place</li> </ul>		
<b>Related outcomes</b>	<ul style="list-style-type: none"> <li>Sustainable Land Use</li> <li>Land Use Change</li> <li>Sustainable Farming</li> </ul>		

	Nature Restoration Decline halted Degraded habitat restored Resilience is enhanced Ecosystem Services Supported Ecosystems Rehabilitated. Future food Future skills and jobs Resilient places Nature connected places
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### Data sources

[Evidence and Research – Land Conversion](#) (BBNPA 2021)

[LANDMAP – Visual and Sensory layer](#)

[A Greenhouse gas emissions assessment and target scenario for the Brecon Beacons National Park](#) (Small World Consultancy 2022)

## Soil Quality

<b>Principal domain</b>	Levels of soil organic matter	
<b>The most upto date data available</b>	Woodland	To be determined
	Heathland/Upland acid grasslands	To be determined
	Lowlands dry acid grasslands	To be determined
	Neutral grassland	To be determined
	Calcareous grassland	To be determined
	Improved grassland	To be determined
	Marshy grassland /Rhos pasture	To be determined
<b>Why are we monitoring this sector?</b>	<p>Quality soils are essential for healthy ecosystems and food production. SoNaRR <a href="#">2020</a> sets out that <i>Wales's soil and its interaction with the climate determines how land can be used sustainability. Society puts pressures on soil and its supporting services (soil formation, nutrient cycling) through land use and by changing the environment.</i> In monitoring soil quality we have chosen to focus on soil organic matter (SOM) as a good indicator of overall soil health. Losses of SOM is associated with a loss of soil quality and function and reduced resistance and resilience to poor soil management. (<a href="#">SoNaRR2020 Taylor and Van-Velzen</a>). Soil sampling will capture other parameters e.g., C, N, pH, hydrology, microfauna / flora and e-DNA, which will elucidate the Park's biogeography.</p>	
<b>What we will report and when</b>	<p>The <i>Vital Signs</i> project looking at a light touch monitoring project of habitat condition across the Park is in development, this will include a programme of soil organic matter testing by major habitat types. Other soil parameters require prior discussion with soil scientists.</p> <p>By 2025 we will have commenced identifying areas to develop as Resilient Ecological Networks.</p> <p>Also, we will understand the National Park's role in safeguarding RENs and identifying and monitoring Nature Recovery Exemplar Areas, as well as the ecological condition of landscape character types (LCTs). By 2025, therefore, we aim to be able to record the Park's contribution to the resilience of ecosystems in accordance with its ecological Diversity, Extend, Condition, Connectivity and Adaptiveness (DECCA).</p>	
<b>What picture we want to see if the plan is successful</b>	<p>We do not have detailed data for this sector at time of writing. ADAS data for all of Wales looked at the probability of soil degradation for land use types and soil quality. The probability was low in all land use types found in the Park with the exception of improved grassland, where here the probability was moderate (or high in relation to peaty soils) <a href="#">SoNaRR2020 Taylor and Van-Velzen</a>). This suggests the probability of degraded soils present within the Park. As we implement the management plan, we hope to see an improvement across the Park with soil quality returning to good or excellent by 2050.</p>	
<b>Boundary level</b>	Healthy soils across all key habitat types	
<b>Related Mission Area(s)</b>	Climate Nature	
<b>Related objectives</b>	Decarbonisation Sequestration Adaptation Habitat Recovery Ecosystem Management	

<b>Related outcomes</b>	Sustainable Land Use Habitat restoration Land Use Change Sustainable Farming Nature restoration Degraded Habitat Restored Resilience is enhanced Ecosystem services supported Ecosystems rehabilitated
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**Data Sources** The Second State of Natural Resources Report (SoNaRR2020) [Assessment of the achievement of sustainable management of natural resources: Land use and soils](#) NRW 2020

## Water Quality

<b>Principal domain</b>	Overall water body status Water Framework Directive	
<b>2018 Data</b>	Usk Reservoir	Good
	Cray Reservoir	Moderate
	Talybont Reservoir	Moderate
	Usk - conf Afon Hydfer to conf Afon Senni	Good
	Usk - conf Afon Senni to conf Afon Crawnon	Good
	Usk - cond Afon Crawnon to conf Gavenny R	Moderate
<b>Why are we monitoring this sector?</b>	Water is an essential component of all ecosystems. Monitoring the quality and quantity of water within the wider environment allows us to understand the extent to which we are protecting this essential resource. Polluted water risks harm to the integrity and functioning of aquatic ecosystems, including potential impact on human health	
<b>What we will report and when</b>	<p>The Water Framework Directive (WFD) establishes a framework for the protection, improvement and sustainable use of surface water bodies (rivers, streams, brooks, lake, estuaries, canals and coastal waters) and groundwater bodies. Its purpose is to prevent deterioration and improve the status of aquatic ecosystems, promote sustainable water use, reduce pollution of groundwater and contribute to mitigating the effects of floods and droughts.</p> <p>NRW is the competent authority for implementing the Directive and they are the body which reports on compliance.</p> <p>We will report on the overall status of all water bodies within the National Park for which we have data.</p> <p>We will report on this as and when new data is released by NRW.</p>	
<b>What picture we want to see if the plan is successful</b>	Our Water mission seeks to achieve clean, safe resilient, plentiful water resources and environments by 2030.	
<b>Boundary level</b>	Within the National Park all waterbodies will meet their objectives as set out in the River Basin Management Plan	
<b>Related Mission Area(s)</b>	Water	
<b>Related objectives</b>	Resilient Catchments High Quality Water Environments	
<b>Related outcomes</b>	Nutrient levels Water flow Restored ecosystems. Water quality Bathing waters Love your rivers	