

AM 620/22

NEW FOREST NATIONAL PARK AUTHORITY

AUTHORITY MEETING – 24 March 2022

CLIMATE EMERGENCY AND NET ZERO WITH NATURE

Report by: Olivia McGregor, Net Zero with Nature Programme Manager

1 Summary:

1. The National Park Authority has made a commitment to work with partners to develop a plan for the National Park and surrounding area to be 'net zero with nature' by 2050. This commitment is enshrined in the 2021-2026 Partnership Plan under our Net Zero with Nature objective 5. An Agenda for Action has been set out, endorsed by Partner organisations, which is as follows:
 - Establish data and evidence baseline
 - Implement nature-based climate solutions
 - Build a New Forest coalition for a net zero economy
 - Activate communities
 - Increase sustainable travel

This paper reviews our work carried out during 2021/22 in respect of these work areas and identifies some key areas of activity for this coming financial year.

2 Introduction – the context within which we are operating

The latest assessment from the Intergovernmental Panel on Climate Change (IPCC) been (AR6 Synthesis Report, February 2022), states that the effects of the climate crisis are coming harder and faster than expected. Every warming increase is making the situation worse, pushing more people and species to their limits and beyond e.g. the risk of extinction increases tenfold if the world moves from 1.5°C to 3°C of warming. The report highlights this is a critical decade for securing a liveable, equitable and sustainable future and sees nature restoration as critical to tackling climate change.

In 2018 the IPCC concluded we must reduce global GHG emissions by at least 45% by 2030 and to net zero by 2050 if we are to limit warming to 1.5°C. Net zero Greenhouse Gas (GHG) emissions are achieved when the amount of GHGs emitted by human activities on a global scale are equal to that being absorbed by the world's natural environment.

In October 2021 the UK government released its Net Zero Strategy which set out policies and proposals for decarbonising all sectors of the UK economy to meet the UK's net zero 2050 target enshrined in law. In 2020 the New Forest National Park Authority declared its ambition to be net zero by 2050, and local partners such as New Forest District Council, Hampshire County Council and Wiltshire Council have all made commitments to net zero.

The New Forest National Park is internationally important for nature and an important place for people to connect with nature. We have an opportunity therefore to take action to combat climate change by working with our local partners to: implement nature-based climate solutions; drive a local net zero economy; encourage behaviour change amongst our communities of residents, businesses and visitors; and ensuring that visits to the national park use sustainable modes of travel.

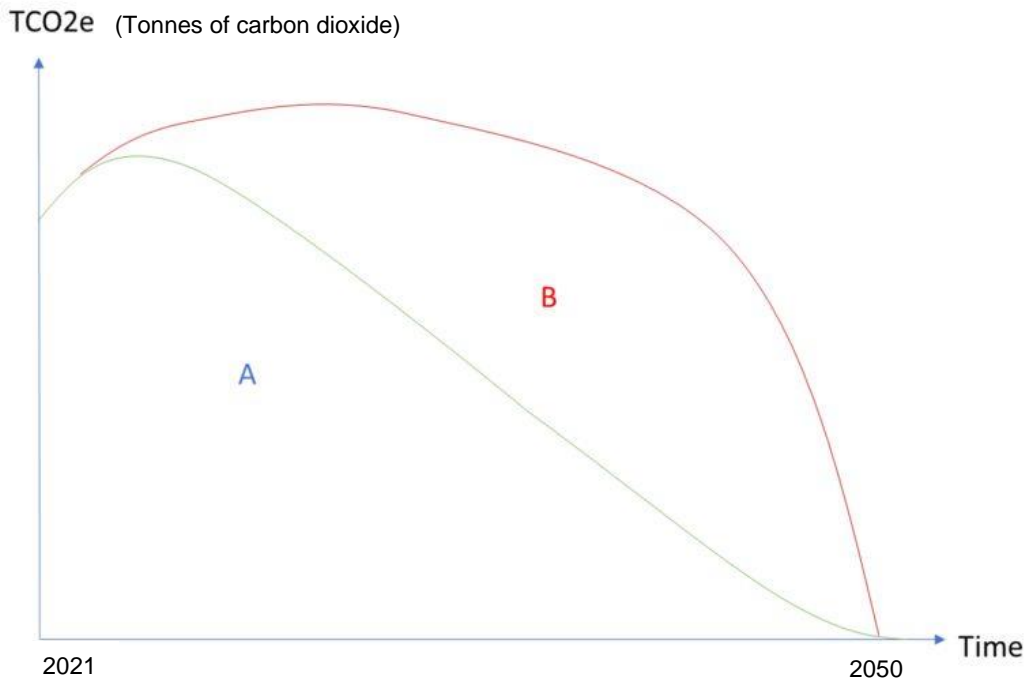
3 Establishing data and evidence baseline

3.1 Defining Net Zero

Net zero is achieved when the amount of Greenhouse Gases (GHGs) emitted by human activities on a global scale are equal to that being absorbed by the world's natural environment. Many organisations, geographical areas and businesses have made commitments to become net zero by defining the emissions they are responsible for and setting out a plan for reducing them to zero (or ensuring that any emissions they cannot reduce, are absorbed by the natural environment). The Partnership Plan commits us to work with partners to develop a plan for the National Park and surrounding area to be 'net zero with nature' by 2050.

3.2 The emission sources associated with the National Park's Net Zero challenge have been defined – see Appendix 1 for details. Good progress is being made on calculating the tonnes of emissions associated with these sources – Appendix 2 lists tonnes of emissions identified to date. We are seeking further information on waste emissions arising from the National Park to arrive at a full inventory of emissions arising from within our geographical boundary. We expect to have attained all remaining data by the summer and will subsequently publish a full carbon inventory (aka footprint) for the National Park.

3.3 World leaders met at COP26 in Glasgow in November 2021 to limit global warming to a 1.5°C global temperature rise (against a pre-industrial baseline). The Tyndall Centre for Climate Change Research have translated these global temperature limiting targets into carbon budgets at a national and sub-national scale. These set out the pace of emission cuts required to be compatible with limiting global temperature rises to 1.5°C. This concept is expressed in the graph below which shows that carbon budget A would be compatible with limiting global temperature rises to 1.5°C but carbon budget B would not be.



- 3.4 We have commissioned climate change consultancy, Small World Consulting, to identify a carbon budget and programme of CO₂ mitigation for the New Forest area that will enable us to reach net zero by 2050 whilst being compatible with efforts to limit temperature rises to 1.5°C.
- 3.5 In addition to this, the family of UK national parks have commissioned Small World Consulting to produce a consumption-based assessment of Greenhouse Gases (GHG) for each National Park. This will provide data on the full carbon emissions of Park residents' lifestyles and that of visitors while they are in the National Park, as well as emissions from travelling to and from the National Park. The results are expected late summer 2022.
- 3.6 Defining the emissions associated with the New Forest National Park will enable us to quantify the net zero challenge. This will enable us to define what success looks like and track progress towards our net zero goal.
- 3.7 Quantification of carbon stored and sequestered in the Park's natural environment
We are one of the first Parks to have conducted a Natural Capital Assessment which has provided us with an assessment of the carbon stored by habitat and the rate at which habitats are sequestering carbon annually – details are provided in Appendix 3. The assessment details the carbon stored in vegetation and the top 30cm of soil, as well as the carbon sequestration rate (the rate at which carbon is removed from the atmosphere) for vegetation. Further work is needed to build a complete picture of carbon stored and sequestered in the National Park, particularly data on carbon stored in saltmarsh sediments, deeper layers of soil and sequestration rates in soils. We will work with partners to investigate how this additional data can be attained. This will enable us to quantify the impact of nature-based climate solutions we implement.

4 Implement nature-based climate solutions

4.1 A number of nature-based climate solutions applicable to the New Forest context have been identified. These are:

- Peatland restoration
- Tree planting
- Woodland preservation
- Heathland and grassland preservation
- Water quality improvements
- Saltmarsh preservation/regeneration
- New farming techniques

Supplementary information on these has been set out in Appendix 4.

4.2 Work has begun to implement nature-based climate solutions. Researchers at Southampton University consider the location, extent, depth and condition of peat in the New Forest to be poorly mapped. We, in collaboration with partners, are investigating how an accurate map of peat in the New Forest might be produced that will highlight areas of peat in need of restoration. We are also exploring the possibility of making an application to the Nature for Climate Fund (Peatland Restoration Grant) to fund peat restoration. We are producing tree planting guidance to ensure tree planting conducted in the National Park helps tackle climate change, enhances habitats and avoids unintended consequences such as compromising areas of back-up grazing. NFLAS are working on deer management with the northern farming cluster which is helping adaptation to climate change by creating areas for trees to naturally regenerate. In addition, we have engaged with the Environment Agency to understand more about the studies they are conducting on the potential for saltmarsh regeneration along the New Forest coastline. They are currently conducting technical studies of the potential and there is a role for us to support them with landowner engagement.

4.3 In the coming year we will focus on how we can scale up the implementation of nature-based climate solutions through the Farming in Protected Landscapes programme. Climate is a central theme of the programme and to date we have offered farmers funding to plant trees and hedgerows. 335 trees have been planted and 4061m of hedgerow has been planted, which as they grow will be drawing down carbon from the atmosphere and storing it (sequestration). We will continue to offer funding to farmers to undertake climate change mitigation work and provide advice to identify the range of actions they could take. For example, we have created a list of actions that can reduce carbon emissions & increase carbon sequestration on agricultural land, which can be used to inspire farmers and help them understand how they can tackle climate change on their land holdings. We will champion the use of the tools and research we have developed so far (e.g. research on carbon storage and sequestration in the Park, nature-based climate solutions) to encourage land-use decisions that preserve our existing carbon stores and increase the carbon sequestration rate of the Park's natural environment. Ideally, we will be able to quantify the carbon impact of our interventions to tackle climate change, working with data providers to help us achieve this.

5 Build a New Forest coalition for a net zero economy

5.1 Work as a family of English National Parks has recently led to the [Delivery Plan for Climate Leadership in National Parks](#) published by National Parks England (NPE). This identifies the ways in which National Park Authorities can leverage influence over emissions produced across the National Park, thereby providing a framework for action on climate change and drive a net zero economy. The delivery plan sets out the following areas of priority for National Parks:

1. Helping support the rapid transition to a low-carbon economy for land-based sectors, ensuring that land use change delivers sustainable land management, and improvements to soils/increased carbon sequestration.
2. Demonstrating how nature-based solutions can help develop resilience to climate change at a landscape scale.
3. Using our planning powers to deliver highly sustainable homes, raise the bar in terms of design and build standards via the use of incentives.
4. Promoting sustainable tourism and demonstrating the benefit of “low carbon” holiday destinations, thereby spreading positive lifestyle messages.
5. Better communicating how changes in land-use as a result of climate action might affect the landscape character/ visual appearance of National Parks.
6. Using the full range of NPA skills and resources to encourage climate action at strategic, landscape and local community levels.
7. Advocating through NPE policy change in Government that will provide NPAs with the tools locally to deliver net zero.
8. Promoting collaboration at a strategic level between NPAs and AONBs.
9. Developing pilot projects that demonstrate how to finance climate mitigation actions through carbon off-setting schemes and support National Park Partnership’s Net Zero with Nature proposal.
10. Using our convening power to energise a coalition of the willing to take forward our vision.

This framework for action has been reflected through the development of the draft Partnership Plan and our forthcoming Business Plan. We have identified how we want to work with Partners on our Net Zero with Nature objective and included measures of success and target dates.

5.2 Private finance

5.3 We are at the forefront of action to develop private finance markets to fund land-based climate change mitigation projects – something that is needed to tackle the climate and nature crisis at the scale and pace required. Through the Natural Environment Investment Readiness Fund (NEIRF), we, in partnership with Palladium, are modelling potential income streams available to land managers/owners for providing ecosystem services such as carbon sequestration (i.e. removing carbon from atmosphere). This will be pivotal to revealing the role that private finance can play both locally and nationally in helping fund land-use changes that support our strategic aims of climate change mitigation and nature recovery. The results of the project will be available in late summer. We intend to take forward the learnings from this project and promote the role that private finance can play in helping landowners make land management changes that favour climate and nature

restoration. We will use our position as convenor of the Green Halo Partnership to explore how our vision for the use of private finance can be taken forward.

5.4 Planning

A revised Design Guide for building development in the New Forest National Park has been produced to renew focus on the climate emergency and sustainability. It provides guidance on the right materials to use in new development, while a new section on sustainability includes 'green' measures which can be incorporated, while respecting the environmental protections and local character of the New Forest National Park. These include native planting, the use of energy efficiency measures in new buildings and using locally sourced materials.

6 **Activate communities**

- 6.1 We are working with our communities to galvanise climate change action. We have provided technical support to our business community, for example to the New Forest Marque on how member businesses can become more sustainable. We have provided the New Forest Business Partnership with mentoring sessions on how businesses can calculate their carbon footprint and receive technical advice and support to reduce their carbon emissions. We are driving greater collaboration and coordination between local community green groups by hosting a Green Groups Forum. We have set up a monthly session for local green groups to come together, promote their work and learn from each other, as well as benefit from the NPAs expertise in tackling climate change and driving nature recovery.
- 6.2 COP26 was pivotal to our efforts to activate communities in the last year. We carried out a communications campaign to bring its key messages to our audiences, to both encourage climate action amongst Park residents, local businesses and Park visitors, and raise awareness of the importance of protecting the National Park's natural environment to help tackle climate change. We also used the opportunity to activate our community of world leaders. We were among a prominent group of global protected landscapes who called on world leaders to support our vital work on climate change and nature recovery. The NPA also attended an Accenture sponsored event led by National Parks Partnerships to highlight the role of private finance could play in funding nature restoration.
- 6.3 We've reached new audiences in the past year too. The New Forest National Park has been featured on Mind the Green Space podcast in an episode dedicated to the NPA's work on climate change and health. Olivia McGregor and Jim Mitchell championed both the NPA's work and that of our partners. We have produced content on the important role the New Forest's natural habitats play in tackling climate change to help motivate people to protect the New Forest's natural environment. A webpage has been produced, we've carried out engagement sessions with stakeholders and posted on social media to communicate this important message. Our education team have also produced a short film to communicate this message to school children.
- 6.4 In the coming year we aim to increase our communications on the climate and nature emergency to encourage climate action at a strategic, landscape and local community level. We want to energise a coalition of the willing to take forward our vision. We are investigating national behaviour change campaign Count Us In to help us achieve these

aims. We are dedicating this year's New Forest Show theme to the nature and climate crisis to create an opportunity to engage with our communities of local residents and visitors on the subject.

7 Increase sustainable travel

- 7.1 We, alongside officers from Hampshire County Council (HCC), New Forest District Council (NFDC) & Forestry England have continued to work on the production of the New Forest Local Walking and Cycling Infrastructure Plan (LCWIP), which is integral to HCC's Local Transport Plan development and will act as the main driver for investment in local transport services. Since workshops in spring 2021, work on the LCWIP has included analysing trip generators and origins from both a utility and a leisure perspective. Early networks have been produced using a 'propensity to cycle' analytical tool, and this is now being checked by the partners before further local consultation. In addition, we have promoted cycling & walking routes around the New Forest close to urban centres to showcase routes that require less car travel. The New Forest Walks app has been made fully accessible and improvements have been made to its functionality, including expanding the number of routes featured. In the coming year, our focus will be on moving the LCWIP towards completion and supporting the production of HCC's Local Transport Plan whose guiding principle is to significantly reduce dependency on the private car.
- 7.2 The New Forest Tour has continued, offering car-free ways to access and enjoy the New Forest, including free connecting buses/ferry, stops at convenient train station locations and free bike carriage. On-board commentary encourages visitors to "shop local" to help reduce the carbon footprint associated with food. We continue to investigate the feasibility of using electric and hydrogen bus technology for the Tour vehicles.
- 7.3 Bus patronage has been recovering, in part thanks to the continuation of the Covid-19 Bus Services Support Grant. As an 'enhanced partner', we have been working with HCC to try to improve rural bus services as part of the Bus Service Improvement Plan, hampered slightly by a reduction in the national Bus Back Better fund from £3bn to £1.4bn. The NPA is also a stakeholder on the Lymington-Brockenhurst Community Rail Partnership and has been promoting sustainable integrated train travel, e.g., the Waterside Wanderer (existing) and IoW-Brockenhurst (underway).

Recommendation:

Members are requested to note the content of the report.

Contact: Olivia McGregor

Papers: AM 620/22

Equality Impact Assessment:

Appendix 1 – Emission sources associated with the National Park

The Greenhouse Gas (GHG) Protocol sets out how to attribute ownership and responsibility for the production of emissions. It proposes that the following emission sources should be included in a geographical area such as the New Forest National Park's net zero challenge.

- Fuels burnt within the geographical boundary e.g. gas used to heat buildings, petrol, diesel and other fuels used to power vehicles & other machinery
- Electricity consumed within the geographical boundary
- Waste treatment within the geographical boundary i.e. from landfill, from incineration plants, from wastewater plants, from biological waste treatment plants
- Waste collected from within the geographical boundary (even if it's treated outside of the boundary)
- Agriculture, Forestry and Land Use - Agriculture, forestry and land use emissions include livestock, land use and land use change (e.g. forested land being cleared for cropland or settlements), and non-CO₂ emission sources on land (e.g. fertiliser application).

Appendix 2 – Tonnes of emissions associated with the National Park

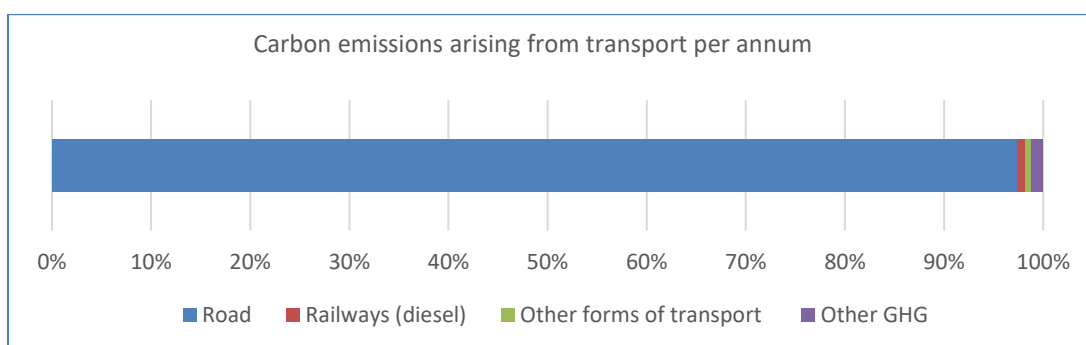
The Department for Business Energy and Industrial Strategy (BEIS) have provided some information on emissions associated with the New Forest National Park boundary. The data includes:

- Transport emissions
- Building energy emissions

Transport emissions

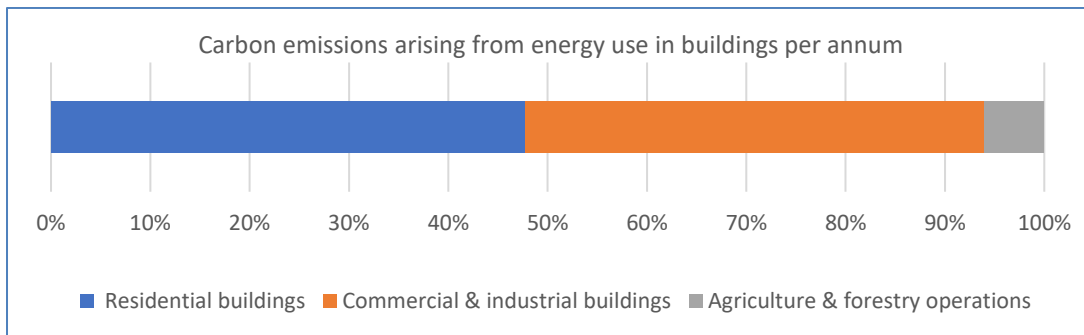
Emissions from transport total 221 kilo-tonnes of carbon dioxide equivalent (ktCO₂e) annually. They are overwhelmingly the result of carbon dioxide emissions from road transport use (97%) where diesel and petrol fuels are burnt. The remaining 3% derives from railways, other forms of transport (not specified in the data set) and other GHG emissions arising from transport use.

The road transport data is modelled on traffic flows across all road types (A-roads, motorways and minor roads) so the data does not represent emissions associated with the National Park exclusively since there are A-roads and a motorway that represent through-traffic too. However, we know that road transport is the main source of transport emissions in the Park as visitors and residents within the National Park rely overwhelmingly on private cars to access the Park. A recent study by Footprint Ecology conducted in 2020 found that 90% of people arrived at the Park by car/van or other motor vehicle.



Building emissions

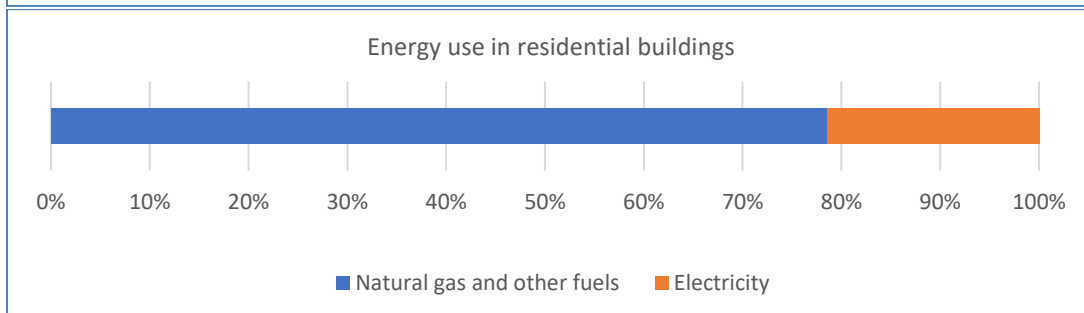
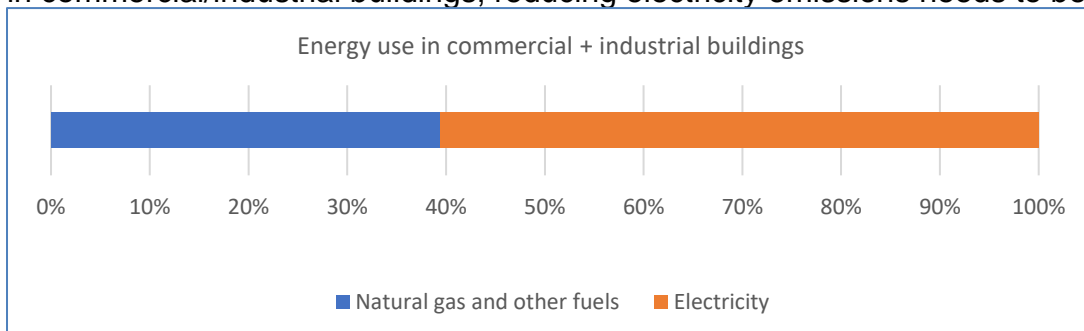
Emissions arising from fuels burnt and electricity consumed within buildings in the Park boundary total 144 ktCO₂e annually. Data is split by building energy emissions in residential buildings, commercial/industrial buildings and agricultural/forestry sector buildings. In the Park, the bulk of emissions arising from energy use occurs in residential buildings (48%) and commercial/industrial buildings (46%), as opposed to agricultural/forestry sector buildings (6%).



Information is also available on the split between electricity use (typically used to power appliances) and natural gas use (and other fuels typically used to heat buildings) in both residential and commercial/industrial buildings.

In residential buildings, the majority of emissions (79%) come from natural gas and other fuels typically used to heat buildings. This highlights a need to focus on reducing emissions produced by heating residential buildings.

In commercial/industrial buildings, the opposite is true; the majority of emissions (61%) arise from electricity use which is typically used to power appliances. To reduce emissions in commercial/industrial buildings, reducing electricity emissions needs to be a priority.



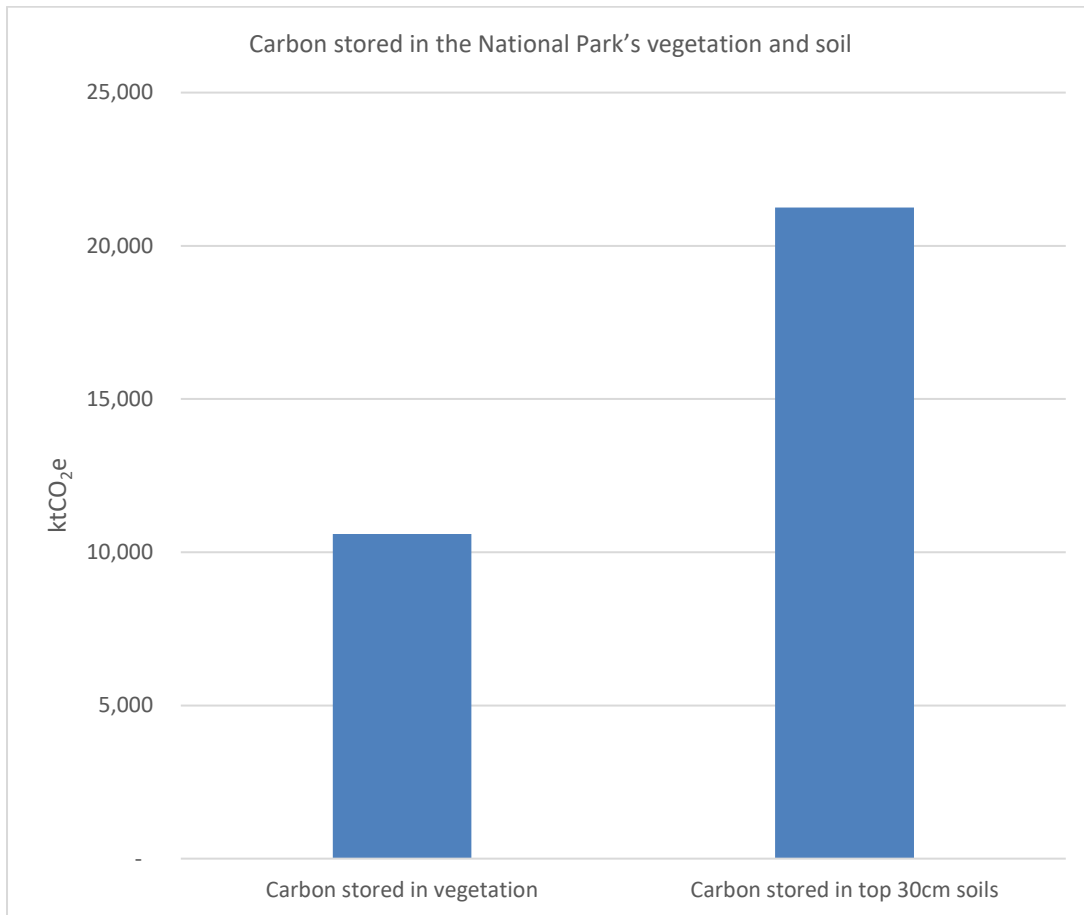
Appendix 3 - carbon stored and sequestered in the Park's natural environment

The New Forest National Park Natural Capital Assessment published October 2021 provides an assessment of the carbon stored and sequestered in several of the Park's habitats. The extract is provided below.

a) Register of carbon stored in NFNP vegetation and soils

Landcover	New Forest National Park				Fawley Waterside & NFNP study area	
	Area (ha)	Total (tCO ₂ e)	% of total	Per hectare (tCO ₂ e/ha)	Per hectare (tCO ₂ e/ha)	
Trees in woodlands						
Broadleaved mixed and yew woodland	13,307.3	6,155,606	19.3	463		453
Coniferous woodland	5,689.9	2,286,689	7.2	402		402
Trees and vegetation outside woodlands						
Hedgerows and trees outside of woodlands	n/a*	1,958,718	6.2	n/a*		n/a*
Acid grassland	3,478.9	12,756	<0.1	4		4
Arable and horticulture	4,070.9	29,854	<0.1	7		7
Built-up areas and gardens	3,261.6	11,959	<0.1	4		4
Calcareous grassland	0.2	1	0.0	4		4
Coastal rock	1.0	-	-	-		-
Coastal saltmarsh, lagoons and beaches	1,278.6	4,688	<0.1	4		4
Coastal sand dunes and shingle	59.6	-	-	-		-
Dense scrub	46.3	339	<0.1	7		7
Dwarf shrub heath	9,935.2	72,858	0.2	7		7
Fen marsh and swamp	3,127.5	22,935	<0.1	7		7
Inland rock	-	-	-	-		-
Maritime cliffs	0.6	-	-	-		-
Modified grassland	8,218.7	30,135	<0.1	4		4
Neutral grassland	2,964.6	10,870	<0.1	4		4
Open saline water	59.3	-	-	-		-
Rivers and lakes	280.5	-	-	-		-
Sparsely vegetated land	357.8	-	-	-		-
Topsoils						
Broadleaved mixed and yew woodland	13,307.3	4,994,486	15.7	375		361
Dwarf shrub heath	9,935.2	4,980,424	15.6	501		501
Modified grassland	8,218.7	2,623,153	8.2	319		304
Coniferous woodland	5,689.9	2,266,529	7.1	398		395
All other landcovers	19,501.5	6,386,330	20.1	327		206
Total of vegetation and soil	56,653	31,848,330	100	562		467

Carbon stored in vegetation totals 10,597 ktCO₂e and carbon stored in soils totals 21,251 ktCO₂e.



b) Register of carbon sequestered in NFNP vegetation

Landcover	New Forest National Park				Fawley Waterside & NFNP study area
	Area (ha)	Total (tCO ₂ e/yr)	% of total	Average per hectare (tCO ₂ e/ha/yr)	Average per hectare (tCO ₂ e/ha/yr)
Trees in woodlands					
Broadleaved mixed and yew woodland	13,307.3	31,836.6	44.2	2.4	2.5
Coniferous woodland	5,689.9	19,588.2	27.2	3.4	3.4
Trees and vegetation outside woodlands*					
Hedgerows and trees outside of woodlands	37,655.4	20,676.5	28.7	0.5	0.4
Overall	56,653	72,101	100	1.3	1.3

Appendix 4 – Nature-based climate solutions applicable to the New Forest context

Peatland restoration

Peatlands cover 10.9% of England but only an estimated 13% are in a near natural functioning state. In this degraded state, peatlands have become sources of emissions instead of sinks and England's degraded peatlands now emit around 9.5 million tonnes of carbon dioxide equivalent annually.

Tree planting

Of all habitats, woodlands have the largest potential carbon sequestration rates however their potential is influenced by a myriad of factors including their age, species, as well as soil and climatic conditions. Tree planting is not the best climate solution in all circumstances therefore we need to work with partners to understand where it might be appropriate eg avoiding conflict with back up grazing. We are advocating for site-specific decision making to be undertaken and recognized assessment tools such as the Ecological Site Classification Tool to be used.

Woodland preservation

Woodland survival is threatened by climate change due to for example the arrival of new pests and diseases, drought and flooding. Woodlands with good genetic diversity are more resilient to pests and disease therefore it is important woodlands are protected so they can naturally regenerate.

Heathland and grassland preservation

Heathland and grassland soils are relatively carbon rich containing just under 100 tonnes of carbon per hectare and a further 0.5-1.3 tonnes of carbon per hectare in the vegetation. Their preservation is important therefore.

Water quality improvements

Freshwater habitats polluted by agriculture are sources of greenhouse gas emissions. For example, it is understood that manure from domestic livestock and nutrients from fertiliser enhance greenhouse gas production. Extensive wetland restoration work has been undertaken in the New Forest to tackle agricultural pollution run off into freshwater habitats, and by continuing the work the climate mitigation potential of these habitats could increase.

Saltmarsh preservation/regeneration

Latest research indicates saltmarsh sequesters and stores carbon in significant amounts in the sediments and the restoration of these habitats is receiving increasing attention due to their carbon sequestration potential. The New Forest saltmarsh habitat is very vulnerable to sea level rise induced by climate change, and to damage from ferries and storms. Preserving the saltmarsh serves both a climate change mitigation and adaptation function. Preserving it will help retain its carbon stores and helps protect the land as sea levels rise too.

New farming techniques

Emissions from agriculture make up ~10% of UK emissions and agriculture is a significant land use within the New Forest. There are many opportunities to reduce the carbon impact of farming and use the land to store and sequester more carbon. Actions that reduce carbon impact of farming include reducing diesel use, fertiliser input and preventing its run-off into waterways. Actions that sequester carbon on farmland include planting trees on farmland (agroforestry), hedgerow restoration and reduced cultivation methods to minimise soil disturbance and boost soil carbon. New research demonstrates farming without disturbing soil could cut agriculture's climate impact by 30%.