



Deliverable D3.1

Review of existing peatland restoration strategies and approaches in NWE

Activity 3

Transnational analyses and co-design of Peatland restoration strategies and approaches as input for policy making

Work Package WP.T2

Identification of socio-economic models, ecosystem services and integrated landscape strategies to promote the roll-out of developed techniques and methods for peatland restoration

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Revision history

Date	Author(s)	Description
18/03/2020	Niall Ó Brolcháin	Outline
30/04/2020	Niall Ó Brolcháin Hannah Löwenhardt Care-Peat Team	Completed draft document sent to the Care-Peat partners for comments and approval.
12/05/2020	Niall Ó Brolcháin Hannah Löwenhardt	Completed integrating comments from Care-Peat partners.
19/05/2020	Hannah Löwenhardt	Integrated changes to Dutch chapter from Natuurmonumenten

General information

Deliverable	D3.1
Description	Review of existing peatland restoration strategies and approaches in NWE
Deadline	30th April 2020
Status	In progress
Remarks	This is a baseline report for WP.T2 Activity 3

List of Partners

Organisation	Abbreviation	Country
Natuurpunt Beheer vzw	Natuurpunt	BE
Centre National de La Recherche Scientifique	CNRS	FR
Bureau de Recherches Géologiques et Minières	BRGM	FR
Lancashire Wildlife Trust	LWT	UK
Manchester Metropolitan University	MMU	UK
National University of Ireland Galway	NUI Galway	IE
Eurosite	Eurosite	NL
Vereniging Natuurmonumenten	NM	NL
Université d'Orléans	UO	FR
Hogeschool Van Hall Larenstein (Sub partner with special responsibilities)	HVHL	NL

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Glossary of terms

Biodiversity – Refers to the diversity of all living things at genetic, species and ecosystem levels.

Blanket bog – A bog type (see bog) that covers the underlying undulating landscape like a blanket.

Bog – Peatland only fed by precipitation and consequently generally nutrient poor and acid.

Carbon dioxide (CO₂) – A naturally occurring gas and by-product of burning fossil fuels or biomass, land-use changes and industrial processes. It is the principal anthropogenic (caused by human activity) greenhouse gas that affects the Earth's climate.

Climate change – Change or changes in the climate which can be directly or indirectly attributed to human activity (UNFCCC Article 1).

Cutaway peatland (industrial) – A peatland where peat is being/has been extracted by industrial means. Peat extraction is the term used in this report to refer to peat production, peat mining or peat harvesting. (Peat production is the term widely used in Ireland within the industry and is defined as the overall management or the processes and methods used to produce peat for commercial operations).

Cutover peatland – A peatland where peat is being/has been removed through turf cutting by hand or small-scale mechanical peat extraction. Cutover areas are usually made of a mosaic of cut areas, face banks, pools, drainage ditches, uncut areas, scrubs and grassland.

Greenhouse gases (GHGs) – Greenhouse gases. The gases which are causing the warming of the Earth's atmosphere that is leading to climate change. The Kyoto Protocol deals with 6 of these: carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons and sulphur-hexafluoride.

Organic Soil – Soil which contains more than 50 cm deep organic (or peat) surface horizon overlaying the mineral layer or rock.

Peatlands - land dominated by histosols (this definition is used because it does not require peatland vegetation, which is important for degraded sites that are to be restored). Following the UN Food & Agriculture Organisation definition, histosols must have an organic matter content > 20% in their upper horizon, and they should have an average depth > 40 cm. Peatlands may be active (where peat is currently forming and accumulating) or inactive (lacking current peat formation). This soil may or may not be currently covered by peat forming vegetation such as *Sphagnum* moss. Peatlands include sites where peat deposits have been lost due to human activities.

1 - Executive Summary



This report investigates and reviews existing and new ideas for peatland restoration strategies in the countries participating in the EU Interreg NWE project Care-Peat, namely Belgium, France, Ireland, the Netherlands and the United Kingdom.

Firstly, we look at the most prominent international policies, strategies and initiatives related to peatlands and carbon. These include the following:

- The United Nations Convention to Combat Desertification (UNCCD) is the sole international agreement focussing on linking development and environment to sustainable land management.
- The Convention on Biological Diversity (CBD) is one of the 3 Rio Conventions.
- The United Nations Framework Convention on Climate Change which reached a landmark agreement to intensify actions to combat climate change in Paris in December 2015.
- The UN Sustainable Development Goals which provide a blueprint for reaching a more sustainable and better future for everyone.
- The UN Decade on Ecosystem Restoration will take place from 2021-2030.
- The RAMSAR convention on Wetlands which is an international treaty that provides a framework for the conservation and sustainable use of wetlands and their resources.
- The Global Peatlands Initiative which was founded by leading experts and institutions at the UNFCCC COP, 2016. The initiative aims to mobilise all sectors (governments, academia, international organisations etc) to protect peatlands as an organic carbon stock.

The next section describes the EU policies and strategies related to peatlands and climate change. These include:

- The EU Common Agricultural Policy which has governed European farming and rural development for over 60 years. The founding mission of the policy was quite simple: to guarantee European food security by financially incentivising farmers to stay on the land.
- The EU Birds and Habitats directives which protects biodiversity in the EU by conserving natural habitats and wild fauna and flora species. It sets up the 'Natura 2000' network, the largest ecological network in the world. It covers all natural habitats including Peatlands.
- The EU Water Framework Directive which requires all Member States to protect and improve water quality in all waters so that we achieve good ecological status by 2015 or, at the latest, by 2027.

- The EU Climate and Energy Framework involves a binding target to cut EU emissions by at least 40% below 1990 levels by 2030.
- The European Green Deal for the European Union (EU) and its citizens is currently under development. It resets the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task.

The third section describes the national policies of the NWE countries regarding peatlands and climate change. This includes information about climate and peatland policy in the following countries:

- Belgium is a federal state, where the decision-making power is shared between a Federal government, three Regions (Wallonia, Flanders and the Brussels Capital Region). In Belgium, environmental policy is essentially of Regional competence. Belgium has no specific national peatlands strategy.
- In France, peatlands cover about 0.2% of the surface of the territory. There is no specific plan for peatlands and they are included in the action plan for wetlands as a whole. The main disturbance of these ecosystems was and still is agriculture (drainage for pasture, nutrients input). So far policies were mainly oriented towards peatland conservation and restoration. However, increasing awareness of climate change issues is slowly changing the point of view.
- Peatlands cover approximately one fifth of the land area of Ireland. Peatland policy in Ireland has traditionally involved exploitation of peatlands for economic purposes. However, the Boglands Report funded by the EPA recommended a National Peatlands Strategy which is now in place. These reports have informed other reports such as Project Ireland 2040 and The National Climate Action Plan.
- The Netherlands is a decentralised unitary state. A lot of responsibility lies with local governments, provinces and Water boards. No national overarching peatland strategy exists. In 2019, however, the Dutch Climate Agreement was reached between several parties. This Agreement has a target emission reduction of around 1 Mt CO₂-eq in 2030.
- The 'UK Peatland Strategy', launched in 2018 by the IUCN UK Peatland Programme, is a strategy for the UK and its peatlands, developed to support co-ordinated large-scale action to conserve and restore the UK's peatlands – and deliver a cohesive message to both policy makers and funders that peatlands should be protected, enhanced, sustainably managed and recognised for their public value.

The next section gives an overview of the relevant regional and local policies for the pilot sites of the Care-Peat project. The regions covered are as follows:

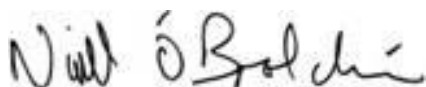
- Flanders which is one of the three Belgian regions with its own government, parliament and administration.
- In France the region Centre Val de Loire which has supported the research activities in the La Guette peatland by funding many projects.

- The Care-Peat pilot site of Cloncrow bog is located in County Westmeath in the Eastern and Midlands Region in Ireland.
- De Wieden is part of a national park in the Netherlands, in Steenwijkerland municipality of the province of Overijssel.
- The two UK pilot sites in the Interreg Care-Peat project are located in the North West of England. The Little Woollen Moss companion planting trial: in the Metropolitan District of Salford in Greater Manchester. The Winmarleigh carbon farm pilot site: Lancashire County.

Finally, in the synthesis we recognise that national policies have clearly shown to be very different. Whereas in the Netherlands governance is very decentralised, in Ireland a lot of responsibility lays with the national government for example. Also, there are differences in the relative amount of peatland area in each country. In France and Belgium peatlands only make up a small part of the land, whereas in the UK and Ireland, peatlands are a very big part of nature.

There is not yet a specific Peatlands Strategy for the EU. However, peatlands are included in many other policies and strategies. At national level in the Care-Peat project, both the UK and Ireland have a (non-statutory) peatland strategy or programme, while for Belgium, France and the Netherlands any such strategy or policy remains absent. In that way it seems that the UK and Ireland are ahead in their protection of peatlands but even then, not on a statutory basis. Nevertheless, each country at least has a climate strategy. Including peatlands to a greater extent in all relevant national strategies could enhance protection and sustainable use of such areas, and thereby further climate action as well.

Niall Ó Brolcháin



2 - Introduction



Peatlands are part of the world's most valuable ecosystems. Next to providing crucial services such as flood protection and drinking water, they are critical for biodiversity protection and climate change mitigation. As the largest natural carbon store – covering only 3%¹ of the world's land area, but storing over one quarter of the planet's soil carbon – their role in combating climate change seems evident. Nevertheless, peatlands continue

to be drained for forestry, agriculture and peat extraction, resulting in them becoming carbon sources rather than sinks.

The EU is the second largest emitter of greenhouse gasses from drained peatlands (Joosten 2009²). To reduce these carbon emissions and to restore the carbon storage capacity of peatlands, introducing new socio-economic strategies is an important step. Through the INTERREG Care-Peat project, 5 knowledge institutes and 4 nature organisations from North-West Europe (NWE) aim to develop and test new techniques and socio-economic strategies for carbon reduction.

Assessing current peatland policy and strategies is a first step in creating new strategies and approaches as input for policy making. Therefore, this document serves as a baseline for successive activities. The document provides an overview of the most important policies and strategies influencing peatlands and their carbon storage at the international, national and regional level in the Care-Peat partner countries Belgium, France, Ireland, the Netherlands and the UK.

This information will provide useful input for further discussions with policy makers. Along with results from the pilots and models of the Care-Peat project, it will provide input to co-design new strategies new strategies for peatland restoration and sustainable use.

Hannah Löwenhardt

¹ Peatlands 3%, one quarter world's soil carbon - Turetsky, M. R. *et al. Nature Geosci.* **8**, 11–14 (2015).

² Joosten, H. (2009). The Global Peatland CO₂ Picture: peatland status and drainage related emissions in all countries of the world.

3 - Scope

The purpose of this document is to review existing peatland restoration strategies and approaches in the North West Europe Region (NWE). However, the focus is on the five countries participating in the Care-Peat project.

This report includes policies and strategies that govern peatlands and effect restoration and land use with a view to reduction in GHG emissions.

These policies and strategies are limited to the following:

1. International and EU policies and strategies.
2. National policies and strategies for Belgium, France, Ireland, the Netherlands and the United Kingdom.
3. Regional policies and strategies covering the areas of the pilot sites in each country and/or state of the art policies from neighbouring regions.
4. Local policies and strategies covering each of the pilot sites in each country and/or state of the art policies from neighbouring local authorities.

This report also covers linkages and gaps between policies and strategies and makes recommendations for future policy and strategy development.

4 - International policies

This chapter describes the most prominent international policies, strategies and initiatives related to peatlands and carbon.

4.1 UNCCD



United Nations
Convention to Combat
Desertification

The United Nations Convention to Combat Desertification (UNCCD) is the sole international agreement focussing on linking development and environment to sustainable land management. While the focus of the convention lays on arid, semi-arid and

dry sub-humid areas, the new UNCCD 2018-2030 Strategic Framework is the most comprehensive global effort towards general Land Degradation Neutrality.

One of the four main issues mentioned by the UNCCD is the issue of "Land & Climate Change". They stress that "restoring the soils of degraded ecosystems has the potential to store up to 3 billion tons of carbon annually". To accomplish this, they propose several Priorities for Action. In one of these priorities, peatlands are explicitly mentioned, while the other indirectly relate to the activities in the Care-Peat project:

- "Urgent Challenge: The emissions gap is likely to remain significant and threatening, requiring actions above and beyond those currently being pledged.
- Immediate Action: Policies and incentives that promote sustainable land management, including carbon sequestration through rehabilitation and restoration, may well be the missing piece of the climate puzzle that helps to further reduce the emissions gap in a demonstrable and cost-effective manner.
- Setting Priorities: The transition to "climate smart" land management practices, including for example low-emissions agriculture, agroforestry and the restoration of high carbon-value ecosystems, such as forests and **peatlands** (emphasis added), will require sectoral coordination and investments in integrated land use planning.
- Multiple Benefits: Adopting and scaling up more sustainable management practices in the land use sector not holds significant mitigation potential but often provides short-term returns in terms of land productivity and food security while, at the same time, helping to ensure the long-term resilience and adaptive capacity of vulnerable communities.
- Measuring Progress: An evidence-based framework for accounting for carbon debits and credits will be absolutely essential for measuring progress. Future carbon accounting frameworks will need to cover all land uses and land use changes in order to fully recognize the land use sector's mitigation contribution.

- New Paradigm: Under one scenario to achieve Land Degradation Neutrality (Sustainable Development Goal target 15.3), additional commitments in the land use sector, namely to restore and rehabilitate 12 million hectares of degraded land per year could help close the emissions gap by up to 25% in the year 2030.”³

In 2015 the UNCCD also produced the report “[Land matters for climate: reducing the gap and approaching the target](#)” through which they provide guidance on how improving land-use management can help reduce the remaining emissions.

4.2 CBD



Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is one of the three Rio Conventions (along with the UNCCD and UNFCCC - see below). The mission of the current 2011-2020 strategic

plan is to “take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach.”

While peatlands are not specifically mentioned in the strategic plan, several targets are relevant for peatland areas:

- Target 5: “By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.”
- Target 7: “By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.”

³ UNCCD (2015). Land and Climate Change. Retrieved from <http://www.unccd.int/issues/land-and-climate-change>

- Target 8: "By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity."



- Target 10: "By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning."

- Target 11: "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas,

especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."

- Target 14: "By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable."
- Target 15: "By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification."⁴

A new 2021-2030 strategic plan for biodiversity is currently in development.

4.3 UNFCCC

In Paris, December 2015, Parties to the United Nations Framework Convention on Climate Change reached a landmark agreement to intensify actions to combat climate change. Through the Paris Agreement, nations decided to undertake more ambitious efforts in terms of climate change adaptation and mitigation, and to support developing countries in doing so. Among the key aspects of the Agreement, is Article 5:

⁴ CBD (n.d.). Aichi Biodiversity Targets. Retrieved from: <https://www.cbd.int/sp/targets>

"1. Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1 (d), of the Convention, including forests.



2. Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches."⁵

In 2018 under the Talanoa Dialogue - a UNFCCC process to help countries in implementing their Nationally Determined Contributions by 2020, the Talanoa Dialogue Synthesis report was published. This report showcases the information gathered during the preparatory phase of the Dialogue and serves as a basis for the political phase of the Talanoa Dialogue. In the report key steps are outlined that can be taken in order to adhere to the Paris Agreement goals. One of the things mentioned is that protection of natural carbon sinks and reservoirs should increase, in which peatlands and mangroves are emphasized.

4.4 UN Sustainable Development Goals SDG2030

The [UN Sustainable Development Goals](#) provide the blueprint for reaching a more sustainable and better future for everyone. The 17 interconnected goals address important global issues as part of the 2030 Agenda for Sustainable Development. The goals should be reached by 2030. Four of the 17 goals directly relate to peatlands; Goal 6 - Clean water and sanitation, Goal 12 - Responsible consumption and production, Goal 13 - Climate action, and goal 15 - Life on land.



Goal 6 focuses on clean water and sanitation. The Goal contains several targets of which several relate to the management of peatlands:

⁵ UNFCCC. *Adoption of the Paris Agreement*. Report No. FCCC/CP/2015/L.9/Rev.1, <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf> (UNFCCC, 2015)

- Target 6.5 states: “by 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate”.
- Target 6.6 states: “by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes”.



Goal 12 aims for sustainable consumption and production patterns. Target 12.2 states that by 2030, sustainable management and efficient use of natural resources should be achieved.



Goal 13 focuses on climate action and involves several targets. While the targets do not directly relate to peatlands, Target 13.1 states that resilience and adaptive capacity in relation to climate-hazards and natural disasters should be strengthened in all countries.



Goal 15 has by far the most targets related to peatlands. Here is an overview of the related targets:

- Target 15.1: “By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements”.
- Target 15.3: “By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world”.
- Target 15.5: “Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species”.⁶

4.5 New UN Decade on Ecosystem Restoration



The UN Decade on Ecosystem Restoration will take place from 2021-2030. The aim of the decade is to accelerate and scale up restoration of degraded and destroyed ecosystems in light of combating climate

⁶ UN (n.d.). Sustainable Development Goals. Retrieved from: <https://sustainabledevelopment.un.org/sdgs>

change and biodiversity loss and enhancing food security and water supply. Currently, the Decade's Strategy is under development.

4.6 Convention on Wetlands - Ramsar networks



The convention on Wetlands is an international treaty that provides a framework for the conservation and sustainable use of wetlands and their resources. The mission of the Convention is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world". The Convention has three pillars to support its mission:

- "work towards the wise use of all their wetlands;
- designate suitable wetlands for the list of Wetlands of International Importance (the "Ramsar" list) and ensure their effective management;
- cooperate internationally on transboundary wetlands, shared wetlands systems and shared species. "⁷

While all of the strategic goals of the 2016-2024 Strategic Plan of the Convention can be relevant to peatland management, one goal specifically mentions the link between wetlands and climate change. Goal 12 states that: "Restoration is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation".

4.7 Global Peatlands Initiative



The Global Peatlands Initiative was founded by leading experts and institutions at the UNFCCC COP, 2016. The initiative aims to mobilise all sectors (governments, academia, international organisations etc) to protect peatlands as an organic carbon stock. Currently

the initiative focuses on international initiatives and initiatives in four initial partner

⁷ RAMSAR (n.d.). The Convention on Wetlands and its Pillars. Retrieved from: <https://ramsar.org/about/the-convention-on-wetlands-and-its-mission>

countries; Indonesia, Peru, Democratic Republic of Congo and the Republic of Congo. International activities consist of a global assessment of peatland extent and carbon content followed by a detailed analysis of sustainable options for peatland management, South-South-North cooperation and the engagement of the private sector.

5 – EU Policies

This chapter describes the EU policies and strategies related to peatlands and climate change.



Cutaway peatland at Cavemount bog, County Offaly, Ireland.

5.1 Common Agricultural Policy (CAP)



The [EU Common Agricultural Policy](#) has governed European farming and rural development for over 60 years. The founding mission of the policy was quite simple: to guarantee European food security by financially incentivising farmers to stay on the land.

5.1.1 Future of the Common Agricultural Policy (CAP) after 2020

Currently the Common Agriculture Policy (CAP) of the EU is under review, it seeks to achieve a higher ambition on environmental and climate action.

It recognises that farmers play a key role in tackling climate change, protecting the environment and preserving landscapes and biodiversity. In its proposal, the European Commission sets high ambitions on environmental and climate change. Mandatory requirements include:

- Preserving carbon-rich soils through protection of wetlands and peatlands.
- Obligatory nutrient management tool to improve water quality, reduce ammonia and nitrous oxide levels.
- Crop rotation instead of crop diversification.

Farmers will have the possibility to contribute further and be rewarded for going beyond mandatory requirements. EU countries will develop voluntary eco-schemes to support and incentivise farmers to observe agricultural practices beneficial for the climate and the environment.



Figure 1 The 9 CAP objectives

5.1.2 Peatlands in the EU Common Agriculture Policy (CAP) after 2020

This [position paper](#) was prepared by experts from across the EU with significant inputs from the Care-Peat consortium. The main objective of the position paper is to facilitate the new environmental ambitions of the Post-2020 Common Agricultural Policy (CAP) and to create coherence between agricultural and climate policies, CAP must safeguard and stimulate the preservation of carbon-rich soils through protection of peatlands. It highlights the significance of drained peatlands in regional agricultural and climate policies, defines relevant characteristics of organic soils within the EU and identifies solutions and recommendations for future CAP development to include and utilise peatlands for carbon reduction.

5.2 EU Birds and Habitats Directives



The main focus of the [EU Birds and Habitats directives](#) is to protect biodiversity in the EU by conserving natural habitats and wild fauna and flora species. It sets up the 'Natura 2000' network, the largest ecological network in the world. It covers all natural habitats including Peatlands.

Key requirements of the EU Birds and Habitats Directives require the Member States to implement two main sets of provisions:

- The first set of measures requires Member States to establish a strict protection regime for all wild European bird species and other endangered species listed in Annex IV of the Habitats Directive, both inside and outside Natura 2000 sites.
- The second set requires the designation of core sites for the protection of species and habitat types listed in Annex I and II of the Habitats Directive and Annex I of the Birds Directive, as well as for migratory birds. Together, these designated sites form part of a coherent ecological network of nature areas, known as the European Natura 2000 Network.

There is mounting evidence of the impacts of climate change and the need for the European Union to take integrated action to mitigate and adapt to climate change. This has not only economic and social implications but is also of major importance for the environment and biodiversity.

5.3 Water Framework Directive



The [EU Water Framework Directive](#) (2000/60/EC) requires all Member States to protect and improve water quality in all waters so that we achieve good ecological status by 2015 or, at the latest, by 2027. Peatland habitats⁸ (bogs and fens, which are included in the directive) are all highly susceptible as an increase in temperature and summer drying is likely to prove detrimental. A small lowering of the water table within these habitats will impact on vegetation structure and composition. More serious impacts arise when groundwater levels are impacted by existing pressures including abstraction and arterial drainage. Degraded peatlands (especially those drained) export significant amounts of dissolved organic carbon (DOC) into receiving waters and is one of several major causes leading to poorer ecological status. Additionally, there is a direct groundwater contribution to the lagg (bog margin) portion of raised bogs, and the bog in general is supported by groundwater, so that if groundwater level is reduced under the bog, precipitation derived bog water will seep out of the bottom of the bog. Flush and poor fen habitats associated with blanket bog are also vulnerable to summer drought impacts on rainfall and groundwater levels, exacerbated by abstractions. Wet heath also occurs in association with blanket bog, and may be replaced by dry heath or acid grassland with increasing climate change impacts. Both wet and dry heath may migrate upslope, potentially displacing montane heath species/habitat which is regarded as very vulnerable to climate change.

5.4 EU Climate and Energy Framework



The [EU Climate and Energy Framework](#) involves a binding target to cut EU emissions by at least 40% below 1990 levels by 2030. This involves an EU emissions trading system (ETS) in which involved sectors will have to cut emissions by 43% compared to 2005, and non-ETS sectors that have to cut emissions by 30% compared to 2005 (translates into individual binding targets for member states). In light of the Framework, Member States are required to adopt integrated National Energy and Climate Plans (NECPs).

⁸ Catchment Bogs <https://catchmentbasedapproach.org/wp-content/uploads/2018/09/CaBA-Biodiversity-Pack-Bogs.pdf>

5.5 European Green Deal



The [European Green Deal](#) for the European Union (EU) and its citizens is currently under development. It resets the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task. The atmosphere is warming and the climate is changing with each passing year. One million of the eight million species on the planet are at risk of being lost. Forests and oceans are being polluted and destroyed.

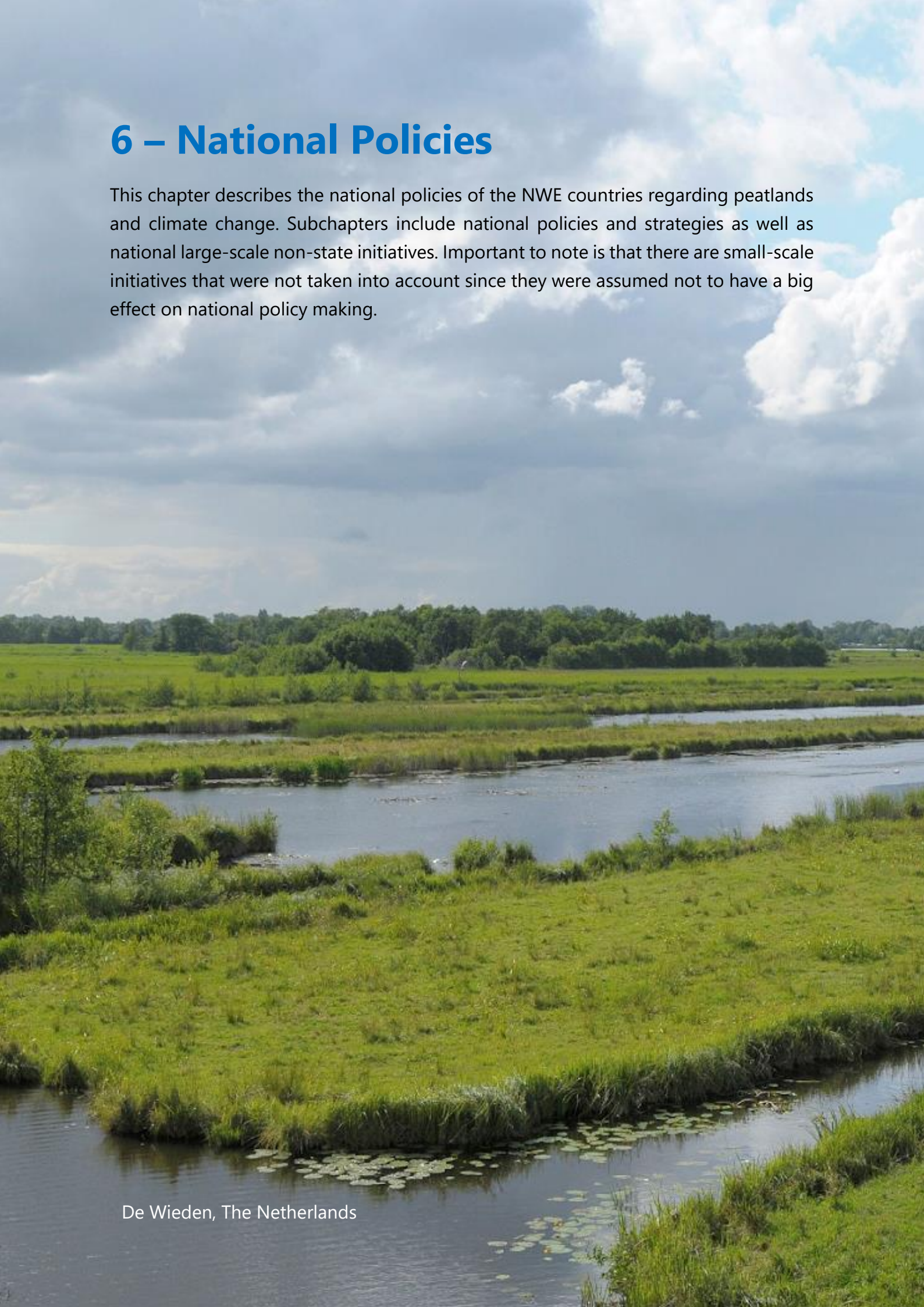
The European Green Deal is a response to these challenges. It is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use.

It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts.

It recognises that the natural functions of ground and surface water must be restored. This is essential to preserve and restore biodiversity in lakes, rivers, wetlands and estuaries, and to prevent and limit damage from floods.

6 – National Policies

This chapter describes the national policies of the NWE countries regarding peatlands and climate change. Subchapters include national policies and strategies as well as national large-scale non-state initiatives. Important to note is that there are small-scale initiatives that were not taken into account since they were assumed not to have a big effect on national policy making.



6.1 Belgium



Belgium is a federal state, where the decision-making power is shared between a Federal government, three Regions (Wallonia, Flanders and the Brussels Capital Region) and three Communities (the Flemish, the French and the German-speaking Community).

In Belgium, environmental policy is essentially of Regional competence. The regions have the greatest amount of responsibilities on climate and biodiversity related issues: nature conservation, forest management, agriculture, exploitation of natural resources, land use and spatial planning, etcetera.

The country is further divided into 10 provinces and 581 municipal councils. The provinces and the municipalities play an important role at the local level, in accordance with regional policy.

The relevant region, province and municipalities related to the pilot site 'Vallei van de Zwarte beek' (see Appendix A) are: Flanders (the Flemish region), Province Limburg and municipalities Beringen, Lummen and Halen. These will be discussed below (under 7.1). The division of competence is reflected in e.g. the Belgian integrated National Energy and Climate Plan (NECP) and Belgium's National Biodiversity Strategy.

In general, we can state that there is no real strategy in Belgium (Flanders) for peat restoration as such. For biodiversity reasons there are initiatives on a nature reserve scale embedded in nature restoration schemes from the Flemish government and on a European level. But in the policy on climate change peat restoration in itself is not a real goal. Due to this lack of a broad vision on existing potential restorable peat areas nature restoration in certain areas stays fragmented lacking real results because of insufficient hydrological restoration, partly resulting from conflicting private ownership and agricultural use.

Besides the lack of this broader strategy there is also no carbon credit system (as e.g. Moor Futures) that takes peatland into account and stimulates organizations and governments to take significant steps for restoration of these systems. We can only conclude that in Belgium there is still a big challenge if we want to restore peatland on a durable basis with real impact on climate change.

6.1.1 National Energy and Climate Plan (NEKP)

In Belgium, the National Energy and Climate Plan (NEKP) is a regional or federal competence depending on the subject. As a result, separate federal, Flemish, Walloon and Brussels plans have been drawn up and adopted. This also has an impact on the shaping of the climate targets; for example, the federal government has not set a target for reducing greenhouse gas emissions, but has indicated that it will take additional federal measures if the targets are not met at regional level.

Proposed greenhouse gas reduction targets (compared to 2005)							
Objectives	Global	EU	Belgium	Flanders	Wallonia	Brussels	Federal
2030	1.5°-2°C	-40%	-35%	-35%*	-37%*	-40%*	If needed
2020	-18%	-20%	-15%	-15.7%	-14.7%	-8.8%	-7,000 Kt CO ₂ -eq
* indicative							

6.1.2 National Biodiversity Strategy (2013-2020)

In November 2013, Belgium's Inter-ministerial Conference for the Environment adopted an [update of the National Biodiversity Strategy to 2020](#). Based largely on the previous Strategy (2006-2016), the update incorporates provisions aligned with the Strategic Plan for Biodiversity (2011-2020) and the EU Biodiversity Strategy to 2020. It will guide activities for revising federal and regional biodiversity action plans and be promoted in sectoral policy-making. The operational objectives of the updated National Biodiversity Strategy include protecting and restoring biodiversity and associated ecosystem services through protected areas, green infrastructure, and no net loss, as well as mapping ecosystems and their services in Belgium and assessing their values (Belgian National Focal Point to the Convention on Biological Diversity, 2013).

6.2 France



In France, peatlands cover about 0.2% of the surface of the territory. There is no specific plan for peatlands and they are included in the action plan for wetlands as a whole. The main disturbance of these ecosystems was and still is agriculture (drainage for pasture, nutrients input). So far policies are mainly oriented towards peatland conservation and restoration to promote emblematic species and habitat protection. However, the increasing awareness of climate change issues is slowly changing the point of view. Ecosystem Services, such as carbon storing, is more and more taken into account as exemplified by an increasing number of research projects, both academic (e.g. PEATWARM) and applied (CarBioDiv, CARE-PEAT, CConnect). However, considerable efforts will have to be made to translate this into effective policies and strategies.

6.2.1 French National Strategic Action Plans for Wetlands

Because of the small area covered by peatlands in France, there is no specific plan for these ecosystems. A national strategy for peatlands falls within the scope of the [3rd National Action Plan for Wetlands](#) (2014-2018). The objectives of this plan were to give account of factors that undermine the wetlands integrity, point out the laws that have a negative impact, avoid them, and promote good management practices⁹. The specific aims were to:

- Reinforce knowledge
- Increase the coherence of public policies involving wetlands
- Improve the management of peatlands to promote their preservation
- Increase awareness of the public about issues relating to wetlands

The action was designed to be implemented along 6 different lines:

- 1) Reinforce the implementation of the Ramsar convention in accordance with other environmental multilateral treaties
- 2) Develop the knowledge and the strategic tools to manage wetlands
- 3) Manage, preserve, and increase the area of wetlands
- 4) Reinforce the consideration of wetlands in other land-use policies (agriculture, flood risk management, drinking water management)

⁹ Muller F. (2018). Strategies for peatland conservation in France - a review of progress. Mires and peat, 21: 1-13. http://mires-and-peat.net/media/map21/map_21_06.pdf

- 5) Promote a land-use type approach of wetlands management (urban area, overseas territories, coastal region)
- 6) Enhance public awareness about wetlands and their importance to society

A fourth Action Plan for Wetlands is in preparation and the Ministry of Ecological and Social Transition (MTES) asked Pôle-Relais Tourbières to propose a set of actions specifically concerning peatlands in 2020, to be included in the Action Plan.

6.2.2 National Energy and Climate Plan

Introduced by law on 17th August 2015, relating to the energy transition for green growth, the National Low-Carbon Strategy (SNBC in French) describes France's roadmap for driving climate change mitigation policy. It is one of two components of the [French energy and climate policy](#), alongside the National Climate Change Adaptation Plan.

This National Low-Carbon Strategy sets targets for reducing greenhouse gas emissions across France in the short and medium term: carbon budgets. Carbon budgets have limits for greenhouse gas emissions, which are not to be exceeded at the national level over five-year periods, expressed in millions of tonnes of CO₂ equivalent.

It shows the Government's ambition presented in July 2017 in the [French Climate Plan](#) to accelerate the implementation of the Paris Agreement by setting the goal of achieving carbon neutrality as early as 2050 for the French territory, achieving the balance between anthropogenic emissions and anthropogenic greenhouse gas absorptions, i.e. absorbed by man-made natural environments (forest, meadows, agricultural soils, wetlands, etc.) and certain industrial processes (carbon capture and storage or reuse).

It is consistent with France's commitments to the European Union and the Paris Agreement, and national commitments to reduce its greenhouse gas (GHG) emissions by 40% in 2030 compared to 1990 levels (see Figure 2 below). It provides public policy directions to implement the transition to a low-carbon economy in material and energy consumption, circular in all sectors of activity.

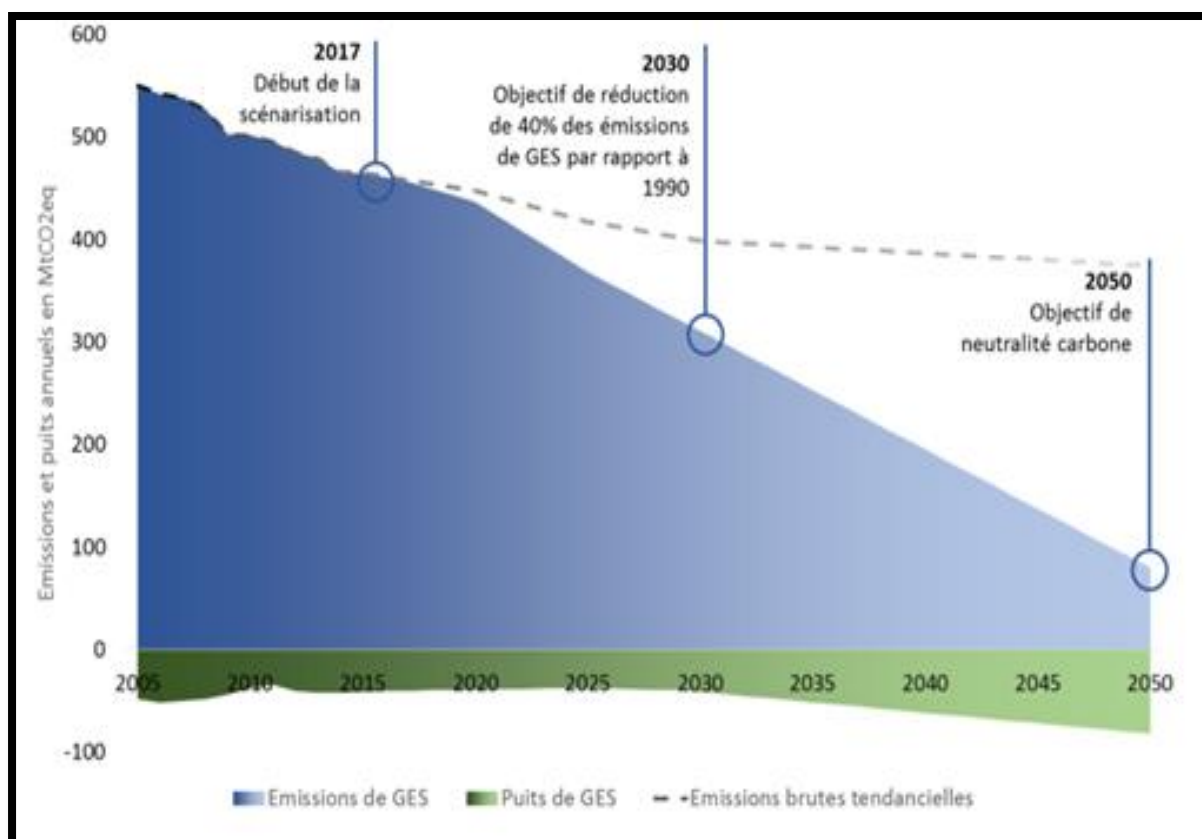


Figure 2 Evolution of Greenhouse Gas sinks (green) & sources (blue) for the national territory between 2005 and 2050

The national plan listed 45 orientations of public policies to fulfil the objectives. Those dedicated to lower the carbon emissions include measures towards energy efficient building, industry, recycling, agriculture and forestry. In the sectors of agriculture and forestry, some orientations encourage the C storage in soils (e.g. the 4/1000 initiative, only agricultural soils). However, there is no orientation towards wetlands protection or management, and even less peatlands.

6.2.3 Wetlands resource centres

The first action plan enabled the establishment of five resource centres for wetlands in 2001 that now receive financial support from the French Board for Biodiversity (Office Français de la Biodiversité, OFB). Since then, the Federation of Conservancies of Natural Areas (Fédération des Conservatoires d'Espaces Naturels, FCEN) has been coordinating and managing the peatland resource centre, Pôle-relais Tourbières (PRT), based in Besançon (Bourgogne/Franche-Comté region). The PRT collects and provides scientific and technical information to managers, publishes a newsletter about mires (Tourbières Infos) and contributes to the newspaper about wetlands (Zones humides infos) published by Société nationale de protection de la nature.

6.2.4 Birds & Habitats Directives in France

Public awareness on nature protection and management started through the emphasis of some emblematic species. A protection plan for peatland specific species, such as the Fen Orchid (*Liparis loeselii*), requires taking into account the understanding of the whole system (e.g. historical agricultural practises). Such plans involve the knowledge of the population size and extent, the promotion of favourable habitats through appropriate management and communication to the public, the local authorities and the stakeholders of the actions undertaken.

France has 11 national parks and 167 national nature reserves (31 reserves naturelles nationales, RNN). Muller (2018) showed that on the whole, these parks and reserves contain relatively few peatland areas and he advocated the creation of new reserves including an increased number of peatland habitats. The French Natura 2000 network contained in 2016 291 sites corresponding to bogs and transition mires and 284 fens (total of 447 peatland sites, not including woodlands on peat soils).

6.3 Ireland



Peatlands cover approximately one fifth of the land area of Ireland and are estimated to contain half of the Atlantic Biogeographic Region's active raised bog habitat. However, the vast majority (over 90%) have been either drained, converted to agriculture, or are in poor ecological condition. Peatland restoration in the past has been referred to as 'piece meal', only focusing on discrete sections of particular bogs and greatly constrained by land ownership and longstanding cultural (mis)uses of the habitat. Peatland policy in Ireland has traditionally involved exploitation of peatlands for economic purposes only. However, times have changed and so has the focus of national policy towards ending the practice of burning peat for energy production and harvesting for horticulture. Forestry is also a key issue in Ireland and has resulted in substantial areas of former peatland planted with industrial forestry. These actions have been reduced yet still remain, in places, an active strategy within peatlands. There are tentative moves towards rewetting, with a certain amount of research being carried out by agencies such as Bord na Móna (BnM), the National Parks and Wildlife Service (NPWS), the Environmental Protection Agency (EPA), Universities and Non-Governmental Organisations such as the Irish Peatland Conservation Council and the Community Wetlands Forum.

In terms of policy development towards rewetting of peatlands the Bogland Report funded by the EPA was a crucial report as a catalyst for change. It recommended a National Peatlands Strategy which is now in place. These reports have informed other reports such as Project Ireland 2040 and The National Climate Action Plan.

Accurate figures for a reduction in carbon emissions from degraded peatland are impossible to calculate without much more extensive research, however, academic experts recently reached an informed consensus that about 10 Mt CO₂-eq is being emitted each year. A significant proportion of this peatland is suitable for rewetting.

6.3.1 BOGLAND: Sustainable Management of Peatlands in Ireland

The Bogland report published in 2011 by the Irish Environmental Protection Agency and compiled by researchers in University College Dublin was a landmark report for peatlands in Ireland. It led to the publication of the (non-statutory) National Peatlands Strategy (see below) which adopted many of its key recommendations.

6.3.1.1 Conclusions of the Bogland report

The BOGLAND report focused on assimilating and synthesising the scientific information needed to inform policy about Irish peatlands. It revealed the global significance of this national resource and the dilemmas of peatland management, utilisation and conservation. The report provided a lot of information on many aspects of peatlands

covering the four pillars of sustainability: environmental, social, economic and institutional. Scientific chapters are available in full in the End of Project Report, while the main findings have been compiled in the Synthesis Report.

The report includes technical information about the services provided/affected by peatland use and management should be readily presented to politicians and influential decision makers, with a clear impression of the consequence of alternative decisions and policies. Increasing the awareness (particularly to the wider public) of the current situation and possible future scenarios (backed up by enhanced scientific understanding) that are critical to evidence-based policy development. The protocol delivered an action plan or set of recommendations to be used to draft a much-needed National Peatland Policy, to ensure that this natural heritage is not lost in the future, but that it is safeguarded and enhanced during a challenging period of economic transition. In short, any vision of the future of Ireland must include the maintenance and enhancement of one of its last natural resources: peatlands. This protocol aims to succeed in achieving such a vision that serves the needs of the people and preserves Ireland's natural heritage.

Ireland can decide today how its peatlands, this unique natural resource, will look in 2050. To achieve sustainable management of peatlands, the vision to aspire to is outlined below.

6.3.1.2 Recommendations for Irish Peatlands: 2050

- A good awareness by Irish people of the multiple benefits brought by peatlands and recognition of peatlands as an important natural resource providing valuable ecosystem services.
- Active management by the Government and other stakeholders to maximise peatland functions especially the storage and accumulation of carbon.
- Responsible treatment of peatlands used for agriculture, forestry and commercial operations.
- Integration of climate impacts into decisions on economic activities on peatlands.
- Favourable conservation status attained for all protected peatlands.
- Cutaway peatlands restored where possible and embryonic bogs once again growing in Ireland. Where conditions are not favourable for restoration, cutaway peatlands rehabilitated to suit the needs and aspirations of the local population, including amenity, wildlife and green energy options.

6.3.2 Irish National Peatlands Strategy

The [Irish National Peatlands Strategy](#) (2015) which is non statutory aimed to provide a long-term framework within which all of the peatlands within the State can be managed responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations.

The strategy recognised that Ireland's peatlands will continue to contribute to a wide variety of human needs. It aims to ensure that Ireland's peatlands are sustainably managed so that their benefits can be enjoyed responsibly. It aims to inform appropriate regulatory systems to facilitate good decision making in support of responsible use. It also aims to inform the provision of appropriate incentives, financial supports and disincentives where required.

In recent years, along with increased understanding and concern over climate change, scientific research has established the importance of peatlands as carbon stores and potential buttresses against some of the projected effects of climate change.

The National Peatlands Strategy identified specific policy actions for peatlands and climate change:

- The potential contribution of peatlands management to climate change mitigation will be fully explored. The immediate priority will be to address research requirements and to establish the information required to support the development of an informed policy position. This will include the development of a sound technical basis for analysis and reporting of greenhouse gas emissions and removals associated with wetlands.
- As part of Ireland's commitment to move towards a cleaner, more carbon efficient economy, means to reduce the dependency on peat as a source of fuel and horticultural compost will be fully explored.
- Consideration will be given to how best cutaway bogs can contribute to a low carbon economy through their use as sites for renewable energy.
- An assessment will be undertaken of the value of identifying a number of priority peatland sites as part of a network of climate change related indicators and for their establishment as EU and global monitoring sites.
- The National Raised Bog SAC Management Plan will provide for the restoration of raised bog SACs and NHAs.
- An approach to the appropriate restoration measures of blanket bog sites selected for designation as SACs or NHAs will be considered as part of a national approach to the management of such sites, in compliance with relevant EU and national legal requirements and in full consultation with the local community and affected landowners.
- Further research will be carried out into the potential contribution of functioning peatlands to Ireland's resilience and adaptation to climate change.

- The vulnerability of Ireland's functioning peatlands to the impacts of climate change will be assessed.

6.3.3 National Raised Bog SAC Management Plan 2017 - 2022

The purpose of the [management plan](#) is to provide a roadmap for the effective preservation of Ireland's designated raised bogs while providing clarity to all parties on how these sites will be managed into the future in cooperation with all stakeholders and in compliance with requirements of EU and national legislation.

The plan outlines the current condition of Ireland's raised bog network; identifies the conservation objectives for the designated raised bogs and presents a programme of conservation measures to achieve the stated objectives. Site-specific conservation objectives for active raised bogs have also been set for each of the 53 raised bog SAC's and identifies the goal of focusing on achieving the conservation targets set for each site. Furthermore, the plan addresses the needs of those affected by the plan including landowners and turf-cutters.

Key Benefits of protecting raised bogs:

- Carbon storage and sequestration.
- Support for habitats and species biodiversity.
- Water purification and flood attenuation.
- Cultural heritage preservation.
- Landscape and recreation.
- Peat as a resource (source of energy, horticulture, cultural tradition & recreation).

In 2017, the NPWS published a [Best Practice in Raised Bog Restoration in Ireland](#). This document serves as a guidance document to assist those undertaking restoration measures to ensure a consistent approach and demonstrate existing best practices toward peatland restoration. The document contains specific restoration measures and identifies criteria required for consideration in designing on-site restoration plans. It identifies the difference between bog units (active versus degraded bog).

One of the main aims of the Habitats Directive is to ensure that the habitats and species listed in the Directive achieve "favourable conservation status". This means that these habitats and species are being maintained in satisfactory condition and that this situation is likely to continue for the foreseeable future. To achieve this a network of SAC and NHA sites were selected to cover the geographical range and ecological variation of raised bogs in Ireland and site specific and network conservation objectives were set, and have started to be implemented under the Raised Bog SAC Management Plan. The target for the area of the Habitats Directive priority habitat Active Raised Bog in the national raised bog

network is: area increasing and not less than 3,600 ha. This will more than double the current area of this peat forming habitat present in Ireland, once restoration works are completed by the end of the third cycle of the RB SAC Management Plan in 2034. For further information, see [NPWS protected sites](#).

6.3.4 Irish National Climate Action Plan 2019

The Irish [National Climate Action Plan 2019](#) contains very significant actions in relation to peatlands, and it sets out key goals,

Key goals for Peatlands:

- Increase reliance on renewables from 30% to 70% adding 12GW of renewable energy capacity (with peat and coal plants closing) with some of this delivered by private contracts.
- Bord na Móna have announced that they will transition away from peat by 2028.
- Assess and implement mitigation options on rewetted organic soils.
- Deliver the full LULUCF flexibility available to Ireland in the context of the 2030 greenhouse gas targets.
- Assess and implement mitigation options on post-production, peat extraction sites.
- Implement measures for peatlands conservation.
- Rehabilitate a further 3,000 hectares of Bord na Móna (Peat Board) land.

Better Management of Peatlands and Soils

Peatlands cover 21% of our land area. A high proportion of this is under agricultural and other uses, with 16% designated for nature conservation purposes. Peatlands represent 64% of our total soil organic carbon stock, representing the largest store of carbon in the Irish landscape. This store is very vulnerable, especially to drainage for forestry, grazing and extraction. We will develop and better manage our carbon sinks with the following measures:

- Restore/rewet all raised bogs designated as Special Areas of Conservation and Natural Heritage Areas within three cycles of the National Raised Bog Special Areas of Conservation Management Plan 2017-2022. Such restoration measures and hydrological management of our protected peatlands will reduce peat oxidation and carbon loss.
- Undertake further research to assess the potential to sequester, store and reduce emissions of carbon through the management, restoration and rehabilitation of peatlands as outlined in the National Peatlands Strategy.

- Realise the emissions reduction potential of at least 40,000 ha of grasslands on drained organic soils, yielding up to an additional 0.44 Mt in sequestered carbon dioxide annually between 2021 and 2030. Priority actions include identifying precisely which areas of carbon-rich and drained organic agricultural soils are suitable for water-table-management techniques to reduce carbon losses. This work will inform the development of agri-environment policies, including the new CAP, recognising regionally differentiated strategies may be appropriate. Other agricultural lands will account for a further 0.26 Mt annual sequestration 2021-30
- Upgrade land-use and habitat mapping systems to establish the baseline condition of wetlands and inform the development of best-practice guidelines for wetland management, including the management of degraded sites and peatlands currently exploited for energy peat extraction.
- Create additional incentives to adopt carbon-positive, post-production management options on Bord na Móna lands, and similar options on other commercial and private peat extraction sites.
- Ensure robust reporting and accounting of the emissions impact to meet relevant international reporting requirements (this will be done under the National Land Cover and Habitat Mapping Programme).
- Develop further measures to help rehabilitate exploited and degraded peatlands, including as part of national land-use planning and the new CAP, and recognising that strategies may need to differ between regions

6.3.4.1 *Bord na Móna*

The Irish Peat bord (Bord na Móna) is one of the largest peatland landowners in the Republic of Ireland. Bord na Móna has carried out rehabilitation works on up to 20,000 ha of industrial cutaway peat [2015] (approx. 10,000 ha in midland; 6,500 ha in west of Ireland; and over 1,000 ha of drained raised bog). The semi-state company has released two biodiversity action plans and has a [Strategic Framework for Future use of Cutaway Bogs](#) (2011). Over one-fifth of the landholding is already committed to future uses that include forestry (land leased to Coillte); tourism and amenity; industry and infrastructure including waste management and recovery, aggregate production, water storage and wind energy.

In 2016 Bord na Móna launched its second [Biodiversity Action Plan](#). This plan builds on objectives set out in the previous [Biodiversity Action Plan 2010-2015](#).

Several of the key actions outlined in this report and relevant to peatland restoration strategies are:

- Working with other State bodies to deliver on actions under the National Peatland Strategy,

- Working with State nature conservation bodies and ENGOs under the National Biodiversity Plan,
- Identifying information gaps in the baseline survey work to increase understanding of the biodiversity value of cutaway bogs and their future management
- Continuing with the long-term rehabilitation of the cutaway bogs
- Adding to the restored raised bog network under the Bord na Móna Raised Bog Restoration programme
- Assimilation of the outcomes relating to rehabilitation and restoration on Bord na Móna bog areas
- to develop best practice guidelines that can be translated to a range of peatland types
- Supporting and working to develop GHG emission factors for Bord na Móna bog areas
- Prioritising actions and developing metrics to track progress over the course of the 2016-2021 plan

6.3.5 Project Ireland 2040: National Planning Framework

[Project Ireland 2040](#) is the Irish government's long-term overarching vision to improve people's quality of life, enable economic development and conserve the environment. Launched in 2018, this vision is underpinned by a [National Planning Framework](#) (NPF), which provides the national spatial and economic policy context. This national context then guides the development of regional- and local-level plans.

6.3.5.1 Specific Policy Actions for Peatlands in the NPF:

- Developing an integrated network of greenways, blueways and peatways that will support the diversification of rural and regional economies and promote more sustainable forms of travel and activity-based recreation.
- Harnessing the potential of the region in renewable energy terms across the technological spectrum from wind and solar to biomass, focusing in particular on the extensive tracts of publicly owned peat extraction areas in order to enable a managed transition of the local economies of such areas in gaining the economic benefits of greener energy.
- In relation to peatlands, some of Ireland's cutaway bogs are suitable to facilitate the generation of energy, most notably wind/biomass. Considering the significant amount of peatlands in the ownership of semi-State bodies, a medium to longer-term strategic national land use plan for peatlands in State ownership will be prepared in order to manage their most appropriate future use, building on the existing National Peatlands Strategy and other national policy related to peatlands conservation and management.

- Under the National Planning Framework, the Irish Government will support the roll-out of renewables and protection and enhancement of carbon pools such as forests, peatlands and permanent grasslands. It is necessary to ensure that climate change continues to be taken into account as a matter of course in planning-related decision-making processes.
- Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance. This includes Peatlands.
- Improve air quality and help prevent people being exposed to unacceptable levels of pollution in our urban and rural areas as air quality can be poor during the winter due to a reliance on solid fuels such as coal, peat and wood for home heating. The plan promotes energy efficient buildings and homes, heating systems with zero local emissions, green infrastructure planning and innovative design solutions.

6.3.6 National Energy and Climate Plan 2021-2030

The [National Energy and Climate Plan 2021-2030](#) is currently in the development stages. It recognizes that Ireland's long-term energy policy framework is set out in the 2015 Energy White Paper, Ireland's Transition to a Low Carbon Energy Future 2015-2030. This sets out a framework to guide Irish energy policy in the period up to 2030 and sets out a vision for a profound transformation of Ireland's energy systems; moving to lower emissions fuels and ultimately towards a lower reliance on fossil fuels; significantly increasing renewable generation; achieving a step change in energy efficiency performance; implementing smart and interconnected energy systems; strong regulatory structures and markets to underpin these changes; and repositioning energy consumers to have a more active role within the energy sector.

It also recognizes that Ireland's long-term climate policy framework is set out in the 2017 National Mitigation Plan. This is a whole-of-Government plan, which reflects on the central roles of electricity generation, the built environment, transport, and agriculture. The measures to be implemented through the National Mitigation Plan will lay the foundations for transitioning Ireland to a low carbon, climate resilient, and environmentally sustainable economy by 2050.

Suggested measures for transitioning to a Low Carbon Energy Future are:

- The immediate cessation of peat extraction and support for anaerobic digestion. Restoration of Ireland's peatlands as a means of emissions reduction/sequestration.

- District heating and community participation should be encouraged along with the elimination of subsidies for peat burning.
- Support for increased co-firing of biomass in Ireland's three operational peat stations.
- The elimination of subsidies for peat burning. Bord na Móna will cease harvesting peat for electricity generation before 2030.

6.3.7 Parliamentary Report of the Joint Committee on Climate Action Climate Change: A Cross-Party Consensus for Action (March 2019)

Peatland restoration was highlighted as a priority by the Citizens' Assembly. Currently only 1% of peatlands in Ireland are under rehabilitation or restoration. The potential for jobs through peatland restoration and rehabilitation projects has not been capitalised on despite being partially recognised by Government in the Action Plan for Jobs 2013. The prime action of rehabilitation is rewetting, defined as 'the deliberate action of raising the water table on drained soils to re-establish water saturated conditions' which can stop continued release of GHGs from these peat bogs. Management approaches are highly site specific and significant efforts are needed to develop and instigate measurement and verification approaches in this area. The report tasks the State Agricultural Agency (Teagasc) with carrying out research on the potential for productive use of rewetted peatlands such as paludiculture.

6.4 Netherlands



The Netherlands is a decentralised unitary state. A lot of responsibility lies with local governments, provinces and water boards. When it comes to subsidence for example, a topic strongly related to peatlands, especially in terms of infrastructure, responsibilities are divided over municipalities, provinces, national government and water boards. In rural areas, including agricultural areas, provinces are responsible for spatial planning. Responsibility for water management in fens in these areas lies with the water boards that coordinate with the municipality. In problem areas for water management, provinces can then also decide to change agricultural areas to natural areas at the instigation of water boards. For nature and landscapes, provinces have a big responsibility in managing nature. The ministry of Agriculture, Nature Management and Food Security in their turn have a total responsibility for the conservation and sustainable use of biodiversity and natural resources and for ensuring the conservation of nature over the long term. In international law, like EU duties, this ministry is responsible for all obligations regarding nature policy within the Dutch borders. According to Dutch law, such obligations are often delegated from the ministry to the provinces. In terms of water management, water boards govern the local waters, in collaboration with municipalities. Provinces are responsible for the political objectives (e.g. implementation of the WFD), water boards have to carry these out. The provinces keep formal control on the water boards. The national government, particularly the ministry of Infrastructure and Water Management, is responsible for water management of large rivers, lakes and the North Sea and is bearing overall responsibility, also in international law like the WFD.

As this shows, governance is decentralised and rather complicated in the Netherlands. Furthermore, no national overarching peatland strategy exists. In 2019, however, the Dutch Climate Agreement was reached among several parties. This Agreement states, among other targets, that the target for peat meadows is an emission reduction of around 1 Mt CO₂-eq in 2030. Rewetting and protecting peatlands are important ways to contribute to this, as well as to the Paris Agreement pledge. This attention for the GHG-item on large peatlands in the Netherlands would not have been picked up in the Climate Agreement if there was not such a big economic burden of the connected soil subsidence. That burden is much more tangible and visible on the short term than the abstract and long-term climate change effects of some invisible gasses. This is also the reason why you will find soil subsidence initiatives in this chapter.

It is typical for the Dutch policy organization that this Climate Agreement has no juridical status and is fully based on voluntary cooperation of governments and stakeholders. Nevertheless, a new National Climate Law came into force in 2020, by which the national

objective of 49% CO₂ reduction in 2030 (compared to 1990) got a juridical importance. Apart from that, at the national level the Dutch ratification of the Paris Agreement on GHG reduction has turned out to be enough juridical basis to force the government to intensify its climate policy in order to realize its own reduction objectives. The initiator of those legal proceedings, NGO Urgenda, stated that rewetting peat meadows can be as one of the (42) measures which can contribute to that goal rather fast.

Finally, Knowledge on peatlands in the Netherlands is scattered among different organisations and the governance entities mentioned below. It is therefore important that this knowledge is combined, in order to create effective governance strategies for peatlands and thereby for climate change mitigation. In the following sections, several national policies and initiatives regarding peatlands are mentioned.

6.4.1 Climate Agreement, part Agriculture and Land Use (LULUCF)

In June 2019 the Dutch government presented the Climate Agreement (“Klimaatakkoord”). This Agreement was agreed by all governmental levels, a significant representation of economic stakeholders and many relevant NGO’s (among which Natuurmonumenten). It contains a multitude of measures to reduce Dutch emissions with 49% by 2030 (compared to 1990). The Agreement has one [chapter on agriculture and land use](#) (chapter 4). This chapter states, among others, that the target for peat meadows is an emission reduction of around 1 Mt CO₂-eq in 2030 (1/4th to 1/7th of current emissions), on an area of around 100000 ha. This will be achieved through several measures. The focus will be mainly on different types of management and use and the approach is mainly area-oriented. In the elaboration of the plans, urgency will be taken into account, as well as chances for coupling this with other challenges. The emphasis is on technical solutions such as drainage techniques and water level design, but also on the transition from agricultural land to (agricultural) nature or wet crops. Besides this chapter, the Climate Agreement promises to reduce CO₂ emissions from nature conservation areas on peat soil by hydrological measures (rewetting) and to speed up the realization of planned new ‘wet’ natural areas. Altogether, new and restored nature areas will count up to about 0,4 Mt CO₂ reduction per annum. At this moment there is no strong implementation structure of these agreements. The organization of relevant knowledge development seems a bit better: in the so-called ‘climate envelope’ fund, tens of millions are reserved for scientific research on GHG-emissions from peat meadows and ‘other nature’. In the first category technical agricultural research is dominating, in the second research on carbon sequestration by trees and forests. Lobbying by Natuurmonumenten to get more emphasis on wet nature, in balance with its contribution to the total emission reduction potential, remained unsuccessful until yet.

6.4.2 Climate Act and Urgenda case

The Climate Act ("Klimaatwet"), in force from beginning 2020, legally establishes the 49% reduction by 2030 and 95% reduction by 2050 targets. The National Government has to abide by this legislation. The measures to reach this target were agreed upon with civil society partners in the Climate Agreement (see 6.4.1).

In addition, the Dutch state must reduce its greenhouse gas emissions by at least 25% by the end of 2020 compared to 1990. This was determined by court in 2015 in the 'climate case' of NGO Urgenda against the Dutch state. The case was founded on 'duty of care' according to national law and par. 2 and 8 of the European Convention on Human Rights. After confirmation in appeal in 2018 2019 the judgment has become irrevocable. To 'help' the Government to obey to this sentence Urgenda suggested '52 measures' which can be realized in a short time, among which the rewetting of agricultural peat meadows and its change into nature-inclusive land use. This was partly granted, but restricted to the remaining of the intensive agricultural function, so the Dutch nature organizations and Urgenda are still lobbying on the more nature-based variance of this measures.

6.4.3 Integrated National Energy and Climate Plan

The Climate Act (see par. 6.4.1) prescribes the publication of a [National Energy and Climate Plan \(NECP\)](#), to be updated every 5 year. The NECP contains the main priorities of the climate and energy policy of the Netherlands for 2021-2030. The contents are for the main part determined by the Climate Agreement (see above) and therefore might overlap with what was previously mentioned. The NECP contains (1) policy arising from EU obligations, (2) ongoing policy and (3) policy announced in the Coalition Agreement, but which is not part of the Climate Agreement.

In terms of sectoral targets, the NECP mentions the following regarding agriculture and land use: "... it is important that trees are planted, deforestation and the oxidization of peatland due to drainage are reduced and that forest and agricultural land are managed using a climate-smart approach."

Furthermore, one part of Target 11 of the NECP is that by 2050, the Netherlands has climate neutral food and non-food production and emissions from peat meadows are reduced.

In terms of policies and measures, it is stated that in peat meadows, pilots will be set-up, involving raising the water level and other measures, to demonstrate whether emissions can be reduced in this way. Based on this, an optimal mix of measures will be determined for each area. Additionally, it is mentioned that carbon capture can be increased through

sustainable use of agricultural soils. The central government is aiming for “sustainable” management of all Dutch agriculture by 2030.

6.4.4 National Research Programme on Greenhouse Gasses Peatlands

The [National Research Programme on Greenhouse Gasses Peatlands](#) (“Nationaal Onderzoeksprogramma Broeikasgassen Veenweiden”) was set up in 2019 for a five-year period and is paid from the so-called ‘climate envelope’ of the Central Government. The programme will focus on measuring the greenhouse gas emissions of peatlands and aims to investigate the effectiveness of several measures against peatland degradation, as well as to improve the predictions of emissions under several different circumstances. The research is carried out by a consortium of different research institutes in the Netherlands. After biasing agro-technical measures like ‘under water drainage’ this programme is more open now for research on the CO₂ reduction and sequestration potential of other nature-based solutions, like paludiculture and rewetting existing and new wet natural areas. For example, in 2020 the establishment of a number of so-called Eddy co-variance GHG monitoring sites in and near marshland areas is planned.

6.4.5 National Strategy on Spatial Planning and Environment

The Dutch [National Strategy on Spatial Planning and Environment](#) (Omgevingsvisie, NOVI) is the governmental strategy for a more sustainable physical living environment. It has four priority areas; making space for climate change and the energy transition, enhancing sustainability of the Dutch economy and maintaining our growth potential, making our cities and regions stronger and more liveable, and ensuring future-proof development of the rural area. These challenges will be met at the national, regional and local level.

Currently, only a concept version of the national environmental vision exists. The official first vision is expected in 2020. The current document does not contain strict measures related to peatlands, but it does state that provinces will organise/facilitate a process with site users, civil society actors, inhabitants, and fellow governments with the aim to set-up a programme for each peatland (regional peatland strategy → see regional strategies). In 2019 a concept peatland programme had to be developed for each region which should contain:

- an outline mix of measures aimed at fulfilling the task by 2030;
- a vision for 2050, including management aspects;
- agreements on monitoring;
- initial financial calculations;
- follow-up process (practical implementation at polder level);

- links to existing processes;
- role of actors in the area;
- existing instruments and the identification of missing instruments.”

These peatland programmes have not been published for most of the regions.

Interesting and new is the focus in this NOVI on integrated measures and the creation of win-win effect with climate and biodiversity: *In order to increase the environmental quality, the Government wants important transitions for the physical living environment to be designed in such a way that, with a dual objective, they contribute to the landscape quality or add new qualities, for example in the form of combining nature and water retention and the construction of natural climate buffers.*

6.4.6 Natura 2000 in the Netherlands

Some of the natural peatlands have the protection status of the Birds Directive and/or Habitats Directives and are known as Natura 2000 areas. In the Netherlands, the provinces are responsible for nature policy and its implementation. Once a Natura 2000 area has been designated, a management plan is drawn up by the competent authority (usually the province) in collaboration with all parties involved in and around the area. The management plan describes the measures needed to achieve the objectives. Because of the strict protection afforded by Article 6 of the Habitats Directive, it is important to take conservation measures for the sites designated for the EU Habitats Directive. These measures should be based on the best available knowledge.

The national Nature Conservation Act, based on the Birds and Habitat Directives, protects these Natura 2000 sites. The Nature Conservation Act states that new economic activities or extensions of existing activities must be assessed for their impact on Natura 2000 areas. Economic activities can lead to an increase in the amount of nitrogen deposition in nature areas, which may lead to the disappearance of nitrogen-sensitive protected species and to a deterioration in the quality of nitrogen-sensitive habitats. As a result, for a long time there was often no permission to do anything that would lead to nitrogen emissions in the vicinity of Natura 2000 areas.

In the Nitrogen Action Programme (Programma Aanpak Stikstof, PAS), governments, nature organisations and entrepreneurs worked together to create space for economic developments, stronger nature and less nitrogen. At the national level, nitrogen deposition has been falling for some time now, but it was difficult to prove that an individual activity could not harm nature. Recommendations were therefore made in 2008 to solve this

problem with a programmatic approach. This gave rise to the PAS, which started on 1 July 2015. The PAS was valid for 118 Natura 2000 areas with nitrogen-sensitive nature (the PAS areas). The PAS linked ecological and economic objectives. On 29 May 2019, the Raad van State rendered the PAS inoperative. From that moment on, a new nitrogen approach is being worked on. By means of various measures, the Government will reduce nitrogen precipitation in Natura 2000 areas and take measures in and around Natura 2000 to restore or conserve the habitat quality and biodiversity. On the 20th of April 2020 the minister announced that 5 billion euros will be made available until 2030 for this programme, of which 1 billion to buy off farmers in the close proximity of nature reserves and 3 billion to restart restoration measures in the protected areas themselves. Hydrological measures will belong to those measures.

Within the framework of the former PAS, the report 'Restoration Strategies for Nitrogen Sensitive Habitats' has been drawn up. Since its first publication, its contents have been updated following an extensive scientific procedure, including an international review committee. This report thus reflects the best available knowledge about the influence of nitrogen on nature and the effectiveness of nature restoration measures. Therefore, this report is used to determine restoration measures that can be taken in an area to reduce or nullify the negative effects of nitrogen, even if the legal link to the PAS no longer applies. For peat bogs, remedial measures often include wetting measures, but also management measures, such as mowing and removal of unwanted storage.

At <https://www.natura2000.nl/meer-informatie/herstelstrategieen>, the entire report, cut into separate documents with restoration strategies for all relevant habitat types (including some Natura 2000 types of peat systems, such as H7110, H7120, H7140 and H91D0) and habitats of species, as well as the general introduction and some background documents, can be found. These documents have not (yet) been adapted to the expiry of the PAS.

Much of the knowledge in these recovery strategies has been developed within the framework of the Nature Quality Development and Management Programme. The Knowledge Network Development and Management of Nature Quality (OBN) is involved in the updates of the recovery strategies. Nature management organizations are represented in the board and different specialist groups of OBN. Two of these expert teams focus on peatland, bogs and fens. Knowledge is made available via the website www.natuurkennis.nl.

6.4.7 Climate and Energy Outlook 2019

The [Dutch Climate and Energy Outlook](#) provides insight into the development of Dutch greenhouse gas emissions from the past and up to 2030, as an obligatory part of the Dutch Climate Act. This report from 2019 by the PBL Netherlands Environmental Assessment Agency, mentions peatland areas several times. Most importantly, it mentions that different from other European countries, land use (LULUCF) leads to extra greenhouse gas emissions, rather than less emissions. This is mainly due to the emissions from peat meadow areas, and a low CO₂ uptake by forests. Land use emissions between 2000 and 2017 decreased by 0,5 megaton CO₂ equivalents, which was due to lower emissions because of changes in agricultural land use (smaller area, less peatlands), more emissions from building as well as a decreasing net uptake of CO₂ by forests. It is expected, however, that emissions from peatlands will rise again from an expected 5.3 megaton CO₂-eq in 2020 towards 5.6 megaton CO₂-eq in 2030 due to an increase in buildings, more arable lands, a decrease in emissions from grasslands and less uptake of CO₂ by old forests.

6.4.8 Deltascenario DRUK-PARIJS

[Deltascenarios](#) provide insight into possible futures for climate and socio-economic developments, until 2050 and 2100. Several new scenarios have been developed in 2017 based on different amounts of economic growth and different levels of climate change. One of the scenarios, "Druk-Parijs" - developed by PBL and Deltares, focuses on doing everything that is necessary to reduce greenhouse gas emissions to 80-95%, in line with the Paris Agreement goal to limit temperature increase to 1,5-2 degrees Celsius. In this scenario, peatlands are rewetted to reduce CO₂ emissions and subsidence. This is something that is not mentioned in the other scenarios in which the Paris goals are not reached.

6.4.9 Green Deal National Carbon Market

The foundation "National Carbon Market" ("Nationale Koolstofmarkt" - SNK) supports the voluntary, national carbon market by assessing plans, handing out certificates and mediating between sellers and buyers. The initiative "[Green Deal National Carbon Market](#)" was signed in 2017 by the national government, companies, local initiatives and nature- and environmental organisations. The foundation was established in December 2019. It focuses on creating a national system for determining, trading and applying emission reductions in projects that are not covered by the EU Emissions Trading Scheme (ETS). The business parties aim to capture an additional 0,5 megaton in additional emission reductions through projects in this Green Deal. Through participation of the Government and some important potential market parties, the SNK aims to become the nationally licensed body for reliable and transparent carbon offsetting on the voluntary market. One

of the examples of projects that are supported by the carbon certificates of SNK is the increase of groundwater level in peat meadows to prevent peat oxidation and the emission of greenhouse gases.

Crucial in the certification system, is the development of transparent and reliable methods for certain project types. One of the first methods which was approved by the SNK concerned the rewetting of peat soils, under agricultural land use or functioning as nature protection sites. This "[Money for Moors](#)" ("Valuta for Veen") system is a national CO₂ compensation system based on decreasing the CO₂ emissions from peat meadows. Resembling systems occur in Germany (Moors for Future) and the UK ([Peatland Code](#)). Farmers and nature managers take measures to rewet parcels on their farms/nature reserves, thereby preventing subsidence and CO₂ emissions. This reduction in emissions can be sold through CO₂ credits to companies, the government and civilians who want to reduce their emissions on a voluntary basis. It is estimated that landowners can receive around 25 to 50 euros per ton CO₂. By the founding of a so-called Carbon Bank, the provincial Nature and Environment Federations aim to connect suppliers and demanders of carbon credits for offsetting emissions. Nature and Environment Federation Overijssel (environmental federation in Care-Peat's project area) takes part in this project. Beginning 2020 the first projects will be offered for both agricultural rewetting (Nature and Environment Federations) and rewetting and restoration of a desiccating raised bog (Natuurmonumenten).

6.4.10 'Climate-Smart' Forest and Nature Management

Financed by the beforementioned "Climate envelope" (see par. 6.4.1), since 2018 a year-by-year programme exists for scientific and practical pilots to develop new methods and projects for GHG reduction and sequestration by trees, forests and nature. In the second and third editions (2019, 2020) also pilots on 'wet nature' are explored, particularly concerning fens, bogs and marshes. On different geographic scales, promising locations were mapped and questions on accountability of CO₂ sequestration and CO₂ and methane reductions were investigated. For some promising projects action plans were drafted for follow up activities. The results are published on a [specialized website](#), and on <https://www.klimaatbuffers.nl> (both only in Dutch). They aim to give practical advice to managers and developers of existing planned nature protection sites and to develop better knowledge, e.g. better key figures for the yearly emission registration towards the UNFCCC and a better understanding of the CO₂-CH₄ balance in wetlands. The results of the Care-Peat project will be shared here as well.

6.4.11 Sinking Soils, Rising Costs

The report “Sinking Soils, Rising Costs” (“[Dalende Bodems, Stijgende Kosten](#)”) by the PBL Netherlands Environmental Assessment Agency (2016) gives insight into the consequences of land subsidence in cultivated peatlands and proposes several measures in a transparent manner, for both rural and urban areas. It states that by implementing the proposed policy at present, rising costs of land subsidence for governments and the private sector in the future can be avoided. Any realistic policy, however, was made three years later, in the Climate Agreement.

About 9 percent of Dutch terrestrial land consists of peat soils, thicker than 40 cm. This equals approx. 270000 ha (summed up with thinner peat soils is 14%). A large part of this area is subsiding. In rural areas this subsidence is mainly the consequence of draining practices for agriculture, mainly dairy farms. The report gives an overview of the problems and costs associated with subsiding soils (approx. 20 billion euros up to 2050) and offers policy alternatives for peat meadow areas and urban areas. For peat meadows three measures to reduce or stop subsidence are proposed; underwater drainage, groundwater level fixation and/or a transition in land use, either towards nature, or ‘wet agriculture’. Furthermore, four policy alternatives are proposed: ‘mitigating measures’ in which underwater drainage plays an important role when land use stays the same; ‘passive rewetting’ when maximal groundwater level fixation takes place and land use stays the same; in ‘interweaving functions’, parcels with reclamation and parcels with rewetting are combined within a company system; in ‘separation of functions’ more space becomes available for the third measures - a transition in land use towards more nature or wet agriculture - and a broad palette of different forms of land use becomes available.

6.4.12 Platform “Weak Soil”

The ‘[Platform Weak Soil](#)’ (Platform Slappe Bodem) is an initiative from several municipalities that deal with subsidence and weak soils. They advocate for an integrated approach in which national, local and provincial governments as well as water boards, knowledge institutions and businesses share responsibility. It is mostly active in the west of the Netherlands. The main goals in terms of policy and governance of their current 2020-2024 Strategic Agenda are:

- Clarify the roles and responsibilities of the authorities involved and make agreements about them
- The integration of subsidence in the Delta Program, NOVI, etc.

- Realisation of a national subsidence program with an integrated approach (soil, water, climate adaptation/mitigation, housing, energy, agriculture etc.) and a coordinating minister.
- Realisation of a national knowledge centre for subsidence association with a chair and/or research group and with long-term financing.
- Infrastructure and other public spaces are managed and maintained by all governments using sustainable technologies according to the life cycle approach.

Their knowledge goals are the following:

- Realisation of a research group on weak soils
- Continuity of the National Knowledge Programme on subsidence
- Realisation of a nation-wide measure- and modelling system for subsidence.
- Development of sustainable future actions for rural and urban areas.

They furthermore have goals on networking and communication.

6.5 United Kingdom



Land use in the UK has been highly influenced by a complex set of sub-national, national, EU and international policies (CCC, 2020). This report is produced though at a time of significant change in the UK as the country leaves the European Union and the Common Agricultural Policy, a journey which will also bring with it accompanying changes in the national policy on peatlands in the UK. At the time of writing there are several uncertainties about the shape these new policies will take, since the overall impacts of the EU Exit are not yet known, the new Environmental Land Management System (ELMS) which will underpin agri-environment funding, is still being developed (and won't be fully in place until 2027) and the new Agriculture and Environment Bills are being debated in all 4 UK administrations.

What is clear though, the climate emergency and increasing public awareness of this, has brought the need for more measures to mitigate climate change and reduce greenhouse gases (GHG) emissions more sharply into the minds of policy makers and is driving policy that supports such measures much higher up the agenda; this will hopefully strengthen policy support at national level for peatland restoration in the UK post-Brexit: 2019 saw all four devolved governments across the UK declare a climate emergency; the recent UK Budget speech 2020 pledged £640 m for a new 'Nature for Climate Fund' to support natural habitats like peat bogs, including restoring 35,000 hectares of peatland between 2020-2025 and the Scottish Budget 2020-21 provides £20 million for peatland restoration and a commitment to invest £250 million over the next ten years.

Within the UK there are no specific peatlands policies for the UK as a whole and there is no single authority responsible for peatland policy at national level; this is largely due to the overlapping interaction of peatland habitats with a range of land uses and policy areas (e.g. water and climate change). The most relevant government policy areas are also almost entirely devolved to the four UK administrations, which determine the priorities, how funding is allocated and detailed policies for peatland in each region; there are some overarching policy targets at UK level and international level (e.g. UK Biodiversity Action Plans for peatlands, on GHG emissions etc) which provide the broader context for devolved country policy action to conserve and restore peatlands.

6.5.1 The IUCN UK Peatland Programme - overarching strategy guidance

In spite of the devolved nature of peatland policy in the UK, the UK has nevertheless been a pioneer in peatland restoration¹⁰ and has delivered very cost-effective restoration programmes over large area of land¹¹. A strong vision for and co-ordination of peatland restoration for the UK is driven by the IUCN UK Peatland Programme. The IUCN UK Peatland Programme, which was set up in 2009 to promote peatland restoration across the UK, plays an important role in overarching strategy guidance for the UK peatlands. One of its key objectives is to inform policy and legislation at international, EU, UK and devolved country level to ensure effective conservation and restoration of peatlands and secure long-term funding and regulatory support¹². The work of the Peatland Programme is overseen by a coalition of partner bodies including government departments and public bodies as well as charities and other stakeholders involved in peatland management.

6.5.2 UK Peatland Strategy 2018-2040

The '[UK Peatland Strategy](#)', launched in 2018 by the IUCN UK Peatland Programme, is a strategy for the UK and its peatlands, developed to support co-ordinated large-scale action to conserve and restore the UK's peatlands – and deliver a cohesive message to both policy makers and funders that peatlands should be protected, enhanced, sustainably managed and recognised for their public value⁹. It seeks to provide common goals for peatlands across the four devolved administrations, and the targets set out in the UK Peatland Strategy, include goals to restore one million hectares of degraded peatlands by 2020 and two million hectares by 2040. This is not a Government target, but is consistent with the government's 25 Year Environment Plan (25YEP) goals. It also aims to co-ordinate monitoring and reporting of peatland condition to allow the UK to report to International obligations such as National Green House Gas (GHG) accounting and Biodiversity conventions, as well as to apply international recommendations for peatlands (CCC, 2020).

¹⁰ Wichmann, S. (2018). *Economic incentives for climate smart agriculture on peatlands in the EU*. Institute of Botany and Landscape Ecology, University of Greifswald Partner in the Greifswald Mire Centre

¹¹ Andersen R., Farrell C., Graf M., Muller F., Calvar E., Frankard P. Caporn S., Anderson P. (2016) *An overview of the progress and challenges of peatland restoration in Western Europe*, Restoration Ecology 25 (2) 271-282.

¹² IUCN UK Peatland Programme (2020) *The IUCN UK Peatland Programme*, IUCN UK Peatland Programme, c/o Harbourside House, 110 Commercial Street, Edinburgh, EH6 6NF. Accessed 19/04/2020 <https://www.iucn-uk-peatlandprogramme.org/>

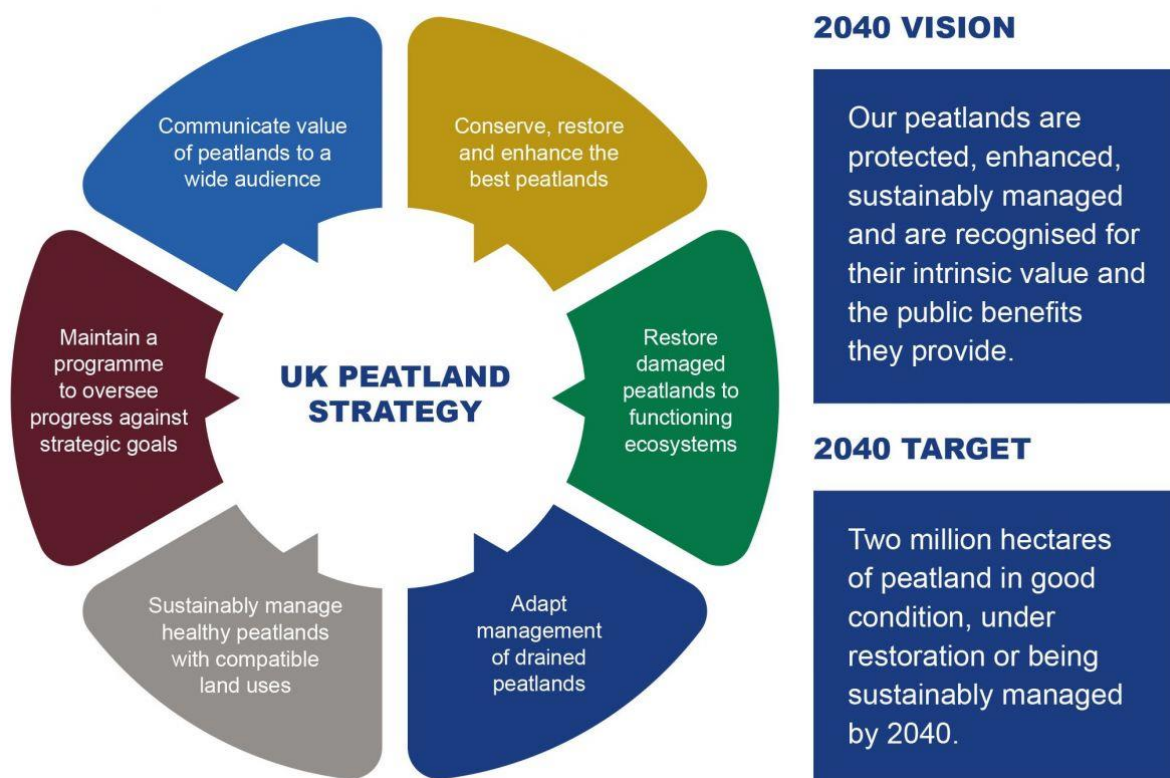


Figure 3: The Peatland Strategy vision and goals (IUCN, 2018)

6.5.3 IUCN UK Peatland Programme Commission of Inquiry

The IUCN UK PP [Commission of Inquiry \(2011\)](#) sought to review policy measures for peatlands - conservation and landscape designations, national strategies, planning and other legal frameworks, codes of practice - and made recommendations for future policy. In 2013, in response to the publication of the Commission of Inquiry on Peatlands, a [joint Ministerial Statement of Intent](#) was issued in 2013 by all four nations of the UK, committing to enhancing the natural capital represented by peatlands. The upcoming [Commission of Inquiry Peatlands Update](#) report (due 2020) is revisiting some of the recent policy changes to refresh the evidence base and ultimately support the big, long-term funding and policy discussions that are underway. The scientific topic reports (the findings of which will feed into the main Commission of Inquiry report) can be found [here](#).

6.5.4 Policy and legislation (including those in development) for England:

6.5.4.1 A Green Future: 25 Year Plan to Improve the Environment

The UK Government's '25 Year Environment Plan' (25YEP) policy paper published in 2018, sets out an aim to "be the first generation to leave the environment in a better state than

we inherited it... and improve the UK's air and water quality and protect our many threatened plants, trees and wildlife species."¹³

The plan includes commitments to strengthen natural assets, such as soil, water and biodiversity, while also taking account of the negative effects of a range of current land uses and activities. Climate change mitigation and adaptation is one of the ten goals set out in the Plan.

Specifically, to peatlands the objectives in the 25YEP include:

- improving soil health, restoring and protecting vulnerable peatlands
- ending peat use in horticultural products by 2030

The plan sets out the goal:

"to create and deliver a new ambitious framework for peat restoration in England"and "where it is not appropriate to restore lowland peat, we will develop new sustainable management measures to make sure that the topsoil is retained for as long as possible and greenhouse gas emissions are reduced. "¹²

"The scheme will improve the condition of peatlands in England, cutting carbon emissions and delivering a slew of environmental benefits. In 2011 we introduced a voluntary target for amateur gardeners to phase out the use of peat by 2020 and a final voluntary phase-out target of 2030 for professional growers of fruit, vegetables and plants. If by 2020 we have not seen sufficient movement to peat alternatives, we will look at introducing further measures."¹²

Related actions set out in the 25YEP include:

- Setting up a peatland grant scheme – DEFRA £10 million capital grant scheme (2018-2021) to restore over 6,000 hectares of lowland and upland peat across England to their natural state, to create habitats for vulnerable wildlife, reduce flood risk and increase carbon capture.
- Publishing an England Peat Strategy (by Defra) - which will set out a vision to ensure all of our peatlands are functioning for the needs of wildlife and people by 2030.

¹³ HMG (2018) *A Green Future: Our 25 Year Plan to Improve the Environment* © Crown copyright

- Developing a healthy soils indicator – through Monitoring Soils Project to identify innovative and cost-effective ways to support policy and enhance existing monitoring programmes.

Other objectives within the 25YEP, which will have an impact on peat-related policy going forward:

- Development of a Nature Recovery Network - creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats (which would include Lowland Raised Bog and Blanket Bog as well as other Fen, Marsh and Swamp habitats)
- Restore 75% of terrestrial protected sites to favourable condition (which would include many of the upland peatland sites)
- Continuing public investment: A new environmental land management system will use public money to deliver public goods – sustainable soil management on or restoration of peatland sites as part of this could also help UK government meet other environmental commitments such as net zero targets and align with the government's Nature for Climate Fund.
- Catalysing private investment: The Government will take steps to encourage development of natural capital thinking, data and tools and private sector investment in projects that improve the natural environment. Companies could invest in peatland restoration projects to offset their residual carbon emissions – for example by using the Peatland Code.

6.5.4.2 England Peat Strategy

The England Peat Strategy, a long overdue England-specific restoration target and strategy for peatlands is due to be published in 2020. The strategy was launched in 2018 and is due to set out how over the next 25 years, the condition of England's peatlands will be improved so that they function healthily for wildlife, people and the planet.

Actions ongoing since the launch of the Strategy:

- Five peat pilots carried out in five areas across England to test systematic approach to ensure all peatlands are conserved, restored or enhanced, including one pilot in Greater Manchester which includes peatland currently drained for agriculture. The pilots could play an important part in reducing UK carbon emissions in the future.
- Establishment of a new Lowland Agricultural Peat Taskforce - to recommend ways to reduce the rate of loss of peatland soils for agriculture, and reduce carbon

emissions, moving key agricultural land towards sustainable management. One of the peat pilots will also examine drained agricultural land in the Fens of East Anglia.

- Trials/testing on peatlands of new Environmental Land Management Schemes (ELMS)

6.5.4.3 *The Draft Agriculture Bill*

The new Agriculture Bill changes how taxpayers' money is spent on farmers and land managers post-Brexit. The draft Bill sets out obligations to transition by 2028 from the current CAP subsidy scheme based on land area in agricultural production towards payments for public good. The main body of the Bill applies to England only, with some provisions extending to the whole of the UK (CCC, 2020).

Replacing the Common Agricultural Policy (CAP) with a domestic agricultural policy in the UK provides a major opportunity to redirect public funding towards emissions reductions and delivery of other public goods, which could come from sustainable management or restoration of peatlands. The proposals for the new Future Farming and Countryside Programme is made up of three elements:

- The development of a new regulatory baseline reflecting the 'polluter pays' principle.
- A new Environmental Land Management Scheme (ELMS), which will replace direct payments with public money, which will be given for the delivery of public goods in agriculture and the other land use sectors. Defra began its test and trial period for the new ELMS in 2019, with pilots to run from 2021¹⁴.
- Farmers and land managers will also receive funding through actions such as improving soils.

The ELMS policy represents a major shift away from traditional farming towards a system with pricing based on a natural capital valuation approach. The benefits include: improved air, water and soil quality, increased biodiversity, climate change mitigation and better protection of historic environments – a lot of which can be delivered through peatland restoration.

The government released an [ELMs policy discussion document](#) in February 2020 that proposes the introduction of a single scheme with three tiers. Tier 3 would be most

¹⁴ Harris L (2020) *Environmental Land Management scheme – what we know so far*, Farmers Weekly. Accessed 23/04/2020: <https://www.fwi.co.uk/business/payments-schemes/environmental-schemes/environmental-land-management-scheme-what-we-know-so-far>

significant for peatlands, since it would coordinate projects that are critical in helping the UK meeting environmental commitments such as net zero and would pay farmers and land managers who undertake transformational landscape-scale, land-use change projects, such as restoring peatland. This would align with activity under the government's Nature for Climate fund for afforestation and peatland restoration.

6.5.4.4 The Draft Environment Bill

The Environment Bill, currently being debated by Parliament makes provision for targets, plans and policies for improving the environment (CCC, 2020). The Bill introduces a new Office for Environmental Protection (OEP) to ensure compliance with environmental law, as well as measures to create Local Nature Recovery Strategies (LNRSs), which could be key to supporting the creation of a Nature Recovery Network, which will create or restore 500,000 hectares of habitat outside the protected site network, focusing on priority habitats include peatland habitats).

6.5.4.5 Flood and coastal risk management strategy for England

This new strategy and supporting documents provide the overarching framework for future action to tackle flooding and coastal erosion and will be relevant for threats of sea level rise to coastal mires such as those in the south and north Cumbria as well as several in Scotland, Wales and Northern Ireland.

6.5.5 Devolved UK Government regions peatland designations and funding

Wichmann (2018) gives an excellent summary of the designations and funding mechanisms for the four [devolved UK administrations](#). See below information taken from their paper:

6.5.5.1 England:

Government provides protection for peatland habitats through statutory area designations, such as Sites of Special Scientific Interest (SSSIs) and Areas of Outstanding Natural Beauty (AONBs) as well as providing specific incentives for peatland restoration through the current agri-environment schemes (to change post-Brexit). In addition, three of the twelve Nature Improvement Areas are focussed on improving peatland habitats in both upland and lowland areas.

In its Natural Environment White Paper (2011) the government set out its goal to reduce the use of peat in horticulture to zero by 2030 underpinned by a number of voluntary targets (something reinitiated in the 25YEP). This is supported by the National Planning Policy Framework, which states that local authorities should not grant further planning permission for peat extraction.

Defra has invested several million pounds in research to establish which restoration methods result in the most cost beneficial impacts, and to investigate the greenhouse gas emissions associated with different management regimes.

6.5.5.2 Scotland

The Scottish Government has provided funding for moorland and peatland measures within the Scotland Rural Development Programme. Funding was also made available to Scottish Natural Heritage over 2012-15 to develop a Peatland Plan for Scotland. In the second Report on Policies and Proposals (RPP2) for climate change mitigation, published on 29 January 2013, the Scottish Government proposed that 20,000 hectares a year of peatland should be restored over the following 15 years. The Peatland ACTION project, funded by the Scottish Government has awarded £8 million to restoration projects since 2012 (CCC, 2020).

6.5.5.3 Wales

The Welsh Government supports and delivers a range of actions which both protect and enhance peatland ecosystems, in addition to area designations such as National Parks and SSSIs. Funding for management and restoration action is provided from a range of sources. For example, designated sites are supported through management agreements administered by the Countryside Council for Wales, whilst funding for restoration is provided by Welsh Government through Its Ecosystem Resilience and Diversity Fund. The Welsh Government's legacy agri-environment schemes Tir Gofal and Tir Cynnal reward farmers for specific management action, and the newest agri-environment scheme Glastir has adopted an ecosystem approach to intervention which identifies peatlands for priority action within the enhanced element of the scheme.

6.5.5.4 Northern Ireland

Government provides protection for peatland habitats through statutory area designations, particularly ASSIs, planning policy and by providing incentives for peatland management through agri-environment schemes. Financial support has also been given to peatland management and restoration projects such as recent work on the Garron Plateau which bring an integrated approach between a range of stakeholders.

6.5.6 Committee on Climate Change Report on Land Use: Policies for a Net Zero UK (2020)

The Committee on Climate Change (CCC) is an independent, statutory body established under the Climate Change Act 2008. Its purpose is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

The CCC published its first ever in-depth advice on UK agricultural policies in a report, 'Land use: Policies for a Net Zero UK' in 2020; it presents a detailed range of options to drive UK greenhouse gas emissions reductions in England, Scotland, Wales and Northern Ireland. There are five objectives for new policy, including restoring at least 50% of upland peat and 25% of lowland peat.

Other key elements of the CCC's proposed approach for peatlands include strengthening the regulatory baseline, such as banning damaging practices such as rotational burning on peatland (by 2020), peat extraction and the sale of peat and peat imports (by 2023).

6.5.7 Landscape Review final report (2019)

[Landscape Review final Report \(2019\)](#): "Given the multiple natural capital benefits it provides, peatland restoration should be a priority for all National Parks and AONBs that contain it"

A review commissioned by UK government in 2018 in response to the 25 Year Environment Plan, based on protected areas - English National Parks and Areas of Outstanding Natural Beauty (AONB) found that peatland makes up about 15% of National Parks and 18% of AONBs. Proposals 2 and 3 within the report are particularly relevant for peatlands:

Proposal 2: The state of nature and natural capital in our national landscapes should be regularly and robustly assessed, informing the priorities for action

Proposal 3: Strengthened Management Plans should set clear priorities and actions for nature recovery including, but not limited to, wilder areas and the response to climate change (notably tree planting and peatland restoration). Their implementation must be backed up by stronger status in law.

6.5.8 Corporate sponsorship of restoration and management of peatlands

A lot of the peatland restoration work in the UK has been financed through Defra biodiversity spending, EU LIFE spending and Non-Government Organisation spending,

and private companies (e.g. water companies financing peatland restoration in their catchment areas for flood control and water quality). However, there is still a funding gap and the development of carbon credit schemes like the UK Peatland Code as well as Payment for Ecosystem Services schemes could help secure additional private sector/corporate funding of restoration and management of peatlands for their carbon balance, climate, and other benefits¹⁵.

6.5.9 Carbon Credit schemes in the UK

The main type of voluntary mechanism is carbon offsetting. Carbon offsetting projects are increasingly available covering a range of activities including land management activities such as peatland restoration that absorb from, or prevent the loss of CO₂ to, the atmosphere. There are several standards both globally and in the UK. The main ones in the context of UK peatland availability are:

- Clean Development Mechanism
- Gold Standard
- Verifiable Carbon Standard (VCS)
- The Climate, Community & Biodiversity Standards (CCBS)

All of these standards vary in their rules and regulations, the kinds of projects they will accept and the geographical location of those offsets.

6.5.9.1 UK Peatland Code

The Peatland Code is the most developed non-offsetting standard for emissions reductions in the UK to date, and similar to the voluntary carbon offsetting standards above.

The [Peatland Code](#) is described as a voluntary certification standard for UK peatland projects wishing to market the climate benefits of peatland restoration to private carbon buyers motivated by corporate social responsibility. It is administered by the IUCN UK Peatland Programme.

“The Peatland Code is the mechanism through which assurances can be given to buyers, that the climate benefits being sold are real, quantifiable, additional and permanent.”

¹⁵ Eftec (2018) Natural Capital Financing for Peatland, Briefing note for the IUCN UK Peatland Programme

"The Peatland Code sets out a series of best practice requirements including a standard method for quantification of GHG benefit. Independent validation to this standard provides assurance and clarity for buyers with regards the quantity, quality of emissions reductions purchased. Recognising that carbon benefits arise for many years after the initial restoration activities are implemented, the Peatland Code also ensures the carbon benefit will be regularly measured and monitored over the lifetime of the project (minimum 30 years). Buyers can therefore be confident in purchasing peatland carbon units upfront, enabling the restoration project to take place."

"Funding obtained from the sale of climate benefit can sit alongside traditional public sources of funding, providing cost effective peatland restoration and ensuring management and maintenance of restoration projects over the long term."¹⁶

The Peatland Code says it gives:

- Carbon buyers the guarantee that they have facilitated a responsible scheme, which will result in additional climate benefits
- Projects recognised procedures and standards to work to, and can use their validated/verified status as a means to market the carbon benefits to potential buyers
- Society benefits from enhanced climate mitigation and the restoration of the natural landscape.

Because emissions reductions from peatlands have not been approved by UK government or non-governmental organisations Peatland Code carbon savings can't be presented as carbon offsets or tradeable units on international carbon markets. However, for those individuals or organisations wanting to support peatland restoration projects as part of their corporate social responsibility activities Peatland Carbon Units can be reported in annual GHG, environmental or other reports as well as in signage, websites or other promotional materials. To date, it has validated one restoration project covering 77 hectares in Scotland, with a further nine projects under development. As a result of uncertainties in the science surrounding peatlands and their carbon emissions the Peatland Code is highly conservative which restricts its applicability to many peatland types in the UK. The Peatland Code is currently restricted to restoring certain types of upland peat (e.g. eroded and drained peatland):

¹⁶ IUCN UK Peatland Programme (2020) *The IUCN UK Peatland Programme*, IUCN UK Peatland Programme, c/o Harbourside House, 110 Commercial Street, Edinburgh, EH6 6NF. Accessed 19/04/2020 <https://www.iucn-uk-peatlandprogramme.org/>

- The Code only applies to blanket bog or raised bogs with >50 cm depth of peat – fens are not covered by the Code.
- Only “Drained” (defined as peat within 30m of an active artificial drain or erosion gully/hag) or Actively Eroding (defined as extensive bare peat within hag/gully systems or extensive continuous bare peat e.g. peat pan or former cutting site).
- Modified peatlands outside of these categories, even if degraded and near-natural peatlands are not eligible for the Code.
- Removal of forestry from peatland or reversion of arable or grassland habitats to fen or bog communities is also ineligible.
- A minimum term of 30 years and a maximum of 50 years is required.
- Projects must meet strict additionality criteria including a requirement of at least 15% of the projects costs coming from carbon financing.

The Peatland Code is working with Defra to widen eligibility to other peatland habitats such as upland modified bog and lowland peat. It is also working on gaining UK Accreditation Service accreditation in 2020, which is crucial to attract private sector investment (CCC,2020)

7 – Regional and Local Policies

This chapter will give an overview of the relevant regional and local policies for the pilot sites of the Care-Peat project. For an overview of the pilot sites, see Appendix A.



Vallei van de Zwarte Beek, Belgium

7.1 Belgium (Regional)



Flanders is one of the three Belgian regions with its own government, parliament and administration. The other two are the Brussels-Capital Region and the Walloon Region. The Flemish government is responsible for the environment in Flanders. Only a limited number of tasks such as product policy, protection of the North Sea and ionising radiation are still part of the federal competences.

Flanders lost about 75% of its wetland habitats in the past 50–60 years, with currently only 68,000 ha remaining, often in a more or less degraded state. In the 1950s 244,000 ha (19% of Flanders) could still be considered wetland.

The region of Flanders is situated in the northern half of Belgium and covers 13,522 km². Bordering the North Sea and the Netherlands, the area is rather flat, partly reclaimed from the sea (polders), and large parts are dominated by wide river valleys and a dense network of slow-running watercourses. The highest point only reaches 156 m above sea level. It has a maritime climate with an annual precipitation of 800 mm and mild winters and summers. These conditions explain the large historical density of wetlands. Currently 45% of the region is used for intensive agriculture, heavily fertilized and drained or irrigated. Another 26% of the land is urbanized (470 inhabitants/km²) and 13% of the soils are sealed (De Meyer et al. 2011¹⁷). This has resulted in a substantial and steady increase of the number of recorded floods since the 1970s and an average yearly economic damage of 50 million euro (VMM 2014a¹⁸).

Remaining wetlands cover only 5% of the region and suffer from eutrophication, pollution, and disturbed hydrological regimes. All 25 wetland habitat types protected by the Habitats Directive are in an unfavourable conservation status (Louette et al. 2013¹⁹). Most peat soils

¹⁷ De Meyer, A., D. Tirry, H. Gulinck, and J. Van Orshoven. 2011. *Actualisatie MIRA Achtergronddocument Bodem*. Thema Bodemafdeling. Eindrapport. Studie uitgevoerd in opdracht van de Vlaamse Milieumaatschappij. MIRA, SADL & Departement Aard- en Omgevingswetenschappen, K.U. Leuven, Belgium.

¹⁸ Vlaamse Milieumaatschappij (VMM). 2014a. *Milieurapport Vlaanderen: waterkwantiteit*. VMM, Aalst, Belgium. [online] URL: <http://www.milieurapport.be/nl/feitencijfers/milieuthemas/waterkwantiteit/>

¹⁹ Louette, G., D. Adriaens, G. De Knijf, and D. Paelinckx. 2013. *Staat van instandhouding (status en trends) habitattypen en soorten van de Habitatrichtlijn (rapportageperiode 2007-2012)*. Instituut voor Natuur- en Bosonderzoek, Brussels, Belgium.

were extracted in medieval times and nearly all of the 6,000 ha of remaining peat soils are heavily fragmented and assumed to be in a degraded, mineralized state.

The organization of hydrological and water level management in Flanders has always been very complex with many actors on different government and administrative levels and a total lack of overall coordination. In the past the focus of each actor has always been on draining wet soils and evacuation of surplus water to the sea as fast as possible. A large proportion of Flemish rivers and water courses has been widened, straightened and embanked from the 1950s onwards. Powerful pumps were installed to drain wetlands and artificially control water levels. It became custom practice that in the so-called 'water-sick' areas the water levels were kept very low during winter, while in summer irrigation water was supplied to create an optimal water level for agriculture. Farmers of historic wetland areas were (and still are) organized in local water boards (so-called 'polders en wateringen') with a mission to improve agricultural exploitation, financially supported by the government. These local water boards cover 208,000 ha of Flanders. Furthermore, intensification of agriculture and improved drainage was facilitated by large-scale land consolidation programs in 150,000 ha or 12% of Flanders. Mind setting started to change from 2003 onwards with the approval of the Flemish Decree on integrated water policy, which was initiated by the European Water Framework Directive (2000). Meanwhile the socio-economic problems caused by extreme flood events due to artificially improved drainage, soil sealing and climate change were recognized and more interest for wetland restoration and floodplain functioning was observed in the different governmental layers and media. The once common practice of widening and straightening of rivers, as well as urbanization of irregularly flooded areas has virtually stopped. Still, of the current 68,000 ha of remaining wetland only about 44,000 ha is protected by Flemish or EU regulations (nature zones in spatial planning maps, Birds- or Habitats Directive and Ramsar sites). For the 147,000 ha of potential wetland on top of actual wetland we found that one third of the area or 49,000 ha already has the appropriate spatial planning and protection status to justify wetland restoration.

The future perspectives for a more natural floodplain functioning of the large river valleys in Flanders is generally rather good, but not in all cases there is a large benefit for biodiversity. Floodplain grasslands are often still in intensive agricultural use or low-productive semi-natural grasslands suffer from deposition of eutrophic sediments as is the case along the river Dijle (De Becker & De Bie 2013²⁰). The smaller river valleys more

²⁰ De Becker, P. and E. De Bie. 2013. *Verzamelen van basiskennis en ontwikkeling van een beoordelingsof afwegingskader voor de ecologische effectanalyse van overstromingen*. Instituut voor Natuur- en Bosonderzoek.

upstream are often managed by the provincial authorities and there is a mixed picture here. On one hand there is continued pressure from agriculture to have the water levels as favourable as possible for agricultural exploitation, resulting in for instance an intensive river and ditch management. On the other hand, small scaled flood control areas have been constructed in many places, recognizing the need for stocking excess water during peak discharges. Unfortunately, their design is often not very beneficial for biodiversity: they are generally constructed in the lowest places where permanent grassland persisted and many flood control areas function 'off line', meaning they are kept dry as long as possible for agriculture, excluding any possibility for natural riparian dynamics and spontaneous succession. Allowing natural buffer zones along the smaller rivers are still not a wide spread practice in Flanders. According to the calculations of Decler et al (2016)²¹ the area of valuable floodplain grasslands and forests can be increased with 78,000 ha, with 15,000 ha already protected for nature by spatial planning or Natura 2000 designation. Restoration projects of nutrient poor wet grasslands and heaths on temporary or permanently wet soils are much rarer and smaller scaled. Societal benefits such as flood protection are of no importance here. Hence, they are mainly restricted to nature reserves where young forest encroachment is removed, often in combination with removal of the rich top layer of the soil to activate the seed bank. There are also examples of successful restoration starting from former intensively used agricultural grasslands. Fine-tuning of the local hydrological conditions is in all cases crucial. Fen meadows are mainly restored where modern agriculture has left the area. After the traditional mowing practice without fertilization is reinstalled biodiversity values can recover. New reed marshes are mostly found in the margins of newly created water bodies and on artificially raised land with heavy soils and poor drainage. Sedge marshes are most of the times a result of spontaneous succession of abandoned fen meadows. In all cases cessation of management will in the long-term lead to a forested version of the habitat. The area suitable for restoration of all these wetland types combined is estimated at 59,000 ha of which 29,000 ha is already protected for nature by spatial planning or Natura 2000 designation. It can be concluded that for a large proportion of suitable sites for wetland restoration the legal protection status is already in place to get started. In this perspective, the rather low ambition level for expansion of Natura 2000 wetland habitat types and habitats for Natura 2000 wetland species is striking, particularly those of open landscapes.

²¹ Decler, K., J. Wouters, S. Jacobs, J. Staes, T. Spanhove, P. Meire, and R. Van Diggelen. 2016. Mapping wetland loss and restoration potential in Flanders (Belgium): an ecosystem service perspective. *Ecology and Society* 21(4):46.

7.1.2 Flemish policy paper Environment (2019-2024)

After the installation of the Flemish Government and the approval of the coalition agreement at the end of 2019, policy papers are drawn up setting out the policy for the entire coalition period (2019-2024).

In the [policy paper Environment](#), the Flemish Government seems to have understood that cooperation with nature must be an important part of a climate strategy. For example, the government recognizes in her policy plan that by focusing more on natural valleys and the restoration of forests, marshes and grasslands, we can both remove greenhouse gases from the air and make our society more resilient to floods and periods of drought and heat.

Drawing up an area-based **programme for the restoration and design of (degraded) wetlands** with a view to water management is also a strong commitment that can make both our outlying area and cities and towns climate resilient in a cost-efficient way.

For the time being it is unclear what this wetland and peat programme will look like. More clarity is expected in the coming years. The Agency for Nature and Forest (ANB) is currently collecting data to map the peat areas in Flanders in preparation for the drawing up of a specific protection framework for peat areas.

7.1.3 Flemish Climate and Energy Plan (2021-2030) - *Vlaams Energie en Klimaatplan (VEKP)*

The new [Flemish Climate and Energy Plan \(2021-2030\)](#) also mentions the advantages that wetlands and peatlands can offer and lists a number of new initiatives.

1) Developing a fully-fledged LULUCF emissions inventory and associated carbon monitoring system.

To date, the Flemish greenhouse gas emission inventory for LULUCF is based on a fixed measuring network of some 6,800 reference points, the land use of which is monitored. For the determination and evolution of the carbon content of the soils under each land-use category (a.o. field, forest, grassland, wetland, ...) the best available information is currently used per soil type in Flemish studies and in the literature. For the land-use category 'forest', the above-ground biomass and harvested biomass are also used.

2) Increased storage through integrated water management, land use and rewetting.

A large part of the historic wetlands and marshes in Flanders was drained during the 20th century. As is the case for forests and long grasslands, it is more interesting in terms of carbon storage to preserve existing wetlands than to preserve them to benefit biodiversity.

Together with the water managers, the government restores the natural dynamics in valley areas. They make maximum use of the storage capacity of stream and river landscapes and create - where desirable - additional wet nature. They are drawing up an area-specific programme for restoration and design of (degraded) wetlands with a view to water management, nature development, carbon storage and climate buffering.

7.1.4 Flemish nature policy

The Flemish Ecological Network (*Vlaams Ecologisch Netwerk, VEN*) is based on the Spatial Structural Plan Flanders (*Ruimtelijk Structuurplan Vlaanderen*), while the Nature Decree (*Natuurdecreet*) deals with the regulation of the VEN.

The VEN comprises large natural units and large natural units in development, and will comprise 125,000 ha. It partly overlaps with Natura 2000.

An Integral Connecting and Supporting Network (*Integraal Verwevend en Ondersteunden Netwerk, IVON*) buffers, supports and connects these core natural areas.

The government of Flanders uses positive incentives to promote ecological quality of these supporting areas.

The Agency for Nature and Forest and the Department for Spatial Planning Flanders issued planning processes that include the designation of Natura 2000 sites with the establishment of conservation objectives and priority measures, species protection programmes identifying specific habitats within and outside Nature 2000 sites. Natura 2000, and nature areas (reserves and domains of the regional and local authorities) form core areas of the ecological network.

For the long-term planning of a plot of nature the nature management plan is used as a constructive tool. A nature management plan is valid for 24 years and evaluated every six years. Governments, organisations and private owners use the same system and get equal opportunities.

7.1.5 Natura 2000 in Flanders

Natura 2000 is protected European nature, following the European Birds (1979) and Habitat Directive (1992). These directives aim to protect and restore natural habitats and wild flora and fauna, with the emphasis on habitats and species threatened at a European level. An essential part is the realization of a European ecological network of protected areas, the Natura 2000 network.

European legislation has been converted into Flemish legislation. In Flanders, 62 Natura 2000 areas have been designated, called special protection areas or 'speciale beschermingszones' (SBZ). The conservation objectives are set at regional and site (SBZ) level, respectively called 'Gewestelijke instandhoudingsdoelstellingen' (G-IHD) and 'specifieke instandhoudingsdoelstellingen' (S-IHD).

In the protected areas (SBZ) measures are taken and conditions created in order to maintain or improve the present state of species and habitat types. These specific objectives and measures are recorded in management plans. Also, for 'Vallei van de Zwarte Beek' a management plan is available but this only concerns the upstream area of the valley. The area Natuurpunt restores in Interreg Care-Peat is not part of the Natura 2000 network.

Many Natura 2000 habitat types are associated with peatlands. Those found in Flanders include active raised bogs (7110), degraded raised bogs still capable of natural regeneration (7120), transition mires and quaking bogs (7140), depressions on peat substrates of the *Rhynchosporion* (7150), Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (7210), petrifying springs with tufa formation (Cratoneurion) (7220) and alkaline fens (7230).

7.1.6 Province Limburg

Limburg is the greenest province of Flanders, mostly because of its natural richness and diverse cultural landscapes. Limburg was the first Belgian province to set ambitious climate goals. They acted as an example for other local authorities. Limburg succeeded in gathering all of its 44 municipalities to sign the European 'Covenant of Mayors', creating leverage for bottom up climate action. Limburg aims to be climate neutral by 2050.

7.1.7 Municipality Halen

7.1.7.1 Sustainable Energy and Climate Action Plan (SECAP)

Though there are no specific actions taken in regard to peatlands. The focus is on creating more forest.

Full report (in Dutch): <https://www.halen.be/klimaatactieplan-halen>

7.1.8 Municipality Lummen

7.1.8.1 Sustainable Energy and Climate Action Plan (SECAP)

In the SECAP from Lummen, it is specifically mentioned that the municipality will support Care-Peat in restoring peatlands.

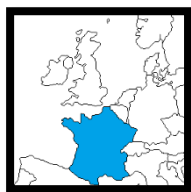
Full report (in Dutch):

[https://www.lummen.be/sites/default/files/public/Lummen/Milieu/afbeeldingen/Limburg Net/actieplan2030 lummen web.pdf](https://www.lummen.be/sites/default/files/public/Lummen/Milieu/afbeeldingen/Limburg%20Net/actieplan2030_lummen_web.pdf)

7.1.9 Municipality Beringen

Beringen is still working on their Climate Action Plan.

7.2 France (Regional)



France has 18 regions (13 metropolitan, 5 overseas). Strategies to improve peatland management and protection were implemented in many of them. Among these, the previous Franche-Comté and Limousin regions, which contain a significant amount of peatland areas, were pioneers in the subject. This involved inventories of targeted sites (peatland and associated habitats such as heathland), purchase of land and assistance in the implementation of a management plan. Recently, some other regions launched their programmes, like Pays-de-la-Loire.

Important regional efforts are led in the frame of European programmes. Concerning 'LIFE Nature', a significant one will end this year in Franche-Comté (where its restoration works are complementary to the above-mentioned regional action plan) and Hauts-de-France (where the large 'Anthropofens' programme just began in 2019). ERDF programmes are developed in several regions. Let's mention those led in the Central Massif by several Regional Nature Parks, and by the Conservatoires d'espaces naturels and their federation. These latter also lead an important action in all regions, purchasing some of the most significant mires or having agreements with land-owners in order to have a proper management of peatlands.

Besides the action led by the state (see chapter 6.2), the regions (which also create Regional Nature Reserves, some of them including mires), and NGOs, Départements should also be mentioned because of their ENS (Sensitive Natural Areas) policies, where mires are concerned.

At the Centre Val de Loire region level, administrative decisions relative to wetlands must be consistent with water management planning documents, including the Water Management and Management Master Scheme (SDAGE in French). The Central-Val de Loire region is concerned with 2 basins, and therefore by 2 SDAGE:

- SDAGE Loire-Bretagne (for the main part of its territory) ;
- SDAGE Seine-Normandie.

These two framing documents contain concurring provisions for compensation for wetland destruction.

In order to better understand the delimitation of wetlands, the characterization of the features of these areas and the application of the Avoid-Reduce-Compensate doctrine

(ERC in French), the DREAL Centre-Val de Loire developed a guide for the consideration of wetlands in a "water law" file or an urban planning document (Lesaux et al, 2016).

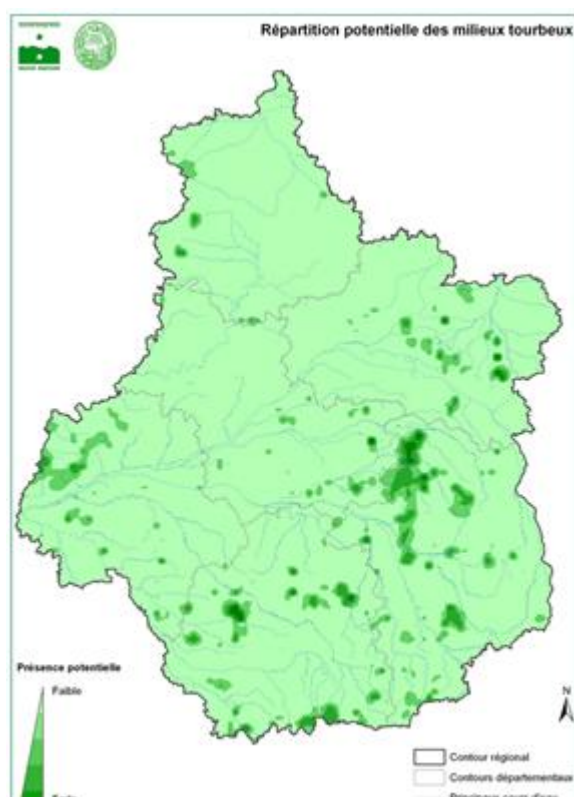


Figure 4 Map of potentially peat rich areas in Centre Val de Loire Region

Moreover, the point 18 of the Regional Planning, Sustainable Development and Territorial Equality Scheme (SRADETT in French) adopted at the end of 2019 and applicable at the beginning 2020 underlined that the Region Centre Val de Loire wants to become the first region in France with a "positive biodiversity". Indeed, wetlands have in France a major role in the preservation of this biodiversity since 50 % of bird species and 30 % of plant species are living in wetlands or are dependent on these areas.

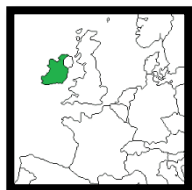
The region Centre Val de Loire supported the research activities in the La Guette peatland by funding many projects. Restoration actions and site monitoring could be undertaken in the frame of CarBioDiv and the CarEx projects.

Furthermore, through the funding in the PIVOTS-PESAt project, the CNRS and UO team could acquire C fluxes monitoring equipment that increased the understanding of the functioning of this site and increased its national and international visibility.

At the pilot site scale, the La Guette peatland was labelled ENS by the local county council (Conseil Départemental du Cher). This was a recognition of the works undertaken by the scientists (CNRS and UO) in interaction with the local authorities (city council, county council) to valorise the site. This implies that the county council funds actions to participate in the management and the restoration of the sites and the communication. Furthermore, the territory where the site is located, the Sologne, is a Natura 2000 area.²²

²² Y. LESAUX, J. MARCINKOWSKI, F. OLIVEREAU, B. PADILLA (2016). Service Eau et Biodiversité Guide pour la prise en compte des zones humides dans un dossier « loi sur l'eau » ou un document d'urbanisme.

7.3 Ireland (Regional)



Ireland is divided into 3 administrative regions. The Care-Peat pilot site of Cloncrow bog is located in the Eastern and Midlands Regional Assembly (EMRA) region. Below is an examination of the policies of the EMRA and the local authority Westmeath County Council. Cloncrow bog is owned by the National Parks and Wildlife Service. It has extensive private cutaway, plus afforestation. The key goals for Care-Peat are to block drains, carry out *Sphagnum* transfer trials and to engage landowners in the N.E. section.



7.3.1 EMRA policy and peatlands

In Ireland, the national spatial policy (NPF, above) outlines the broad spatial policy context and objectives. This broad context guides the development of regional and local spatial plans. Regional governance in Ireland consists of three [Regional Assemblies](#); the [Northern & Western](#), [Southern](#) and [Eastern & Midland](#) Regional Assemblies (RAs).



Image source: <https://www.nwra.ie/better-places>

Each RA produces its own Regional Spatial and Economic Strategy (RSES) consisting of a series of policy objectives, which give regional nuance to the broad national context, and in turn provide further guidance for local plans. Each of the three RSES has specific regional policy objectives (RPOs) concerning peatland, though the degree of focus on the topic

varies between the documents. EMRA has several RPOs relating to peatlands and their conservation:

RPO 4.84 Support the rural economy and initiatives in relation to diversification, agri business, rural tourism and renewable energy so as to sustain the employment opportunities in rural areas. In keeping with the NPF, EMRA will support the longer-term strategic planning for industrial peatland areas. This may include support, where appropriate, for a Transition Team in place and preparation of a comprehensive after use framework plan for the peatlands and related infrastructure, which addresses environmental, economic and social issues, including employment and replacement enterprise reflecting the current transition from employment based around peat extraction.

RPO 6.38 Support enterprise agencies, REPs, LECs, Regional Skill fora and local stakeholders on their introduction of contingency plans and pilot projects based on the strengths of the Region to counteract the effects from industrial decline and potential external shocks in the Region. This may include lifelong learning programmes, appropriate business supports and upskilling to facilitate moving to alternative sectors in the locality or region, for example the Bord na Móna Regional Transition Team for a comprehensive after use framework plan for the peatlands.

RPO 7.19 Support the consideration of designating a National Park for the peatlands area in the Midlands.

RPO 7.25 Support local authorities and state agencies in the delivery of sustainable strategic greenways, blueways, and peatways projects in the Region under the Strategy for the Future Development of National and Regional Greenways.

RPO 7.29 Support collaboration between local authorities, the Bord na Móna Transition Team and relevant stakeholders and the development of partnership approaches to integrated peatland management for a just transition that incorporate any relevant policies and strategies such as the Bord na Móna Biodiversity Plan 2016-2021 and the national Climate Mitigation and Adaptation Plans. This shall include support for the rehabilitation and/or re-wetting of suitable peatland habitats.

7.3.1.1 EMRA's actions supporting climate action

In addition to policy formation, EMRA participates in EU initiatives and projects to achieve its ambitions, including those relating to peatlands. These include:

Environmental Conference of the Regions of Europe (ENCORE): EMRA currently holds the presidency of ENCORE. ENCORE is a political platform and forum for Environment Ministers and other relevant regional political leaders relating to Environmental and Sustainable Development issues. EMRA will hold ENCORE's Conference; a high political level summit taking place on 17-19th September 2020 (this has been delayed to 2021 due to the COVID-19 crisis). The Conference will shape and guide the work of the network for the next two years.

QGasSP: This ESPON funded project aims to identify a robust method for quantifying the relative GHG impacts of alternative spatial planning policies.

PROGRESS: Funded under INTERREG Europe, this project aims to enhance regional policy to ensure biodiversity conservation & maintenance of nature's capacity to deliver essential goods and services. Started Q3 2019.

7.3.2 Draft Westmeath County Development Plan 2021-2027



The Irish pilot site of Cloncrow bog is located in the local authority area of County Westmeath. As part of their draft development plan they have incorporated the following action:

Climate Change

Support collaboration between local authorities, the Bord na Mona Transition Team and relevant stakeholders and the development of partnership approaches to integrated peatland management for a just transition that incorporate any relevant policies and strategies such as the Bord na Móna Biodiversity Plan 2016-2021 and the national Climate Mitigation and Adaptation Plans. This shall include support for the rehabilitation and/or re-wetting of suitable peatland habitats.

7.4 Netherlands (Regional)



There are twelve provinces of the Netherlands, representing the administrative layer between the national government and the local municipalities. The Care-Peat pilot site of De Wieden is part of a national park in the Netherlands, in Steenwijkerland municipality of the province of Overijssel

7.4.1 Regional Peat Meadow Strategies

As mentioned before, according to the Climate Agreement, regional peat meadow strategies have to be created. This means the following:

- Provinces will organise/facilitate a process with land users, civil society actors, inhabitants and fellow governments focusing on setting up a programme for peat meadow areas. In 2020 a concept programme has to be set-up.
- Based on this programme, the different parties together will have to look at whether the regional programmes together lead to the 1 Mt CO₂-eq reduction.
- After a pilot phase the concept programme will be changed if necessary. Local governments will ensure implementation of the goals into their environmental policy and water management.
- Provinces and municipalities will use this concept programme in the setup of their spatial planning programmes in 2020.
- Governments, land users and civil society parties will integrate these challenges into local processes.
- Current processes are continued (such as development of the Dutch Nature Network in peat meadow areas).

The Regional Peat Meadow Strategy for the Province of Overijssel, where the Dutch Care-Peat project area is based has not been published yet. In other provinces in the Interreg North Sea Region-part of the Netherlands, like Utrecht, Noord-Holland and Zuid-Holland, such strategies already exist for some years. However, the soil subsidence topic was more important than the GHG-emissions. As far as we know, updates regarding the GHG aspects are being prepared or have already been added (Noord-Holland). An interesting project, adopted by the province of Noord-Holland, is called 'Amsterdam Wetlands' and was initiated by nature conservation organisations, among which Natuurmonumenten

7.4.2 Omgevingsvisie Overijssel 2018/2019

Every province has a spatial planning strategy. In the provincial (Overijssel) spatial planning strategy that applies to our pilot site for example, the following is mentioned regarding peatlands:

In peat meadow areas and stream valleys, only a limited amount of water extraction is allowed, aimed at what is needed for the use of grasslands. Within meadow bird areas, the water level will not be reduced.

Furthermore “The policy for peat meadow areas and stream valleys is aimed at minimizing negative effects on the specific soil and water conditions of these areas. We seek a balance between good opportunities for agriculture and the preservation of the qualities of these characteristic areas. In agricultural use, no deeper drainage is permitted than is necessary for use as grassland.

With the water boards, we are exploring whether further or other measures (in water management, land use, spatial planning) are necessary to stop ongoing subsidence in peat meadow areas in order to preserve these areas (translated).”

There are also some specific norms, guidelines and inspiration (visions) mentioned for fens, raised bogs, mined fens and mined raised bogs.

For already mined fens, the following is mentioned:

- Mined fens will be subjected to protective zoning regulations, also for meadow birds, aimed at maintaining the locally characteristic size and scale of the landscape, with a distinction between areas with large open spaces and areas with an elongated plot structure with plants.
- In the mined fens, the water level will not fall below what is necessary for grassland use.
- The ‘Polder Mastenbroek’ will be put under a protective zoning scheme to maintain the characteristics of the area.

In terms of the guidance of spatial planning, the following is mentioned for mined fens:

- when developments take place in mined fens, they contribute to the conservation and strengthening of the ribbon settlement as a characteristic settlement type.
- Respect the ditch pattern and, where present, the wood girths as an accentuation of the spatial structure and strengthen this in the further development of the agricultural function.

Inspiration:

- when developments take place in fens, they contribute to the conservation and strengthening of the characteristic ribbon settlements.
- Respect and strengthen the ditch pattern and, where present, the wood girths as an accentuation of the spatial structure, in the further development of the agricultural function.

For already mined raised bogs, the following is mentioned:

- Mined raised bogs will be subjected to protective zoning regulations, aimed at maintaining characteristic variation in the degree of openness, alder girths, relief, allotment and ditch patterns with a relatively irregular pattern of roads and paths.

The guidance says that

- when developments take place in mined raised bogs, they contribute to the conservation and strengthening of the small-scale character and the characteristic road and plot boundary landscaping and the various ribbon settlements.

Inspiration:

- Adding new building to existing ribbon settlements and yards.
- Maintain the remaining variation and differences in land use.

For fens the following norms are mentioned:

- The still existing fens will be subjected to protective zoning regulations, aimed at maintaining the water quality and quality of nature.
- Other parts of fen areas will fall under a protective zoning scheme that aims at maintaining the current peat and avoiding the water level dropping below what is necessary for grassland use.

Furthermore, a guiding principle for these areas is that when developments take place in these areas, they contribute to increasing the water level to avoid subsidence and the disappearing of peat, and if possible, also to enhancing the quality of nature and the coverage of fens.

As '**inspiration**' it is mentioned that in

- In use of peat remnants, coordinate use, layout and management to further develop the natural qualities of (parts of) this unique landscape. •
- Elsewhere: seize opportunities for nature development. "

For **raised bog**, the following norms are set:

- The still existing raised bogs will fall under a protective zoning scheme, aimed at maintaining living raised bog, the water quality and quantity and the quality of nature.
- Other parts of raised bog areas will fall under a protective zoning scheme aimed at maintaining what is still left of the peat; the water level will be in line with this goal.

And the following 'guidance':

- If development takes place near raised bog areas, they will contribute to the improvement of the hydrology to combat the desiccation of peat and, where possible, to enhancing the quality of nature and the coverage of raised bog.

As inspiration:

- Management aimed at maintaining the variation and vitality of the raised bog.
- Promote extensive recreational shared use.

For our specific project area, the following is mentioned:

In the Wieden-Weerrribben, the quality of the area is enhanced by the clever combination of new nature, recreational facilities, expansion of the sailing landscape and new carriers for nature management.

7.5 United Kingdom (Regional)



The two UK pilot sites in the Interreg Care-Peat project are located in the North West of England. The Little Woollen Moss companion planting trial: in the Metropolitan District of Salford in Greater Manchester; Parliamentary constituency of Worsley and Eccles South Co Const. The Winmarleigh carbon farm pilot site: Lancashire County; parliamentary Constituency of Lancaster and Fleetwood Co Const; Cockerham Civil Parish.

7.5.1 Little Woollen Moss

Peat is widespread across the urban city region of Greater Manchester. Greater Manchester has 17,500 hectares of peatlands in its administrative boundary, of which over 11,000 ha are upland habitats (over 200 m above sea-level) and over 6,000 ha are lowland peat. Greater Manchester is bordered by further extensive upland peatlands which potentially provide additional ecosystem services and natural capital benefits from beyond its administrative boundary. These upland peatlands are often degraded and in need of restoration. The lowland peatland varies from recently extracted peatland including LWM to extensive areas of cropland on peat.

Greater Manchester has the benefit of being a Combined Authority with an emerging Mayoral spatial plan covering 10 district authorities. It is the location of the Defra Urban Pioneer, and is a member of the global 100 Resilient Cities network, taking a proactive approach to climate change resilience planning with an increasing emphasis on carbon management. Greater Manchester is also one of the UK's five Defra Peat Pilot locations.

7.5.2 Greater Manchester's 5 Year Environment Plan 2019-2024

"A clean, carbon neutral, climate resilient city region with a thriving natural environment and circular, zero waste economy"

The Greater Manchester Combined Authority (GMCA) has produced a 5-Year Environment Plan. Launched in March 2019, it identifies 'mitigating climate changes' as the most significant of the environmental challenges the GM city region faces and sets out a long-term environmental vision – to be carbon neutral by 2038 – and the urgent actions needed in the next 5 years to help achieve this. The local policy actions relating to the natural environment include a number of actions directly or indirectly linked with peatland restoration or funding of it:

- Support of peatland restoration as part of Resilience Strategy
- Support the delivery of a biodiversity net gain approach in new development.
- Support the development of a Greater Manchester Environment Fund.
- Support the implementation of the Natural Capital Investment Plan to increase private sources of funding.
- Launch a programme of innovative funding mechanisms to deliver increased investment in nature-based adaptation solutions (subject to approval).

As part of the Plan, GMCA worked with partners to pilot SCATTER - a UK city-focused low carbon pathway model - which stands for Setting City Area Targets and Trajectories for Emissions Reduction. It provides a tool to support cities across the UK to set emission reduction targets and define appropriate pathways to achieve them. [SCATTER modelling](#) estimated that between 50% and 75% of Greater Manchester's peatlands would need to be 'restored' if the city region is to achieve its aim of net carbon neutrality by 2038 (Kuriakose et al., 2018) and (Smart et al, 2020 - in draft).

7.5.3 Greater Manchester Natural Capital Investment Plan

Greater Manchester is the first city-region in the UK to develop a Natural Capital Investment Plan. The [Greater Manchester Natural Capital Investment plan](#) is designed to deliver the vision of:

"A Greater Manchester where investments in natural capital enhance the long-term social, environmental, and economic health and wellbeing of its people and businesses."

The development of the GM Natural Capital Investment Plan was a key outcome from the Greater Manchester Mayor's Green Summit (2018). The plan aims to help encourage investment in the natural environment, as well as identify suitable areas of potential investment and which finance models could be used (also a key aim of the Greater Manchester Urban Pioneer programme).

The Plan has three key components:

- A pipeline of potential project types which need investment;
- Finance models to facilitate private sector investment and the role of public sector, and
- Recommendations to put the plan into practice over the 5 years

The baseline review of strategies and frameworks for the plan identified a set of key priorities and opportunities that are relevant for natural capital and which the investment

plan could help achieve. Relevant to opportunities for peatlands, the identified priorities include:

- Building resilience, principally addressing climate change and flood risks
- Conserving and enhancing habitat and wildlife, valued for its own sake and to increase the resilience and quality of ecosystem services supporting other priorities

The ecosystem services and benefits related to the natural capital opportunities that emerged as priorities for investment include:

- Water quality and flood management
- Climate regulation - carbon storage and sequestration
- Habitat and wildlife conservation and enhancement

The baseline review also compiled a list of over 40 projects and initiatives within the Greater Manchester City Region into key themes. One of the key themes was:

- Carbon capture and storage by vegetation in Greater Manchester is relatively low on an annual basis, but the opportunity for lowland and upland peatlands in Greater Manchester's natural capital asset base is much greater. These habitats store significant quantities of carbon, and reversing their degradation can avoid significant emissions, resulting in carbon credits;

Peatland restoration was assessed as an investment opportunity and it was recognised that there is significant potential supply within Greater Manchester of credits for carbon through peatland restoration (although increasing the scale of related carbon markets could bring challenges in terms of geographical zones/ boundaries around Greater Manchester). The GMCA's intention, subject to approval, would be to use its available policy levers to stimulate investment in natural capital (i.e. take forward policy actions to enable/drive markets) – for example to develop processes for monitoring and verifying investment returns (e.g. carbon credits) and ensuring additionality of investments.

Table 1: Peatland restoration as an investment opportunity (Data taken from Table 3.1. Priority investment opportunities in Greater Manchester (GMNCIP (2019))

Investment opportunity	Peatland restoration
Description	Restoring degraded peatland to prevent carbon release, supported by carbon credits

Examples of potential GM projects	Great Manchester Wetlands, MoorLife 2020
Model robustness	Medium – UK Peatland Carbon Code in place to facilitate investment, but requires policy support for carbon prices
Track record	Grant funded projects e.g. MoorLife, GM Wetlands
Scale of potential investment	Low – Medium, depending on extension beyond boundaries of Greater Manchester
Policy change required?	Domestic carbon price support, net gain to be embedded in planning system

Table 2: Priority Benefits, Assets and Opportunities through GM Peatlands. Data taken from Annex 1: Priority Benefits, Assets and Opportunities (GMNCIP (2019))

GM Priority Benefits	GM Natural capital asset type	Potential investment opportunities
water quality	Catchment scale initiatives across woodland, wetland, peatland etc	Peatland restoration generating revenue from carbon credits, recreation, biodiversity enhancement for net gain
flood management	Catchment scale initiatives across woodland, wetland, peatland, river infrastructure	Catchment services across woodlands, wetlands, peatlands, rivers
Climate regulation	Peatland	Peatland restoration generating revenue from carbon credits, recreation

7.5.4 Urban Pioneer Strategic Plan – Greater Manchester

The Greater Manchester Urban Pioneer is one of four three-year DEFRA Pioneer projects designed to support and inform the development of Government's approach in its 25 Year Environment Plan (25 YEP). The Urban Pioneer is exploring the links between environment, society and economy, focusing on improving the natural environment through improved decision making to support the health, wellbeing and prosperity of Greater Manchester's residents. The Pioneers are 'action learning pilots' of the 25 YEP approach and DEFRA have asked the Pioneers to explore, test and trial four aspects of the plan – the 'asks':

- a) Testing new tools and methods as part of applying a natural capital approach in practice;
- b) Demonstrate a joined-up integrated approach to delivery;
- c) Pioneer and 'scale-up' the use of new funding opportunities; and

d) Grow understanding of 'what works', sharing lessons and best practice.

Greater Manchester is the home of the Urban Pioneer programme testing new tools and methods for investing in and managing the natural environment.

The Urban Pioneer programme is not peatland specific but it could influence policy relating to management of peatlands in the GM city region, and links in with other strategy such as the Natural Capital Investment Plan. The Urban Pioneer Natural Capital Accounts developed for Greater Manchester suggest that 50,000 tonnes of CO₂-eq could be sequestered each year through GM's trees, woodlands and peat alone.

7.5.5 DEFRA Peat Pilot - Greater Manchester

Greater Manchester is one of the locations of the 5 peat pilots across England which were set up by DEFRA as part of the England Peat Strategy to test a systematic approach to ensure all peatland in the country are conserved, restored or enhanced.

Working with GMCA as a key partner and national representative, this Pilot has assessed the role peat contributes to the GM commitment to be carbon neutral by 2038 and aims to demonstrate how management of peat is key to the resilience of the city-region.

The Peat Pilot report analyses what the 'restoration' in the SCATTER modelling could look like, specifically across lowland peat assets. Chat Moss, which includes the Little Woollen Moss companion planting trial area, is the case study for the GM lowland peat (The Chat Moss peat extent of Salford and Wigan is the largest remaining fragment of lowland peatland within Greater Manchester).

The report also investigates the role the upland peat resource of Greater Manchester plays in carbon emissions. The report and its recommendations are due to be finalised at the end of April 2020, but its findings are likely to have significant implications for carbon budgets at both the city region and the local authority level, and to demonstrate the key role of peatlands in contributing to and regulating GHG emissions for Greater Manchester, as well as the crucial importance of land use and management (such as a take up of lower emitting lowland farming practices over peat) in determining the GHG emissions. For example, preliminary results indicate that the Chat Moss area stores around 2.25 million tonnes of carbon across 2,800 ha of lowland peat?

7.5.6 Greater Manchester, the Spatial Framework (revised draft 2019)

The Greater Manchester Spatial Framework (GMSF) - Greater Manchester's Plan for Homes, Jobs, and the Environment - ([the spatial framework](#) revised Draft GMSF) has been

put together by GMCA, will cover the whole of Greater Manchester and sets out how Greater Manchester should develop up until 2037 and identifies the amount of new development that will come forward across the 10 districts, in terms of housing, offices, and industry and warehousing.

The GM spatial framework does not contain any specific reference to the peatlands within the administration's boundary, however the rewritten plan focuses more heavily on the environment and says it aims to "reduce the net loss of Green Belt and provide stronger protection for our important environmental assets." It is to set out ways planning can help make Greater Manchester carbon neutral by 2038 and recognises that the green space within the GM city region makes a huge contribution to helping support wildlife and helping to reduce the impacts of climate change. The draft also outlines how a net gain in biodiversity could be achieved over the plan period as well as policies relating to flood risk and the water environment, air quality and resource efficiency.

7.5.7 Greater Manchester Natural Capital Group

The Greater Manchester Natural Capital Group is an arm of that city region's Low Carbon Hub, which sets the strategic direction for environmental/low carbon policy across Greater Manchester. The GM Natural Capital Group is the Local Nature Partnership in the Greater Manchester area, and describes itself as 'an ambassador for the natural environment'; the group gives advice to the GMCA on natural environment issues including how to stop the effects of climate change and lower emissions. The GM Natural Capital Group and its partners have produced evidence to help shape environmental policy, and works to ensure that the value of local environments and ecosystem services are taken into account when planning decisions are made. When Local Authorities develop plans, they have a duty to cooperate and take the views of the Natural Capital Group into consideration. For example, the GM Natural Capital Group were consistently involved in the consultation and development of the Greater Manchester Spatial Framework. It is made up of representatives from the public, private and third sectors. Lancashire Wildlife Trust's CEO, Anne Selby, is Chair of the Greater Manchester Natural Capital Group.

7.5.8 Great Manchester Wetlands

The Great Manchester Wetlands is a community and natural heritage partnership working across the Great Manchester Wetlands (GM Wetlands) Nature Improvement Area (NIA) (locally determined in 2013 by the Greater Manchester and Cheshire Local Nature Partnerships) which covers some 48,000 hectares including the wetlands of Wigan (The Flashes), the peatlands of Chat Moss and Risley Moss to the west and southwest of Manchester, and the Mersey wetlands corridor stretching from Rixton to Warrington.

The aim of the GM Wetlands Partnership is to deliver a living landscape between the two heavily urbanised areas of Greater Manchester and Merseyside. Bringing together experts from over 20 organisations, the partnership works together for nature by restoring habitats, reintroducing lost species and engaging local communities.

The detailed objectives are:

- 1: To mitigate the impact of environmental pressures by improving species mobility between Lancashire, Cheshire and Greater Manchester.
- 2: To make a lasting improvement to four of Britain's rarest habitats by restoring key designated sites (SAC, SSSI, LNR) and priority BAP habitats.
- 3: To improve regional and local connectivity for critical species by creating stepping stones and corridors between habitats and populations.
- 4: To optimise the ecosystem services provided by all habitats particularly the carbon storage function of lowland raised bog.
- 5: To develop and implement a shared vision for the project area with key partners, organisations, and local people.

In 2017 GM Wetlands Partnership secured Heritage Lottery Fund funding for a Landscape Partnership Bid entitled "The Carbon Landscape". This five-year £3.2m programme of improvement includes creation of wetland habitat such as reedbed and wet woodland, restoration of peatlands and improvement and linking of other sites. In addition, it is delivering a major programme of community engagement aimed at reconnecting the community with its valuable wetland heritage.

7.5.9 Greater Manchester Peatlands (Little Woolden Moss)

The Little Woolden Moss companion planting trial is located in Chat Moss, in the Metropolitan District of Salford in Greater Manchester. The city of Salford lies on the western side of Greater Manchester and is located at the heart of the metropolitan area that runs across the southern part of the North West Region of England. Salford has a wide range of green and blue infrastructure, including Chat Moss which is the largest area of open land within the city; Chat Moss forms part of a wider area of moss land that extends into Wigan and Warrington. There were originally some 2,650 hectares of lowland raised bog across Chat Moss, but there are now only around 310 hectares of relatively undamaged peat deposits primarily in Salford.

The environmental quality of Chat Moss has been degraded over many decades as a result of peat cutting and agricultural activity; some parts of the area are already under restoration to lowland raised bog (through Lancashire Wildlife Trust) and there remain significant opportunities for securing further restoration (SLP: DMP, 2020).

Nb. Salford contains 1,800 hectares of the best and most versatile agricultural land (grades 1 and 2), all of which is located in Chat Moss and on peat. This represents approximately 36% of all grade 1 and 2 land in Greater Manchester, and it is therefore a resource of sub-regional importance (SLP: DMP, 2020).

7.5.10 Salford Local Plan

The [Salford Local Plan: Development Management Policies and Designations \(SLP: DMP\)](#) is one of the documents that will form part of the statutory development plan for Salford; it sets out how Salford should develop up to the year 2037 and will provide a much more detailed set of local policies to complement the GMSF. Its primary purposes are to:

- Provide the main policies that will be used to manage development that will come forward across the city, the main areas in which this will be focused and determine planning applications
- Identify the designations that will protect the city's most important environmental assets, town centres and infrastructure
- Support the key delivery of key infrastructure, such as transport and utilities
- Allocate land for particular uses or protective designations

One of the key challenges identified for Salford within its local plan is how to meet Salford's future development needs whilst tackling inequality and protecting its environment, for example how to minimise contributions to climate change and adapt to its effects. The spatial vision for the Salford Local Plan states that

"a comprehensive, high quality network of green infrastructure will be established throughout Salford, with key strategic areas being enhanced" and that "Chat Moss will provide a rich wildlife resource and a vital carbon sink".

Strategic objectives have been drafted to achieve the spatial vision, and provide the basis for the plan's monitoring framework. These include objectives related to the Chat Moss peatlands:

- 1) To support a net gain in Salford's biodiversity. Key targets:

- Significant increase in the area of Chat Moss that is being restored to lowland raised bog or a complementary wetland habitat
- Increase in the area of land in positive nature conservation management

2. To minimise contributions to, and risks from, climate change. Key targets:

- Significant reduction in per capita carbon dioxide emissions
- Significant increase in the capacity of renewable and low carbon energy production

The Salford Local plan recognises the challenge of achieving the UK's Climate Change Act 2008 legally binding target for the UK to reduce its carbon emissions by at least 80% by 2050 (compared to 1990 levels) and the role that the planning system needs to play – and the contribution of local peatlands:

“As well as taking actions to reduce emissions, it will also be important to maximise natural processes that can take carbon out of the atmosphere and lock it into features such as peat and trees, known as carbon sequestration”

Policy CC1 - Climate change of the local plans includes the following related to Chat Moss peatlands:

- Maximising carbon sequestration, including by securing the restoration of lowland raised bog, particularly within the Biodiversity Heartland in Chat Moss
- Mitigating and adapting to the impacts of climate change, including by increasing the extent, interconnectedness and diversity of wildlife habitats to enable animals and plants to adjust

Salford has over 80% of all grade 1 agricultural land in Greater Manchester and Policy CC1 also includes ‘protecting high grade agricultural land’ under its response to the economic and policy changes that are likely to accompany climate change. However, it also recognises the vital role that soils and restoration of lowland raised bog in making a major contribution to carbon emission targets, both reducing a significant source of emissions and locking in carbon, as well as supporting biodiversity objectives.

“Given its potential importance for food production, the loss of higher-grade land should normally be avoided wherever possible. However, a key environmental priority for Salford is the restoration of the Biodiversity Heartland in Chat Moss to lowland raised bog and complementary habitats, which would deliver nature conservation benefits and enhance the function of the area as a carbon sink. This is likely to involve the loss of some high-grade land, although it would not preclude its return to agriculture in the future if there was an urgent need” (Chapter 22: Green Belt and agriculture).

A 'Biodiversity Heartland' has been identified within Chat Moss, which provides the main opportunity for securing lowland raised bog restoration. It includes several former peat extraction sites, with some parts of the area already under restoration through Lancashire Wildlife Trust's work, such as at Little Woollen Moss. A policy (policy G13) has been drafted for Chat Moss, which aims to protect and enhance Chat Moss as a key component of Greater Manchester's strategic green infrastructure network. The policy includes:

- Delivering nature conservation improvements, particularly within the Biodiversity Heartland, and providing ecological connections to surrounding areas;
- Protecting and enhancing the area's role in storing and sequestering carbon, thereby supporting climate change objectives;
- Within the Biodiversity Heartland, the priority will be to secure the restoration of lowland raised bog Elsewhere within the Biodiversity Heartland, complementary habitats shall be provided, particularly wetlands.
- Any development within or near to Chat Moss shall be consistent with these priorities, and shall ensure that the hydrology of the area is not adversely affected.

(SLP: DMP, Chapter 23: Green infrastructure, Policy G13)

7.5.11 The Mossland Project – The Vision

In 2006, the city council, in partnership with Wigan and Warrington councils and a range of other agencies, commissioned a study to identify a sustainable way forward for the Chat Moss area. [The Mossland Project – The Vision](#) sought to present a balance of agricultural, leisure and biodiversity land uses across Chat Moss. Three alternative visions for the area were developed with different policy emphases:

(a) *zero intervention*: leave to market forces. This illustrates the potential conflicts which will occur if no action is taken.

(b) *the maximum wetland vision*: act to prioritise important biodiversity sites. in policy terms it is imperative that EU designated sites of high biodiversity are protected and enhanced.

(c) *the integrated vision*: act according to wider sustainable development principles- a more balanced approach which recognises the biodiversity value of the area but looks to balance the existing potential social, economic and environmental interests.

The document has not been formally adopted, but has been used to inform emerging planning policy. For example, the Salford Local Plan under the its Chat Moss policy is attempting to adopt the approach C of having a biodiversity heartland.

7.5.12 Winmarleigh Carbon Farm

Almost one quarter of Lancashire is designated as Green Belt, the bulk in the South and West of the county, areas facing significant development pressures. The Winmarleigh Carbon Farm is on 4 ha of farmland in Lancashire, North-West England. It is designed for the long-term storage [sequestration] of atmospheric CO₂; the farmland will be planted with *Sphagnum* moss for the purpose of storing and protecting soil carbon the farmland. (See Appendix A for further details of the Winmarleigh Carbon Farm).

7.5.13 Lancashire Climate Change Strategy 2009-2020

Vision: *"A low carbon and well adapted Lancashire by 2020"*

The development of the [Lancashire Climate Change strategy](#) was steered by the Lancashire Climate Change Partnership. The focus of the Lancashire Climate Change Strategy was on actions that are best delivered on a county level, and to complement other strategies and actions developed on a local and regional North West scale.

The Strategy covers Lancashire's key objectives for adapting to climate change and also outlines supporting actions which identify how the partnership is working towards the overall vision.

LCCS Strategy vision for the Natural Environment: *"Environmental organisations, farmers and land managers consider the changing climate when managing their land. They have plans in place to limit the impact of climate change and help species adapt. The role of the natural environment in the sequestration of Carbon is recognised."*

Objectives for the Natural Environment relevant to peatlands include:

- Manage Lancashire's upland and lowland peat lands to sequester carbon and prevent its release.
- Identify what the impacts of climate change on biodiversity will be in Lancashire and support the uptake of practical adaptation measures.

The Lancashire Climate Change strategy acknowledges that land use, and changes in land use, can be responsible for both carbon dioxide emissions and absorption, and that in Lancashire, much of the emissions from land resulted from the drainage of lowland peat for agricultural use.

7.5.14 Lancashire Green Infrastructure Strategy (2009)

"The Vision for Lancashire's Green Infrastructure is for the development and maintenance of multifunctional green spaces and places, connecting urban areas to rural hinterlands, and ensuring that those continue to contribute towards the economic, social environmental well-being of the sub-region..." (LGIP, 2009).

The seven strategic Objectives of the Lancashire Green Infrastructure Strategy (produced by the Lancashire Economic Partnership) include 'adapting to and mitigating the effects of climate change' as one of the strategic objectives for green infrastructure growth in Lancashire. The Strategy also sets out some key interventions including maintaining peat bog resources, and using indicators such as carbon storage through peat restoration as a way to assess benefits contributing to the adaption and mitigation of climate change. However, the protection of upland peat bogs is used as an indicator of carbon storage success, with no reference to lowland raised bog areas such as Winmarleigh Moss SSSI - although % of SSSIs in 'good' or 'recovering' status is listed as an indicator of success for 'diversity and quality of the wildlife habitats' .

7.5.15 Landscape Strategy for Lancashire (2000)

The Lancashire Landscape Strategy was published by Lancashire County Council. Almost 20 years old, it makes reference to the potential impacts of drainage but has limited strategy recommends for mossland protection.

"The impacts of drainage and flood control on important wetland habitats, such as mosses, ditches and fen carr... Such habitats, which have been subject to a lowered water table (due to agriculture or abstraction for development) may lose their characteristic vegetation and are susceptible to scrub encroachment by birch, pine and rhododendron. Drainage may also have serious potential impacts on peat-covered archaeological evidence. For instance, it would affect organic remains such as seeds, wood causeways, tracks and evidence of human occupation."

"Loss of peat through erosion and oxidation as a result of intensive agriculture has been significant in arable and horticultural areas and will ultimately lead to the loss of this high quality agricultural land"

Strategy Recommendations for Lancashire mosslands mentioned in the report:

- Conserve the distinctive character and landscape structure of the mosslands including:

- limit development in the mosslands, particularly that which obscures views of the flat open landscape or which introduces new vertical elements
- limit the extent of mineral and peat extraction with restoration to wetland habitats
- Conserve important habitats including:
 - conserve the important network of drainage ditches and bank-side habitats and woodlands as semi natural habitats
 - monitor levels of water abstraction to retain key wetland habitats
 - monitor water quality, particularly downstream of major industry

7.5.16 Local Plan for Lancaster District 2011-2031

Lancaster City District Council adopted the Development Management Development Plan Document (DPD) for the Local Plan for Lancaster District (2011-2031) in 2014. This document sets out a series of generic planning policies which will be used by Lancaster City District Council to assess planning applications, and contains policies on which land should be protected for its environmental, economic or social importance. The DPD document forms a key part of the new Local Plan for Lancaster District 2011 – 2031, which is potentially to be adopted in May 2020 (dependent on COVID19 related impacts).

The document makes reference to the potential threats to biodiversity caused by new development, and climate change. It mentions the need to avoid further fragmentation of wildlife habitats and ecological networks to enable wildlife to adapt to climate change. It also states that the sustainable use of soils is essential for achieving a range of important ecosystem services and functions, including food production, carbon storage and climate regulation, support for biodiversity. The document *does not* include any Development Management Policies for peatlands, and there is no mention (in Chapter 12: Natural Environment) of the lowland peatlands within Lancaster City District - either for their value in climate change mitigation or nature conservation.

However, Lancaster City Council is one of 12 of Lancashire's city and borough councils to officially declare a Climate Emergency in 2019. Following the declaration, it is expected that the Local Plan will enter an immediate review to make sure that policies are given further consideration in relation to climate change.

8 – Synthesis

The aim of this report was to provide an extensive overview of international, national and local policies regarding peatlands and climate change. By doing this, we lay a foundation for further exploration and creation of new policies and strategies for peatland restoration and sustainable use.

In this chapter we will give a brief overview of the findings of the report. Not all policies will be addressed. For that, we refer to the previous chapters.



Cloncrow bog, County Westmeath, Ireland

This document is not meant to provide a full analysis of current peatland policies and strategies, how they interact or overlap, and what the major gaps are. It is simply meant as an overview, a sort of library, that can be used as input for further discussion in line with the objectives of the strategies and policies work package of Care-Peat to focus on developing policies and strategies in order to create a sustainable socio-economic model that integrates with the objectives of the key stakeholders to promote the roll-out of developed techniques and methods for peatland restoration. Therefore, we will only briefly summarise the findings, as well as highlight some interesting aspects of these findings. Care-Peat continues to work on this topic and will continue to produce more applied and country specific analyses and reports in the future.

8.1 International policy

On the international and EU level, a wide array of guiding conventions, policies and even initiatives exist that relate to peatlands and climate change. While there is no specific policy or strategy for peatlands, most of the international conventions indirectly cover this topic. However, mentioning of peatlands and peatland related targets is still lacking. Since peatlands have been known to be some of the most important, if not the most important, sinks and stores for carbon, and since they provide important habitats for biodiversity, it is a big shortcoming that peatlands have not been properly included in the targets of the UNFCCC convention, nor in the other two Rio Conventions. The Ramsar Convention and the international initiatives on peatlands (Global Peatlands Initiatives, International Mire Conservation Group) are in place to try and fill this gap.

8.2 EU Policy

In terms of EU policies there are some policies that (could) have a big influence on peatlands. While there is no specific EU Peatland policy, the EU WFD, for example, requires all Member States to protect and improve water quality in all waters. This therefore also applies to peatland areas. The EU CAP is a policy that in its current form supports the drainage of peatlands without any restrictions. It is thereby counteracting the WFD, Natura 2000, climate change mitigation and biodiversity action. Similarly, it currently discriminates against paludiculture, since species eligible for such cultivation are not eligible for funding. Nevertheless, if these things are changed, the CAP has a great potential to positively influence peatlands, and thereby climate change mitigation, in Europe.

The EU Green Deal is an upcoming new policy that aims to transform the EU into a modern, green society in which economic growth is decoupled from resource use, net emissions are targeted as zero. While the Green Deal is not in place yet, it has a lot of potential. If the Green Deal addresses the enormous potential of peatlands, it would be beneficial to

several of their goals relating to a healthy and protected society and reducing climate change and biodiversity loss.

8.3 National Policies

National policies in this report are clearly shown to be very different. It is therefore difficult to synthesise what was said in the corresponding chapters. Countries govern through very different systems. Whereas in the Netherlands governance is very decentralised, in Ireland a lot of responsibility lays with the national government for example. Also, there is a difference in the relative amount of peatland coverage in each country. In France and Belgium for example, peatlands only make up a small part of the land, whereas in the UK and Ireland, peatlands are a very big part of nature.

This is also reflected in the national policies. At national level in the Care-Peat project, both the UK and Ireland have a (non-statutory) peatland strategy or programme, while for Belgium, France and the Netherlands any such strategy or policy remains absent. In that way it seems that the UK and Ireland are ahead in their protection of peatlands but even then, not on a statutory basis. Nevertheless, each country at least has a climate strategy. Including peatlands to a greater extent in all relevant national strategies could enhance protection and sustainable use of such areas, and thereby further climate action as well.

8.4 Regional Policies

Regional policies again differ greatly in each country. We have tried to create a uniform chapter, but the differences in governance structures obstructed this. In Belgium, Flanders could be considered a region, which is why the policies from Flanders are mentioned in the regional chapter. Nevertheless, these policies are from a much higher level than the regional policies mentioned in the other chapters. Also, the UK has two pilot sites which is why this chapter is much more extensive.

In conclusion, for the specific policies we refer to the corresponding chapters. The countries show interesting differences as each country has its own way of addressing the issue of peatlands and climate change. Countries like the UK and Ireland seem to be a step ahead in the management of peatlands with peatland specific policies and strategies, while the other countries still have important steps to take. This overview can provide as inspiration for the creation of such strategies, as well as an inventory of what is already out there.

Appendix A - Pilot sites

Vallei van de Zwarte Beek (Belgium)

The 'Vallei van de Zwarte Beek' in the eastern part of Belgium (province Limburg) is internationally known as a hotspot for biodiversity with large contiguous natural units with high natural value. It is the largest nature reserve managed by Natuurpunt.

The most valuable aspect, however, is what lies beneath, the soil. It consists of dead plant material that has been accumulated for thousands of years which resulted in a thick peat bog that in some areas reaches up to 7 meters deep. This is not only the substrate of all that biodiversity but the peat is also of great importance for water retention, storage of greenhouse gases and it has a great water purifying ability. Due to global warming, land use and fragmentation, the area has a lot of negative influences that threaten its buffering capacity.

With Interreg Care-Peat, Natuurpunt wants to counter this by restoring 250ha of degraded peat with a subsequently sustainable adaptive management. Restoring a natural water balance is a crucial first step, small drainage watercourses and ditches are leveled or dampened in order to keep the peat wet. This prevents the further release of the stored greenhouse gases.

In addition to restoring the peat area, they also develop sustainable techniques for the adaptive management of these biotopes, e.g. track-machines and swamp mowers equipped with the most modern techniques and strictest emission standards.

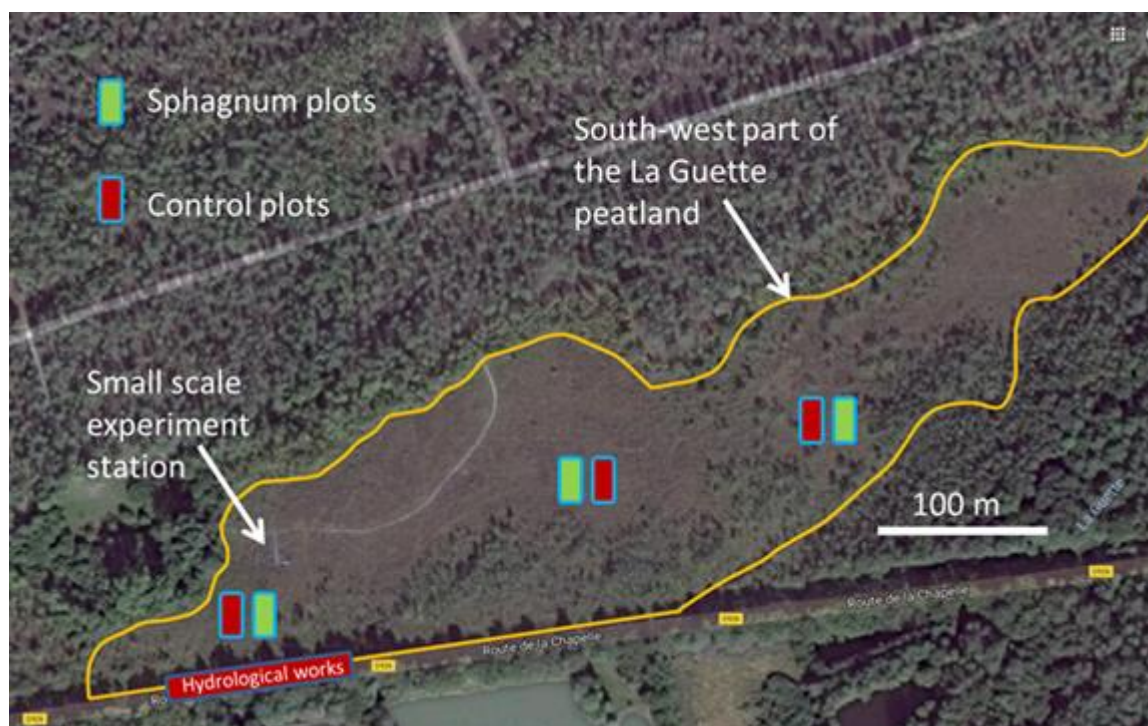
Managing peat areas also requires a lot of terrain knowledge and adaptive management (responding to terrain situations, climate change, etc.). Therefore, Natuurpunt works together with Natuur- en Landschapszorg vzw, to develop more know-how in the management of peatlands in a sustainable way. They will use a mix of technology and manual labour to be able to meet the needs of the pilot site to the maximum.

By restoring, managing and protecting this contiguous peat area, the ecological richness will be restored as well. Rare bird species such as snipe, black-tailed godwit and spotted crane are eligible to come back as a regular breeding bird in the restored areas. Increasing the water level is an important condition to develop healthy populations of dragonflies.



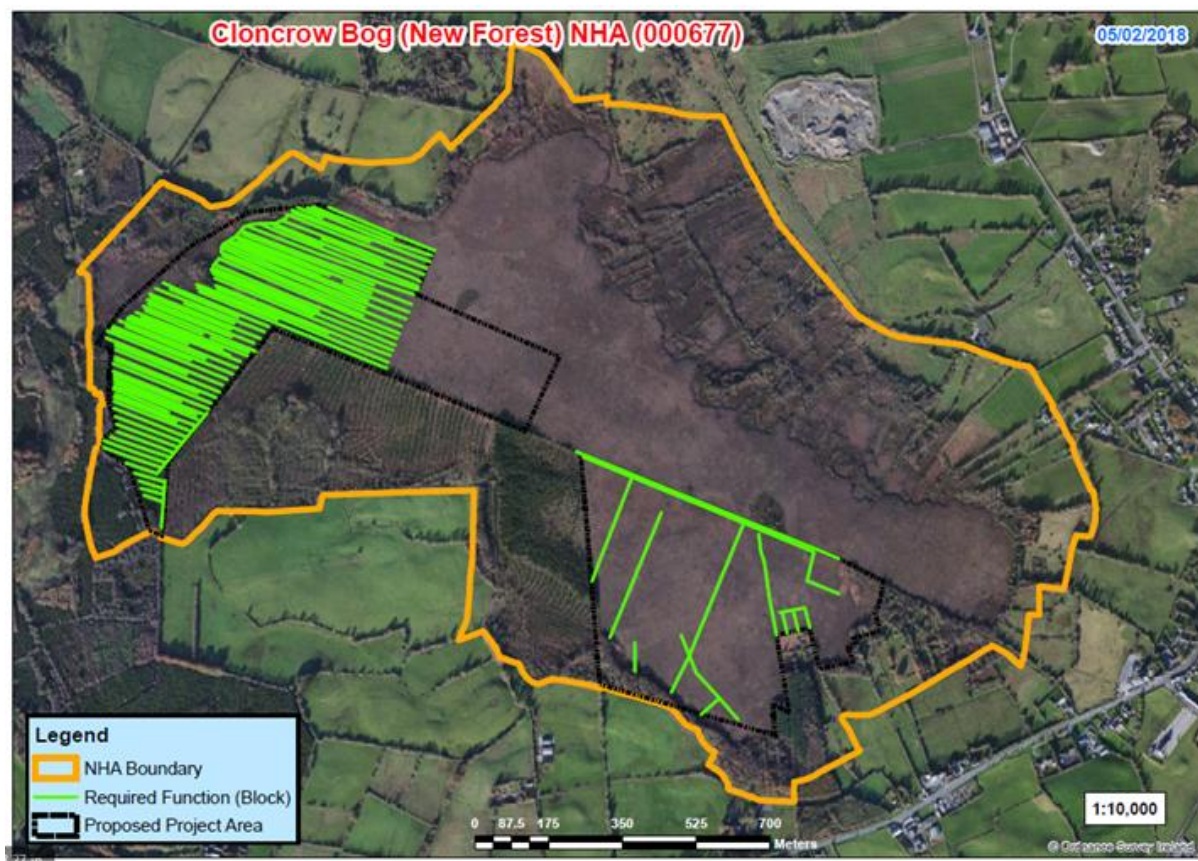
La Guette (France)

The La Guette peatland (Neuvy sur Barangeon, 200 km south of Paris) is one of the European pilot sites. This site is drained by a ditch located along a road at the outlet of the peatland. This disturbance leads to a drop in the water table level and an increase in the water table fluctuations favourable to the appearance of banal pioneer species (*Molinia caerulea*, *Betula* spp) at the expense of typical peatland species (*Eriophorum angustifolium*, *Rhynchospora alba*) including *Sphagnum*, a major producer of peat. Restoration works were carried out as part of a regional project. The results showed, on reduced surfaces, the positive effect of adding *Sphagnum* on C fluxes and vegetation. The objective for this pilot is to increase the scale of the restoration tested in the previous project by stripping peat on the first 5 cm and adding *Sphagnum* in patches in 2 zones of approximately 20 m x 30 m. The stripping of the peat will induce the growth of several plant species of interest. The expected results are an increase in floristic diversity typical of peat and plant species of interest, beyond the quantities present before the management action, as well as an increase in the capacity to store C through a significant increase of the *Sphagnum* percentage cover.



Cloncrow Bog (Ireland)

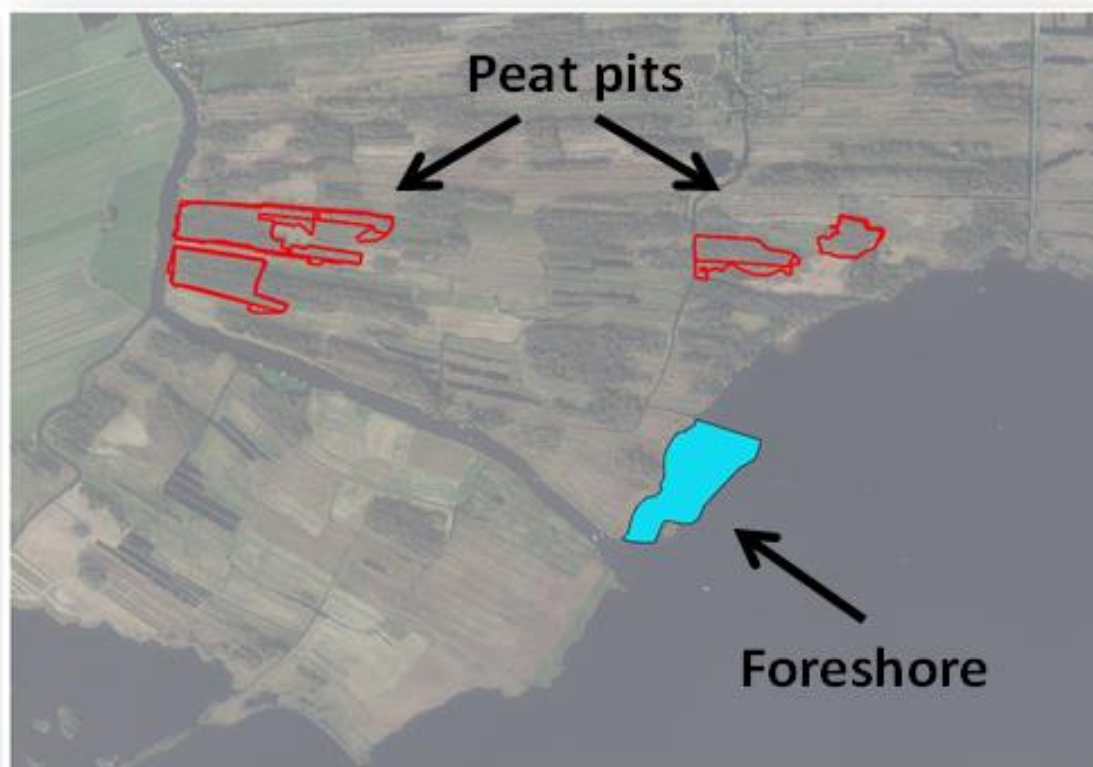
Cloncrow bog is situated in County Westmeath within the midlands region of Ireland which is the primary area for raised bog formation. Current land uses on the site comprise active peat-cutting to the east of the high bog margin and afforestation on both the high bog and the cutover. Areas of cutover have been reclaimed for agricultural purposes around the site. The grassland is used for grazing. Damaging activities associated with these land uses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat. The Irish pilot site is located in Cloncrow Bog, designated as a Natural Heritage Area (NHA) which consists of 200ha. The Care-Peat pilot consists of 26ha which will undergo drain blocking and vegetation restoration.



De Wieden (the Netherlands)

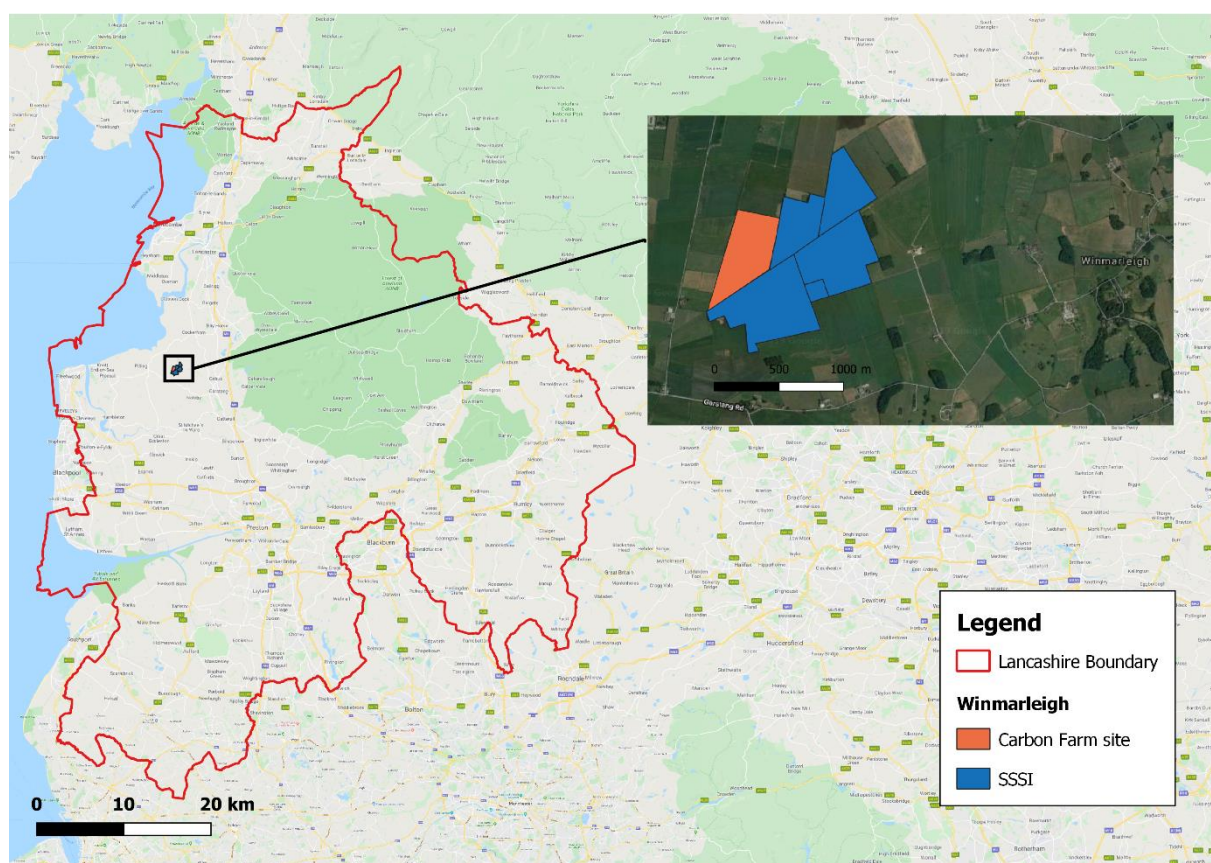
The pilot will be realized in the Dutch nature reserve area called “De Wieden”. The project makes De Wieden suitable to keep carbon in the soil and to reduce more carbon in the future. De Wieden is part of a national park in the Netherlands, in Steenwijkerland municipality of the province of Overijssel. Now the area is mentioned as a Natura 2000 area owned and managed by the private nature-conservation organization Natuurmonumenten.

In this pilot NM will create peat pits in De Wieden. By creating peat pits, more space becomes available for water plants to grow in these pits, these plants can capture carbon. In the peat pits space is also created for peat to grow and absorb carbon. The peat that comes from the new peat pits will be used to raise one of the foreshores, in Dutch called “vooroevers”. So, the carbon that is stored in the peat will stay in the peat. By raising the foreshore, more water plants will grow on the foreshore. Through this process more carbon will be stored in the area.



Winmarleigh Carbon Farm (UK)

The main objective for this pilot is the change in management of 4 ha of farmland in Lancashire, North-West England, to a 'Carbon Farm' designed for the long-term storage [sequestration] of atmospheric CO₂; the farmland will be planted with *Sphagnum* moss for the purpose of storing and protecting soil carbon the farmland. The pilot will test the effectiveness of this novel method of farming as a way of managing/restoring peatland to reduce carbon emissions from the peat soils and turn the current carbon source into a carbon sink. The test site borders a Site of Special Scientific Interest (SSSI) designated lowland raised bog (Winmarleigh and Cockerham Moss Site) owned by Lancashire Wildlife Trust (LWT). The pilot is also assessing the effect of re-wetting this buffer zone farmland area on the functioning of the adjoining SSSI nature reserve and hope to demonstrate the viability of alternative land management techniques on peatland sites in buffer zones adjacent to wildlife restoration sites, and show benefits both in terms of carbon and improvement to the wildlife site.



Appendix B - Description of Partners

Natuurpunt Beheer vzw - Natuurpunt - BE



Natuurpunt is an NGO which is the largest private nature conservation and nature management organisation in Flanders. It is also engaged in policy, research and education in the field of nature. With 105,000 families as members, its core business is the management 25,000 ha of nature for which it works primarily with volunteers that are supported by a workforce of professionals.

Centre National de La Recherche Scientifique – CNRS - FR



CNRS is one of the most important research institutes in the world. Its scientists explore the biosphere, the matter, the universe and functioning of human societies to raise current stakes. Its scientific objectives are focused on developing knowledge based on fundamental works, which are coordinated by different institutes. CNRS coordinates the French Peatland Observatory composed of 4 sites, incl. La Gnette, equipped for monitoring meteorology, GHG emissions, hydrology and vegetation.

Bureau de Recherches Géologiques et Minières - BRGM - FR



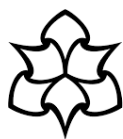
France's reference public institution for Earth Science applications in the management of surface and subsurface resources and risks. Key objectives: understanding geological processes and associated risks, developing new methodologies and techniques, producing and disseminating data to support the management of soils, subsoils and resources, delivering the necessary tools for the management of soils, subsoils and their resources, risk prevention and policy responses to climate change.

Lancashire Wildlife Trust - LKW- UK



The Lancashire Wildlife Trust is a charity which has been in existence since 1962. It owns 38 sites covering over 1300 hectares and has nearly 30,000 members and around 140 staff. Its key objectives are to protect, create and enhance wildlife in the region, creating Living Landscapes and Living Seas; to stand up for wildlife and the environment and to inspire people about the natural world and encourage everyone to take action for wildlife.

Manchester Metropolitan University - MMU - UK



**Manchester
Metropolitan
University**

The Manchester Metropolitan University is a UK Higher Education Institution dating back to 1824 and awarded university status in 1992, with a remit today to provide higher education, conduct research and engage in activities with businesses and the community. It has more than 37,000 students and employs over 5,000 people.

National University of Ireland Galway – NUIG - IE



**NUI Galway
OÉ Gaillimh**

NUI Galway is a leading higher education and research organisation ranked in the top 1% globally and has a student population of 17,000+. NUI Galway is involved in 100+ European research projects, securing €45+ million in direct funding. The Insight Centre for Data Analytics is a joint initiative between researchers at 4 Irish Universities and other partner institutions bringing more than 400+ researchers from these institutions and 80+ industry partners, to position Ireland at the heart of global data analytics research.

Eurosite - Eurosite - NL



Eurosite

We are the network for Europe's natural site managers. We bring together non-governmental and governmental organisations, and individuals committed to our vision. Founded in 1989, the network has grown to include 48 members from 17 European countries – from the Atlantic islands to the Black Sea; and from Scandinavia to the Mediterranean. Our core business is organising a range of networking events, such as workshops or exchange visits between members – often within our Twinning Programme.

Vereniging Natuurmonumenten - Natuurmonumenten - NL



Natuurmonumenten

Natuurmonumenten is an NGO and the largest private nature conservation and nature management organization in the Netherlands. Natuurmonumenten manages more than 150,000 hectares of nature spread over 363 areas. Natuurmonumenten counts over 700,000 members and works together with almost 10,000 volunteers.

Université d'Orléans – UO - FR



The université d'Orléans (UO, www.univ-orleans.fr) is a higher education center that deliver diplomas at the bachelor, master and PhD levels. The UO is structured in faculties: 1) sciences and techniques, 2) humanities, 3) Law and management, 4) Universe Sciences Observatory. The research activities are developed in all these fields and in connection with research institute located in the "Orléans Grand Campus": CNRS (fundamental), INRA (agronomy), BRGM (geology), CNES (space agency).

Hogeschool Van Hall Larenstein – HVHL - NL



Van Hall Larenstein University of Applied Sciences (VHL) is a knowledge institute that, among other things, is engaged in practice-oriented research into the sustainable organization and management of landscape types in the delta. An important landscape type are ground peat soils. VHL is lead partner in the Interreg NWE project CConnects that was approved at the end of 2017.