

Restoring Europe's Peatlands: The Role of the Nature Restoration Law in Achieving Climate and Biodiversity Goals

Despite covering only 3% of the Earth's surface, peatlands store vast amounts of carbon more effectively and for longer periods than any other terrestrial ecosystem, making them critical allies in global climate regulation. Beyond carbon storage, they play a vital role in the water cycle and support unique biodiversity. However, when degraded, peatlands shift from being carbon sinks to major GHG emitters. Europe has lost 10%¹ of its natural peatlands - more than any other continent, and 80% of its peatland habitats are currently in poor or bad condition.² The EU's Nature Restoration Law seeks to reverse this trend by setting binding targets to restore degraded ecosystems, prioritising areas with high potential for carbon storage, disaster mitigation, and biodiversity recovery.

Introduction

On June 17, the EU Council adopted the Nature Restoration Law (NRL),³ a landmark achievement for nature conservation, hailed as the most significant legislative development since the entry into force of the Habitats Directive in 1992. Although the original proposal by the EU Commission was subject to amendments during negotiations with the European Parliament and Member States, the final version of the NRL still includes important goals for the restoration of various ecosystems

across the EU. This paper analyses the NRL to clarify its implications for Member States, focusing on their obligations and the actions required to achieve compliance. By examining peatlands restoration targets as a central example, it explores how the law's objectives can translate into actionable measures at the national level. Germany is used as a case study to illustrate the implementation dynamics and challenges Member States may encounter.

Overview of the Nature Restoration Law

The NRL is the first comprehensive, continent-wide legislation of its kind. As a cornerstone of the EU Biodiversity Strategy for 2030, it aims to enable the long-term and sustained recovery of biodiversity and resilient ecosystems, aligning with the EU's climate mitigation and adaptation goals and fulfilling international commitments. By setting binding targets to restore degraded ecosystems, the NRL prioritises those areas with the highest potential for capturing and storing carbon, reducing the impact of natural disasters, and increasing biodiversity.⁴ The law mandates the restoration of at least 20% of the EU's land and sea areas (specific habitat types listed in Annex I) to good condition by 2030, and ultimately extends restoration measures to all ecosystems in need by 2050.⁵ It also includes requirements to achieve favorable conditions for key habitats and species on land and sea, maintain and enhance urban green spaces and

¹ Gaudig G. & Tanneberger F., 2023, A very special ecosystem, Peatland Atlas, Heinrich-Böll-Stiftung & others, p.12.

² UNEP, 2022, Global Peatlands Assessment – The State of the World's Peatlands: Evidence for action toward the conservation, restoration, and sustainable management of peatlands. Main

Report. Global Peatlands Initiative. United Nations Environment Programme, Nairobi p.17.

³ [Regulation - EU - 2024/1991 - EN - EUR-Lex \(europa.eu\)](#)

⁴ [The EU #NatureRestorationLaw](#)

⁵ [Nature Restoration Law enters into force - European Commission](#)

tree canopy cover, and increase these areas further after 2030.⁶ By 2030, the law aims to restore at least 25,000 kilometers of rivers into free-flowing systems, reverse the decline in pollinator populations, enhance biodiversity in agricultural and forest ecosystems, and support the EU's pledge to plant three billion additional trees.⁷ These efforts are critical to limiting global warming to 1.5°C, strengthening Europe's climate resilience, and advancing strategic autonomy in areas such as food security and disaster prevention. The NRL highlights the interconnected benefits of nature restoration, emphasising its vital contributions to human well-being, biodiversity, and climate adaptation.

National Restoration Plans (NRPs)

The effectiveness and success of the NRL very much depend on the implementation by Member States. The law mandates that Member States develop National Restoration Plans (NRPs) detailing actions to meet restoration targets and comply with Articles 4–13. Chapter III of the NRL provides comprehensive provisions for the preparation, submission, and review of these plans, which must be grounded in scientific evidence,⁸ consider socio-economic impacts and benefits, and include financial need estimates.⁹

➤ Key elements:

- **Quantification and mapping:** NRPs must quantify the areas requiring restoration, supported by indicative maps of potential restoration zones (Article 15(3)(a)).
- **Detailed measures:** Plans must describe the measures to be implemented, their timelines, and whether they fall within the Natura 2000 network or other regions (Article 15(3)(c) and (n)). Tailored strategies are required for outermost regions,

ensuring inclusivity and addressing unique environmental and socio-economic (Article 15(3)(o)).

- **Monitoring and evaluation:** Member states must outline protocols for monitoring restored areas, assessing the effectiveness of restoration measures, and revise them as needed (Article 15(3)(p)). This involves defining key ecological characteristics, setting thresholds for favorable habitat conditions, adopting robust sampling methods, and systematically aggregating data.

- **Socio-Economic Impacts:** Plans must consider the socio-economic impacts and benefits of restoration measures for local stakeholders and society at large (Article 15(3)(q) and (s)).

➤ Addressing knowledge gaps and monitoring

Member States must conduct preparatory monitoring and research to identify necessary restoration measures, address knowledge gaps, and ensure effective implementation of the law's targets (Article 14).

- **Preparatory research:** Member States must conduct preparatory monitoring and research to identify restoration measures and address uncertainties. For terrestrial, freshwater, and coastal ecosystems, this includes quantifying areas requiring restoration (Article 14(2)). For agricultural and forest ecosystems, Member States must set satisfactory levels for the indicators chosen for agricultural ecosystems (Article 11(2)) and forest ecosystems (Article 12(3)) by 2030 (Articles 14(5)(b)(c)).¹⁰

⁶ Recital 72, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

⁷ Recital 64, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

⁸ Article 14, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

⁹ Article 15, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

¹⁰ The same apply for pollinators and urban ecosystems (Article 14(5)(a), Article 14(4)).

- **Data sources and challenges:** Key data sources include Member States' reports under the Habitats Directive (Article 17), which provide insights into habitat areas and conditions. However, gaps in data and inconsistencies in reporting quality remain a challenge. Robust methodologies, public consultations, and independent expert input are essential for improving data accuracy and ensuring scientifically sound restoration planning. The European Environment Agency (EEA) provides valuable support by estimating areas needing restoration and examining habitat conditions, helping Member States align their NRPs with scientific and practical requirements.¹¹

➤ **Timeline**

Member States must submit their first NRPs within two years of the law's entry into force (by September 2026). These plans must include milestones for 2030, 2040, and 2050, establishing clear pathways toward achieving restoration targets.

- The European Commission has six months to review and provide observations,¹² after which Member States have an additional six months to finalise and submit their plans.
- NRPs must also undergo review and revision in 2032 and 2042, incorporating progress updates, scientific advancements, and environmental changes caused by climate change.¹³

- If progress is insufficient, Member States must adopt supplementary measures subject to Commission assessment.

➤ **Policy Coherence**

Policy coherence is central to the successful implementation of the NRL, as it ensures alignment across various EU policies and maximises the law's effectiveness. NRPs must explicitly address synergies with climate change, including the relevance of climate scenarios for restoration planning and measures to minimise climate impacts on nature while mitigating natural disasters.¹⁴ Additionally, NRPs should integrate with key policies such as the Common Agricultural Policy (CAP), the Common Fisheries Policy (CFP), and legislation on climate, energy, and disaster risk management. By fostering collaboration across policy areas, NRPs can unlock co-benefits, optimise resource use, streamline monitoring systems, and enhance progress toward broader environmental goals, including the EU Biodiversity Strategy to 2030. Holistic planning will also reduce conflicts between policies, ensuring a more cohesive approach to achieving climate and biodiversity objectives.

The recognition of peatlands in the NRL

Peatlands are unique ecosystems that play a vital role in climate regulation, biodiversity, and water management. Spanning nearly 600,000 sq. km across Europe,¹⁵ these wetlands store immense amounts of carbon—more than all the world's forests combined, preventing it from contributing to atmospheric greenhouse gases.¹⁶ Beyond carbon storage, they play a critical role in the water cycle - improving water quality, mitigating droughts, and reducing risks like peat fires and soil

¹¹ Recital 72, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

¹² The European Commission issues non-binding observations, meaning that Member States are not legally obligated to incorporate the Commission's feedback into their final plans. However, they will likely need to address these comments, even if they decide not to act on them.

¹³ Article 15(2), [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

¹⁴ Recital 11, Articles 14(9), (14) and (15), [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

¹⁵ Tanneberger F. et al., 2017, *The peatlands Map of Europe, Mires and Peat*, Volume 19.

¹⁶ Convention on Wetlands, 2021, *Restoring drained peatlands: A necessary step to achieve global climate goals*. Ramsar Policy Brief No. 5. Gland, Switzerland: Secretariat of the Convention on Wetlands.

erosion.¹⁷ Peatlands also support unique biodiversity, serving as habitats for often endangered species. However, when degraded, they become major greenhouse gas emitters, causing significant environmental damage per unit of land. Nearly half of Europe's peatlands are degraded, mainly due to agriculture, forestry, and peat extraction. Europe has lost 10%¹⁸ of its natural peatlands due to drainage, and over 80%¹⁹ of bog, mire, and fen habitats are in poor or bad condition. Recital 5 of the NRL recognises wetlands—including peatlands—as ecosystems that require conservation, restoration, and sustainable use. Of great importance, peatlands are highlighted for their vital role not only in biodiversity, but also for climate mitigation. As a result, the NRL aligns with EU climate policy goals both by setting restoration targets for peatland habitat types protected under the Habitats Directive (92/43/EEC),²⁰ but also for other peatlands and organic soils, including those used in agriculture. Peatlands restoration targets are set under Article 4 - Restoration of Terrestrial, Coastal, and Freshwater Ecosystems; and Article 11 - Restoration of Agricultural Ecosystems.

➤ **Article 4 – Restoration of Terrestrial, Coastal and Freshwater Ecosystems**

Under Article 4, Member States must restore 28 wetland habitat types listed in Annex I of the Habitats Directive, which includes peatland ecosystems such as mires, bogs, and fens. The targets for restoration are set at 30% by 2030, 60% by 2040, and 90% by 2050, focusing on habitats in poor condition, especially within Natura 2000 sites.²¹ Restoration measures aim to improve

habitat quality, connectivity, and the condition of species habitats, including those for peatland-dependent species. Restoration efforts must prioritise scientifically informed planning, ensuring knowledge of at least 90% of habitat conditions by 2030 and 100% by 2040.

➤ **Article 11 – Restoration of Agricultural Ecosystems**

Article 11.4 asks Member States to establish measures targeting the restoration of drained peatlands in agricultural use. The restoration goals are 30% by 2030, 40% by 2040, and 50% by 2050, with a portion of these areas requiring rewetting. Annex VII describes various measures that Member States can implement to reach these goals. These measures range from converting cropland to permanent grassland and applying extensification practices with reduced drainage, to rewetting the land for paludiculture use or the establishment of peat forming vegetation.²²

While Member States must achieve rewetting targets, farmers and private landowners are not required to rewet their land, as participation remain voluntary unless otherwise stipulated by national law. To promote engagement, Member States should provide incentives for rewetting, making it a viable and appealing choice for farmers and landowners.

¹⁷ UNEP, 2022, Global assessment reveals huge potential of peatlands as a climate solution. [Global assessment reveals huge potential of peatlands as a climate solution](#)

¹⁸ Gaudig G. & Tanneberger F., 2023, A very special ecosystem, Peatland Atlas, Heinrich-Böll-Stiftung & others, p.12

¹⁹ UNEP, 2022, Global Peatlands Assessment – The State of the World's Peatlands: Evidence for action toward the conservation, restoration, and

sustainable management of peatlands. Main Report. Global Peatlands Initiative. United Nations Environment Programme, Nairobi. p.17.

²⁰ [Directive - 92/43 - EN - Habitats Directive - EUR-Lex.](#)

²¹ Recital 28, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

²² Recital 59, [Regulation - EU - 2024/1991 - EN – EUR-Lex \(europa.eu\)](#)

Furthermore, access to training and guidance should be offered to raise awareness of the benefits of peatland rewetting and the associated opportunities for land management.

From percentage to actual figures: the example of Germany

Articles 4 and 11 establish specific objectives for peatland restoration. Article 4 sets targets for all habitat types listed in Annex I of the Habitats Directive, while Article 11(4) focuses specifically on the restoration and rewetting of peatlands soils drained for agriculture. At this point, two key questions arise:

1. Will the targets outlined in Article 4 and 11 significantly advance the restoration of peatlands in the EU to meet climate goals?
2. Do the NRL targets go beyond existing national obligations?

The answer to the first question is rather complex. Article 4 points to restoration measures without specificity, while Article 11 is more ambitious, explicitly mandating a percentage of rewetting. However, Article 11 does not specify whether rewetting should be full or partial. From a climate protection perspective, partial rewetting is likely insufficient, as it is doubtful that meaningful long-term results could be achieved without halting progressive peat depletion. Ultimately, permanent reductions or complete avoidance of greenhouse gas emissions from peatlands soils can only be achieved through full rewetting.²³

A key consideration is the potential for derogations under Article 15(3)(k). Member

States can limit peatland rewetting on agricultural land if it poses significant risks to infrastructure, buildings, climate adaptation, or public interests, and if alternative rewetting options on non-agricultural land are unavailable. This flexibility, however, poses significant risks to achieving the targets set by the law. Therefore, it is crucial for Member States to adhere to these targets as closely as possible, resorting to derogations only in exceptional circumstances and when absolutely necessary. Regarding the second question, the answer depends heavily on individual Member States and how percentages targets will be translated into absolute hectares figures. Looking at Germany, the translation of percentage targets into actual figures for Article 4 corresponds to:

- 16,160 ha by 2030
- 32,320 ha by 2040
- 48,480 ha by 2050

Article 4(1) also includes the objective of re-establishing habitat types in areas where they no longer exist. To achieve this, measures should be implemented by 2030 on 30% of the additional area needed to reach the favorable reference area for each habitat type, by 2040 on 60% of this area, and by 2050 on 100% of the required area. However, since favorable reference areas for nearly all peatland habitat types in Germany have not yet been quantified, it is currently not possible to set specific area targets for Article 4(4) of the NRL.²⁴

For Article 11, area targets can be derived from the data provided by the Thünen Institute.²⁵ According to this data:

- 428,522 ha of peatland soil restored and 107,131 ha rewetted by 2030,
- by 2040, 571,363 ha of peatland soils restored and 190,454 ha rewetted, and

²³ [The Nature Restoration Law – Tailwind for Peatland Climate Protection in Germany](#)

²⁴ Disselhoff, T., 2024, [Das Nature Restoration Law – Rückenwind für Moorklimaschutz in Deutschland? Das Nature Restoration Law – Rückenwind für Moorklimaschutz in Deutschland?](#)

²⁵ Wittnebel M, Frank S, Tiemeyer B, 2023, [Aktualisierte Kulisse organischer Böden in Deutschland](#). Braunschweig: Johann Heinrich von Thünen-Institut, 78 p, Thünen Working Paper 212. DOI: 10.3220/WP1683180852000

- by 2050, 714,204 ha of peatland soils will be restored and 238,068 ha will be rewetted.

From a climate protection standpoint, Article 11 sets the highest ambition. While Article 4 does not specify the nature of restoration measures, it is very unlikely that a good conservation status can be achieved without interpreting restoration as full rewetting.²⁶ Disselhoff's analyses the NRL targets for Germany comparing the area targets in Article 4 and Article 11 with those outlined in the National Peatland Protection Strategy and the Federal Environment Agency's projections. This shows that the NRL's 2030 rewetting targets aligns with expected outcomes from current funding programs. However, the 2040 and 2050 NRL targets fall short of the Federal Environment Agency's projections. In contrast, Article 11's restoration target exceeds both the Federal Environment Agency's forecast for 2030 and the National Peatland Protection Strategy's target, with even higher goals for 2040 and 2050. While the NRL reaffirms existing rewetting targets at the federal and state level, it doesn't specify how the ambitious emission reduction and restoration goals will be achieved without large-scale rewetting. To meet these goals, Germany must interpret Article 11 in a way that demands significant rewetting efforts, ensuring at least a quarter of restored peatlands are rewetted by 2030 and at least a third by 2040 or 2050.²⁷

Conclusion

The Nature Restoration Law represents a transformative step toward addressing Europe's biodiversity crisis and fulfilling climate objectives, with peatlands playing a critical role in this recovery. By setting binding restoration targets for peatlands and other ecosystems, the law emphasises the urgent need for

comprehensive action to restore degraded habitats, mitigate climate change, and enhance biodiversity. However, Germany's case highlights the challenges and opportunities that Member States face in translating the law's ambitious targets into effective action. As the final version of the law has been less ambitious than originally proposed, there are concerns that without full rewetting of peatlands, meeting the long-term climate goals will be difficult. The flexibility provided by derogations further risks undermining the law's overall ambition. For the NRL to achieve its full potential, Member States must commit to robust, science-based restoration efforts, prioritising full rewetting as the preferred restoration measure. This will require coordinated action across national, regional, and local levels, alongside active engagement with stakeholders such as farmers and landowners. Successful implementation will also require careful planning, investment, and collaboration among EU Member States, stakeholders, and local communities. If the restoration targets are met, the NRL will not only help the EU fulfill its climate commitments but also set a global example for nature-based solutions to climate change. Looking ahead, the success of the NRL will depend on balancing ambitious restoration efforts with local engagement and addressing potential conflicts with economic interests. Ultimately, the law's implementation could significantly enhance the EU's climate resilience and contribute to the broader global fight against climate change and biodiversity loss.

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