NATURE RESTORATION AS A TOOL TO MEET LULUCF TARGETS

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The LULUCF Regulation sets an EU-wide net removal target of 310 Mt CO2e by 2030, with specific targets for each Member State. In 2021, the EU's LULUCF sector achieved a net removal of 230 Mt CO2e, or 7% of the EU's total GHG emissions.[1] Over the past decade, CO2e removals have declined, primarily due to increased wood harvesting, reduced CO2 removals by EU forests, driven by slower forest growth, natural disturbances (incl. through the adverse impacts of anthropogenic climate change) and increased demand for woody biomass.[2] These factors, along with climate change and intensive forestry practices, have worsened the situation.[3] Emissions from cropland, wetlands, and peat-rich drained organic soils also play a significant role.[4]

Despite the commitment, projections indicate that the EU is off-track to meet the 2030 target of 310Mt CO2e. To keep global temperature rise below 1.5°C, science indicates the importance of rapid GHG emission reductions and increased removals. The EU must reverse this trend by enhancing natural sinks on land and at sea in the coming years.

However, the EEA report highlights the poor state of nature in the EU. Only 15% of European habitats protected by the EU Habitats Directive have good conservation status, while 81% are in poor or bad condition.[5] This underscores the urgent need for improved climate and biodiversity actions.

1 https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-land
2 https://climate-advisory-board.europa.eu/reports-and-publications/towards-eu-climate-neutrality-progress-policy-gaps-and-opportunities
3 https://caneurope.org/content/uploads/2024/02/How_could_European_forests_best_benefit_from_the_EU_Forest_Monitoring_Law.pdf
4 https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-land
5 https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020

Amid this scenario, a hard-fought Nature Restoration Law was agreed. The NRL sets binding targets for restoring a EU-wide area-based of land and sea, as well as degraded ecosystems. The main goal is to enhance the EU's biodiversity, ecosystem services and contribute to climate change mitigation.

Ambitious land- and ocean-based actions to protect and restore ecosystems provide co-benefits for climate mitigation, climate adaptation, and biodiversity goals.[6] Therefore, the potential synergies between the NRL and the LULUCF regulation and the overall carbon removal are evident: By scaling up ecosystem restoration and halting environmental degradation, the EU will significantly increase nature-based carbon removals and (may) get back on track to meet their commitments under the LULUCF regulation. This creates a great opportunity for Member States to take action to reach their LULUCF targets by designing restoration plans to restore habitats with the greatest potential to capture and store carbon (e.g. forests),[7] and minimise GHG emissions by rewetting peatlands.[8] The promise of the new Commission's Political Guidelines to "continue the protection of our natural world", which highlights the critical functions of "regulating our climate and ensuring food and water security" of the EU's ecosystems, is a positive signal in this context to not abandon in any way the NRL, against which the EC needs to be held accountable.[9]

We highlight three ecosystems in which a scale up of restoration can go hand in hand with carbon removals:

FORESTS

Forests are the EU's largest carbon sink. However, despite extensive tree coverage, the amount of carbon they absorb has been decreasing since 2013. Scientists recognize that many European forests are uniform in age and species, indicating low natural diversity and increased vulnerability to large-scale damage. Therefore, nearly all forests require restoration.[10]

6 IPBES and IPCC (2021). Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change. IPBES secretariat, Bonn, Germany.
7 https://www.eea.europa.eu/publications/carbon-stocks-and-sequestration-rates
8 https://www.nature.com/articles/s41467-020-15499-z
9 https://commission.europa.eu/document/download/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en?filename=Political%20Guidelines%202024-2029_EN.pdf
10 https://caneurope.org/content/uploads/2023/04/Forests_in_the_Nature_Restoration_Law.pdf

Natural, biodiverse forests with trees of varying species and ages store more carbon, are more resilient to climate change and provide a broader variety of ecosystem services within the forest and for adjacent land uses.[11] That is a win-win situation for the climate, biodiversity and also beneficial for areas designated for wood production.

In areas designated for restoration under article 12 of the Nature Restoration Law, Member States should aim for forest development towards high-biodiversity through restoration methods encompassing, depending on the situation of specific forests: , passive restoration, which involves stopping clear-cut logging and incite a close-to-nature forestry that allows forests to mature; and active restoration, which entails planting seedlings and removing non-native species.[12] This approach will enhance biodiversity conservation and improve carbon dioxide removal and storage, helping to meet NRL and LULUCF targets.

PEATLANDS

Peat soils in wetland habitats are significant carbon reservoirs. When left undrained, these habitats have high carbon storage potential because organic matter accumulates in the wet conditions. However, if drained for agriculture or forestry, they become carbon emitters.[13]

The EU is the world's second-largest emitter of greenhouse gases from drained organic soils. Restoring peatland and wetland Annex I habitats under Article 4 could result in additional net GHG mitigation benefits ranging from 7.8 to 22.8 MT of CO2e/ year by 2030, and from 26.7 to 62.9 MTr by 2050.[14] Thus, prioritising large-scale peatland restoration by rewetting would reduce emissions in the LULUCF sector and help achieve the 310 MtCO2e target.

11 https://link.springer.com/article/10.1007/s10531-017-1453-2
12 https://conbio.onlinelibrary.wiley.com/doi/10.1111/cobi.13730
13 https://www.nature.com/articles/s41467-020-15499-z
14 https://ieep.eu/wp-content/uploads/2023/01/1_Nature-Restoration-and-Climate-mitigation.pdf

MARINE ECOSYSTEMS

Although not part of the LULUCF regulation, restoration of marine ecosystems can significantly increase the carbon sequestration and revert the biodiversity loss trend. Ecosystems such as maerl beds and the seagrass meadows are important carbon sinks[15] and valuable nursery habitat. Restored and protected from harmful activities (e.g. bottom trawling), marine sediments can store carbon for thousands of years.[16] The initiative announced by the new (and old) European Commission President in her Political Guidelines released in July 2024, namely to develop a "European Oceans Pact" which focuses on "boosting the blue economy and ensuring the good governance and sustainability of our oceans in all of their dimensions", can serve as an additional impetus to preserve key carbon sequestration functions (alongside other critical ecological functions) if designed appropriately.

15 https://www.eea.europa.eu/publications/carbon-stocks-and-sequestration-rates
16 https://wwfeu.awsassets.panda.org/downloads/wwf_factsheet_nature_restoration_climate_web.pdf

CONCLUSION

Restoring ecosystems to a natural state will enable them to absorb and store more CO2 and will increase our resilience to the impacts of climate change by offering protection against the increasing occurrence of severe weather events like flooding and droughts. And last but not least, large-scale nature restoration will preserve and replenish Europe's biological diversity of animal and plant species. As such, investment in nature restoration is really an investment in addressing the twin crises of biodiversity loss and climate change, benefiting people and the planet.

Climate Action Network (CAN) Europe

www.caneurope.org

info@caneurope.org

@CANEurope

Podcast *Europe Climate Connection*