Position on the role of peatland conservation, rewetting and restoring within the carbon removal certification framework proposed by the European Commission

02.05.2022

Executive summary

- Prioritization of peatland conservation and the reduction of GHG emissions
- Future carbon removal credits for peatland rewetting and restoration seems possible
- Large-scale implementation of paludiculture as a low-emission land use alternative for peatlands
- Development of an EU-centralized meta-standard for peatland codes
- Introduction of a European or international body for the certification of peatlands codes and monitoring, reporting and verification (MRV) methodology
- Include co-benefits as an integral part of the certification mechanism
- Putting in place appropriate safeguards to prevent and mitigate risks (e.g. misguided planting of trees on drained peatlands)

The importance of peatlands

In Europe, peatlands store four to five times more carbon than trees (Swindles et al. 2019), a huge carbon store that must be maintained and restored. About half of the peatlands in the EU are drained (Tanneberger et al. 2021). Drained peatlands release previously stored carbon as well as other GHGs (especially nitrous oxide). Peatlands can be managed for climate protection in two ways: (1) by keeping undrained peatlands wet to protect existing carbon stores and sinks and (2) by rewetting and/or restoring previously drained peatlands. Wet peatlands (both undrained and rewetted) can be managed for nature conservation (increasing biodiversity benefits) or paludiculture[1] (increasing production and maintaining rural livelihoods) to avoid GHG emissions and to sequester carbon.

Prioritizing the reduction of GHG emissions

The PRINCESS consortium stresses the need, that drastic GHG reductions through improved peatland management must be a EU priority. European peatlands are among the most degraded peatlands of the world, mostly due to intensive agricultural use over the past centuries. Agriculture, forestry, peat extraction, and energy production on organic soils commonly requires drainage, which results in peat decomposition and thereby causes large amounts of GHG emission. In the EU, drained peatlands emit 220 Mt CO_2-e per year, making up 5% of total EU GHG emissions in 2017 (Martin & Couwenberg 2021). In addition, ceasing peat extraction could avoid annual emission of 9 Mt CO_2-e (European Commission, 2020). These figures highlight the importance of prioritizing the reduction of GHG emission. In future, due to technological advancement in the field of monitoring, reporting, and verification (MRV) methodology, carbon removal credits for peatland rewetting and restoration seem possible, with more research urgently needed.

In contrast to drainage-based agriculture, paludiculture is a low-emission land use alternative for peatlands with cultivated crops that are adapted to high water levels (e.g. reed, cattail, black alder

[1] Paludiculture is the productive land use of wet and rewetted peatlands that preserves the peat soil and thereby minimizes CO2 emissions and subsidence (GMC 2021).

and peat mosses) (GMC n.d.). Large-scale implementation of paludiculture requires agricultural policies that encourage farmers to conserve, rewet and restore peatlands.

The PRINCESS consortium welcomes the inclusion of restoration, rewetting and conservation of peatlands as part of the communication on Sustainable Carbon Cycles (COM(2021) 800 final).

High quality and standardized MRV

The positive mitigation impact of avoided GHG emissions and carbon removals needs to be assessed with a high degree of accuracy through appropriate MRV methodologies. For emission avoidance, such methodologies have already been established for the voluntary carbon market[2]. To ensure a high qualitative MRV methodology a clear, EU-centralized meta-standard for peatland codes and the introduction of a European or international body for the certification of peatlands codes and MRV methodologies involving international and regional peatland experts is needed.

Co-benefits as part of the certification scheme

Healthy, wet peatlands provide numerous co-benefits, including biodiversity conservation, flood protection, water filtration, and others (Joosten et al. 2015), and highlight the need for urgent action to be undertaken. Rewetting and restoring drained peatlands can restore delivery of these co-benefits. However, restoring habitats and ecosystems to their original state is often difficult. Therefore, restored peatlands may not deliver the same level of biodiversity and other benefits as undrained peatlands (Lamers et al., 2015; Renou-Wilson et al., 2019, Kreyling et al, 2021). The conservation, rewetting and restoration of peatlands will help reaching target 7 of the EU Biodiversity Strategy for 2030 of bringing back at least 10% of agricultural area under high-diversity landscape features.

Avoiding risks and the need for safeguards

The certification scheme should be designed to avoid risks while putting in place appropriate safeguards. Peatland conservation and rewetting involves the risk of competing with other land use objectives, increasing the pressure on land use. Therefore, an integration of climate and biodiversity objectives is essential. Peatland rewetting must be resilient to climate change impacts to ensure that its carbon storage is permanent. Care should be taken to ensure that rewetting on one site does not have unwanted ecological impacts outside that area (i.e., in hydrologically connected systems). A highly important issue is to avoid external negative effects: there is ample evidence that planting trees on drained peatlands can result in net negative carbon storage as the lost soil carbon from drained peatland outweighs any increase in above-ground carbon storage (in trees) by a large margin (Sloan et al., 2018).

About the PRINCESS[3] consortium

The PRINCESS project is carried out by leading research institutions throughout Europe. It categorises and evaluates the effects of alternative land use options after peatland rewetting on key EU environmental policies: (1) as a measure to halt biodiversity loss, (2) as a nature-based solution for mitigating and adapting to climate change, and (3) as a management tool to reduce nitrate release and, thus, eutrophication. PRINCESS investigates the interaction of the two main important global change drivers and attempts to take advantage of the coupling between the carbon and nitrogen cycles to maximise benefits from rewetting peatlands.

[2] i.e. internationally under VCS/Verra, Gold Standard; regionally under MoorFutures or MaxMoor

[3] Peatland Rewetting In Nitrogen-Contaminated Environments: Synergies and trade-offs between biodiversity, climate, water quality and Society

PRINCESS is a project funded by the EU 2019-2020 Joint COFUND “Biodiversity and Climate Change”. The signatories collaborate in the PRINCESS project funded through the 2019-2020 BiodivERsA joint call for research proposals, under the BiodivClim ERA-Net COFUND programme.

More information can be found here: https://www.princess-project.com

Consortium: University of Greifswald (partner in the Greifswald Mire Centre), University of Warsaw, University of Antwerp, University of Vienna, Norwegian Institute for Nature Research, Natural Resources Institute Finland (LUKE)

References

European Commission (2020) Commission Staff Working Document: Impact assessment accompanying the document communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Investing in a climate-neutral future for the benefit of our people. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:749e04bb-f8c5-11ea-991b-01aa75ed71a1.0001.02/DOC_1&format=PDF

GMC (2021) Policy Briefing Paper: Definition of Paludiculture in the CAP. Available at: https://www.greifswaldmoor.de/files/dokumente/Infopapiere_Briefings/202102_paludiculture_CAP_definition_final.pdf

GMC (n.d.) Peatlands in the EU. Common Agriculture Policy (CAP) after 2020. Position Paper – (Version 4.8). Available at: https://www.greifswaldmoor.de/files/dokumente/Infopapiere_Briefings/202003_CAP%20Policy%20Brief%20Peatlands%20in%20the%20new%20EU%20Version%204.8.pdf

Joosten, H., Brust, K., Couwenberg, J., Gerner, A., Holsten, B., Permien, T., Schäfer, A., Tanneberger, F., Trepel, M., and Wahren, A. (2015) MoorFutures: Integration of additional ecosystem services (including biodiversity): into carbon credits – standard, methodology and transferability to other regions. BfN-Skripten 207. Federal Agency for Nature Conservation. Available at: https://www.bfn.de/sites/default/files/BfN/service/Dokumente/skripten/skript407.pdf

Kreyling, J., Tanneberger, F., Jansen, F. *et al.* Rewetting does not return drained fen peatlands to their old selves. *Nat Commun* **12,** 5693 (2021). https://doi.org/10.1038/s41467-021-25619-y

Lamers, L. P. M., Vile, M. A., Grootjans, A. P., Acreman, M. C., van Diggelen, R., Evans, M. G., Richardson, C. J., Rochefort, L., Kooijman, A. M., Roelofs, J. G. M., and Smolders, A. J. P. (2015) Ecological restoration of rich fens in Europe and North America: From trial and error to an evidence-based approach. *Biological Reviews*, 90, 1, 182–203. Available at: https://doi.org/10.1111/brv.12102

Martin, N. & Couwenberg, J. (2021) Organic soils in national inventory submissions of EU countries. Proceedings of the Greifswald Mire Centre 05/2021 (self-published, ISSN 2627-910X), 86 p. Available at: https://www.greifswaldmoor.de/files/dokumente/GMC%20Schriften/2021_Martin&Couwenberg.pdf

Renou-Wilson, F., Moser, G., Fallon, D., Farrell, C. A., Müller, C., and Wilson, D. (2019) Rewetting degraded peatlands for climate and biodiversity benefits: Results from two raised bogs. *Ecological Engineering*, 127, 547–560. Available at: https://doi.org/10.1016/j.ecoleng.2018.02.014

Sloan, T.J., Payne, R.J., Payne, R.J., Anderson, A.R., Bain, C., Chapman, S.J., Cowie, N.R., Gilbert, P., Lindsay, R., Mauquoy, D., Newton, A.J., and Andersen, R. (2018) Peatland afforestation in the UK and consequences for carbon storage. *Mires and Peat*, 23, 1-17. DOI: 10.19189/MAP.2017.OMB.315

Swindles, G. T., Morris, P. J., Donal J. Mullan, Richard J. Payne, Thomas P. Roland, Matthew J. Amesbury, Mariusz Lamentowicz, T. Edward Turner, Angela Gallego-Sala, Thomas Sim, Iestyn D. Barr, Maarten Blaauw, Antony Blundell et al. (2019) Widespread drying of European peatlands in recent centuries. *Nat. Geosci*. 12, 11, 922–928. DOI: 10.1038/s41561-019- 0462-z

Tanneberger, Franziska, Asbjørn Moen, Alexandra Barthelmes, Edward Lewis, Lera Miles, Andrey Sirin, Cosima Tegetmeyer, and Hans Joosten. 2021. "Mires in Europe—Regional Diversity, Condition and Protection" *Diversity* 13, no. 8: 381. https://doi.org/10.3390/d13080381