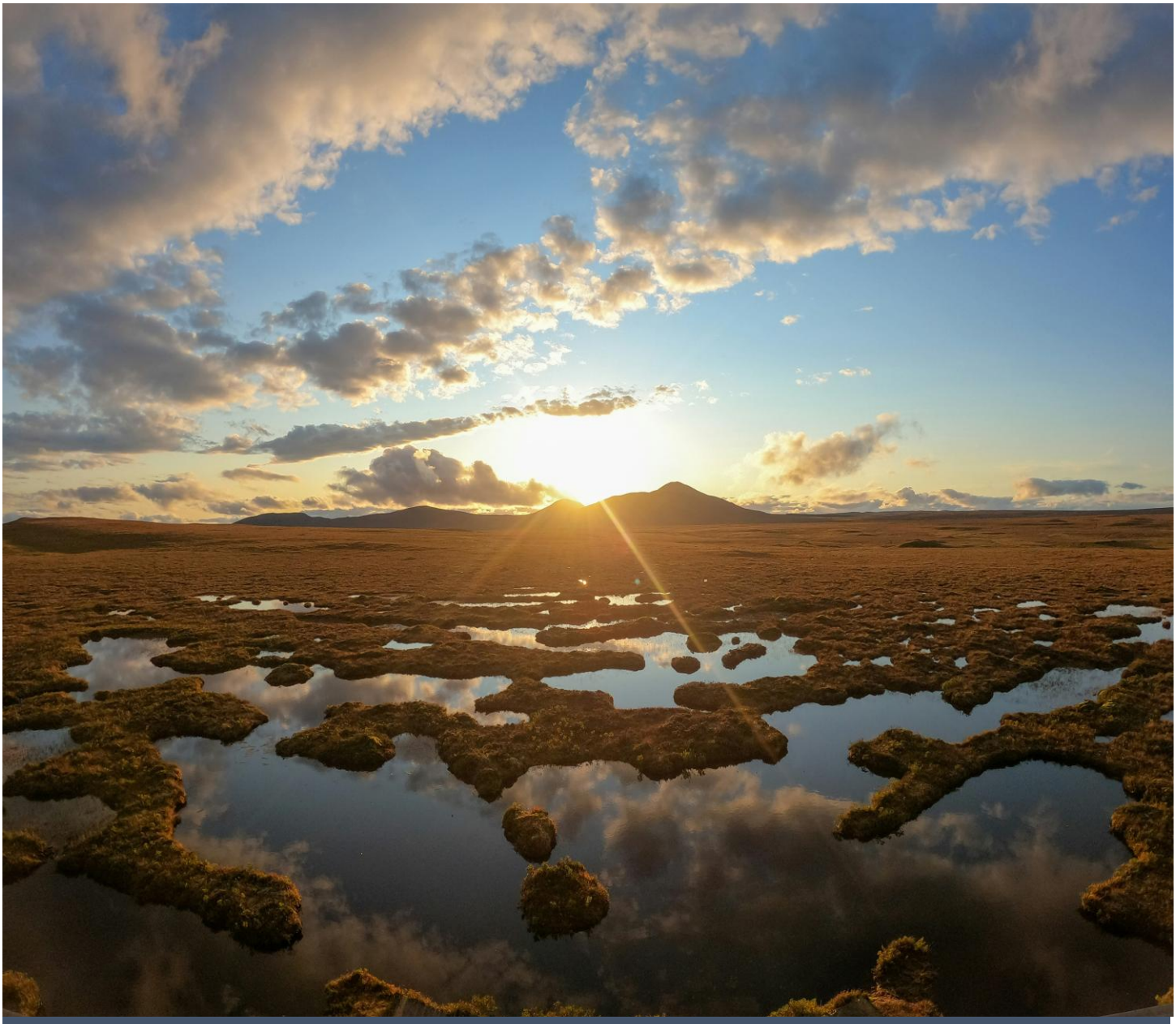

Environmental Pillar response to DAFM's proposal on GAEC 2

Edited by Fintan Kelly

1/27/25

Environmental Pillar

Environmental Pillar response to DAFM's proposal on GAEC 2

Contents

A submission by the Environmental Pillar in regard to the development of Ireland's position on GAEC 2 within the CAP Strategic Plan 2024-2027

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Environmental Pillar response to DAFM's proposal on GAEC 2

Introduction

The Environmental Pillar is an organisation that works to represent the views of thirty-four of Ireland's leading environmental NGOs. We work to promote environmental sustainability and the protection of our natural environment. Through our engagement with both the CAP Strategic Plan (CSP) Monitoring Committee and Stakeholder Forum we have been advocating for Ireland to adopt and implement an ambitious and inclusive position on GAEC 2 for many years. This engagement included the publication of a detailed position paper with recommendations which we published in September 2023[1]. We remain strongly supportive of the introduction of baseline conditionality protecting organic soils which we see as being an essential step in addressing the negative climate, water and biodiversity impacts of peatland destruction and degradation.

We are deeply disappointed with the lack of ambition within the Department of Agriculture, Food and the Marine's (DAFM) proposal. We are also dissatisfied that after delaying the implementation of GAEC 2 in 2023 and 2024 that we are in a position where Ireland has now failed to implement the GAEC on January 1st 2025. The level of engagement with stakeholder both at a high level and on the ground has to date been totally inadequate. We believe that DAFM's draft proposal needs to be significantly improved if it is going to protect farmed organic soils in Ireland.

We hope that the views expressed in this submission and the following recommendations will be reflected in the fifth amendment to Ireland's CSP.

We recommend:

1. **Given that the intention of GAEC 2 is to minimise carbon loss from organic soils a definition of organic soils that is based on traditional depth criteria of 30 – 50cm is no longer appropriate. Organic soils should be defined based on their percentage organic matter content rather than soil depth criteria.**
2. **A broad definition of peat soil should be adopted, by including soil material containing 8.6 % of OM or more and that accumulated to a thickness of at least 10 cm. This definition is aligned with the Irish Peat Soil Map.**
3. **Ireland should use the new Irish Peat Soils Map to implement GAEC 2.**
4. **Ireland should use the Irish Peat Soils Map to protect peat soils ≥ 10cm.**
5. **The threshold for organic soils at land parcel level should be revised downwards if it would result in the omission of extensive small areas of organic soils nationally (e.g. ≥ 5% of mapped organic soils).**

[1] Environmental Pillar (2023) Environmental Pillar position on GAEC 2 https://environmentalpillar.ie/wp-content/uploads/2025/01/Env-Pillar-2023-Environmental-Pillar-position-on-GAEC-2.pdf

6. **If a land parcel contains an Annex I peatland habitat then the whole land parcel should be subject to the requirements of GAEC 2 regardless of the percentage of the land parcel covered by organic soil.**

7. **It is essential that farmers and communities are central in shaping and implementing land use change. Communities and landowners must be involved in decision making through early and sustained engagement. Wherever possible management interventions should look to deliver multiple environmental and social benefits and reward practitioners for the ecosystem services provided.**

8. **Taking the objective of GAEC 2 into account it is therefore necessary that minimum protection of organic soils should require:**

    a) **No new drainage of GAEC 2 land parcels,**

    b) **No renewal or deepening of drains within GAEC 2 land parcels,**

    c) **No extension of pumping capacity within GAEC 2 land parcels,**

9. **As a minimum, any drained peatlands already used as cropland should not be ploughed deeper than 30cm.**

10. **In the case of drained peatlands used as grasslands there should be a ban on conversion to cropland, as is the case in Germany's CSP.**

11. **In Denmark no tillage is allowed on soils with >12% carbon within protected areas (in total 28,800 ha). The Irish authorities should give serious consideration to prioritising organic soils being used for tillage for rewetting.**

12. **Semi-natural grasslands, such as those identified in the Irish Semi-Natural grassland survey, which are located on organic soils should be protected from intensification including drainage, ploughing and reseeding. This should also include a ban on conversion to tillage. Farmers should be supported through agri-environmental schemes to manage these grasslands sustainably delivering biodiversity, climate mitigation and food.**

13. **The extensification of grassland management and the ecological restoration of semi-natural grasslands and habitat mosaics should be incentivised by Irish policy in order to enhance the carbon sequestration capacity of Irish grasslands.**

14. **Ireland should consider a requirement for reduced allowance of nitrogen input on semi-natural grasslands on organic soils.**

15. **We recommend that a ban on turf-cutting / peat extraction within farmed Natura 2000 sites is introduced under GAEC 2.**

16. **Based on the available evidence there is an overwhelming case that no burning should take place on both active and degraded Blanket bog, Raised bog, Wet heath and on grasslands.**

17. **There should be a requirement for no drainage, no burning and sustainable stocking densities on grazed Blanket Bog and Wet Heath.**

18. **If burning is allowed on Dry Heath it should only be undertaken if it is subject to licensing.**

19. **A new licensing system should require that any burns are in line with best practice and are subject to prior approval and have spatial and temporal controls to ensure that deep burns do not cause damage to the soil.**

20. **The density of livestock and deer on blanket bog should be maintained at sustainable levels. DAFM should explore novel opportunities to promote precision livestock management such as virtual fencing.**

21. **Blanket bog should not be grazed between the start of November and the end of February.**

22. **Complete destocking should be considered where peatland areas have shown no improvement following management.**

Definition

Ireland delayed the implementation of GAEC 2 in 2023 and 2024 on the basis that time was required to define and map organic soils. The definition chosen for organic soils is a critical step as it will greatly influence the mapping, area and overall benefits of GAEC 2 for climate, water and biodiversity.

DAFM have proposed to define peat soil as:

> '*A peat soil is defined as organic soil materials which have sedentarily accumulated and have at least 30% (dry mass) organic matter over a depth of at least 45 cm on undrained land and 30 cm deep on drained land. The depth requirement does not apply if the peat layer is over bedrock*.'

We do not support the use of this definition as the reliance on depth criteria for drained and undrained peat is outdated and based on industrial criteria that will omit many shallow peats which are a significant carbon store and important for biodiversity within the spectrum and variation of peatland habitats. As the intention of GAEC 2 is to minimise carbon loss from organic soils a definition that is based on percentage organic matter content should be adopted.

The outdated use of depth criteria to define peat soils is the result of previous generations focus on mapping peatlands to exploit them; peat soils shallower than 50 cm were not suitable for commercial extraction and peat shallower than 40 cm were considered suitable for ploughing[2]. Different countries around the world have adopted peat depths ranging from 5 to 50 cm (and more) to define and map organic soils/peatlands[3]. In Ireland there is significant diversity when it comes to definitions. The definition proposed by DAFM is the same as the one used in the EPA's 2011 Bogland[4] report "*soil that contains peat over a depth of at least 45 cm on undrained land and 30 cm deep on drained land; the depth requirement does not apply in the event that the peat layer is directly over bedrock*;" however the EPA subsequently improved this definition to organic soils as having >20% SOC and depth >30 cm[5]; while Teagasc, began using a depth >40 cm and sub-divide

[2] IUCN (2023) Use of Peat Depth Criteria: Accounting for the Lost Peatlands https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2023-06/Use%20of%20Peat%20Depth%20Criteria%20-%20Accounting%20for%20the%20Lost%20Peatlands_1.pdf

[3] UN (2022) Global Peatlands Assessment: The State of the World's Peatlands https://wedocs.unep.org/bitstream/handle/20.500.11822/41236/peatland_assessment_SPM.pdf?sequence=3#:~:text=Peatlands%20are%20more%20extensive%20than,every%20part%20of%20the%20world.

[4] EPA (2011) BOGLAND: Sustainable Management of Peatlands in Ireland https://www.epa.ie/publications/research/land-use-soils-and-transport/STRIVE_75_web_SC.pdf

[5] Clancy, M. A., Sancho, A. J. J., Cummins, T., & Byrne, K. A. (2015). The need to disaggregate podzols and peaty podzols when assessing forest soil carbon stocks. Irish Forestry.

organic soils with <50% SOC into sandy, loamy and peaty organic soils based on the percentage of clay and sand content[6].

Over recent decades the awareness of the importance of shallow organic soils as a substantial carbon store has increased. As a result, there has been a widespread move away from minimum depth thresholds when defining organic soils such as peat and a move towards the use of percentage organic matter as a key indicator[23]. This approach is also better aligned with the definitions of other soil types which use percentage organic matter as a standard indicator, whereas a minimum depth threshold is not. According to the UN's Global Peatlands Assessment on the state of the world's peatlands if depth thresholds were used to define organic soils moving forward then the inclusion of climate concerns would in peatland / organic soil conservation, would rationally lead to more shallow thresholds (e.g. 10 cm), which would significantly increase the area of peatland regionally and globally[24]. Irish research has found significant soil carbon stocks in organic soils of 0-10cm[7] [8]. A shallower threshold under GAEC 2 would better account for the contribution of organic soils in Ireland to climate change.

A rational approach would be to align the definition of organic soils with the Irish Peat Soils Map (IPSM) which captures soil material containing 8.6 % of Organic Matter or more and that accumulated to a thickness of at least 10 cm.

Recommendations

1. **Given that the intention of GAEC 2 is to minimise carbon loss from organic soils a definition of organic soils that is based on traditional depth criteria of 30 – 50cm is no longer appropriate. Organic soils should be defined based on their percentage organic matter content rather than soil depth criteria.**
2. **A broad definition of peat soil should be adopted, by including soil material containing 8.6 % of OM or more and that accumulated to a thickness of at least 10 cm. This definition is aligned with the Irish Peat Soil Map.**

Mapping

The implementation of GAEC 2 requires that organic soils can be mapped accurately at a fine spatial resolution. There have been ongoing efforts in recent years to improve the understanding of peat soils, their spatial extent and function[9]. According to Ireland's CSP, existing data sets to implement GAEC 2 have been considered, however they have limitations which restrict their suitability[10]. To address this DAFM funded the RePEAT project to resurvey and map Irish peatlands to refine the assessment of organic soils and GHG Inventories[11]. Implementation of GAEC 2 in Ireland was

[6] Simo, I., Creamer, R.E., Reidy, B., Jahns, G., Massey, P., Hamilton, B., Hannam, J.A., McDonald, E., Sills, P. and Spaargaren, O. 2008. Soil Profile Handbook, Final Technical Report 10. EPA, Johnstown Castle, Co.Wexford.
[7] Jarmain, C., Cummins, T., Jovani-Sancho, A. J., Nairn, T., Premrov, A., Reidy, B., ... & Byrne, K. A. (2023). Soil organic carbon stocks by soil group for afforested soils in Ireland. Geoderma Regional, 32, e00615.
[8] Clancy, M. A., Sancho, A. J. J., Cummins, T., & Byrne, K. A. (2015). The need to disaggregate podzols and peaty podzols when assessing forest soil carbon stocks. Irish Forestry.
[9] Connolly, J., Holden, N. M., & Ward, S. M. (2007). Mapping peatlands in Ireland using a rule-based methodology and digital data. Soil Science Society of America Journal, 71(2), 492-499.
[10] https://www.gov.ie/en/publication/76026-common-agricultural-policy-cap-post-2020/
[11] https://www.gov.ie/en/press-release/c00a0-ministers-mcconalogue-and-hackett-announce-two-projects-under-the-allocation-of-the-carbon-tax-fund/

postponed in 2023 and 2024 on the basis that time was required for the Derived Irish Peat Map (DIPM) to be updated, peer reviewed and published.

The updated Derived Irish Peat Map (DIPM), now called the Irish Peat Soils Map (IPSM), was published in July 2024[12]. The map greatly increases the accuracy of peat soil mapping in Ireland and provides a key tool to facilitate the implementation of GEAC 2. The resulting map incorporates shallow peat soils (≥ to 10 cm and ≥ 8.6 % OM content) and reveals that peat underlies 1.66 M ha of Ireland (~ 23.3 % of the country), identified with values of 83 % for overall accuracy. This is a higher accuracy than previous maps due to the identification of additional shallower peat soils and through the use of an additional 20,000 validation points. The map allows peat to be identified at different thickness ranges (≥ 10 cm, ≥ 30–40 cm), giving policy makers greater flexibility in designing approaches to protect peat soils and allowing policy makers to adopt more ambitious policies in time.

The IPSM is much more comprehensive than the Teagasc soil and subsoils map[13] which DAFM is proposing to use. The Teagasc map is 11 years old, it is less accurate and underestimates peat extent by 23.2 % compared to the IPSM (Table 1). The IPSM is more comprehensive because it used a refined input dataset and a more a carbon-oriented definition of peat soils (≥ 10 cm and OM content ≥ 8.6%) and based on these criteria, it is also more accurate.

Table 1. Comparison of the accuracies obtained for the Irish Peat Soils Map (IPSM) and the Teagasc soil and subsoils map

Map	Peat – Producer Accuracy	Overall Accuracy	Peat-F1 Score	Peat area (ha)
IPSM (2024)	0.74	0.83	0.83	1,660,289
Teagasc soil and subsoils map (2009)	0.63	0.78	0.76	1,347,528
Difference to IPSM	−0.11	−0.05	−0.07	−312,761

DAFM have justified their refusal to use the IPSM on the basis:

Includes shallow peat soils which are not included in the accepted definition

As previously stated the outdated definition proposed by DAFM is not fit for purpose and should not be used as an excuse not to use the best available map of Irish peat soils. The IPSM includes a range of peat depths including ≥ 10 cm and ≥ 30–40 cm. The IPSM therefore can be used to implement safeguards associated with deeper peat depths ≥ 30–40 cm.

DAFM proposes to base their implementation of GAEC on a definition of peat soils which stipulates that "*depth requirement does not apply if the peat layer is over bedrock*." It is irrational for DAFM to reject the IPSM on the basis it includes shallow peats of <30cm, while also proposing to protect all

[12] Gilet, L., Morley, T. R., Flynn, R., & Connolly, J. (2024). An adaptive mapping framework for the management of peat soils: A new Irish peat soils map. Geoderma, 447, 116933.
[13] Fealy, R. M., Green, S., Loftus, M., Meehan, R., Radford, T., Cronin, C. and Bulfin, M. 2009.Teagasc EPA Soil and Subsoils Mapping Project-Final Report. Volume I. Teagasc. Dublin

peat soils which overlay bedrock? Adopting the IPSM and definition of peat soil used to create the map[14] would be the most sensible approach to ensure that shallow peats are safeguarded.

Sees significant change in area, with areas being excluded and new areas included

The IPSM is the most accurate map available and improving the accuracy of peat soils mapping was always going to result in a change in the known distribution of peat soils. The inclusion of peat soils that are missing from the Teagasc map is clearly in line with the objectives of GAEC 2.

Current peat definition and mapping already used by the Department in other areas e.g. Nitrates, forestry.

All divisions of DAFM should be using the best available scientific knowledge. This is particularly important given the significance of the precautionary principle[15] in EU law and the requirement to use the best scientific knowledge available under Art 6 of the Habitats Directive. As defenders of the treaties the Commission should support this principle. As previously stated DAFMs failure to protect shallow peat soils is not aligned with the definition of peat soils they have proposed, in respect of peat overlying bedrock.

Consistency is required for farmers to reduce the administrative burden

All farms >10ha that have peat soils should be subject to GAEC 2. Using the best available map will reduce the risk of administrative burden and frustration which will result from having to move to a more accurate mapping system in the future. Avoiding this disruption was a key justification for the derogations in 2023 and 2024.

Recommendations

3. **Ireland should use the new Irish Peat Soils Map to implement GAEC 2.**
4. **Ireland should use the Irish Peat Soils Map to protect peat soils ≥ 10cm.**

Land Parcel Thresholds

Given that management at farm level will occur at field level it is important that land parcels which may contain more than one soil type are identified as either organic soils or not. Whatever threshold is used should have a strong scientific basis and it should be precautionary to ensure that as much organic soil as possible is subject to sustainable management. DAFM has proposed that a threshold ≥ 50% organic soils will be used. According to DAFM this will ensure 72% of peat soils are covered, and 35,044 farmers impacted when the <10 ha holdings are excluded. However, this 72% figure is based on the Teagasc soil and subsoils map (2009) which underestimates peat soils coverage by 23.2 % compared to the IPSM. Therefore a ≥ 50% organic soils threshold would exclude a significant area of organic soils.

[14] "*a deposit consisting of at least 8.6 % of OM and accumulated to a thickness of over 10 cm*."
[15] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legissum:l32042

Whatever threshold is used it should ensure that small areas of organic soils are not excluded[16]. The department and the Commission should ensure that the threshold for organic soils at land parcel level is further revised downwards to ensure that no greater than ≥ 5% of the overall peat areas identified nationally by the IPSM are excluded from GAEC 2.

Recommendation

5. **The threshold for organic soils at land parcel level should be revised downwards if it would result in the omission of extensive small areas of organic soils nationally (e.g. ≥ 5% of mapped organic soils).**

If a land parcel contains a peatland habitat then we propose that the whole land parcel should be subject to the requirements of GAEC 2 regardless of the percentage of the land parcel covered by the peatland habitat. This would consider the risk that activities may negatively impact on the hydrology of the land parcel. This would be in line with the precautionary principle and would consider the protected status of peatland habitats under the Habitats Directive and the conservation status of many peatland dependent species[17]. Important Annex I habitats under the Habitats Directive[18] such as Dry Heath can be found on shallow peat soils which overly bedrock. It is not clear how these peatlands would be protected under DAFMs proposal, yet all peatland habitats have been classed as being in "Bad" condition (including Dry Heath [4030]) within the last report to the EU Commision on the status of EU Habitats and Species in Ireland[19]. This cannot be reversed if the shallower peats are not included in land management decisions.

Recommendation

6. **If a land parcel contains an Annex I peatland habitat then the whole land parcel should be subject to the requirements of GAEC 2 regardless of the percentage of the land parcel covered by organic soil.**

Management

Many Irish peatlands are drained and heavily modified / disturbed, and have been assessed by the National Parks and Wildlife Service to be in "Bad" condition and deteriorating further[22]. The Irish Peatland Conservation Council estimates that only 25% of peatland in Ireland is left in a conservation worthy condition[20]. Key pressures include historical overgrazing, ongoing grazing practices, ongoing drainage and burning, increased recreation use, drainage and disturbance for peat extraction, both industrial and domestic extraction. Some peatlands can be restored to their original state but require active restoration measures while others have been altered irreversibly[21]. The measures Ireland proposes to protect organic soils under GAEC 2 should look to address these key

[16] Connolly, J., & Holden, N. M. (2009). Mapping peat soils in Ireland: updating the derived Irish peat map. Irish Geography, 42(3), 343-352.
[17] http://www.ipcc.ie/wp/wp-content/uploads/2022/11/The-IPCCs-Status-of-Peatland-Biodiversity-Poster.pdf
[18] Council Directive 92/43/EEC
[19] NPWS (2019) EU Habitats and Species in Ireland
https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf
[20] IPCC (2021) Peatland & Climate Change Action Plan 2030 Irish Peatland Consevation Council https://www.ipcc.ie/a-to-z-peatlands/irelands-peatland-conservation-action-plan/peatlands-climate-change-action-plan-2030/
[21] INCASE Project: A tale of Two Peatland Papers https://www.incaseproject.com/post/a-tale-of-two-peatland-papers

management issues. The implementation of GAEC 2 should be designed to be complementary to more ambitious rewetting measures, including both water table management and full rewetting[22].

We have consistently advocated that farmers and communities must be empowered to be the custodians of Ireland's peatlands[1]. Given known sensitivities around the management of peatlands and peat soils it is critical that there is early and sustained engagement with farmers around the implementation of any new measures. It is deeply regrettable that to date there has been insufficient engagement with stakeholders in advance of the introduction of GAEC 2.

Recommendation

7. **It is essential that farmers and communities are central in shaping and implementing land use change. Communities and landowners must be involved in decision making through early and sustained engagement. Wherever possible management interventions should look to deliver multiple environmental and social benefits and reward practitioners for the ecosystem services provided.**

The Commission must ensure that there is a level playing field within the EU when it comes to the implementation of GAEC 2. In 2023, 19 Member States had already specified practices under GAEC 2 in their CAP Plans (Table 2). DAFM themselves have highlighted a number of the key requirements but have then failed to include associated measure within the draft proposal for a number of them i.e. Examples of requirements in other Member States (as provided by DAFM):

1. Ban / restrictions on drainage
2. Ploughing /cultivation restrictions
3. Extraction of peat
4. Conversion of peatland PG/PC to arable
5. Burning of vegetation on peatland

Others include: restrictions on fertilisation/pesticides usage, water table management, stocking rate

The Irish authorities cannot be allowed to be less ambitious than other Member States having failed to implement GAEC 2 in 2023 and 2024. We do not believe that Ireland's challenges in implementing GAEC 2 are significantly different to other Member States.

Table 2: GAEC 2 - On farm practices for the protection of wetlands and peatlands[23]

Management Measure	Member States	No of CSPs
Ban/restrictions on drainage	AT, BE-FL, BE-W, BG, DE, EE, EL, LV, LT, LU, MT, NL, PT, RO, FI	15

[22] Green Restoration Ireland (2023) Moor Returns – A Community Peatland Code for Ireland: Part 1 – The Science https://greenrestorationireland.coop/moor-returns-a-community-peatland-code-for-ireland-part-1/

[23] European Commission (2023) Approved 28 CAP Strategic Plans (2023-2027) Summary overview for 27 Member States Facts and figures https://agriculture.ec.europa.eu/system/files/2023-06/approved-28-cap-strategic-plans-2023-27.pdf

Tillage restrictions/ ploughing ban	AT, BE-FL, BE-W, BG, DE, DK, EE, EL, IT, LV, LT, LU, MT, PT, RO, SI, FI, SE	18
Extraction/ burning of peat	AT, BE-FL, BG, EL, LT, PT, RO, SI, FI	9
other*	AT, BG, DE, DK, EL, LU, MT, NL, PT, RO, SI, FI, SE	13
not yet included	CZ, IE, ES, FR, HR, CY, HU, PL, SK	9
*** other practices include restrictions on fertilisation, or machinery use, or obligatory maintenance requirements to prevent overgrowth of the area, prohibiting a change in the water level.**		

Draft Proposal Measures

Drainage

Drainage results in the lowering of the water table within the soil, resulting in the oxidation of stored organic matter, a process which results in the production of CO_2, a potent green-house gas[24]. For every 10 cm rise in the water table there will be a reduction in the net warming impact of emissions by at least 3 t CO2e ha-1 yr-1, until WTDe is < 30 cm[25] [26]. Activities which drive or maintain a low water table within organic soils such as new drainage, renewal of deepening of drainage or extension of pumping capacity will result in significant GHG emissions and should therefore be addressed through GAEC 2. Drainage is also one of the first steps involved in other destructive activities such as peat extraction and the intensification of land use.

From a farming perspective the drainage of peat soils will result in the oxidation of the upper desiccated soil, resulting in wastage and ultimately the total loss of the peat soil unless rewetting takes place. Drainage of farmed peats results "*in subsidence and an inevitable and eventual reduction in the productivity of these soils*."[27] Drained peat is therefore a wasting asset for farmers – it can be drained and farmed only at the cost of its inevitable destruction. We have seen this first-hand on a field visit to a farm that was part of the Farm Carbon EIP[28], where the farmer was concerned about the inevitable loss of areas of pasture due to peat wastage (Figure 1). The drainage of peat soils can therefore have serious negative impacts on farming activity, this reality is totally at odds with DAFM's position that drainage is needed to maintain farming activity.

In the interest of farming, climate, water and biodiversity it is critically important that measures are introduced to regulate drainage. Bans and restrictions on drainage are one of the most common categories of measures introduced by 15 Member States in their CSPs (Table 2).

DAFM's proposal for the new measures relating to the drainage of peat soils are:

- Maintenance and repair of existing drains allowed
- New drainage subject to national legislation thereby ensuring that the footnote (1)[29] is respected.

[24] Landry, J., & Rochefort, L. (2012). The drainage of peatlands: impacts and rewetting techniques. Peatland Ecology Research Group.
[25] Evans, C. D., Peacock, M., Baird, A. J., Artz, R. R. E., Burden, A., Callaghan, N., ... & Morrison, R. (2021). Overriding water table control on managed peatland greenhouse gas emissions. *Nature*, *593*(7860), 548-552.
[26] Position Paper: Preserve peatlands in post-2020 CAP https://www.nweurope.eu/projects/project-search/care-peat-carbon-loss-reduction-from-peatlands-an-integrated-approach/news/position-paper-preserve-peatlands-in-post-2020-cap/
[27] Drained Peaty Soils are a Wasting Asset for Farmers https://static1.squarespace.com/static/607073b4d7894d3154d94595/t/652fecf7c4718624b401a8f5/1697639672709/Drained+Peaty+Soils_V1+%281%29.pdf
[28] Farm Carbon EIP https://farmcarbon.ie/
[29] Member States when establishing GAEC standard 2, shall ensure that on the land concerned an agricultural activity suitable for qualifying the land as agricultural area may be maintained

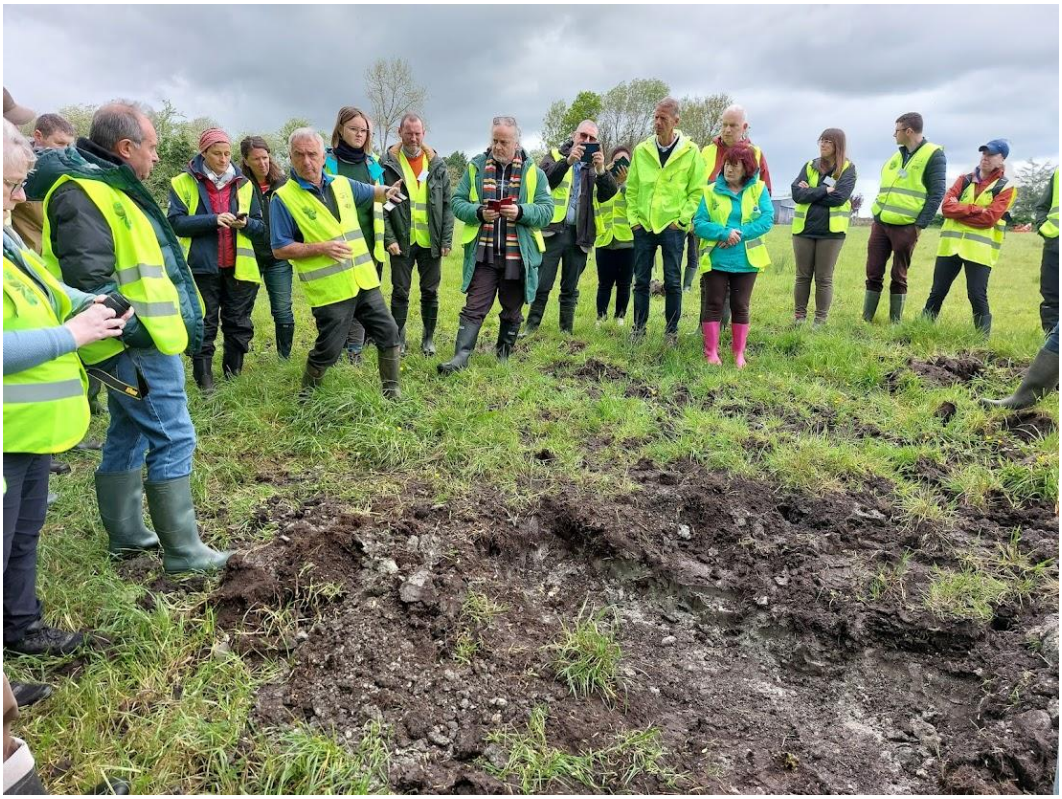

Figure 1: The loss of pasture due to peat wastage was a concern for farmers participating in the Farm Carbon EIP (photo by Fintan Kelly, 2023).

Maintenance and repair of existing drains

It is widely accepted that maintaining existing drainage will result in the ongoing loss and degradation of peat soils with associated negative impacts on farming, climate, water and biodiversity.

According to Teagasc "***further drainage of high organic content or peat cannot be justified*** *and a* ***significant programme of water table management should be considered on those organic soils that were previously drained.*** *Where land has been drained, or not, careful management of livestock and machinery is vital to protect the soil's health and functionality*" (emphasis added)[30].

According to Ireland's Climate Change Advisory Council[31], in order to ensure coherence with respect to peatland rewetting and restoration policy, the Government should review existing legislation and regulations related to drainage works, including a review of the provisions of the Arterial Drainage Act (1945) and later amendments. Within Ireland's Water Action Plan the government have committed to review the Arterial Drainage Act[32].

[30] Teagasc (2022) Teagasc Manual on Drainage and Soil Management https://www.teagasc.ie/media/website/environment/soil/Teagasc_Drainage_Manual_2022.pdf
[31] CCAC (2023) Annual Review 2023 https://www.climatecouncil.ie/councilpublications/annualreviewandreport/CCAC-AR-2023-FINAL%20Compressed%20web.pdf
[32] DHLGH (2024) Water Action Plan 2024 A River Basin Management Plan for Ireland https://assets.gov.ie/294556/8d6858e0-8ad4-4e87-bc0b-40ee9f219a2c.pdf

In this context it would be counterproductive to give a strong signal to farmers that the ongoing drainage of peat soils is official Irish and EU policy. It's also unclear how DAFM will ensure that existing drains are not deepened during the process of maintenance and repair.

New drainage subject to national legislation thereby ensuring that the footnote (1) is respected

According to DAFM's proposal: "*New drainage or reclamation in GAEC 2 land parcels is not permitted as a general rule. Deepening of existing drains or extension of the drained area beyond what previously existed is considered new drainage in this context. However, to ensure the agricultural area can remain active (Footnote (1) in Annex III of Regulation 2115/2021), drainage may take place subject to national planning provisions (Planning and Development Regulations 2001-2024*)."

We do not agree with either DAFM's proposal to use the Planning and Development Regulations 2001-2024 to implement GAEC 2 or with DAFM interpretation of Footnote (1) in Annex III of Regulation 2115/2021, for the following reasons.

GAEC 2 and the Planning and Development Regulations 2001-2024

For the following reasons, we believe the Planning and Development Regulations 2001-2024[33] are not an appropriate tool to implement GAEC 2.

Scope – Nowhere within the Planning and Development regulations are peat soils or organic soils specifically defined and protected from agricultural activities. Instead the regulations relate to a broad definition of Wetlands namely:

> *"Wetlands" means natural or artificial areas where biogeochemical functions depend notably on constant or periodic shallow inundation, or saturation, by standing or flowing fresh, brackish or saline water*.

This definition of wetlands is clearly incompatible with a range of organic soils which fall within the scope of GAEC 2. This would include organic soils which due to degradation are no longer subject to constant or periodic inundation or saturation with water. The use of the Planning and Development regulations would therefore fail to safeguard organic soils that should be subject to GAEC 2 requirements.

Appropriateness – Section 8 of the Planning and Development Regulations on 'Works specified in a drainage scheme', provides for drainage and land reclamation works on agricultural lands as exempted development.

> 8B. Works consisting of field drainage for agriculture, other than drainage and/or reclamation of wetlands, shall be exempted development.
>
> 8C. Land reclamation works (other than reclamation of wetlands) consisting of re-contouring of land, including infilling of soil (but not waste material) within a farm holding, shall be exempted development.
>
> 8E. Articles 8B to 8D shall not apply in an area to which a special amenity area order relates.

[33] Planning and Development Regulations Consolidated https://assets.gov.ie/307456/c317b172-f45d-4c82-b3ac-69153346d323.pdf

It is therefore possible under the Planning and Development regulations for farmers to drain and reclaim lands which have organic soils which do not fall within the definition of a wetland. Limiting the scope of GAEC 2 to wetlands as defined in the Planning and Development Regulations renders GAEC 2 totally meaningless as it no longer relates to organic soils in the broader sense. It also calls into question the purpose of delaying GAEC 2 implementation since 2023 and 2024 to map peat soils if new conditionality is not even linked to mapped organic soils but instead to a subset of wetlands.

DAFM states that their approach is intended to make interpretation of the GAEC easier for farmers. Requiring farmers to interpret the definition of wetlands under the Planning and Development regulations and make their own determination on the legality of drainage and land reclamation is not in our view more practical that simply informing farmers that certain practices such as new drainage are no longer permitted on land parcels which are subject to GAEC 2.

Drainage and Land Eligibility

Footnote (1) in Annex III of Regulation 2115/2021 stipulates that: "*Member States, when establishing GAEC standard 2, shall ensure that on the land concerned an agricultural activity suitable for qualifying the land as agricultural area may be maintained.*"

The Environmental Pillar strongly disagrees with DAFM's interpretation of the above footnote. Both DAFMs Land Eligibility Guidelines[34] and the 2024 BISS Terms & Conditions[35] clearly state that the water table is not a determinant of land eligibility but rather "*clear and obvious signs of a maintenance activity within the agricultural parcel*". Both the Land Eligibility Guidelines and the 2024 BISS Terms & Conditions clearly state that even Paludiculture is eligible for payment. As Paludiculture is the use of wet and rewetted peatlands that are close to their natural permanently wet state for different types of wetland agriculture and forestry, it is clear that the water table cannot be used as a criterion to deem that a land parcel ineligible for payment.

It is important that both drainage and pumping capacity are addressed as maintaining an existing drainage network while increasing the pumping capacity will result in dehydration of the soil, resulting in an increase in GHG emissions.

Recommendation

8. **Taking the objective of GAEC 2 into account it is therefore necessary that minimum protection of organic soils should require:**
   a) **No new drainage of GAEC 2 land parcels,**
   b) **No renewal or deepening of drains within GAEC 2 land parcels,**
   c) **No extension of pumping capacity within GAEC 2 land parcels,**[36]

Ploughing

Tillage restrictions and ploughing bans are the most popular measures under GAEC 2, having been adopted within the CSPs of 18 Member States (Table 2). While the overall land under cultivation for arable crops on drained organic soils in Ireland is very small the greenhouse gas emissions are

[34] DAFM (2023) A Guide to Land Eligibility May 2023 https://assets.gov.ie/258670/53dd4506-4541-43b8-a738-a85b912e14ea.pdf
[35] Basic Income Support for Sustainability (BISS) https://assets.gov.ie/266405/318c630d-b5f7-48a6-bcf9-4f5332d6863a.pdf
[36] Structure of the conditionality in the next CAP funding period: GAEC 2 "Adequate Protection of Wetlands and Peatlands" https://greifswaldmoor.de/files/dokumente/Infopapiere_Briefings/2020_Vorschlag%20zur%20Ausgestaltung%20GL%C3%96Z%202_GAP_GMC_DVL_.pdf

significant enough to warrant protection and rewetting if possible[37] [38]. For this reason, we believe there is a strong case to treat tillage on organic soils differently to tillage on mineral soils.

DAFM's proposal for new measures for ploughing are:

- no deep ploughing greater than 30cm for grassland or arable
- shallow ploughing allowed (up to 30cm) annually for arable, and
- grass reseeding ploughing is allowed (1 yr in 4).

In respect of the three measures proposed DAFM state "*Ensure agricultural activities can continue i.e. grazing, tillage crops while providing baseline protection in line with the footnote (1)*." As previously stated we strongly disagree with DAFM's interpretation of Footnote (1) in Annex III of Regulation 2115/2021.

We are supportive of the ban on deep ploughing having previously recommended:

Recommendation

9. As a minimum, any drained peatlands already used as cropland should not be ploughed deeper than 30cm.

Additionally, we recommend that the following recommendations are also considered:

Recommendation

10. In the case of drained peatlands used as grasslands there should be a ban on conversion to cropland, as is the case in Germany's CSP.
11. In Denmark no tillage is allowed on soils with >12% carbon within protected areas (in total 28,800 ha). The Irish authorities should give serious consideration to prioritising organic soils being used for tillage for rewetting.

The protection of semi-natural grasslands

Over the last 60 years, the management of European grasslands has in general intensified with increasing stocking densities, higher nutrient inputs, higher cutting frequencies, modulated by drainage, irrigation, resowing and oversowing with species poor seed mixes, as well as weed control with herbicides. This has resulted in a negative impact on the role of European Grasslands from a climate perspective but also it has reduced the multifunctionality of grasslands negatively impacting on their ability to provide a range of ecosystem and cultural services[50]. Therefore, in the interests of protecting the climate mitigation potential of low intensity grassland it is key that semi-natural grasslands are protected from intensification and that intensively managed grasslands are subject to measures that reduce reduced management intensity[50].

GAEC 8 bans the conversion or ploughing of permanent grassland designated as environmentally sensitive permanent grasslands in Natural 2000 sites. From an Irish perspective we believe that under GAEC 2 semi-natural grasslands on organic soils should be offered protection from intensification. When other ecosystem services such as biodiversity and the cultural services provided by semi-natural grasslands and High Nature Value farmland habitat mosaics are considered there is an overwhelming case for the protection and sustainable management of these habitats.

[37] Wilson, D., Blain, D., Couwenberg, J., Evans, C. D., Murdiyarso, D., Page, S., ... & Tuittila, E. S. (2016). Greenhouse gas emission factors associated with rewetting of organic soils.
[38] WaterLANDS (2022) Higher ambition for Peatlands in the EU Nature Restoration Law Proposal

That is not to say that other land use options such as scrub and native woodland regeneration, rewilding[39] and agroforestry would not also deliver benefits for climate, biodiversity and society but rather that the intensification of semi-natural grasslands, particularly those on organic soils would be overwhelmingly negative from the perspective of the objectives of GAEC 2.

Instead of DAFM's proposal that:

- grass reseeding ploughing is allowed (1 yr in 4).

We recommend:

Recommendation

12. **Semi-natural grasslands, such as those identified in the Irish Semi-Natural grassland survey[40], which are located on organic soils should be protected from intensification including drainage, ploughing and reseeding. This should also include a ban on conversion to tillage. Farmers should be supported through agri-environmental schemes to manage these grasslands sustainably delivering biodiversity, climate mitigation and food.**

Extensification of grassland management should be considered in tandem with policies to reduce the national herd and restore and reconnect grassland habitats and habitat mosaics. Extensification of grasslands in the interests of climate may require more proactive action than simply reducing stocking rates and reducing inputs and may require active ecological restoration including the reintroduction of native seed mixtures to restore diverse multifunctional grasslands and habitat mosaics[41]. Denmark for example has introduced a requirement under GAEC 2 for reduced allowance of nitrogen input on soils with >6% carbon (in total 171,000 ha).

Recommendation

13. **The extensification of grassland management and the ecological restoration of semi-natural grasslands and habitat mosaics should be incentivised by Irish policy in order to enhance the carbon sequestration capacity of Irish grasslands.**
14. **Ireland should consider a requirement for reduced allowance of nitrogen input on semi-natural grasslands on organic soils.**

[39] Navarro, L. M., & Pereira, H. M. (2015). Rewilding abandoned landscapes in Europe. In Rewilding European Landscapes (pp. 3-23). Cham: Springer International Publishing.
[40] O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013) The Irish semi-natural grasslands survey 2007-2012. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
[41] Schaub, S., Finger, R., Buchmann, N., Steiner, V., & Klaus, V. H. (2021). The costs of diversity: higher prices for more diverse grassland seed mixtures. Environmental Research Letters, 16(9), 094011.

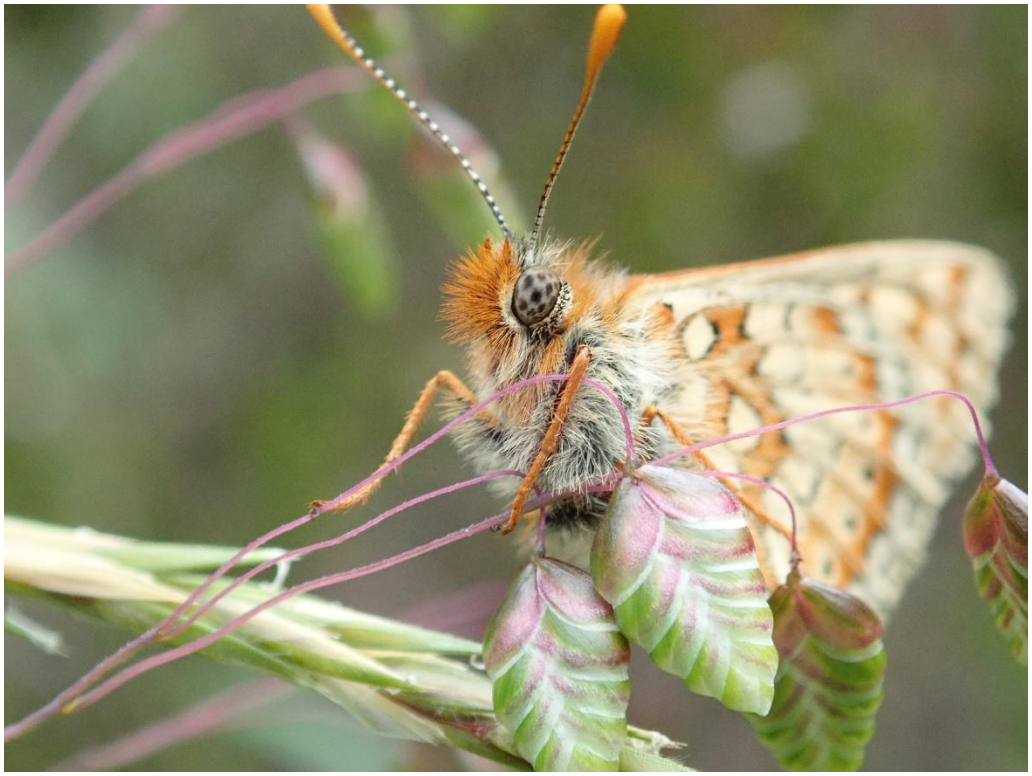

Figure 2: Marsh fritillary butterfly

Other measures

There are a number of significant gaps in the measures proposed by DAFM. We would like to propose additional measures for adoption under GAEC 2 relating to peat extraction, burning and overgrazing.

Peat Extraction

Under Ireland's land eligibility criteria[42] land parcels that are solely used for turf or peat extraction/harvesting activities in the year of application are ineligible. Under GAEC 2 there should be a total ban on turf-cutting and peat extraction within all farmed Natura 2000 sites as it is not compatible with the Conservation Objectives of designated areas. The Irish authorities should engage with all affected communities ensuring effective supports are put in place to facilitate a transition to more sustainable fuels as well as reduced dependence on solid fuels.

Recommendation

15. **We recommend that a ban on turf-cutting / peat extraction within farmed Natura 2000 sites is introduced under GAEC 2.**

Burning

While intact peatlands are net carbon sinks, degraded peat (from unsustainable practices such as burning) can switch peatlands to a carbon source, resulting in greenhouse gas emissions not only

[42] DAFM (2023) A Guide to Land Eligibility https://assets.gov.ie/258670/53dd4506-4541-43b8-a738-a85b912e14ea.pdf

from the drying out of peat soils and from the combustion of fuel but also a loss in the carbon storage and sequestration capacity[43]. While restoration can return the ecosystem to a carbon sink, prevention of damaging fires is optimal for climate, biodiversity and for peatland communities. According to IUCN the overwhelming scientific evidence base points to burning on peatlands causing damage to key peatland species, peatland ecosystem health, and the sustainability of peatland soils[44]. The environmental impacts of even prescribed burning are far reaching with negative impacts also proven on the ecology and hydrology of upland rivers[45]. While there is ongoing debate around the role of controlled burns in the management of Dry Heath, what appears clear is that the negative impacts of fires increase in line with their severity, frequency and scale. From a farming perspective Teagasc do not recommend burning as a tool to manage bracken (*Pteridium aquilinum*) or Gorse (*Ulex europaeus*), both of which proliferate after burning[46].

Ireland's CSP on GAEC 3 states: "*GAEC 3 bans the burning of arable stubble which maintains organic carbon and prevents the direct release of CO2 to the atmosphere. Burning of crop stubble and crop residues such as straw, will be prohibited except where there is a plant health reason and prior authorisation has been granted by the Department of Agriculture, Food and the Marine*." In addition, "*besides causing air pollution, burning of straw leads to the loss of soil organic matter and essential nutrients, reduces microbial activities and leaves the land more vulnerable to soil erosion*." Rationally, if there is a ban on burning of arable stubble under GAEC 3 in order to maintain soil carbon and prevent the direct release of CO2 to the atmosphere it would not make sense that organic soils, including peatlands would be permitted to be burnt under GAEC 2.

Research has shown that burning can have a large impact on the floristic composition of both wet heath and blanket bog. It has been suggested in a UK context that burning on blanket bog and wet heath should normally be avoided if favourable condition is to be achieved or maintained[47]. In Ireland Teagasc[48] only promote prescribed burning as part of a habitat management plan where there are no practical alternatives and only if carried out according to best practice. Teagasc states that only Dry Heath containing strong heather should ever be burnt where prescribed burning may benefit heather regeneration. **According to Teagasc, Blanket Bog, Wet Heath or Upland Grassland should not be burned.** "*On blanket bogs and wet heaths, burning alters habitats irrevocably, damaging bog vegetation such as sphagnum mosses and lichen habitat. On upland grassland burning favours aggressive species, decreasing the diversity of flora and losing associated fauna biodiversity."*[68]

Wildfires and deliberate burning cause widespread loss of habitats across Ireland's upland. They most often occur in the spring resulting in the destruction of large numbers of nests including those of Red and Amber listed Birds of Conservation Concern in Ireland such as hen harrier, red grouse, meadow pipit and skylark[49].

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[43] WWF UK (2019) Carbon loss and economic impacts of a peatland wildfire https://www.wwf.org.uk/sites/default/files/2019-11/Carbon%20loss%20and%20economic%20impacts%20of%20a%20peatland%20wildfire%20in%20north-east%20Sutherland.pdf

[44] IUCN (2024) POSITION STATEMENT: Burning and Peatlands https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2023-04/Position%20Statement%20-%20Burning%20and%20Peatlands%20V4%20-%20FINAL_1.pdf

[45] Brown, L. E., & Holden, J. (2020). Contextualizing UK moorland burning studies with geographical variables and sponsor identity. Journal of Applied Ecology, 57(11), 2121-2131.

[46] Teagasc (2017) Hill Sheep Conference 2017 https://www.teagasc.ie/media/website/publications/2017/Hill-Sheep-Conference-2017.pdf

[47] Stewart, G. B., Coles, C. F., & Pullin, A. S. (2004). Does Burning Degrade Blanket Bog? Systematic Review no. 1. Unpublished report, Centre for Evidence-Based Conservation https://environmentalevidence.org/wp-content/uploads/2014/06/SR1.pdf

[48] Teagasc response to a call for a complete ban on burning in the uplands https://www.teagasc.ie/news--events/daily/environment/teagasc-response-to-a-call-for-a-complete-ban-on-burning-in-the-uplands.php

[49] Ruddock, M., Wilson-Parr, R., Lusby, J., Connolly, F., J. Bailey, & O'Toole, L. (2024). The 2022 National Survey of breeding Hen Harrier in Ireland. Report prepared by Irish Raptor Study Group (IRSG), BirdWatch Ireland (BWI), Golden Eagle Trust (GET) for National Parks &

Figure 3: Red grouse (Photo by Brian Taylor).

Based on the consensus that burning of vegetation on blanket bog is damaging to peatland formation and habitat condition, the UK government introduced new regulations in the The Heather and Grass etc. Burning (England) Regulations 2021[50], to prevent the burning of any specified vegetation on areas of deep peat (over 40cm depth) on a Site of Special Scientific Interest that is also a Special Area of Conservation or a Special Protection Area. The legislation does allow for burning, under strict licence, to manage wildfire risk where there is no practicable alternative, any burning must form part of a cohesive management plan that aims to return the land to a natural wet state; and when it is so restored, burning will become unnecessary.

Recommendation

16. **Based on the available evidence there is an overwhelming case that no burning should take place on both active and degraded Blanket bog, Raised bog, Wet heath and on grasslands.**
17. **There should be a requirement for no drainage, no burning and sustainable stocking densities on grazed Blanket Bog and Wet Heath.**

According to Teagasc – "*Uncontrolled wildfires are unequivocally devastating for all uplands*"[68]. Despite this, prescribed controlled burns are extremely rare in Ireland with the vast majority of burnt areas being the result of unregulated and uncontrolled wildfires. Limited controlled burning is carried out by Coillte to create fire breaks around forestry plantation and by gun clubs to promote the regeneration of heather for Red Grouse (*Lagopus lagopus hibernicus*). In the past land eligibility on destocked upland habitat was a major driver of burning. However, under Ireland's updated land eligibility rules, land does not need to be burnt to be eligible, once there is an agriculture activity

Wildlife Service (NPWS). Irish Wildlife Manuals, No. 147. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

[50] https://www.legislation.gov.uk/uksi/2021/158/contents/made

taking place on the parcel. The burning of lands according to DAFM "*should be an activity of last resort, having exhausted all other alternatives*"[62].

A number of successful raised bog conservation projects[51] such as the Ballydangan Bog Red Grouse Conservation Project practice mechanical strimming of heather instead of burning. This encourages regeneration of heather for red grouse without the negative impacts of prescribed burning. The adoption of mechanical strimming of heather should be further encouraged as a sustainable alternative to prescribed burning.

In Ireland there is a range of legislation that relates to the burning of vegetation; however, enforcement is poor and convictions are traditionally low. Under Section 40 of the Wildlife Act (1976) as amended by Section 46 of the Wildlife (Amendment) Act 2000, burning vegetation in uncultivated land from 01 March to 31 August is illegal. Despite the serious environmental damage and risks to life, livestock and property there is however no licensing system for controlled burning in Ireland[52]; there is only a code of best practice[53] and in the case of Natura lands, prior approval must be obtained through the Activities Requiring Consent (ARC) system.

For Dry heath where the benefits and risks of burning require further research and stakeholder buy-in there should at a minimum be a requirement for licensing, with the aim of eradicating uncontrolled burning. This licensing regime should build on existing requirements plus additional controls considering the extremely poor regulation of uncontrolled burning in Ireland.

Recommendation

18. **If burning is allowed on Dry Heath it should only be undertaken if it is subject to licensing.**
19. **A new licensing system should require that any burns are in line with best practice and are subject to prior approval and have spatial and temporal controls to ensure that deep burns do not cause damage to the soil.**

Overgrazing

The overgrazing of peatlands and organic soils by sheep results in soil erosion, peat loss, nutrient enrichment landscape degradation and biodiversity loss[54]. Overgrazing causes an alteration in soil physical, chemical and biological properties, resulting in changes in vegetation cover, a degradation of soil and a loss of soil C stocks[55]. Overgrazing on peat can also result in more rapid surface water flow, eventually leading to bare peat and gullies[56]. Overgrazing can also contribute to large significant bog slides such as in the Maumturk Mountains in 2006 and Clare Island in Mayo[57]. According to the Irish Peatland Conservation Council (IPCC), 59 SACs are currently listed as being

[51] NARGC (2015) Development of Best-Practice Guidelines for Red Grouse on Irish SAC Raised Bogs https://www.ballydanganbog.com/wp-content/uploads/2017/10/Report_on_Red_Grouse_on_SAC_Raised_Bogs.pdf
[52] Wicklow Uplands Council (2023) A Study to Identify Best Management of Upland Habitats in County Wicklow https://wicklowuplands.ie/wp-content/uploads/2017/08/Final-Report-April-2013-Low-Res.pdf
[53] Prescribed Burning Code of Practice – Ireland https://assets.gov.ie/125030/cd7b70f4-f52a-4664-9908-e52a20738e44.pdf
[54] Douglas, C., Fernandez, F., Ryan, J., 2008. Peatland habitat conservation in Ireland. In: Farrell, C., Feehan, J. (Eds.), 13th International Peat Congress. Tullamore, Ireland.
[55] Catalan, J., Ninot, J. M., & Aniz, M. M. (2017). High mountain conservation in a changing world. Springer Nature.
[56] IUCN UK Commission of Inquiry on Peatlands. https://pearl.plymouth.ac.uk/bitstream/handle/10026.1/17516/IUCN%20UK%20Commission%20of%20Inquiry%20on%20Peatlands%20Full%20Report%20spv%20web.pdf?sequence=1
[57] Ireland's Peatland Conservation Action Plan 2020, , IPCC, 2009

damaged by overgrazing[58]. Many peatlands in Ireland's uplands are still recovering from the overstocking and overgrazing that resulted in the 1990's and 2000's when total sheep numbers nationally increased from 3.2 million in 1980 to 8.9 million in 1992[59]. While the number of sheep grazing in Ireland's uplands have thankfully reduced in recent decades[60] peatlands are sensitive habitats and many will require active restoration if their conservation status is going to improve. In the interests of protecting organic soils it is important that the density of grazing animals is maintained at sustainable levels.

Recommendation

19. **The density of livestock and deer on blanket bog should be maintained at sustainable levels[61]. DAFM should explore novel opportunities to promote precision livestock management such as virtual fencing[62].**
20. **Blanket bog should not be grazed between the start of November and the end of February.**
21. **Complete destocking should be considered where peatland areas have shown no improvement following management.**

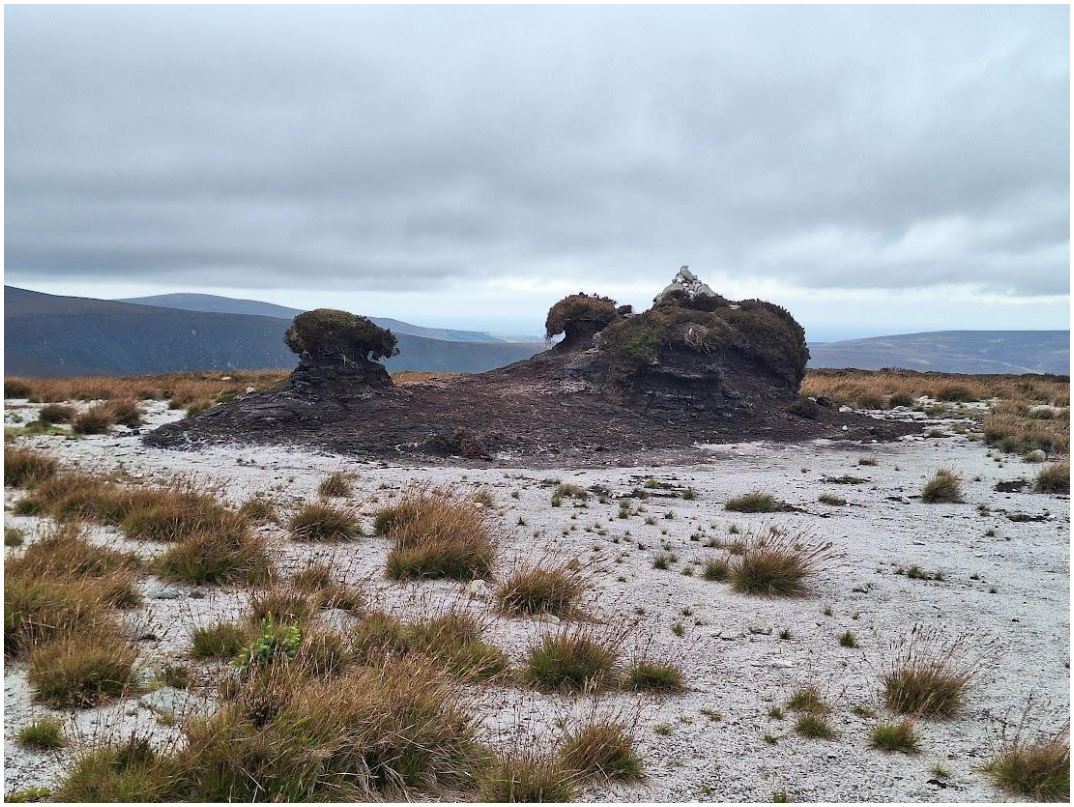

Figure 4: An extreme example of Mountain Blanket Bog erosion on Tonduff Mountain, Co. Wicklow where there has been total loss of peat in some areas (photo by Fintan Kelly, 2024).

[58] Personal communication with IPCC 21/1/25
[59] https://www.cso.ie/en/releasesandpublications/ep/p-eii/eii18/landuse/
[60] Byrne et al., 2017 Farming the Uplands – Where to from here? https://www.teagasc.ie/media/website/publications/2017/Agri_Conference_2017.pdf
[61] Artz, R. R. E., Donnelly, D., Andersen, R., Mitchell, R., Chapman, S. J., Smith, J., ... & Cuthbert, A. (2014). Managing and restoring blanket bog to benefit biodiversity and carbon balance–a scoping study.
[62] O'Donoghue, B.G. (2022). Pioneering Precision Livestock Management (Virtual Fencing) in Ireland. A review of a 3-year pilot with focus on the environment, the livestock and the farmers. Irish Wildlife Manuals, No. 140. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.