How do we meet our peatland ambitions?

Funding sustainable peatlands

Session chair: Rob Stoneman

RWST and IUCN UK Peatland Programme Co-chair

14:00 – 15:20

IUCN National Committee United Kingdom

Peatland Programme

Gordon's Mere, Woodwalton Fen © Guy Pilkington

WILD ATLANTIC NATURE LIFE

Lessons from Ireland: results-based payment schemes

IUCN Peatland Programme Conference

Dr Gary Goggins, 03th October 2023

Overview

- Long-term project (2021-2029) EU LIFE Integrated Project
- Total budget €20.6m (EU €12.3m, €8.3m project partners)
- Assist in delivering and supporting the management of high quality habitats (PAF)
- Particular focus on blanket bog SACs in NW Ireland
- Farmer and community focused supported Government departments & agencies
- Seeks to facilitate upscaling

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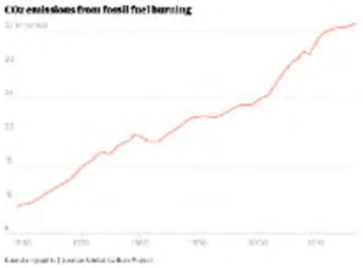
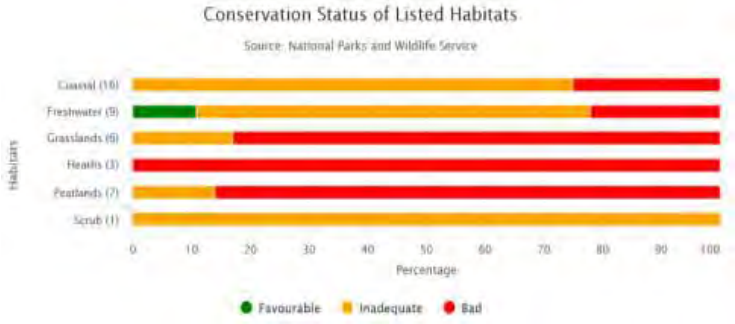
WILD ATLANTIC NATURE LIFE

Organizational and institutional barriers to environmental improvement

Often, our land use policies don't align!





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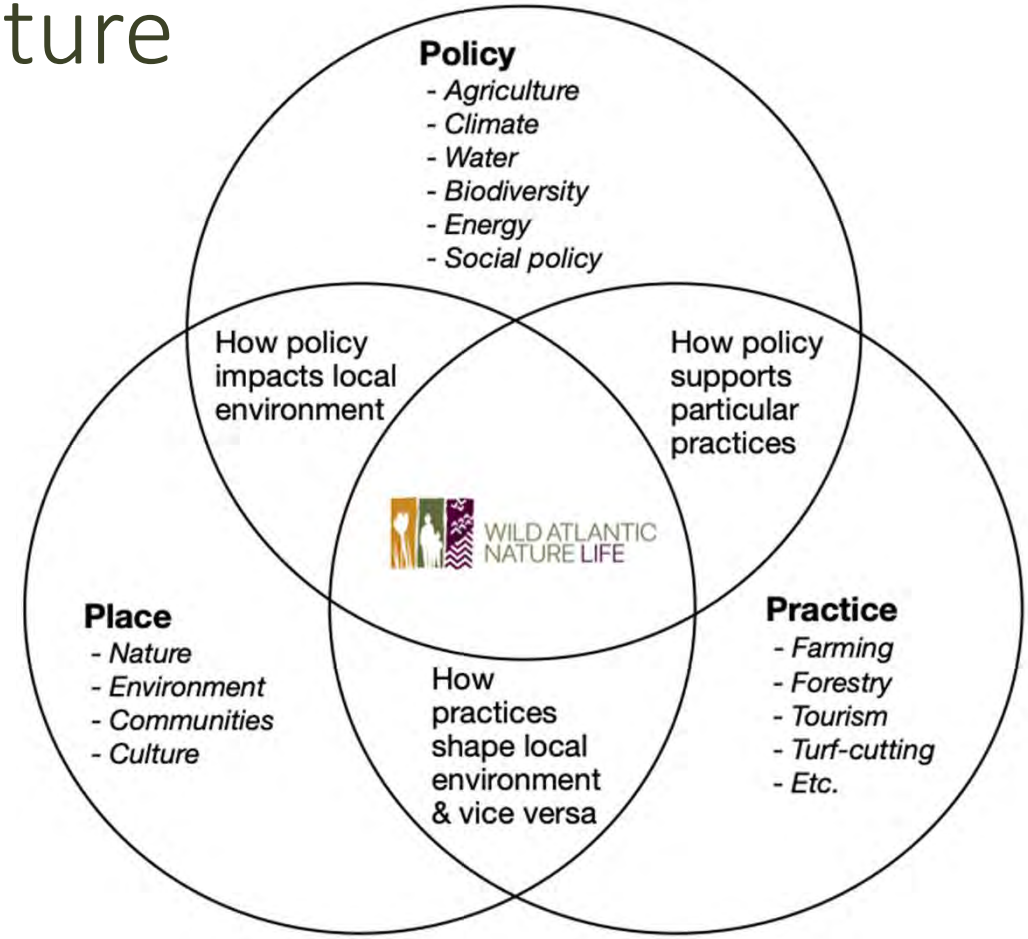
LIFE IP Wild Atlantic Nature

- Key objective = high **quality** habitats, sensitive to local contexts that deliver for the environment, farmers and local communities



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What have we learned in the past 30 years?

- Successful (agri-environment) programmes should
  - Be locally adapted, practical and results focused
  - Be developed with local people (farmers, communities)
  - Be properly and fairly funded
  - Facilitate flexible and adaptive management
  - Build local trust and capacity
  - Facilitate improvements
  - Account for factors outside farmers/communities control

North Connemara Locally Led Agri-Environmental Scheme

Burren PROGRAMME

PEARL MUSSEL PROJECT

HEN HARRIER PROJECT

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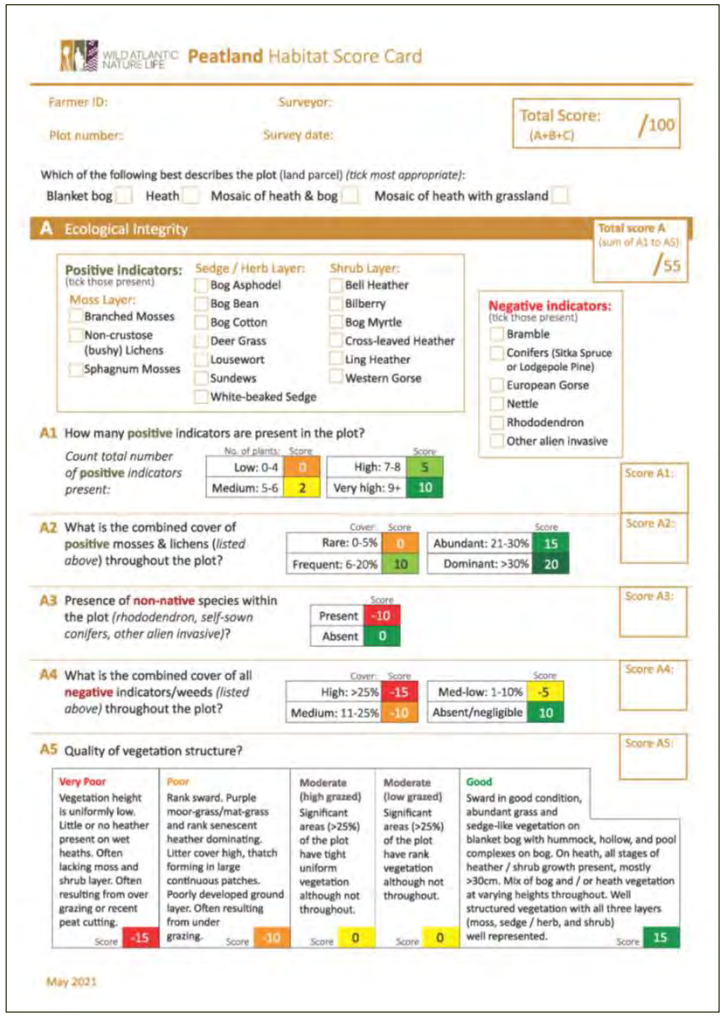
(Hybrid) Results-based agri-environment programme (RBPS)



WILD ATLANTIC NATURE LIFE **Peatland** Habitat Score Card

Farmer ID: Surveyor: Total Score: (A+B+C) /100

Plot number: Survey date:

Which of the following best describes the plot (land parcel) *(tick most appropriate)*:
Blanket bog ☐ Heath ☐ Mosaic of heath & bog ☐ Mosaic of heath with grassland ☐

A Ecological Integrity — Total score A (sum of A1 to A5) /55

Positive indicators: (tick those present)
Moss Layer: Branched Mosses; Non-crustose (bushy) Lichens; Sphagnum Mosses
Sedge / Herb Layer: Bog Asphodel; Bog Bean; Bog Cotton; Deer Grass; Lousewort; Sundews; White-beaked Sedge
Shrub Layer: Bell Heather; Bilberry; Bog Myrtle; Cross-leaved Heather; Ling Heather; Western Gorse

Negative indicators: (tick those present)
Bramble; Conifers (Sitka Spruce or Lodgepole Pine); European Gorse; Nettle; Rhododendron; Other alien invasive

A1 How many positive indicators are present in the plot?
Count total number of positive indicators present:

No. of plants:	Score		Score
Low: 0-4	0	High: 7-8	5
Medium: 5-6	2	Very high: 9+	10

Score A1:

A2 What is the combined cover of positive mosses & lichens *(listed above)* throughout the plot?

Cover:	Score		Score
Rare: 0-5%	0	Abundant: 21-30%	15
Frequent: 6-20%	10	Dominant: >30%	20

Score A2:

A3 Presence of non-native species within the plot *(rhododendron, self-sown conifers, other alien invasive)*?

	Score
Present	-10
Absent	0

Score A3:

A4 What is the combined cover of all negative indicators/weeds *(listed above)* throughout the plot?

Cover:	Score		Score
High: >25%	-15	Med-low: 1-10%	-5
Medium: 11-25%	-10	Absent/negligible	10

Score A4:

A5 Quality of vegetation structure?

Very Poor	Poor	Moderate (high grazed)	Moderate (low grazed)	Good
Vegetation height is uniformly low. Little or no heather present on wet heaths. Often lacking moss and shrub layer. Often resulting from over grazing or recent peat cutting. Score -15	Rank sward. Purple moor-grass/mat-grass and rank senescent heather dominating. Litter cover high, thatch forming in large continuous patches. Poorly developed ground layer. Often resulting from under grazing. Score -10	Significant areas (>25%) of the plot have tight uniform vegetation although not throughout. Score 0	Significant areas (>25%) of the plot have rank vegetation although not throughout. Score 0	Sward in good condition, abundant grass and sedge-like vegetation on blanket bog with hummock, hollow, and pool complexes on bog. On heath, all stages of heather / shrub growth present, mostly >30cm. Mix of bog and / or heath vegetation at varying heights throughout. Well structured vegetation with all three layers (moss, sedge / herb, and shrub) well represented. Score 15

Score A5:

May 2021

WILD ATLANTIC NATURE LIFE **Peatland** Species Identification

Positive Indicators

Branched mosses; Non-crustose lichens; Sphagnum mosses; Bog asphodel; Bog bean; Bog cotton; Deer grass; Lousewort; Sundew; White-beaked sedge; Bell heather; Bilberry; Bog myrtle; Cross-leaved heather; Ling heather; Western gorse

Negative Indicators

Bramble; Conifers (Sitka spruce or Lodgepole pine); European gorse; Nettle; Rhododendron

August 2021

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Delivery for water quality, biodiversity, climate & communities (aligning policy)

- Farm systems generally have grassland and peatland (some woodland)
- **Whole-farm approach is essential**

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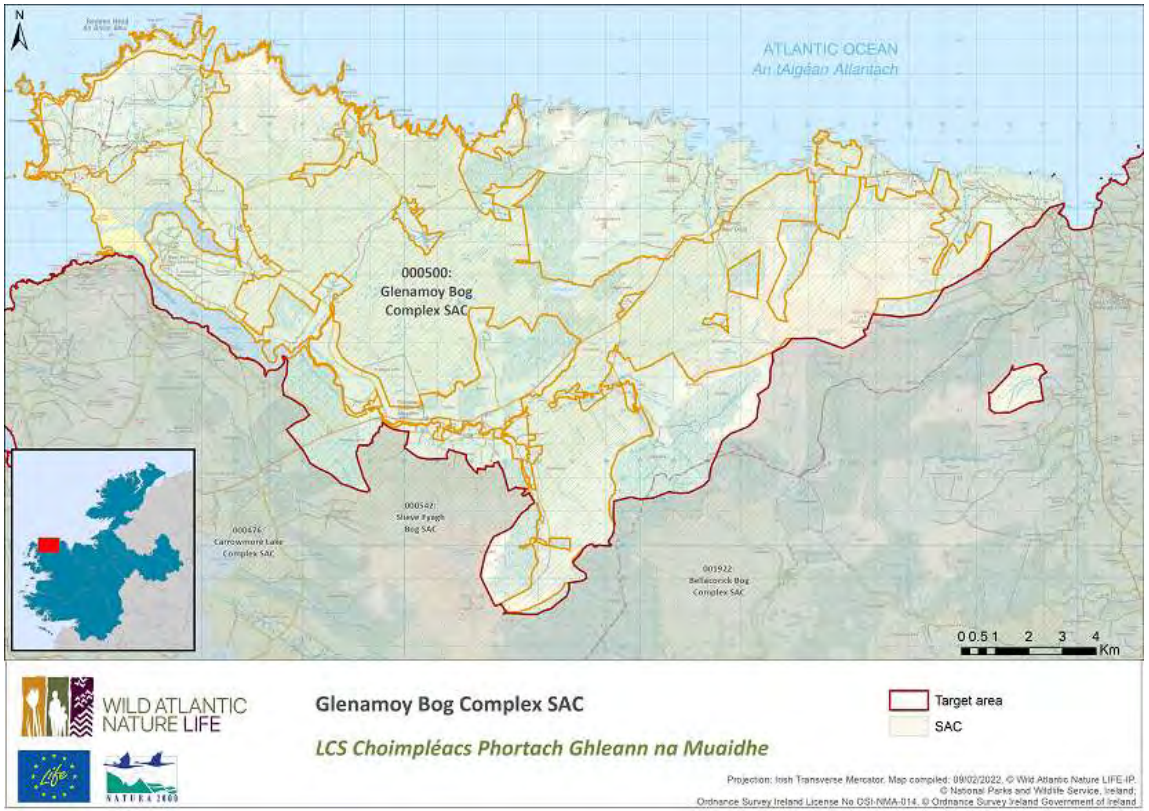
Target landscape level

Prioritization based on geographical area (SAC + Catchment)



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Habitat quality payment

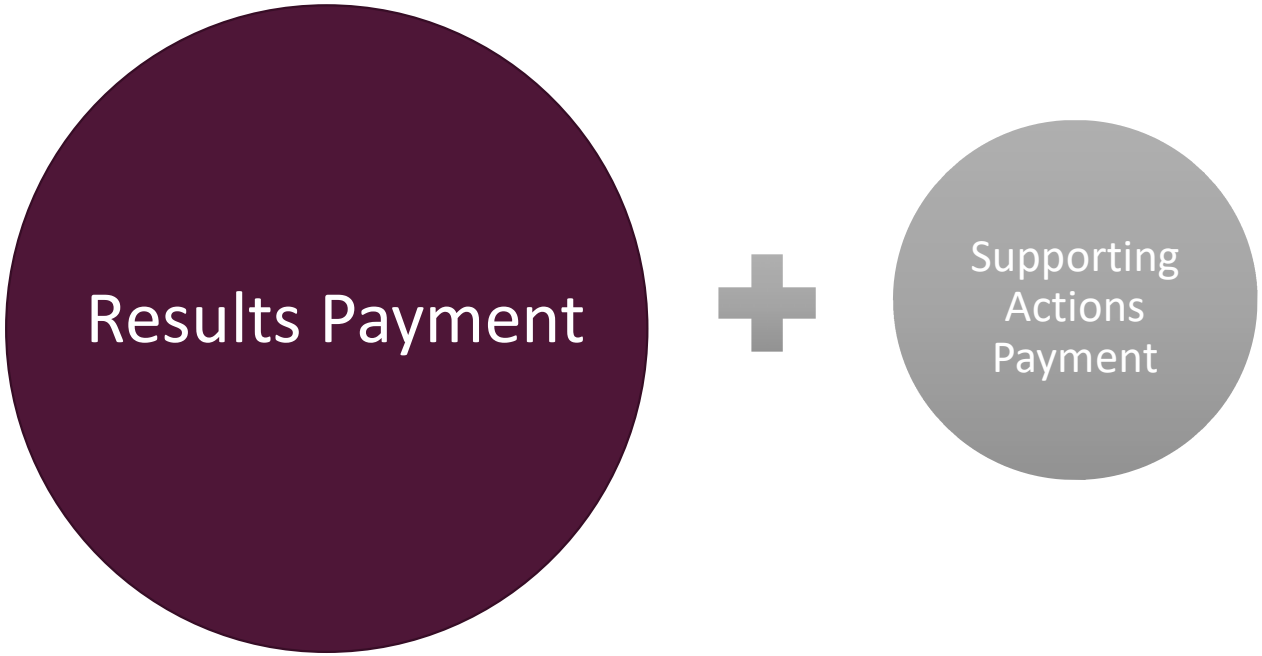
Digressive payments & area banding are important principles with no cap on payment

Payment rates according to quality per ha (€):

Plot score	A First 30ha	B 31-70ha	C >70ha
<4	0	0	0
4	68	15	5
5	79	18	6
6	90	20	7
7	135	30	10
8	180	40	14
9	203	45	15
10	225	50	17

Payment streams

Need to reward high quality but also incentivise improvement of poor quality



Supporting actions

- Assists with better farm management & improved ecological quality

Examples from Pearl Mussel Project EIP

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Training, communication, dissemination

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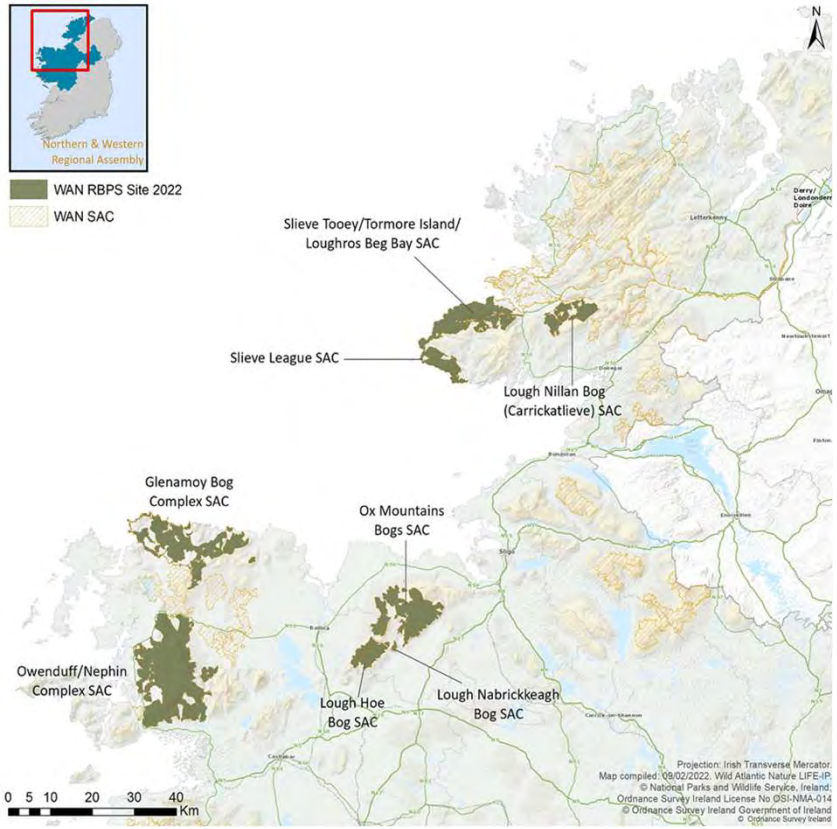
RBPS 2021/2022



- RBPS design & implemented across 8 SACs
- 823 farmers
- >50 advisors trained
- 63,000ha land surveyed
- ~ €3m direct farmer payments
- >100 supporting actions
- Lessons for CAP SP

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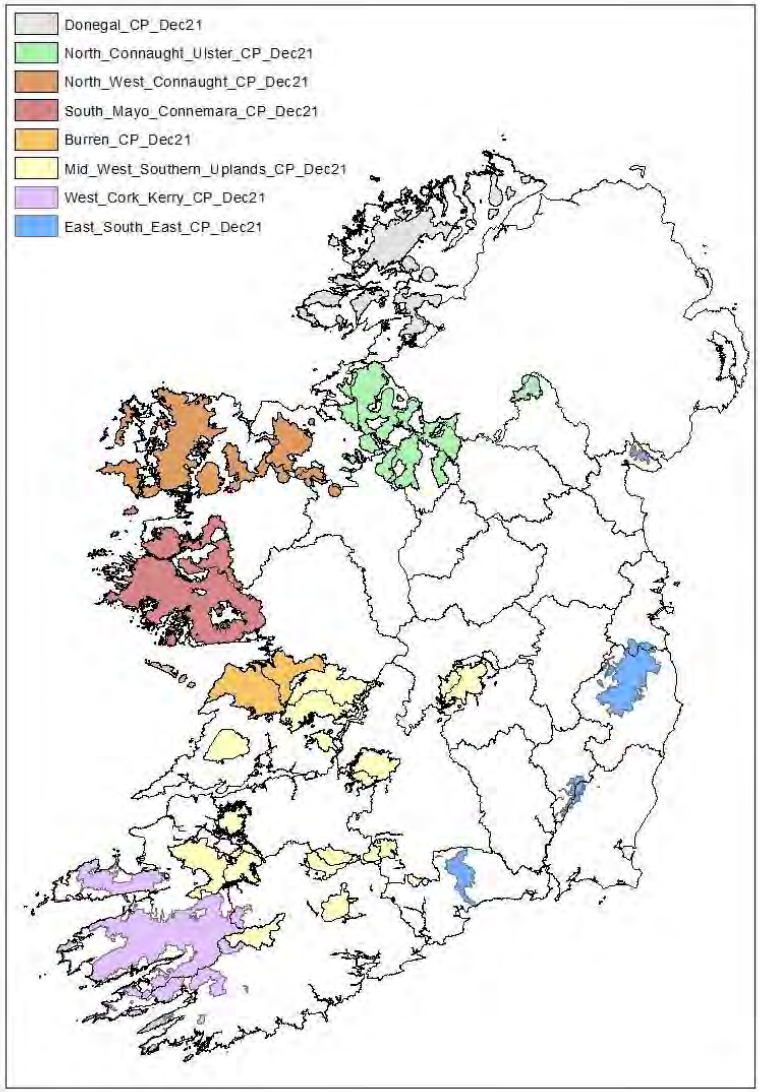
Upscaling of RBPS approach

- Eight ACRES Cooperation Project teams
- Roll-out of results-based model to 20,000 farmers
  - Results-based, supporting actions & landscape scale payments
    - Funded via CSP AECM, NPIs, Cooperation Articles
- We now have an implementation mechanism for conservation measures & restoration actions
  - Integration of land use policies
  - Delivery of environmental services (water, biodiversity, climate)



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Support for farmers, ACRES CP, others

- Provision of advice
- Surveying commonage lands
- Establishment of demonstration farms/sites
- Development of restoration action plans
- Delivery of large-scale restoration projects
  - Outside scope of CAP
- Establishment of commonage groups

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WILD ATLANTIC NATURE LIFE

Natura Communities: supporting civil society peatland restoration

NATURA COMMUNITIES

LIFE

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WILD ATLANTIC NATURE LIFE

This project has received funding from the EU's LIFE programme under Grant Agreement No. LIFE18 IPE/IE/000002

Thank you for your attention!

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finance earth

Enabling investment into conservation, climate and communities.

Upscaling Private Finance for Investment in Peatlands

October 2023

www.finance.earth

W106 Vox Studios, 1-45 Durham Street
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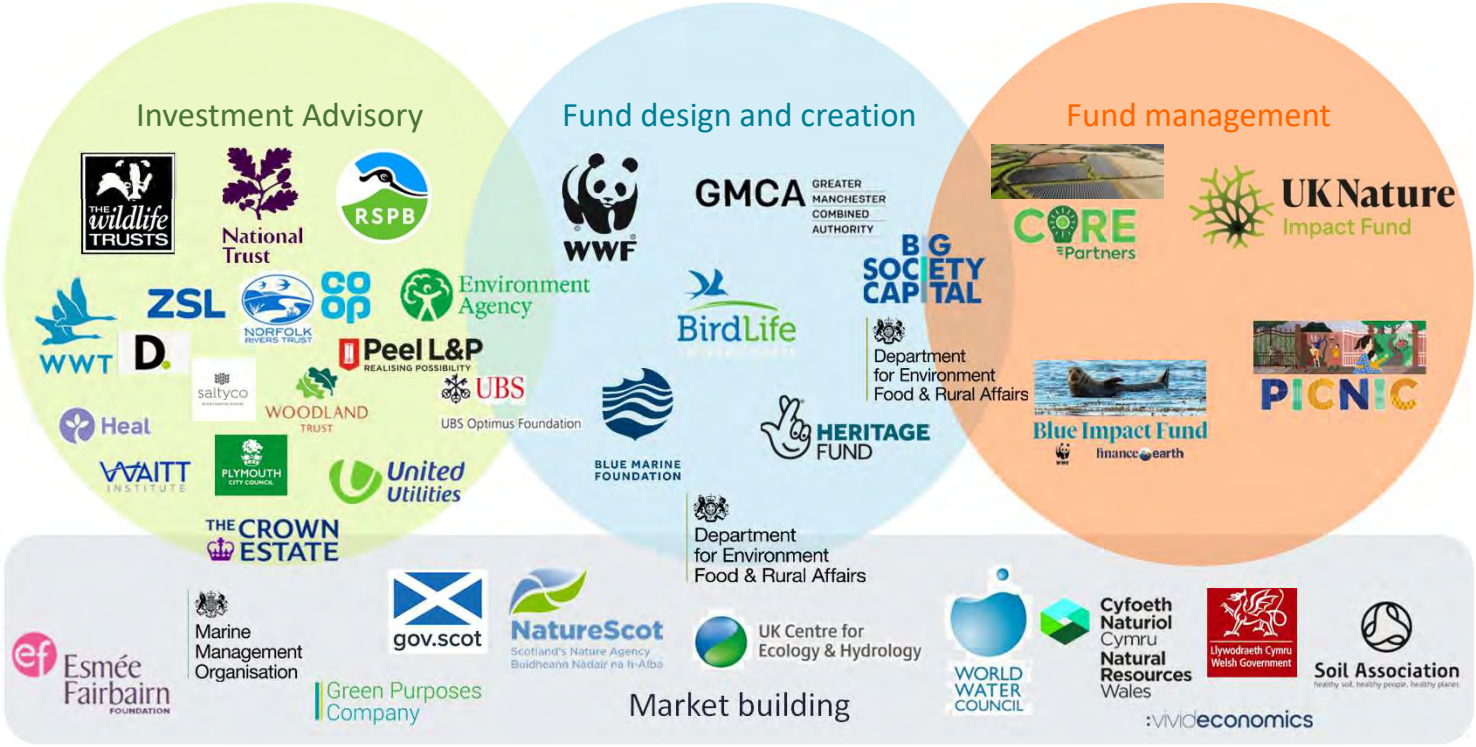


Peatland Benefits & Income Streams

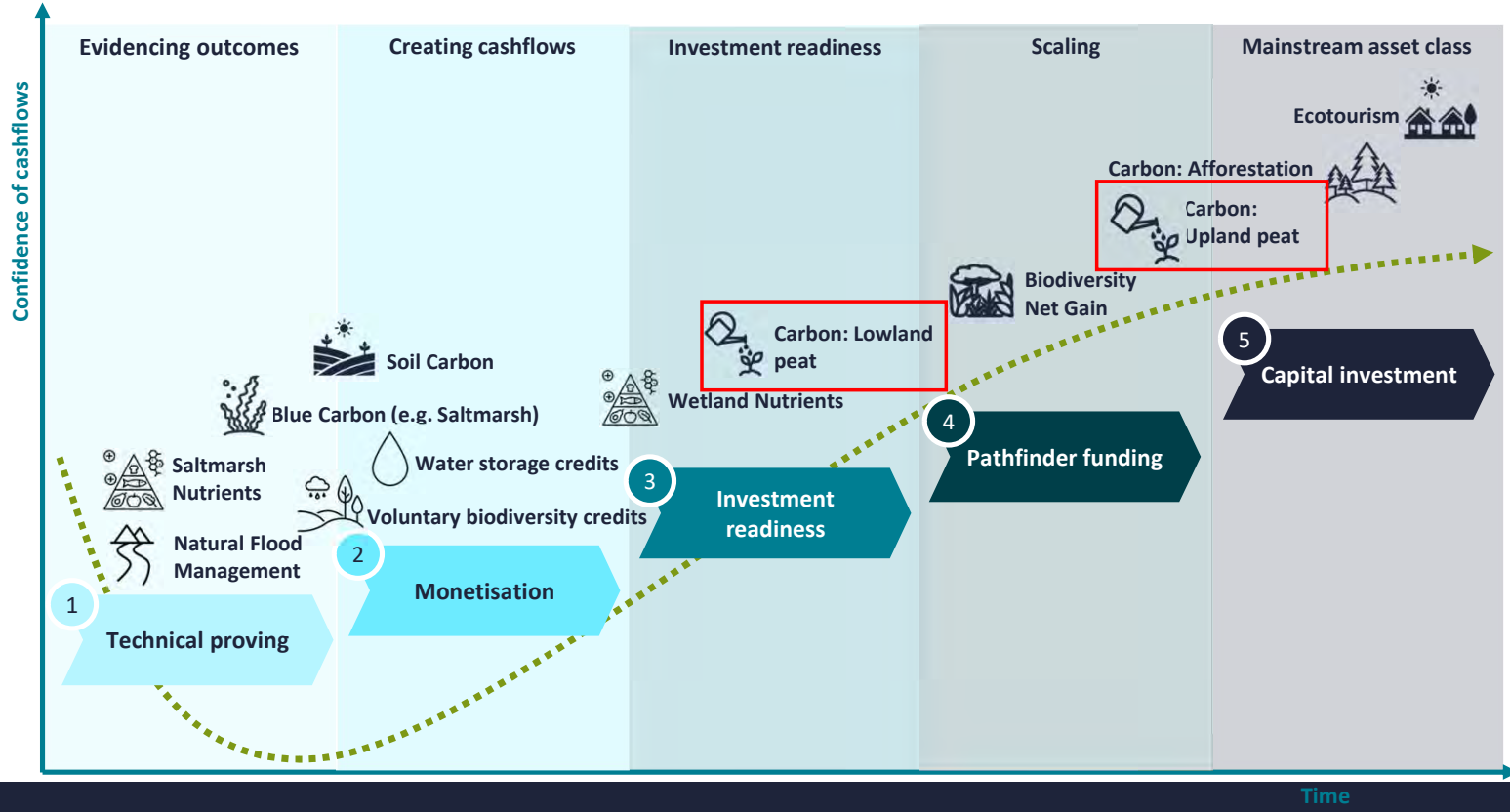
Peatland restoration has the potential to generate multiple revenue streams across carbon, crop sales, water quality and biodiversity.

	Revenue stream	Example Buyers	Relevant Countries	Typical Agreement Length
Carbon	Carbon credits (Peatland Code)	Corporates	UK wide	30-100 years
Crop sales (paludiculture)	Product sales (e.g. sphagnum, Typha latifolia)	Off-takers (compost, textiles, construction)	UK wide, international	Project dependent
Nutrients / water quality	Nutrient credits, water quality payments	Water companies, developers	UK wide, focus on England	80-125 years (3-10 years for bridging credits)
Biodiversity	Biodiversity units	Developers, corporates	UK wide, international (VBC) or England (BNG)	30-50+ years

VBC = voluntary biodiversity credits

Natural Capital Market Development in the UK

The best-developed peatland restoration financing opportunities in the UK are in the carbon markets, supported by the IUCN Peatland Code



PIU Funding

While there are benefits to selling PIUs to fill any funding shortfall for a project, there are also significant risks to project owners of taking on long-term liabilities

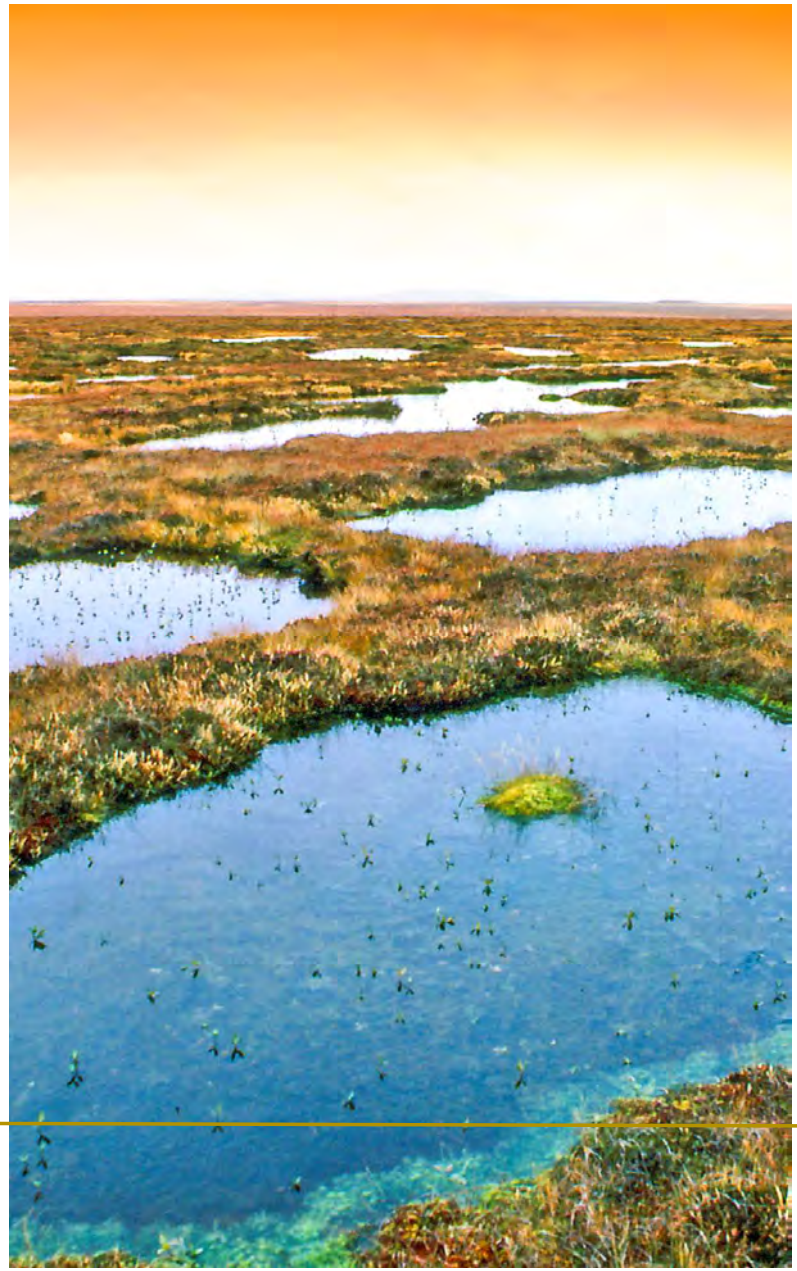
Benefits	Risks			
Removes requirement for project financing	**Increased Potential for Environmental Harm**	**Financial Risk**	**Market Risk**	**Increased Reputational Risk**
Avoids exposure to future market downside	• Buyer using PIUs incorrectly as offsets (intentional or unintentional)	• Inaccurate cost forecasting or unforeseen costs (e.g. inflation) lead to project being underfunded in future	• Lost market upside • Verification premium	• Increased time period for buyers to act negatively • Increased chance for on-selling and complex contracting

PEATLAND CODE

Applying the science: how GHG inventory monitoring drives the Peatland Code

Dr Renée Kerkvliet-Hermans
Peatland Code Co-Ordinator
IUCN UK Peatland Programme

Prof Chris Evans
UK Centre for Ecology & Hydrology



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UK Centre for Ecology & Hydrology

Funding commitment gap

- Almost 3million ha of peatland (as currently mapped) in the UK (2,962,622ha) –estimates c.80% in damaged state (IUCN- State of UK Peatlands, 2020)

- Public funding commitment gap of £560 million to restore the UK's degraded peatland (GFI, eftec, & Rayment Consulting, 2021)

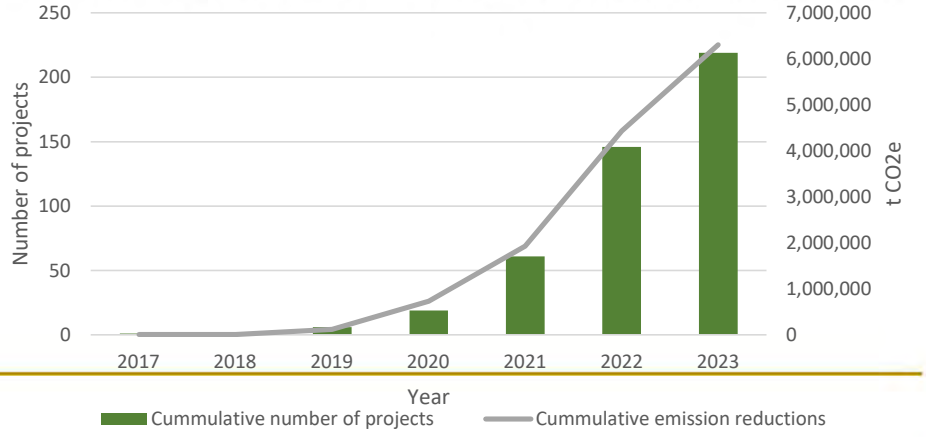
Peatland Code

A UK government-backed, domestic voluntary carbon market standard

- Landowners with eligible damaged peat can follow to attract private finance for peatland restoration by selling carbon units.
- The Peatland Code provides assurances to buyers

Number of projects

- **219** Projects registered
- 29,000 ha of peatland restoration, 6,300,000 tCO_2e expected emission reductions over lifetime off all projects
- **65** Project validations
- **11** Restoration validations
- First verification happening right now



PEATLAND CODE

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Peatland Programme

Peatland Code Development

Launch (2015)
- World Forum on Natural Capital

First Project Validated (2018)
- Blanket Bog at Dryhope, Scotland

UK Land Carbon Registry (2020)
- Peatland Code and Woodland Carbon Code

V1.2 update (2022)
- Post-restoration validation included

V2 update (2023)
- Fens included
- EFs updated

Peatland Code Management
- Core team
- Executive Board
- Technical Advisory Board
- Market and Investment Forum

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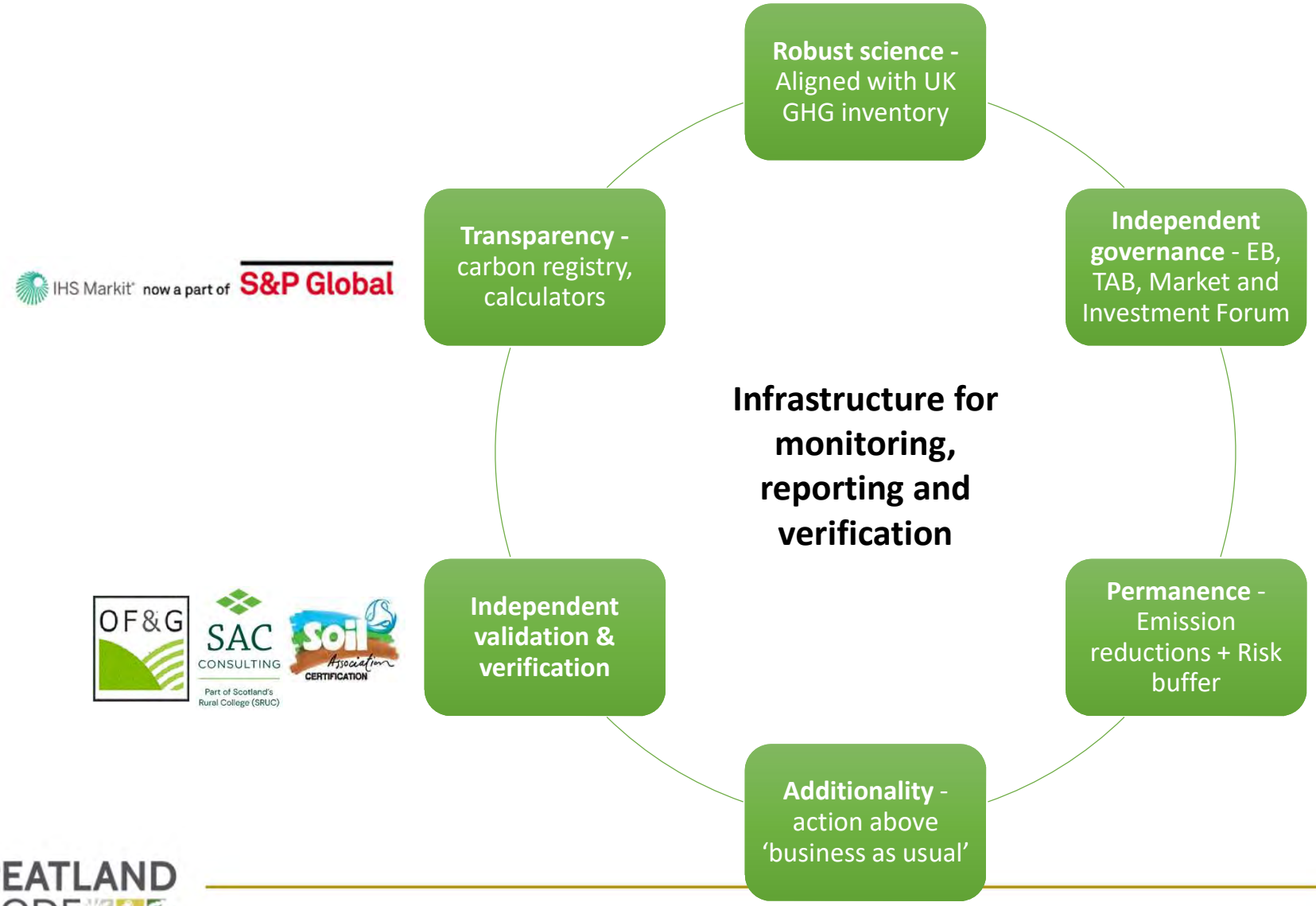


IHS Markit now a part of S&P Global

OF&G SAC CONSULTING Part of Scotland's Rural College (SRUC) Soil Association CERTIFICATION

PEATLAND CODE

IUCN National Committee United Kingdom Peatland Programme

Carbon unit types

PIU

Pending Issuance Unit: an expected emission reduction in the future

1 PIU is 1 tonne of CO_2e

No offset claim can be made on this

Legal contract between buyer and seller needed

PCU

Peatland Carbon Unit: a verified emission reduction that has taken place in the past

1 PCU is 1 tonne of CO_2e

Offset claim can be made on this

No legal contract needed

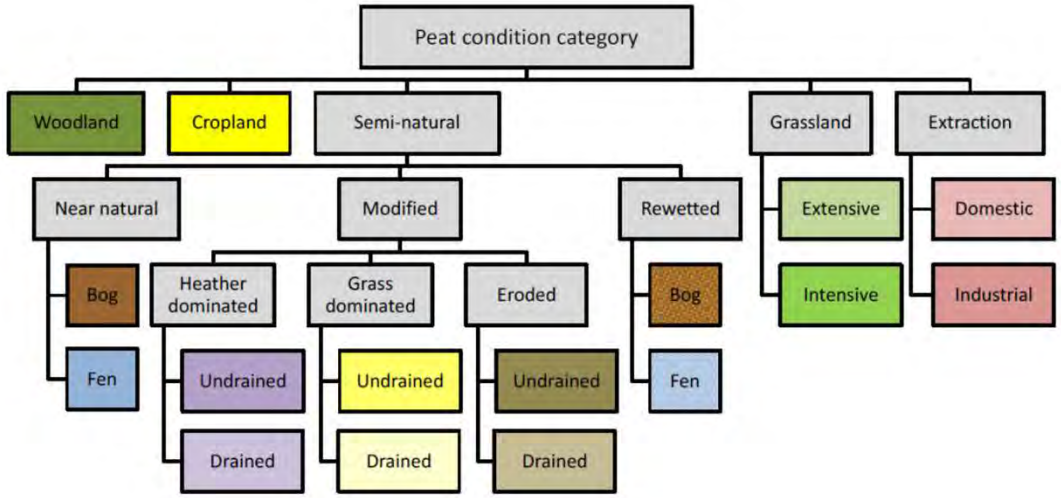
Peatland Code supporting research

ALIGNING THE PEATLAND CODE WITH THE UK PEATLAND INVENTORY

Chris Evans, Rebekka Artz, Annette Burden, Hannah Clilverd, Ben Freeman, Andreas Heinemeyer, Richard Lindsay, Ross Morrison, Jackie Potts, Mark Reed & Jennifer Williamson

Report to Defra and the IUCN Peatland Programme, March 2022
(Updated January 2023)

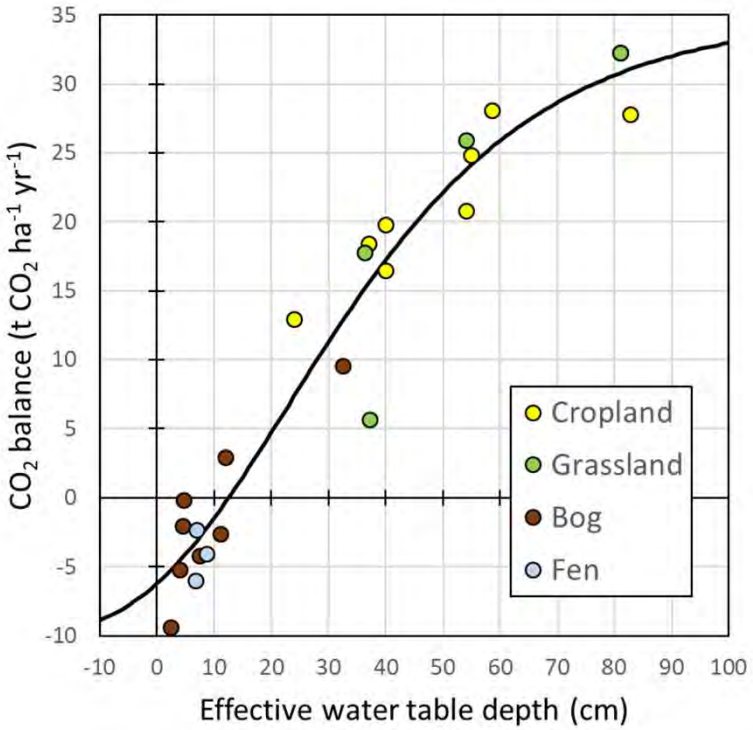
- Emission factors updated
- Condition categories and EFs made consistent with the UK National Atmospheric Emissions Inventory
- More categories added
- But still category-based
- And still struggling to separate some categories due to lack of data



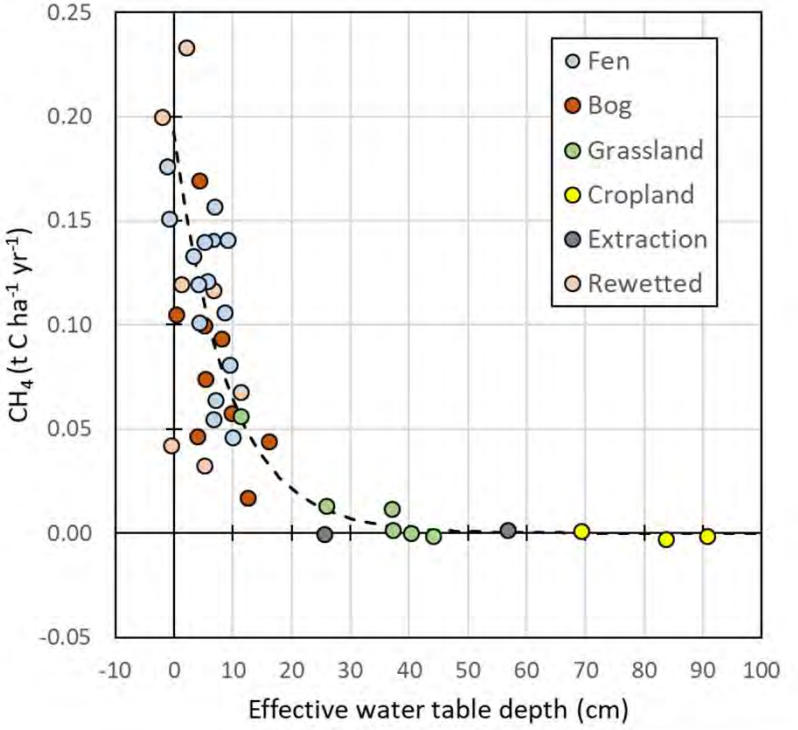
Downloadable at: https://www.iucn-uk-peatlandprogramme.org/peatland-code/introduction-peatland-code/projects

Towards a water table based approach?

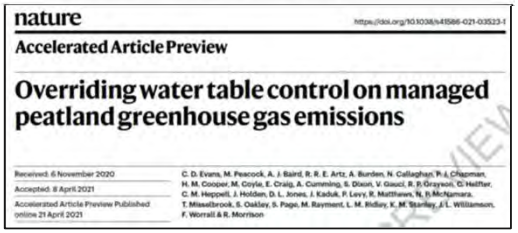
CO_2



CH_4



('Effective' water table depth = the minimum of the actual water table depth and the remaining peat depth)



nature

Accelerated Article Preview

Overriding water table control on managed peatland greenhouse gas emissions

Peatland (Fen) Carbon Calculator

- Simple spreadsheet model developed to predict pre- and post-restoration emissions for fen peatlands
- This could work for bogs too, but apparently project developers weren't so keen on measuring water tables 😐

UK (Fen) Peatland Carbon Calculator

Inputs

100-year global warming potential settings

INPUT	GWP values to use for calculations	AR5

Site area (if known)

INPUT	Area under consideration (ha)	50

Project duration (if known)

INPUT	Time period of interest (years)	30

Original land use

INPUTS	Land use	Cropland
	Minimum valid WTD (cm)	30
	Maximum valid WTD (cm)	100
	Average WTD (cm)	80
	Peat depth (cm)	60

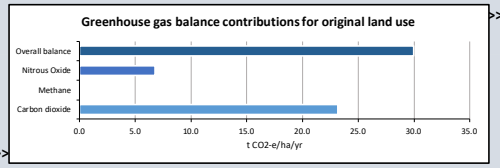
Final land use

INPUTS	Land use	Re-wetted Fen
	Minimum valid WTD (cm)	-5
	Maximum valid WTD (cm)	20
	Average WTD (cm)	20
	Peat depth (cm)	60

Results (per hectare)

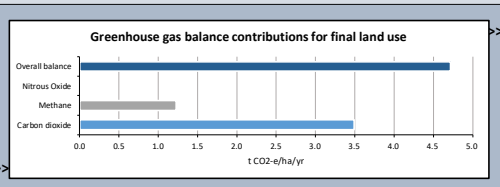
Original annual emissions (1 ha)

OUTPUTS	WTDe (cm)	60
	CO2 emissions (t CO2/ha/yr)	23.2
	CH4 emissions (kg CH4/ha/yr)	0.1
	CH4 emissions (t CO2-e/ha/yr)	0.0
	N2O emissions (kg N2O-N/ha/yr)	16.3
	N2O emissions (t CO2-e/ha/yr)	6.8
	CO2 + CH4 (t CO2-e/ha/yr)	23.2
	CO2 + CH4 + N2O (t CO2-e/ha/yr)	29.9



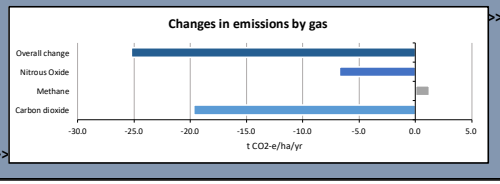
Final annual emissions (1 ha)

OUTPUTS	WTDe (cm)	20
	CO2 emissions (t CO2/ha/yr)	3.5
	CH4 emissions (kg CH4/ha/yr)	43.8
	CH4 emissions (t CO2-e/ha/yr)	1.2
	N2O emissions (kg N2O-N/ha/yr)	0.0
	N2O emissions (t CO2-e/ha/yr)	0.0
	CO2 + CH4 (t CO2-e/ha/yr)	4.7
	CO2 + CH4 + N2O (t CO2-e/ha/yr)	4.7



Change in emissions (1 ha)

OUTPUTS	Change in WTDe (cm)	-40
	CO2 emissions (t CO2/ha/yr)	-19.7
	CH4 emissions (kg CH4/ha/yr)	43.7
	CH4 emissions (t CO2-e/ha/yr)	1.2
	N2O emissions (kg N2O-N/ha/yr)	-16.3
	N2O emissions (t CO2-e/ha/yr)	-6.8
	CO2 + CH4 (t CO2-e/ha/yr)	-18.4
	CO2 + CH4 + N2O (t CO2-e/ha/yr)	-25.2

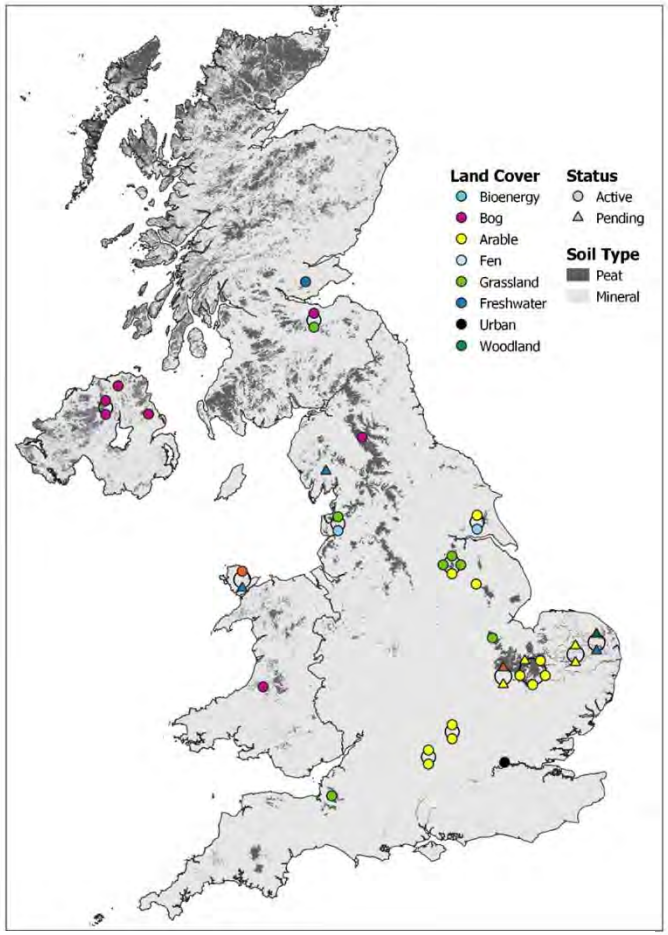


Downloadable at: https://www.iucn-uk-peatlandprogramme.org/peatland-code/introduction-peatland-code/projects

Continuing evidence needs

1) More targeted GHG flux measurements

- Due to the importance of cropland CO_2, many flux towers have been deployed in the lowlands
- Blanket bogs, near-natural fens and grasslands are under-represented (and no flux towers at all over woodland)
- As a result we still can't (e.g.) differentiate grass-dominated from heather-dominated bog, or raised bogs from blanket bogs
- We also need more paired before-after, control-intervention sites to robustly determine restoration outcomes

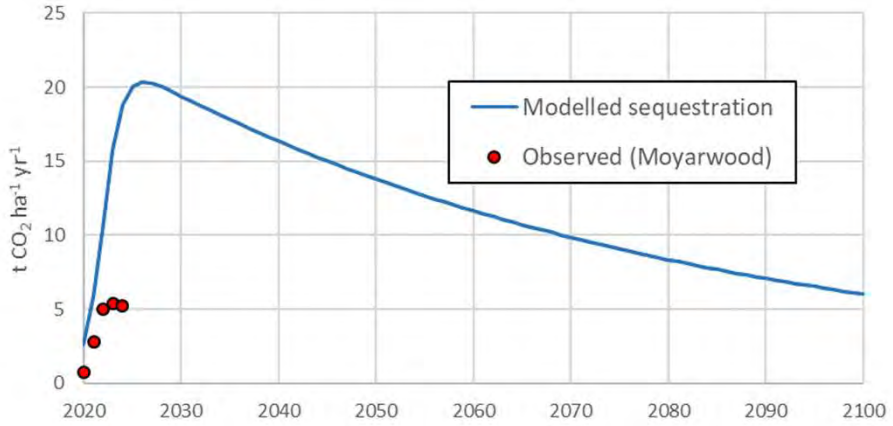


UKCEH-operated flux towers on peat and mineral soils

2) Capturing the potential for carbon capture

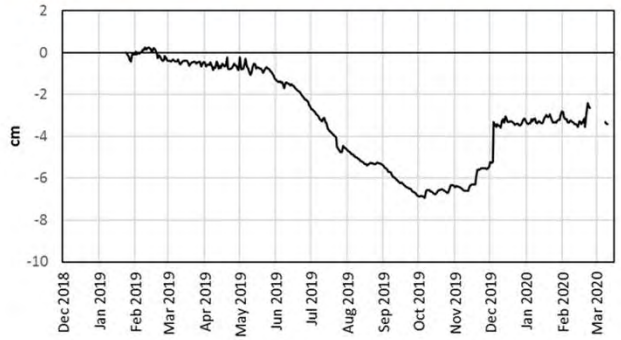
- Peatland Code essentially recognises GHG emission reductions, not GHG removals. This is for good reasons, but could it under-estimated the net benefits of successful restoration?
- Restoring peatlands could sequester CO_2 at above-natural rates as the system rebuilds
- Active 'carbon farming' (i.e. paludiculture with carbon as the 'product') could allow re-wetted peatlands to be managed for CCS

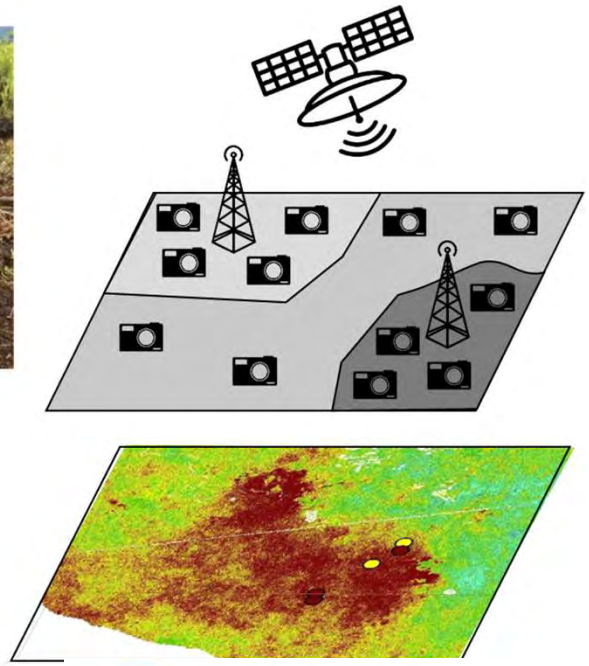
Simple model of CO_2 uptake at a restored former peat extraction site (+Miscanthus and biochar)



3) Monitoring, Reporting and Verification

- Any carbon finance scheme requires verification – and rules are being tightened
- Flux towers are too expensive for smaller projects, and standard carbon stock monitoring doesn't work for peatlands
- Monitoring peat motion and linking this to satellite data offers an effective lower-cost option





Integrated network of highly instrumented sites and low-cost sensor networks

Full spatial coverage satellite-based MRV

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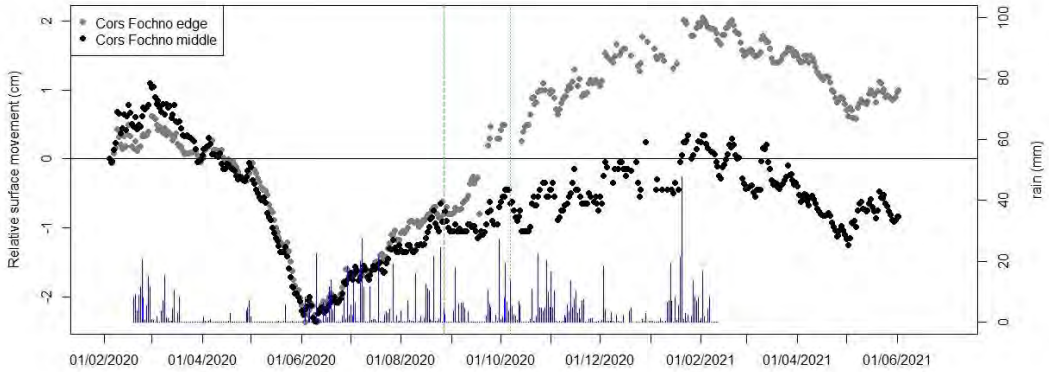
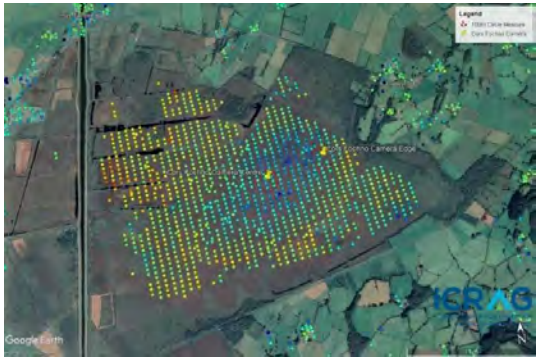
3) Monitoring, Reporting and Verification

England peat camera network





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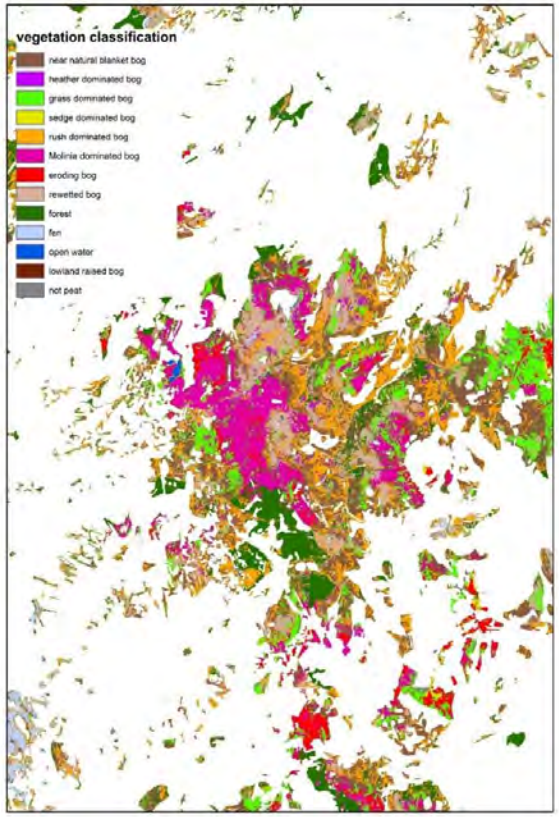
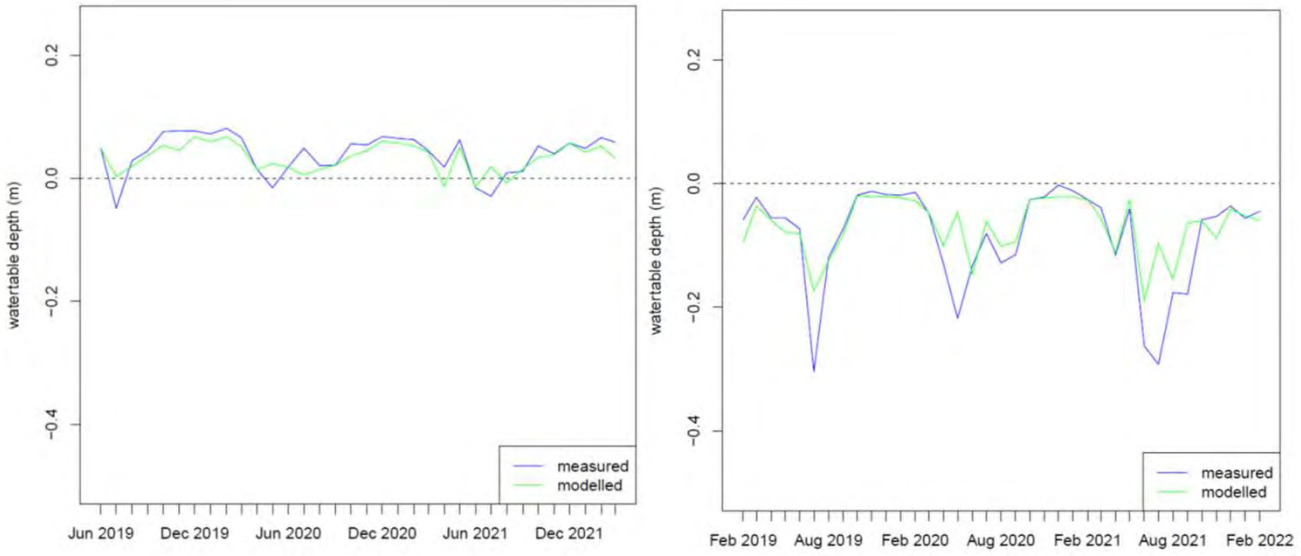
3) Monitoring, Reporting and Verification

Direct mapping of peat categories



Sentinel 1 based peat classification, N Wales (Jenny Williamson et al, 2021)

Satellite measurement of key functional properties



Preliminary modelling of water table depth from Sentinel 1 radar, Cors Caron (Jenny Williamson and Nye O'Neill, unpublished)

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Get in Touch

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PEATLAND CODE

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Peatland Programme

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