European Commission

# Peatland restoration

## Just Transition Platform Meeting: Coal Regions in Transition virtual week and Carbon-intensive regions seminars

*11 May 2022*

# LIFE Peat Restore & LIFE Multi Peat

## Restoration of northern-European peatlands

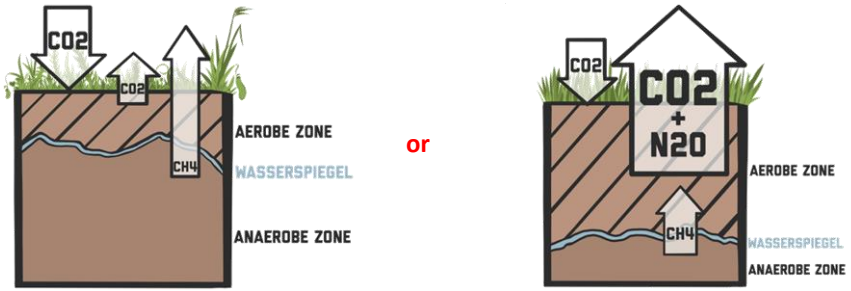
**5th Just Transition Platform Meeting**

**11/05/2022**

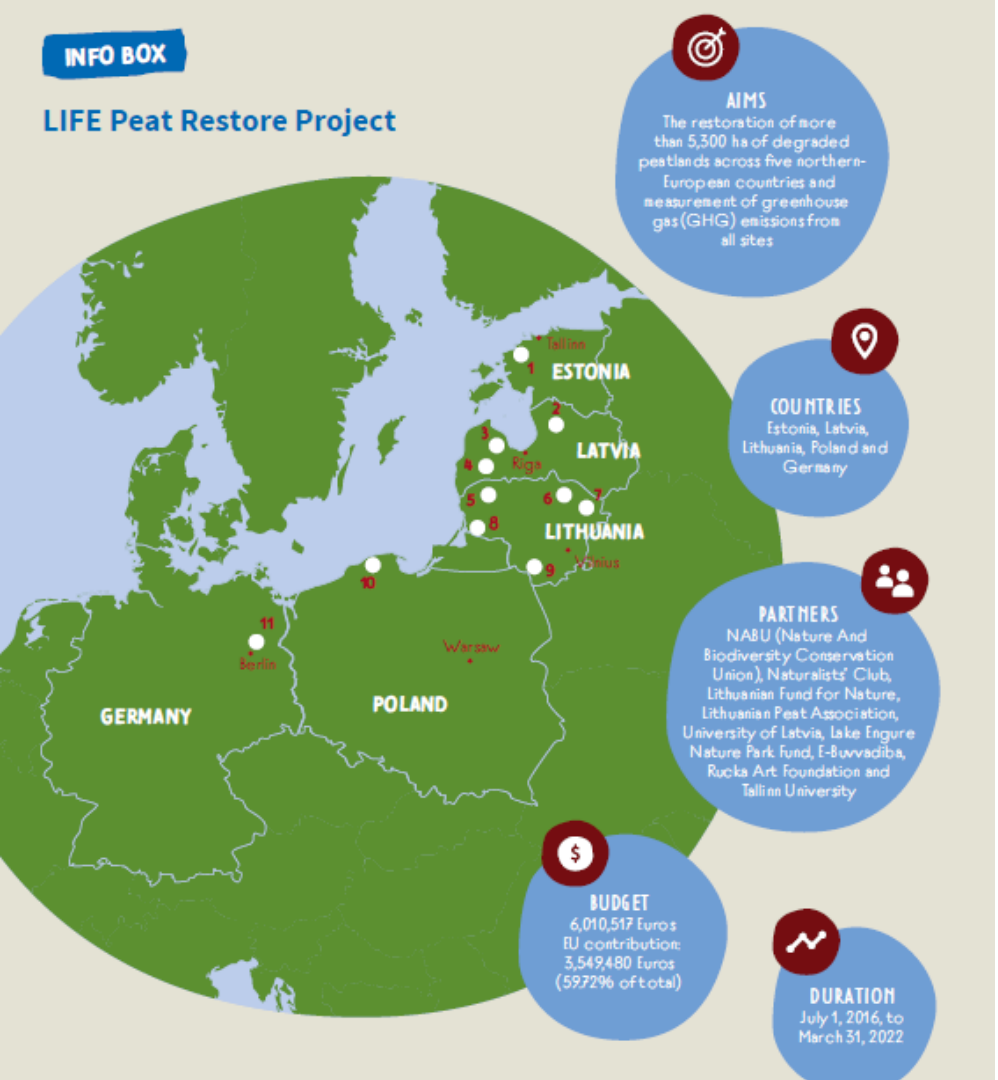
**Letícia Jurema**

# SOURCE OR SINK?

**10 % of the drained/degraded peatland**
**(0,3 % of the terrestrial surface)**
**=**
**5 To 7 % of the global GHG emissions (IPCC August 2019)**




**How we treat our peatlands is of global importance!**




# Main actions

**Data collection and monitoring**
Water level, vegetation cover & GHG emissions

Monitoring techniques: Direct chamber measurement & GEST-estimate approach

**Restoration**
5,300 ha of degraded peatlands restored
Ca. 30% GWP reduction from all sites

**Communication**
Dissemination & awareness raising
Knowledge exchange & collaboration

peat restore

NABU

TALLINN UNIVERSITY

LITHUANIAN FUND FOR NATURE

LATVIJAS UNIVERSITĀTE
ANNO 1919
UNIVERSITY OF LATVIA

KLUB PRZYRODNIKÓW

LIETUVIŠKOS DURPĖS
DURPIŲ ĮMONIŲ ASOCIACIJA

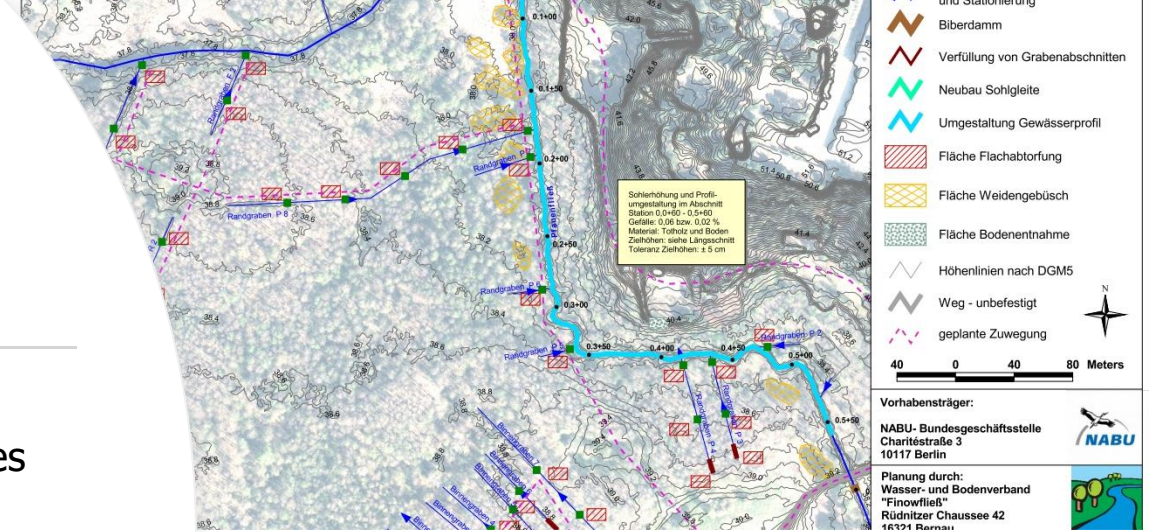
ENGURES EZERA DABAS PARKA FONDS

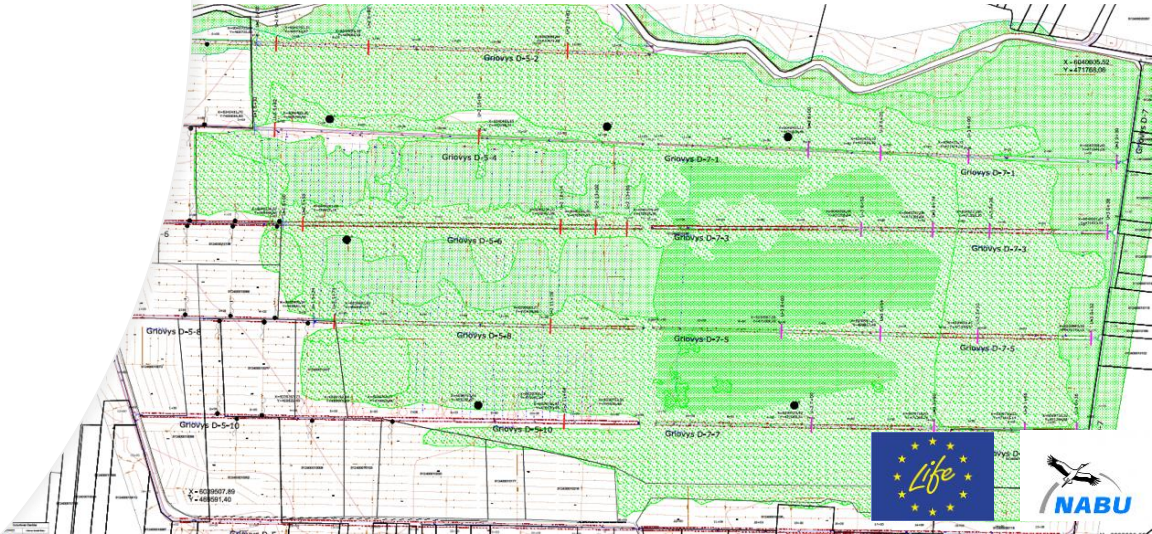
NATURA 2000

Life

# Planning stage

- Elaboration of Management and Restoration Plans for the project sites
- Signing of agreements with stakeholders, incl. Local authorities
- Elaboration of Technical designs for the implementation of restoration actions
- Hydro-geological modelling
- Vegetation and hydrological monitoring
- Tendering procedure




# Restoration measures

**Rewetting**:

Trench backfilling and dam construction

Using different material (e.g., peat, plastic, woody biomass, etc.)

**Removal of woody plants:**
To improve the peatland water balance

**Main challenges:**

- Local acceptance (e.g., tree removal, flooding)
- Overall planning and approval procedure

# Sites in Lithuania

**Raised bogs, bog woodlands and industrially exploited bogs** (NATURA 2000 sites)

1. Amalvas (215 ha)
2. Plinkšiai (69 ha)
3. Sachara (88 ha)
4. Puščia (80 ha)
5. Aukštumala (10 ha)

**Main challenges:**

- Collaboration with State Forestry Dpt.
- Restoration of heavily degraded areas, i.e., bare peat
- Susceptibility to weather conditions

## Site in Estonia

**Fens, forested fens and transitional mires** (NATURA 2000 & SPA)

Suursoo-Leidissoo site (3300 ha)

**Main challenges:**

- Nature conservation conflicts – protected species versus ecosystem restoration

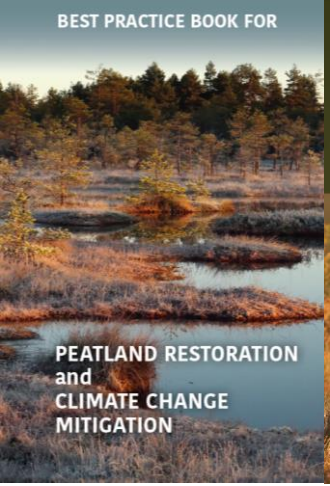
# Site in Poland

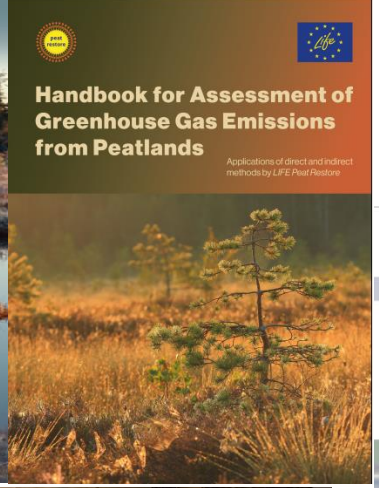
**Raised bogs, bog woodlands and industrially exploited bogs** (SAC, SPA, National Park & part of Słowiński Biosphere Reserve)

Slowinski National Park (1350 ha)

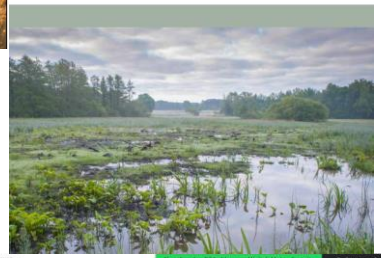
**Main challenges:**

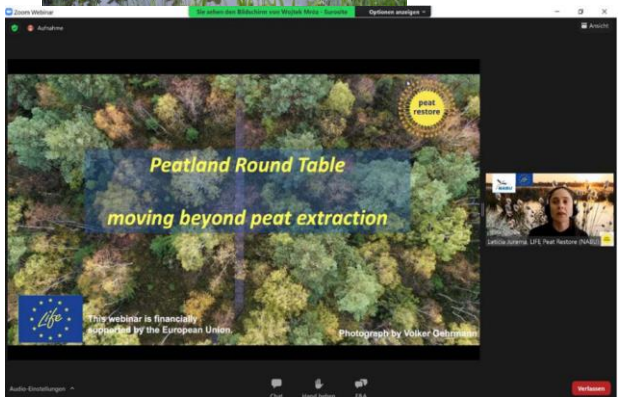
- Planning / Bureaucracy
- Local acceptance










# Main project outcomes

- **5.300 ha restored** peatlands = ca. 30% reduction of carbon emissions
- **Impact on stakeholders** – national forest agencies, national park agencies, local political authorities, local residents, etc.
- **Capacity building** of restoration companies
- Lasting **collaboration** with peatland projects and organisations

[LIFE Peat Restore - Publications (life-peat-restore.eu)](https://life-peat-restore.eu/publications/)

## Main challenges

1. **Planning:**
    1. Overcoming bureaucracy, getting all approvals
    2. Getting consent from neighbouring lands
2. **Restoration:**
    1. Vulnerability to weather conditions (e.g., droughts)
    2. Conflicts of biodiversity goals of protected area
3. **Communication**
    1. Collaboration – find synergies, avoid reinventing the wheel
4. **Policy**
    1. Farmers/Private landowners motivation – multi-use peatland landscape (i.e., make rewetting and productive activities compatible)

# Lessons learned

- **Collaboration & Communication is key** – sharing experience with stakeholders and policy makers

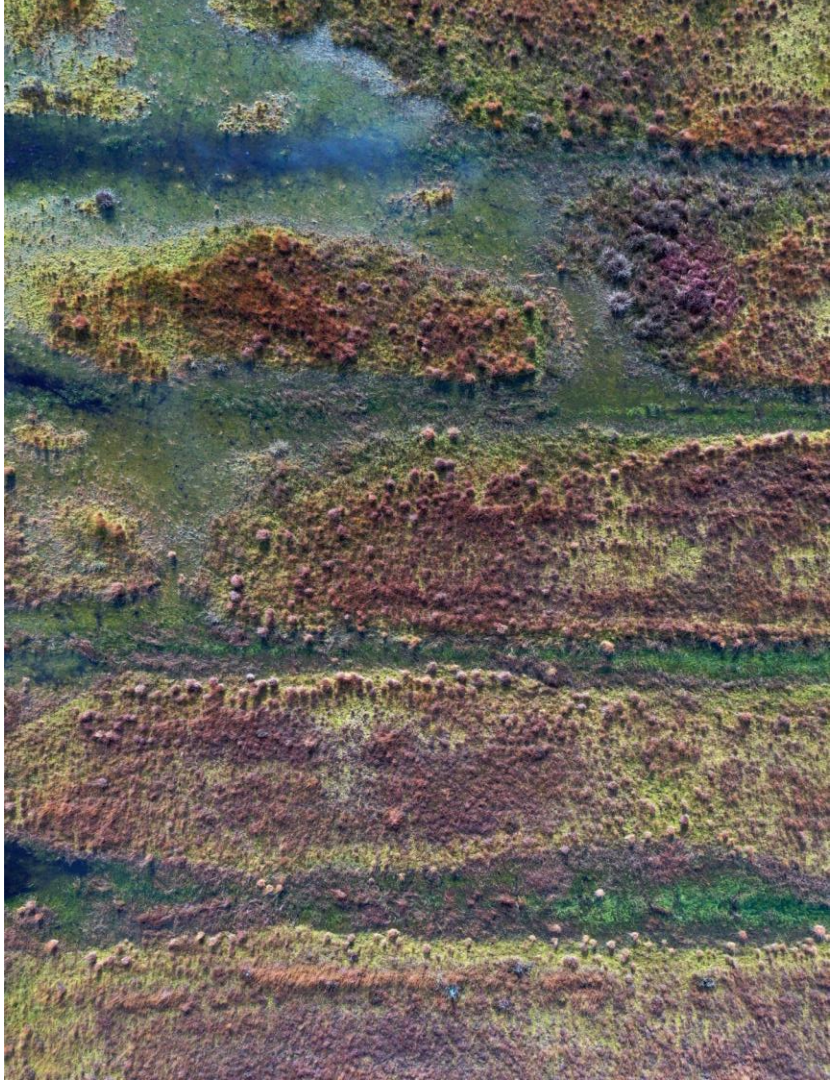
- **Full stakeholder agreements** prior to implementation

- **Account for the bureaucracy** of restoration planning
  - **TLU:** *Important to allocate sufficient time to finish preparatory activities…Project duration should be longer (6-7 years)*
  - **UL:** *Elaboration of Technical designs and Management Plans can be time consuming, due to legal requirements, e.g. hydrological studies and hydro-geological modelling*

- **Updating National Legislations** needed
  - In EE prohibited to raise water level in Protected Areas

- **Long-term monitoring** after restoration measures required - Peatland restoration effect takes several decades

➢ To reach carbon neutrality aim, **we must restore globally 50,000,000 ha of degraded peatlands until 2050.**
  - **EU:** 15,000,000 ha (500,000 ha per year)



# LIFE Multi Peat

**PROJECT LOCATION:**

Poland, Germany, Netherlands, Belgium and Ireland

**BUDGET:** 7.763.615€

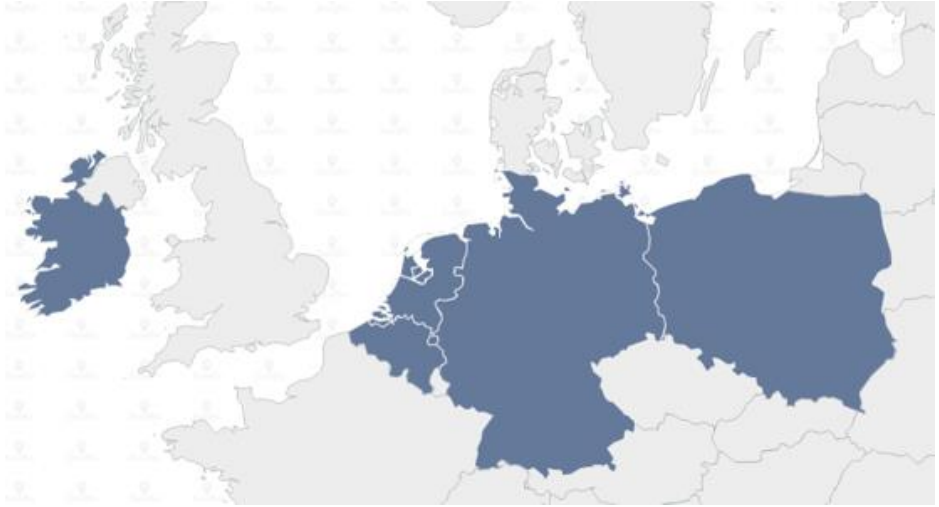
**DURATION:** 1/10/2021 - 30/09/2026

**COORDINATING BENEFICIARY:**

1. NABU (Nature And Biodiversity Conservation Union)

**ASSOCIATED BENEFICIARIES:**

2. Natuurpunt
3. National University of Galway, Ireland
4. Natuurmonumenten
5. Eurosite
6. Klub Przyrodników
7. OTOP (Ogólnopolskie Towarzystwo Ochrony Ptaków)



**Project highlights**

**Restoration of 689h ha of degraded peatlands**

- Restoring agriculturally used peatlands - causing the most GHG emission

**Develop an EU-wide toolkit to catalogue peatland projects, policies and data**

- Improving communication and collaboration
- Improving evidence-based policy

**Assess the climate impact of the restoration measures**

- By quantifying the GHG emissions calculating the current annual GHG budgets and potential savings in the future

**Establish paludiculture solutions in BE and DE**

**Verify the potential for creation of carbon credits**

# Thank you

This project has received funding from the European Union's LIFE Programme under Grant Agreement No. LIFE19 IPC/IE/000007 (LIFE IP Peatlands and People). This output reflects only the author's view; the European Climate, Infrastructure and Environment Executive Agency (CINEA) and the European Commission cannot be held responsible for any use that may be made of the information contained therein.

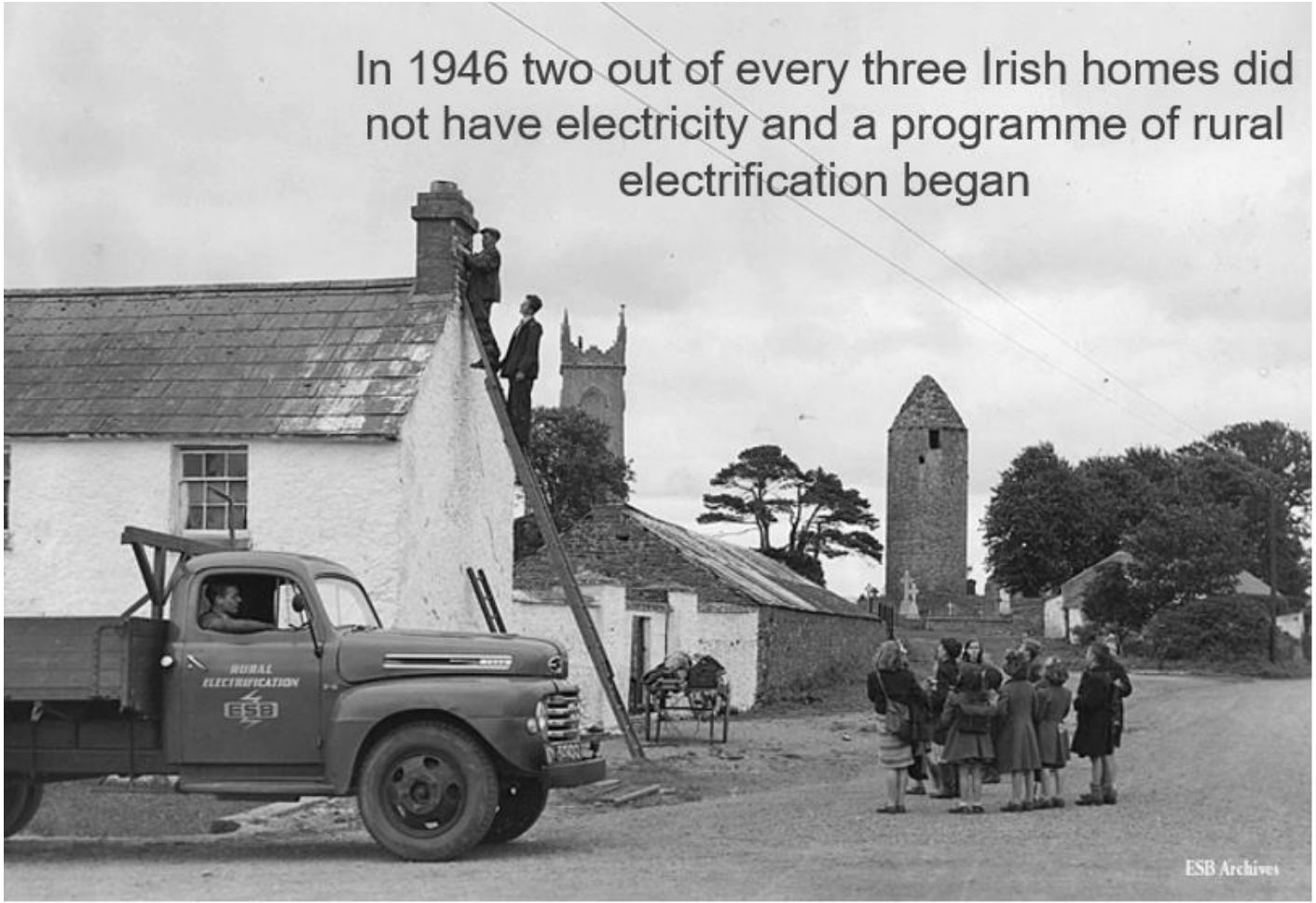
# Peatlands Rehabilitation

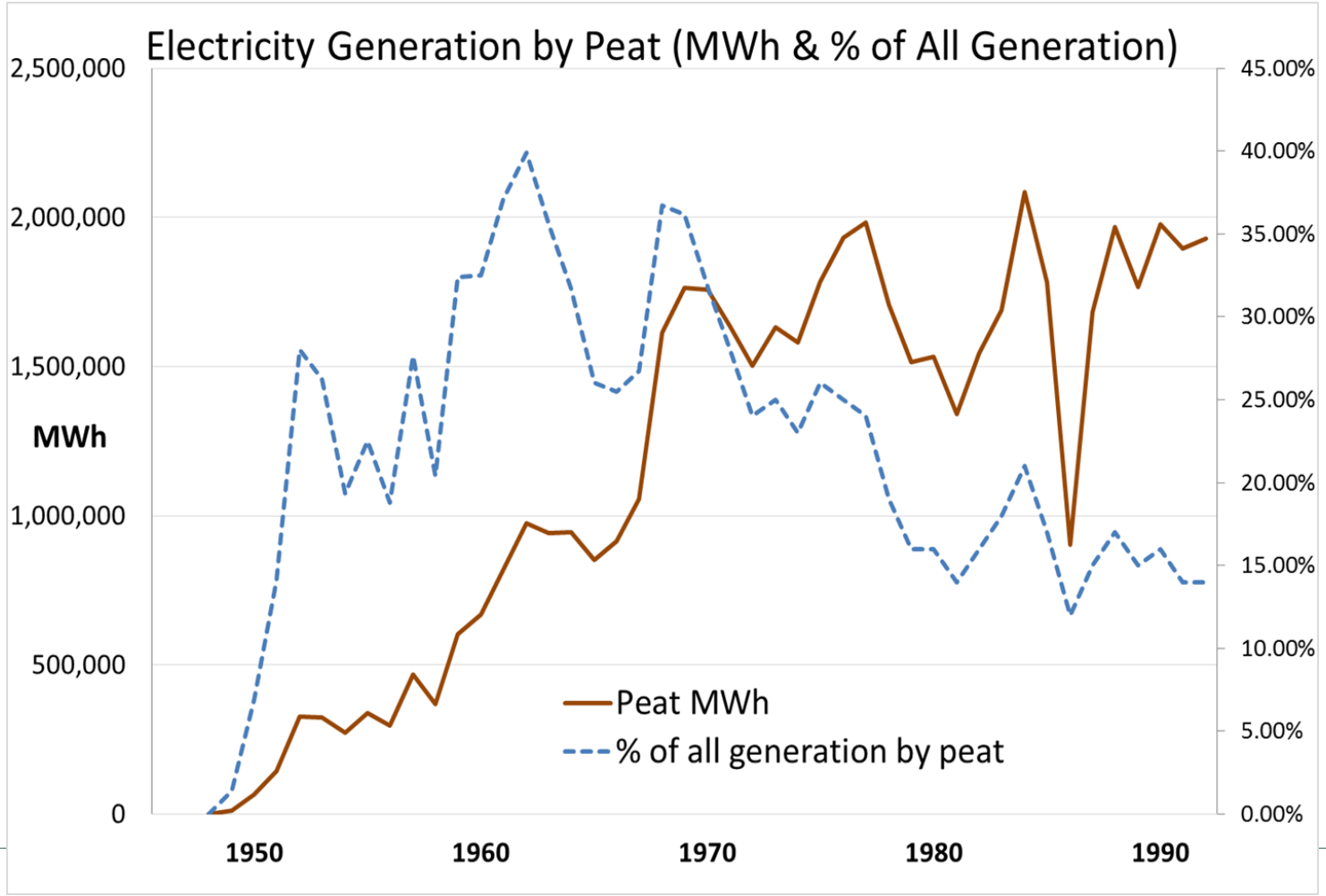
Dr John MacNamara

May 2022

Bord na Móna
www.peatlandsandpeople.ie

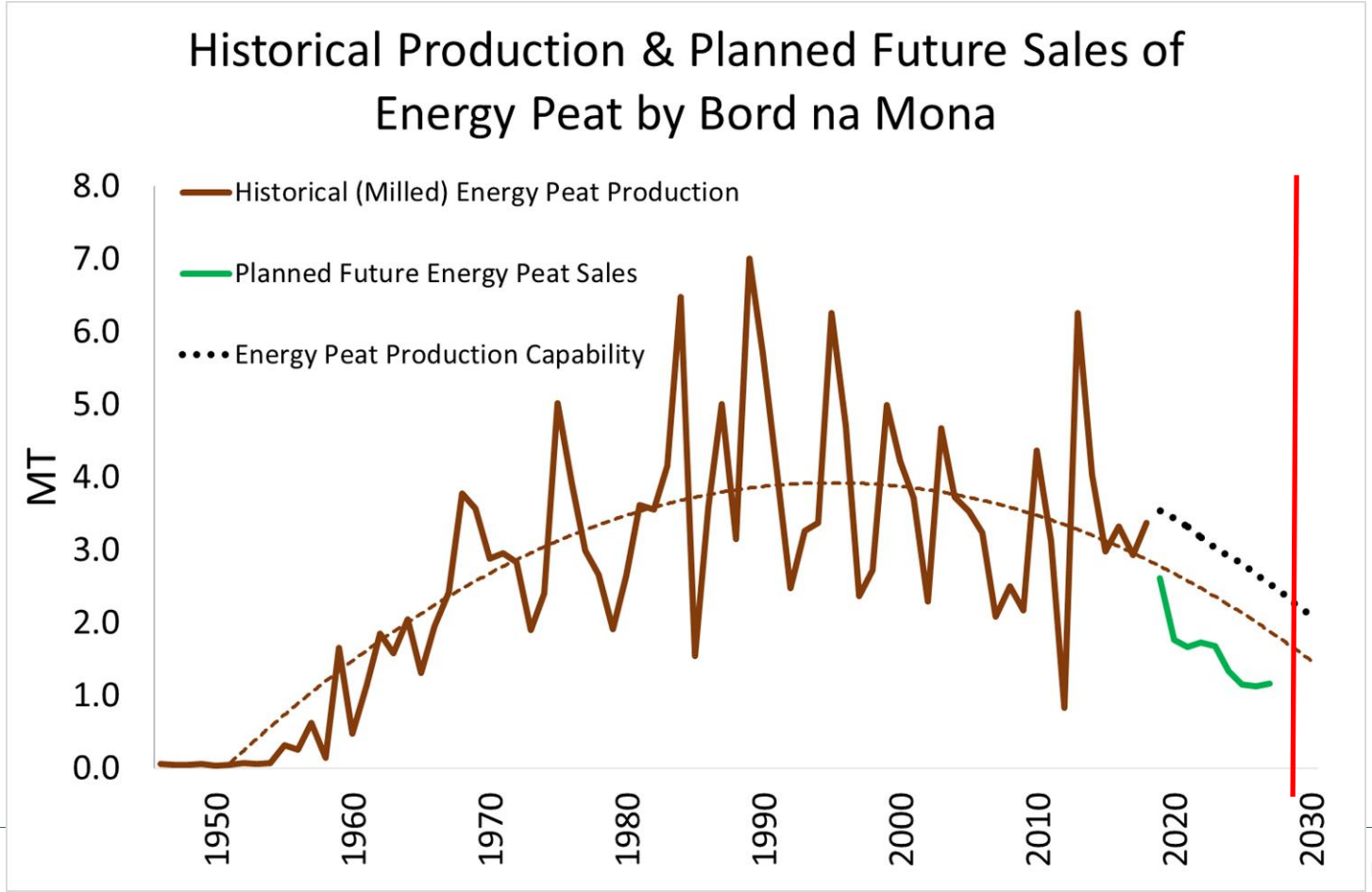
# Historical Perspective & Recent Background


In 1946 two out of every three Irish homes did not have electricity and a programme of rural electrification began
RURAL ELECTRIFICATION
ESB
ESB Archives


Electricity Generation by Peat (MWh & % of All Generation)
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
MWh
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1950
1960
1970
1980
1990
Peat MWh
% of all generation by peat

# Bord na Móna focused on the production of energy peat for electricity generation

# In 2018, an orderly exit from peat was still ”Plan A”



# Recent Background, post 2018

- Presented the Bord na Móna & Irish Midlands ‘peat harvesting’ story to the **Initiative for Coal Regions in Transition** in November 2018
- Continued engagement with **Just Transition Platform** and the expanded initiative covering peat, lignite & oil shale
- Parallel work ongoing in the Irish Midlands
  - with support from the EU LIFE Integrated Projects Peatlands & People (LIFE P&P)
  - and the Enhanced Decommission, Rehabilitation and Restoration Scheme (EDRRS)

# PEATLANDS AND PEOPLE

Bord na Móna

ERINN INNOVATION

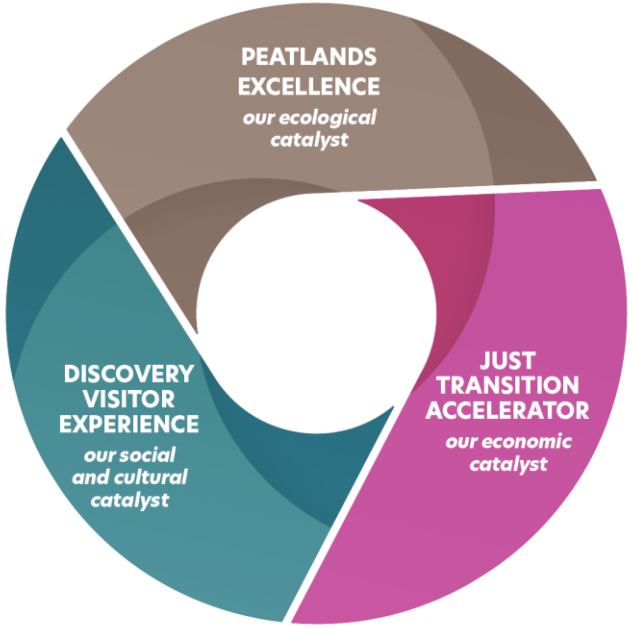
NUI Galway
OÉ Gaillimh

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

epa
Environmental Protection Agency

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

*co-financer

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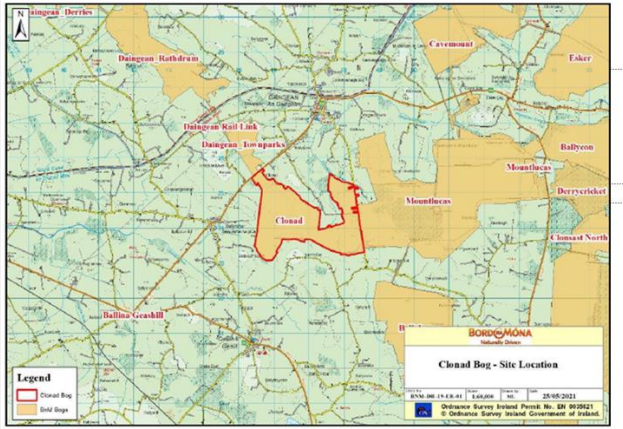
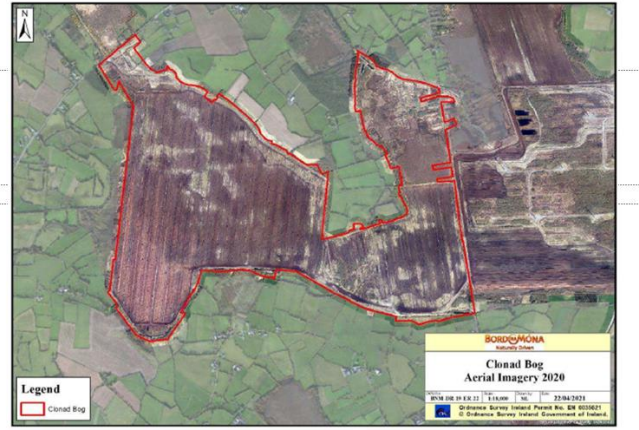
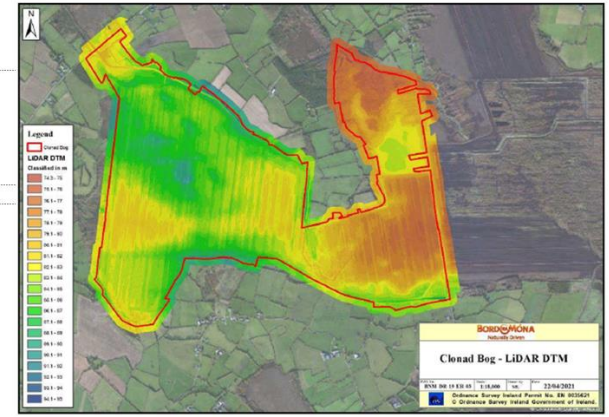
# Discussion Points

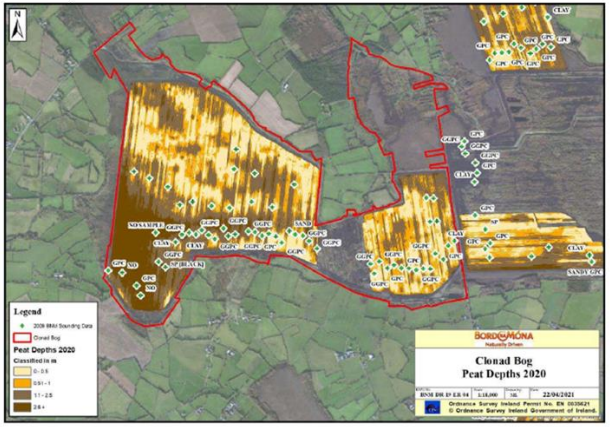
- **Challenges**
  - Planning and design of the proposed ‘improvements’
- Implementation
  - Staff training and retraining
- Monitoring and Data Analysis
  - Large volume of data across different disciplines and timescales
- Climate Action – accommodating ‘Win-Win’ outcomes
  - Restoration of peatlands with co-located RES-E infrastructure

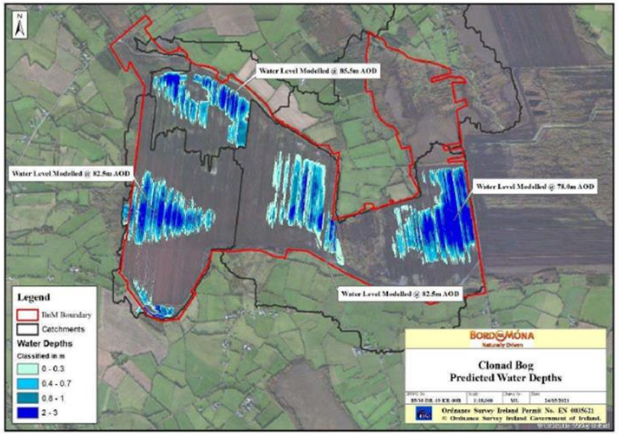
# Planning and design of the proposed ‘improvements’

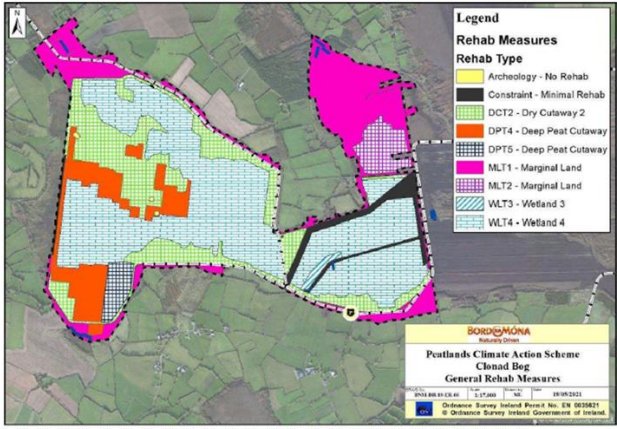


# Discussion Points

- Challenges
  - Planning and design of the proposed ‘improvements’
- **Implementation**
  - Staff training and retraining
- Monitoring and Data Analysis
  - Large volume of data across different disciplines and timescales
- Climate Action – accommodating ‘Win-Win’ outcomes
  - Restoration of peatlands with co-located RES-E infrastructure

# Implementation - Staff training and retraining

Summer 2018

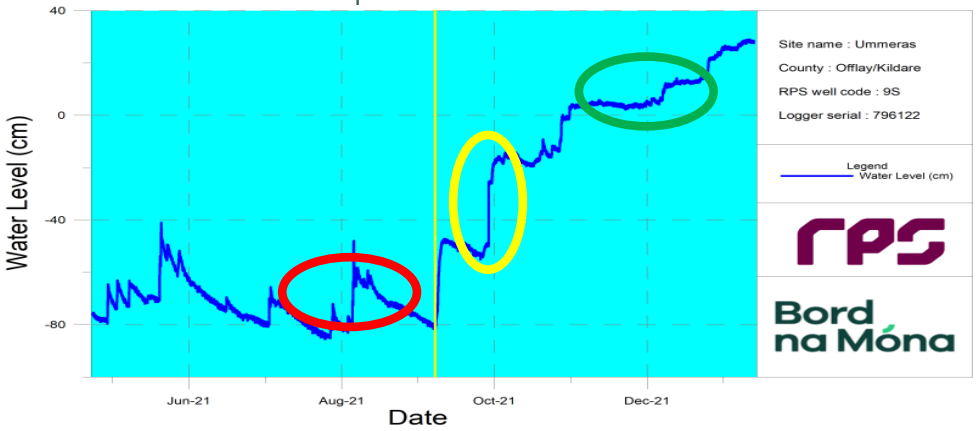
Summer 2021

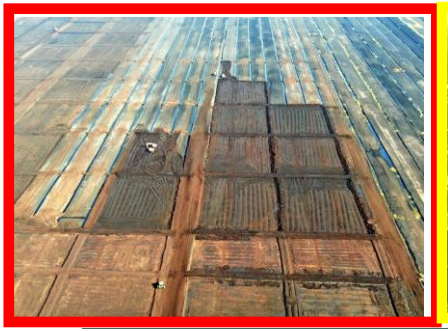
# Discussion Points

- Challenges
  - Planning and design of the proposed ‘improvements’
- Implementation
  - Staff training and retraining
- **Monitoring and Data Analysis**
  - Large volume of data across different disciplines and timescales
- Climate Action – accommodating ‘Win-Win’ outcomes
  - Restoration of peatlands with co-located RES-E infrastructure

# Monitoring & Data Analysis

## Hydrological



## Atmospheric

# Discussion Points

- Challenges
  - Planning and design of the proposed ‘improvements’
- Implementation
  - Staff training and retraining
- Monitoring and Data Analysis
  - Large volume of data across different disciplines and timescales
- **Climate Action – accommodating ‘Win-Win’ outcomes**
  - Restoration of peatlands with co-located RES-E infrastructure

# Rehabilitation of Peatlands with co-located RES-E infrastructure

# Thank You

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PEATLANDS AND PEOPLE

Dabas aizsardzības pārvalde

# Sustainable and responsible management of degraded peatlands. LIFE REstore project's experience (Latvia).

**Andris Širovs** (*M. biol, M. iur.*)
Nature Conservation Agency of Latvia
Deputy Director – General
andris.sirovs@daba.gov.lv

11/05/2022

Dabas aizsardzības pārvalde

# About the project

- Name «Sustainable and responsible management and re-use of degraded peatlands in Latvia» (LIFE REstore).
- Leading partner: Nature Conservation Agency.
- Total budget of the project was EUR 1 828 318.
- Project was implemented in Latvia from September 1, 2015 to August 31, 2019.
- First project in Latvia from «LIFE Climate Change Mitigation and Adaptation» program.

Dabas aizsardzības pārvalde

## Main target

Tool for planning the future use of **degraded peatlands**, by taking into consideration:

- the restoration of biodiversity,
- economic potential and
- GHG emission reductions to mitigate the long-term effects of climate change.

Nature
Conservation Agency
Republic of Latvia

**LIFE REstore**
**Project has set out the following objectives:**

1) to perform an inventory and develop a database of the degraded peatlands in Latvia;
2) to approbate a field measurement based methodology for accounting of the GHG emissions from managed wetlands in Latvia in accordance with the supplement to the IPCC guidelines;
3) to develop a decision support tool for land re-use planning of degraded peatland areas, providing the most optimal balance of the aspects of ecological restoration for biodiversity, benefits for economic growth and GHG emission reduction for long-term mitigation of negative climate change impacts in Latvia;
4) to support policy-makers by providing a strategic framework for the implementation of the developed approaches of sustainable re-use of degraded peatlands for integration into the National PEAT Strategy.

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# Key challenges

Based on LIFE REstore project's experience, key challenges were:

- To provide improved data for accounting GHG emissions from managed wetlands, particularly, to evaluate status of peat extraction sites to avoid double accounting of emissions from soil;
- Measurements of GHG emissions in peatlands across different land uses – the basis for improved national GHG inventory;
- Development and approbation of recommendations for sustainable management of degraded peatlands;
- Cooperation between the Nature Conservation Agency, experts and entrepreneurs in the peat sector, as well as leading scientists on all sides, contributed to an in-depth understanding of the interactions between nature conservation, climate change and economic development.
- Integration of ecosystems services approach in management plans of protected territories.

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# Tackling the challenges

1) **Improved data for accounting GHG emissions from managed wetlands**: GHG ($CO_2$, $CH_4$, $N_2O$) measurements in 41 places covering 13 different land uses for 2 years:

| | |
|---|---|
| **- Peat extraction site,**<br>**- Abandoned peat extraction site with ground vegetation,**<br>**- Cropland – cereals, corn,**<br>**- Pine forest,**<br>**- Raised bog,**<br>**- Blueberries,**<br>**- Demo site** | **- Abandoned peat extraction site – bare peat,**<br>**- Perennial grassland,**<br>**- Cropland – legumes,**<br>**- Birch forest,**<br>**- Transitional mire,**<br>**- Cranberries.** |

Dabas aizsardzības pārvalde

# Sampling methods

Manual closed chamber method;

5 replicates in sample plot;

2 years - once a month.

*In total*: More than 19 000 samples of GHG were collected.

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# Tackling the challenges II

**2) Recommendations for sustainable management of degraded peatlands** were based on:

- Inventory data of degraded peatlands;
- Data from GHG emission measurements;
- Ecosystem services provided in territory and
- Possible after-use types which are suitable for degraded peatlands:

| | |
|---|---|
| **- renaturalization,**<br>**- cultivation of paludiculture plants,**<br>**- cultivation of agricultural crops (cropland)**<br>**- cultivation of perennial grasslands** | **- afforestation**<br>**- establishment of water bodies,**<br>**- cultivation of berries (large cranberries and highbush blueberries)** |

Dabas aizsardzības pārvalde

**Management activities of degraded peatlands were introduced and monitored in project areas:**

| Territory / scenarious | Area (ha) |
|---|---|
| Ķemeri Mire / Renaturalization (planting of Sphagnum mosses) | 0,46 |
| Kaigu Mire / Highbush blueberry plantations | 4,2 |
| Kaigu Mire / Afforestation | 9,45 |
| Lauga Mire Nature Reserve / Renaturalization (rewetting) | 309 |
| Kaudzīšu Mire / Large cranberry plantations | 3,4 |
| **Total:** | **326,51** |

Dabas aizsardzības pārvalde

Planting of *Sphagnum* mosses in Ķemeri NP

Building of innovative peat damb in Lauga Mire for stabilization of hydrological regime in nature reserve

Dabas aizsardzības pārvalde

## Tackling the challenges III

**3) Cooperation between stakeholders**: different stakeholders were involved in project activities as project partners

Dabas aizsardzības pārvalde

*Nature Conservation Agency*

Latvijas Kūdras asociācija

*Latvian Peat Association*

BALTIJAS KRASTI

*Association «Baltic Coasts»*

SILAVA

*Latvian State Forest Institute "Silava"*

Dabas aizsardzības pārvalde

# Outcomes

- About 18 000 ha abundant degraded peatland with no management activities in Latvia;
- Measured soil $CO_2$ emissions is up to 2 times smaller than in IPCC 2014 guidelines. $CH_4$ emissions shows opposite trend;
- “The worst land use scenario” for degraded peatlands are cultivation of croplands;
- Afforestation and berry cultivation – as a potential to reduce GHG emissions and even to become C sink if managed properly;
- Project results are introduced in «Latvian Peat Strategy» (according to optimization models of degraded peatlands) as well as in the national accounting system of GHG emissions.

Dabas aizsardzības pārvalde

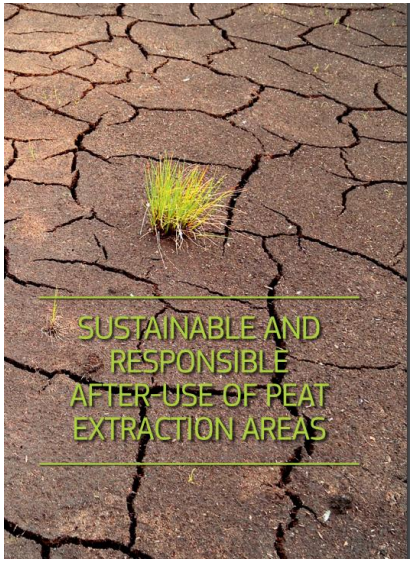
# More information

Project's «Sustainable and responsible management and re-use of degraded peatlands in Latvia» web page:

https://restore.daba.gov.lv/public/eng/

Project's book in English available:

https://restore.daba.gov.lv/public/eng/activities_and_deliverables/manual_sustainable_and_responsible_after_use_of_peat_exctraction_areas/




Thank you for
your attention!


Kuva: Sami Säily /

METSÄHALLITUS
FORSTSTYRELSEN
MEAHCIRÁÐÐEHUS

# Hydrology LIFE

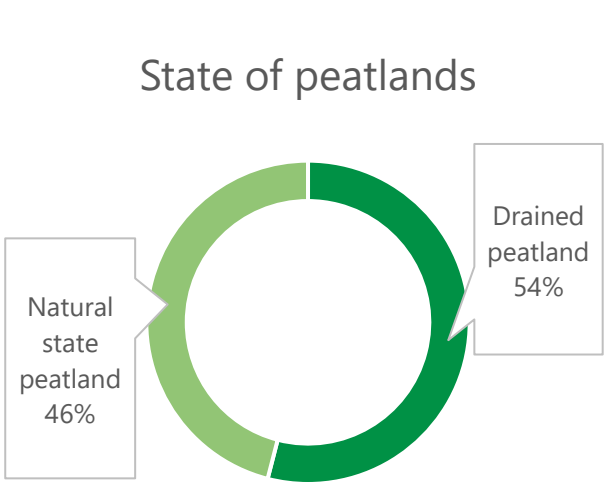
Conservation of Peatlands and Small water bodies in Finland 2017-2023

Project Manager
Eerika Tapio (Eerika.m.tapio(at)metsa.fi)

Hydrologia-LIFE

# (Finnish) Mires under extensive exploitation

**Mire area 10 M ha → 8,7 M ha**




**Percentages of drained peatlands of all peatlands**

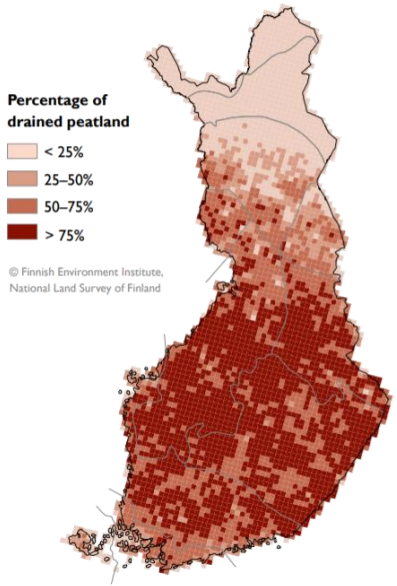
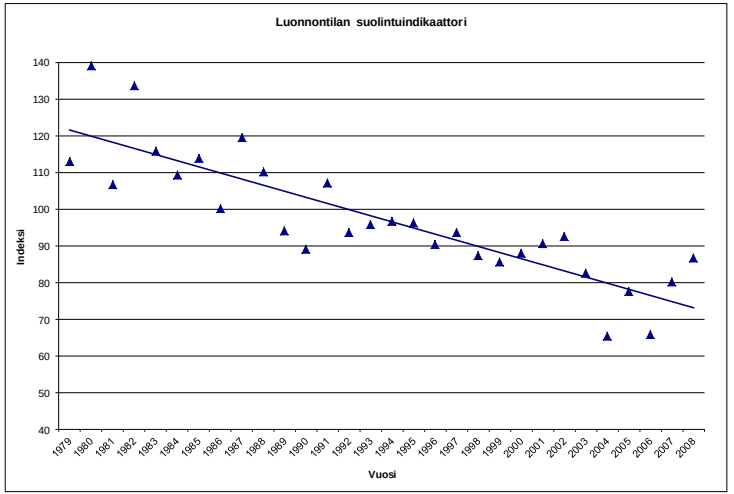
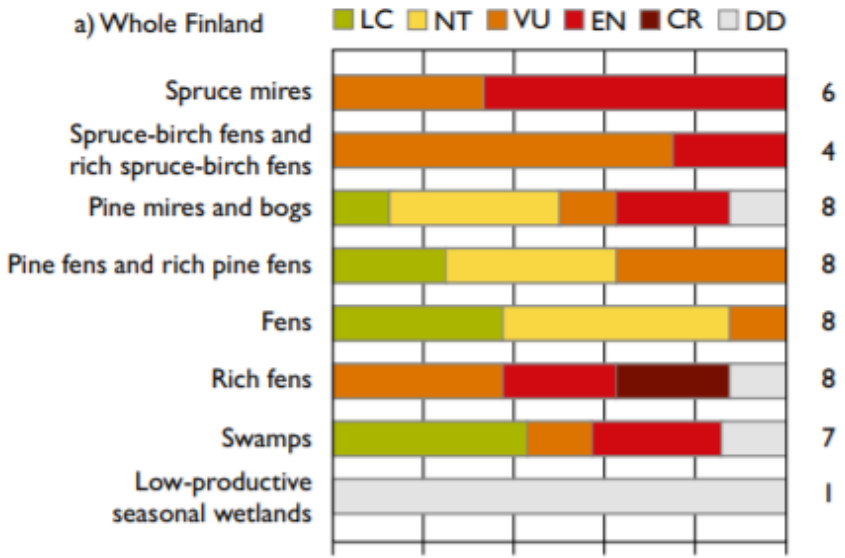


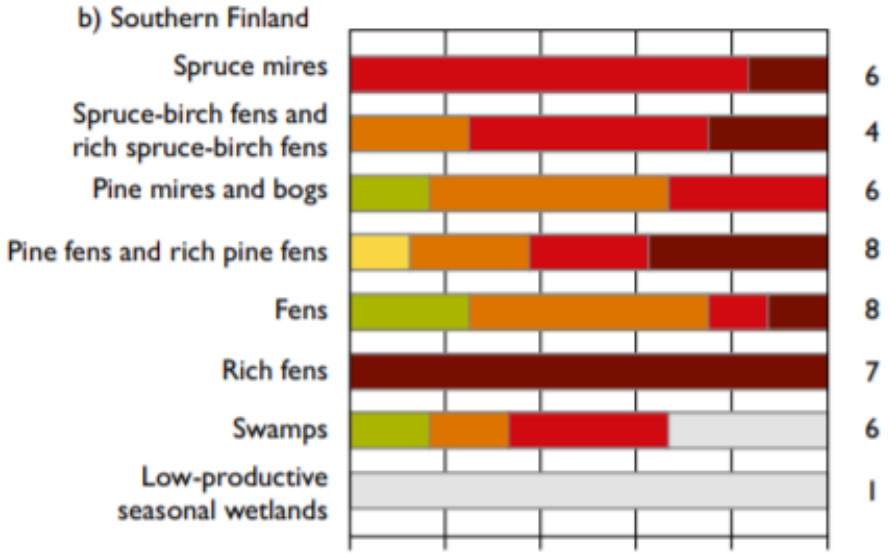

Figure 4.33. Percentages of drained peatlands of all peatlands in the EEA 10 x 10 km² reference grid (EEA reference grid 2018).

**Decline of birds in mire habitats**

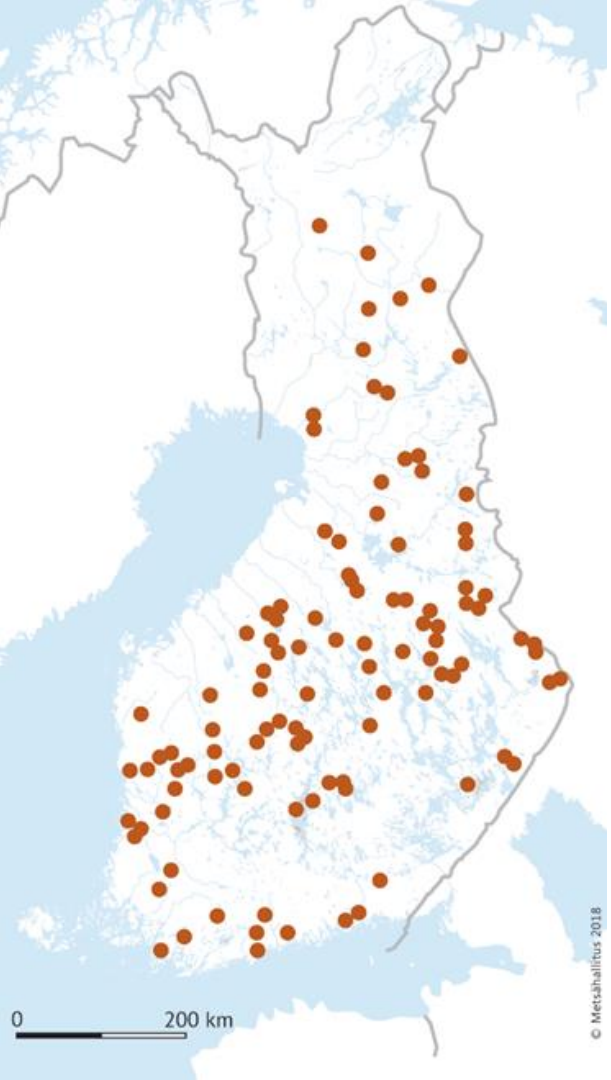


**Every ninth species in Finland is threatened -** highest proportion can be found among birds and bryophytes (mosses).



**Hydrology LIFE is one of the most important and effective project for improving the status of peatlands and headwaters in Europe!**




# Large and diverse Hydrology LIFE project (2017-2023) safeguards peatlands, small water bodies and bird lakes

**103**

**N2000 sites**

**~170**

**Professionals working**

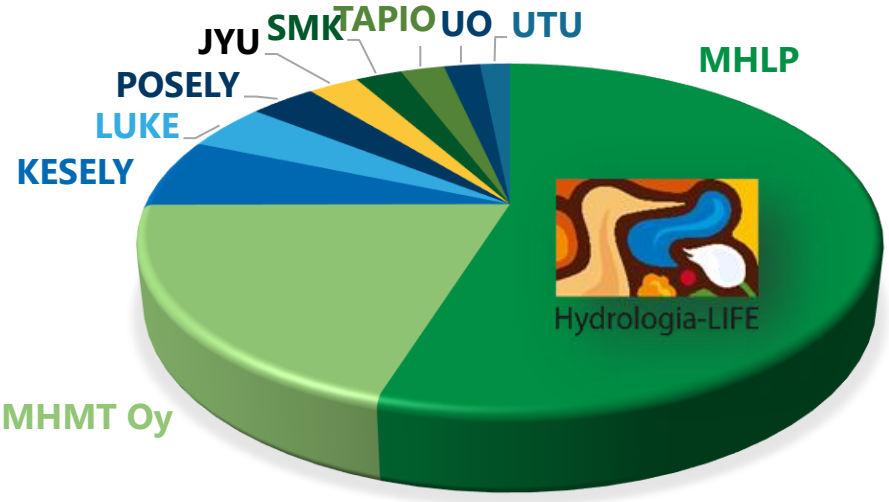
**6600 ha**
**Improved habitats**

# Effectivity arises from wide-range cooperation

**8,9 M€ budget**

**9 partners**

**35 actions**

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finnish forest centre
TAPIO
Luke
JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ
UNIVERSITY OF OULU
Turun yliopisto
University of Turku

# **Aims of the project –** Active conservation, restoration and management measures

**Improve the habitat quality (6600 hectare) of 11 valuable habitats**

**Improve water quality and flood risk management**

**Restore 34 km of degraded streams, Improving 14 small lakes and 4 bird lakes**

**Protect 150 hectare valuable peatlands**

**Provide invaluable data of the effects of the restoration**

**Raising awareness of the importance of wetlands and Natura 2000**

# Restoring over 5.200 hectares of mires across the Finland


18.5.2022

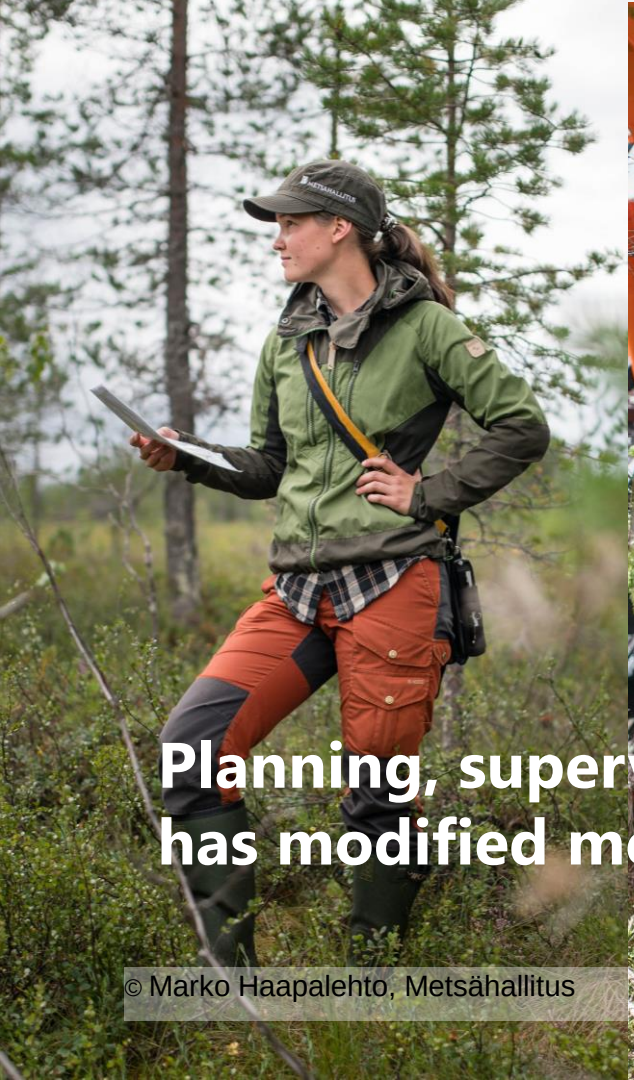
# Towards flourishing mires again – with traditional restoration



Autumn 2020

Winter 2020-2021

June 2021

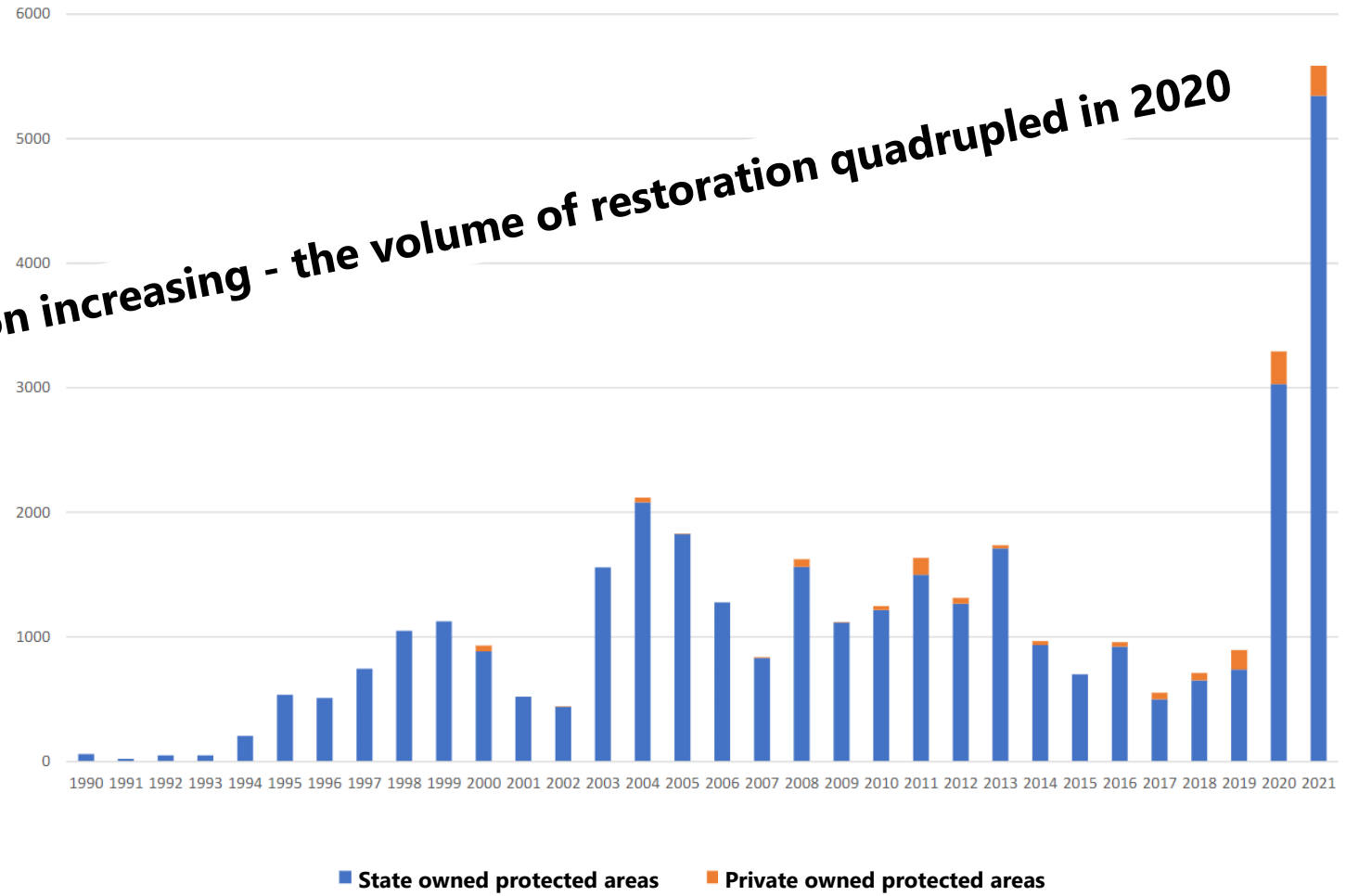


# Planning, supervision of work and each unique site has modified methods to fit the purpose

# And new opearating model for returning water to dried protected peatlands

# Mire restoration in protected areas ha/year, 1990-2021

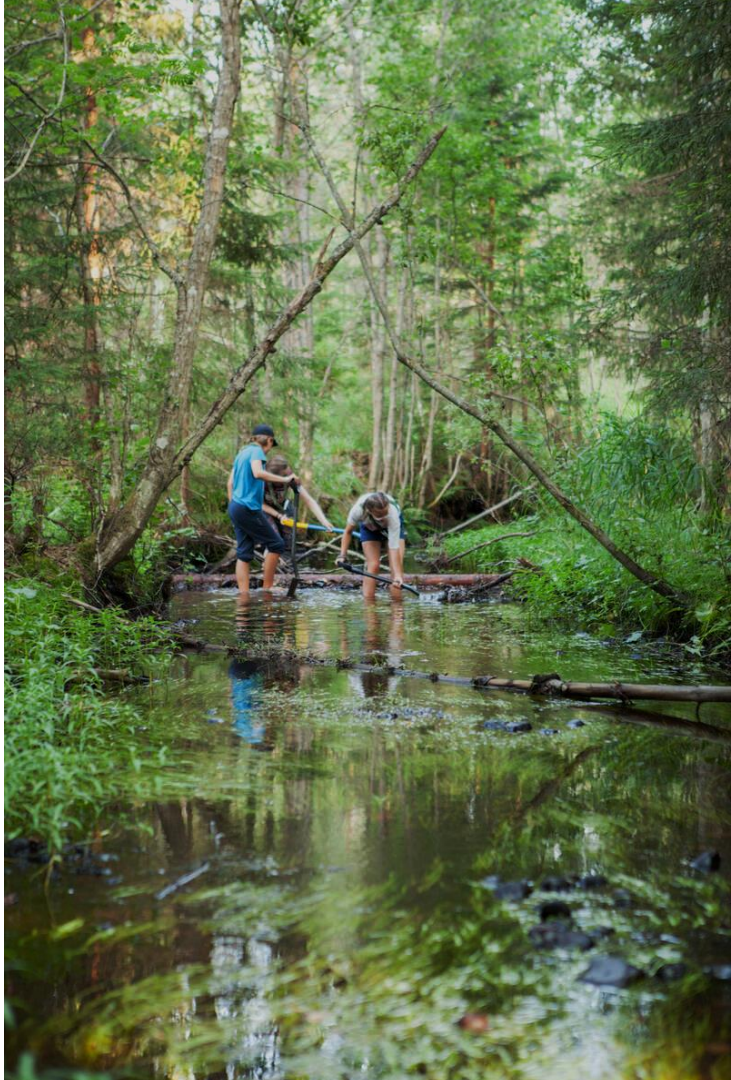
Mire restoration increasing - the volume of restoration quadrupled in 2020



# Helmi habitats programme aims to strengthen biodiversity

Through the programme, Finland is taking effective action on behalf of biodiversity:

- **Protecting 20,000 ha and restoring mires 12,000 ha.**
- Restoring aquatic bird habitats, wetlands and coastal areas.
- We are managing semi-natural grasslands.
- We are restoring forest habitats, such as herb-rich forests and sun-exposed esker forests.
- We are managing and restoring coastal and aquatic environments, such as sandy beaches.



**We need to utilize knowledge based solutions and work towards safeguarding ecosystem in responsible way.**
**Projects like Hydrology LIFE and Helmi – programme give tools for this.**
**We need more projects like Hydro and Helmi.**


# Learn more;

## Hydrology LIFE -project

**https://www.metsa.fi/en/project/hydrology-life/**

## HELMI habitats programme

**https://ym.fi/en/helmi-habitats-programme**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# Thank you

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