Peatlands' Re-wetting for the sake of biodiversity, climate, and communities

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The Polish Society for the Protection of Birds
(OTOP BirdLife Poland)

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Ogólnopolskie Towarzystwo Ochrony Ptaków (OTOP BirdLife Poland)

OTOP
was founded in 1991 with the aim of protecting wild birds and their habitats. Its activities include active conservation, bird monitoring, education (for children and adults), and advocacy for systemic changes to ensure effective conservation.

OTOP's reserves
BEKA Nature Reserve
Zajki, Mścichy, Szorce, Karsiborska Kępa OTOP's Social Reserve

Members, supporters, volunteers, and employees – the power of OTOP

- over 35,000 followers on Facebook
- over 2,000 members
- ca 600 volunteers
- over 50 employees

otop BirdLife Polska

OTOP-lead AW protection efforts

LIFE projects:

- Habitat mowing management in the reserves;
- Awareness raising, information, and communication;
- Translocation;
- International co-operation, etc.

Project: „Enhancement of the South-Eastern metapopulation of the Aquatic Warbler *Acrocephalus paludicola* in Poland”

- Species’ dispersion from its major settlements (including the restored and managed sites, e.g. Biebrza, Zvaniec, Poleski NP)
- Establishment of the stepping-stone corridors in the East of Poland
- Working out of the dedicated management regulations (13 sites selected)
- Restoring hydrological conditions for 3 sites through construction of 10 dykes (2 concrete + 8 wooden)
- Project’s total budget (POIiŚ programme): ca 540k €

Fundusze Europejskie Infrastruktura i Środowisko
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Unia Europejska Fundusz Spójności

Climate mitigation effect of re-wetting

- Peatlands are the most space-effective carbon store of all terrestrial ecosystems. (Joosten et al 2015)
- drained peatlands (0.3% of global land surface) are responsible for 2Gt CO_2 $year^{-1}$ (ca 5%) of the annual global anthropogenic CO_2 emissions.
- for comparison, climate mitigation potential of the global forests is estimated as high as 4Gt CO_2 yr^{-1} from avoided deforestation plus 1Gt CO_2 yr^{-1} from avoided forest degradation (Federici et al. 2015) .

Re-Wetting sites

Total ca 240 ha

Timeline:

- Preliminary activities (9 months): 07.2019 – 03.2020;
- Project design documents' development and obtaining all the necessary permissions and land-users' non-objections (11 months): 03.2020 – 02.2021:
  - informational card of the venture (KIP) – decision on the EIA necessity;
  - written agreements with landowners (direct and indirect impact);
  - concept of location;
  - construction/executive documentation;
  - permissions: water rights authorisation, water permit, construction permit, art.118, etc.;
  - training of the responsible staff.
- Procurement: EU competition principle;
- Construction works (9 months): 08.2021 – 04.2022

Project sites before…

…and after the works

Re-wetting and GHG emissions – related processes

- Drained peat oxigenation → carbon dioxid emission ↑;
- Re-wetting drained peat → carbon dioxid emission ↓;
- CO_2 sequestration & peat formation ↓,
- Emission of methane (‚methane peak') ↑

GHG balance of the degraded peatlands' re-wetting?????

Greenhouse Gases Emission Site Type (Couwenberg et al. 2011)

- Direct instrumental measurements of the GHG balance are complicated, long, and costly;
- Indirect measurement approach through vegetation dynamics (a water table indicator) → proxy method;
- Baseline field assessment, June 2021;
- Predicted GHG emission reduction report (Liashchynskaya et al. 2021)

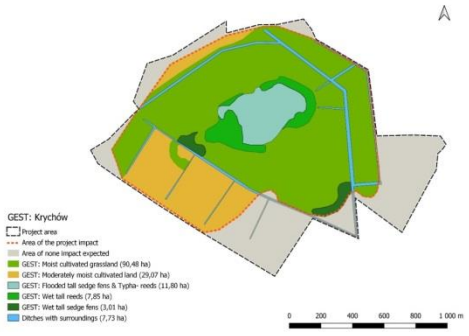
GEST exercise backstage

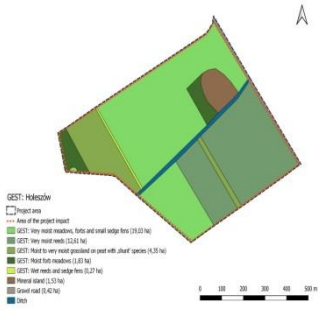
GHG Emission reduction prediction

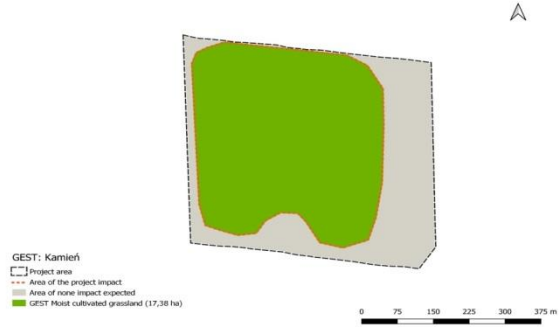
Table 1: Summary of preliminary emission reductions at planned rewetting sites

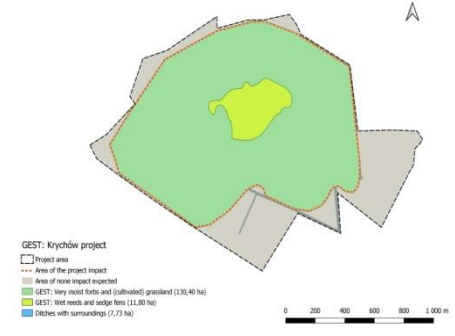
Site name	Total area, [ha]	Area of ER calculation, [ha]	Peatland type	Preliminary annual ER [t CO_2- e yr^{-1}]	Preliminary annual ER [t CO_2 -e ha^{-1} yr^{-1}]
Holeszów	41	38	Fen	109	2.85
Krychów/Krowie Bagno	195	142	Fen	792	5.57
Kamień	26	17	Fen	111	6.4
TOTAL	262	197		1 012	4.9 (average)

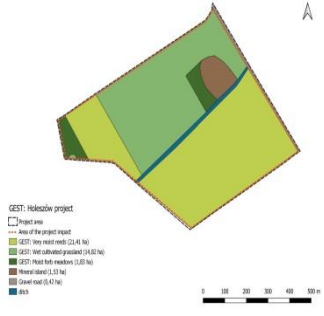
GHG Emission reduction prediction

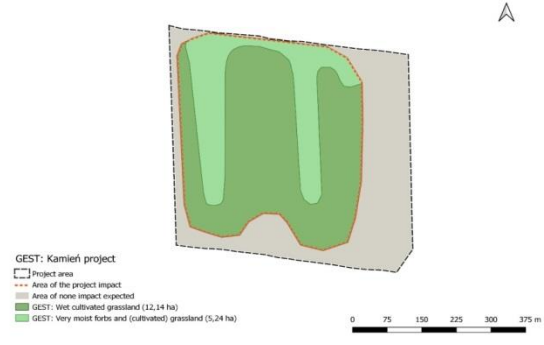












Total ER per site over a 20-year period [t CO_2-eq.]	
Holeszów	2 180
Krychów/Krowie Bagno	15 840
Kamień	2 220
TOTAL	20 240

Commodification

- Emission reduction was certified by DUENE e.V. (Greifswald University);
- The certificates on the total of **7,528 tCO_2eq**. of emission reduction was handed over to the
  - IT company „EPAM Systems”,
  - Perspektywy Educational Foundation

  to certify their contribution to the re-wetting project;
- A matter of wording used: Carbon credits? Carbon points? Carbon values? Voluntary contribution units (VCU) under art.6 of the Paris Agreement

CERTIFICATE

OF CERTIFIED VALUE

This certificate refers to the rewetting of degraded peatlands by OTOP-BirdLife Poland at the sites Kamień, Krychów/Krowie Bagno, and Holeszów in the Lubelskie voivodship, Poland. The Institute of Sustainable Development of Landscapes of the Earth of the University of Greifswald (DUENE e.V.), partner in the Greifswald Mire Centre, Soldmannstraße 15, 17487 Greifswald, Germany, has reviewed the emission reduction assessment. We hereby confirm that the expected reduction of greenhouse gas emissions of **20,240 tonnes of carbon dioxide equivalent** during twenty years after implementation is scientifically sound, robust and fully consistent with the international science-based state-of-the-art methodology for emission reduction assessments from peatland rewetting based on Greenhouse Gas Emission site Type (GESTs).

Dr Franziska Tanneberger, DUENE e.V.

This is to certify that the financial support of EPAM Systems in 2021 enables OTOP-BirdLife Poland to implement the rewetting and that this support corresponds to a proportional emission reduction of **586 tonnes** of CO_2 equivalent originating from the project. The rewetting is being implemented in 2021/2022 by OTOP-BirdLife Poland.

Director of OTOP-BirdLife Poland
Izabela Maria Gadi

POLAND 2022

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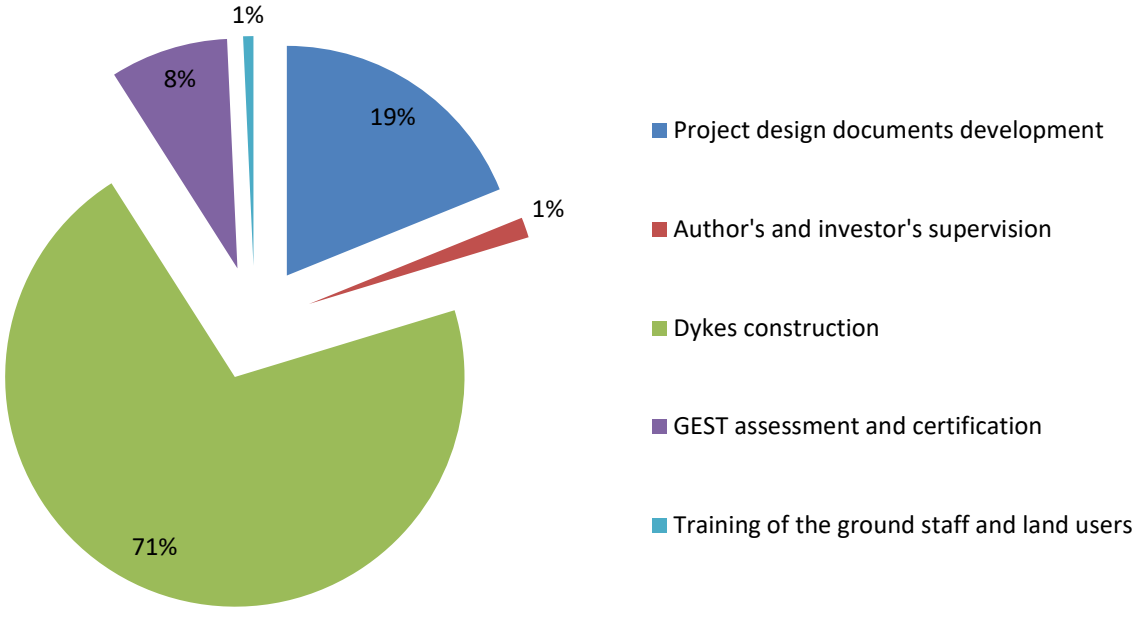
For what to pay and does it pay?



If the entire GHG emission reduction pool is commodified (assuming fixed prices), it would have covered up to ¼ of the total direct costs of re-wetting.

Beavers do it much cheaper….

…and they do it much faster too!

Problems and lessons learnt

- Re-wetting of semi-intact drained sites might not be really profitable through low additionality (however e.g., abandoned potato fields could);
- Transactions' legal basis and property rights do matter, and they are not developed well enough;
- Existing international institutions largerly neglect peatland re-wetting carbon as an element of LULUCF component hence the low voluntary market prices for VCU and no potential for self-sustaining re-wetting;
- Bureacratic procedures are extremely long and complicated for re-wetting in Poland (…in Belarus, in Germany, …);
- It is possible for conservationist NGO to earn small but unrestricted and highly liquid money.

A room for improvement…

- Using MoorFutures® or similar schemes to promote and market peatlands' carbon (ongoing in Poland);
- Establishment of a regional scheme (DE, PL, UA, BY) ≈ North American;
- Working out a legal track to trade VCU (property rights, optimal transaction type, contract templates);
- Promotion of the beavers' ecosystem engineering

The LIFE Multi Peat project (2021-2027)

Project lead partner: NABU (DE)

Project partners:

Natuurpunt (BE),
University of Galway (IE),
Natuurmonumenten (NL),
Eurosite – the European Land Conservation Network (NL),
Klub Przyrodników (PL),
Ogólnopolskie Towarzystwo Ochrony Ptaków (OTOP, PL).

The LIFE Multi Peat project (2021-2027)

The LIFE Multi Peat project (2021-2027)

The LIFE Multi Peat project (2021-2027) **aims to restore degraded peatlands** by restoring peat on project sites in Belgium, Germany, Ireland, the Netherlands and **Poland**.

Close **monitoring of GHG emissions** will help us to understand how peatland restoration can contribute to climate change mitigation.

In addition, the project aims to test and **disseminate alternative wetland uses**, i.e. **paludiculture**, as a sustainable alternative to drainage-based agriculture on peatlands (DE, BE).

Networking and knowledge exchange with peatland restoration and management experts will support the development of evidence-based peatland policy through the **European Peatland Policy Working Group** and the development of the Peatland Policy Portal.

The LIFE Multi Peat project (2021-2027)

Expected results:

• 689 ha of degraded peatlands restored

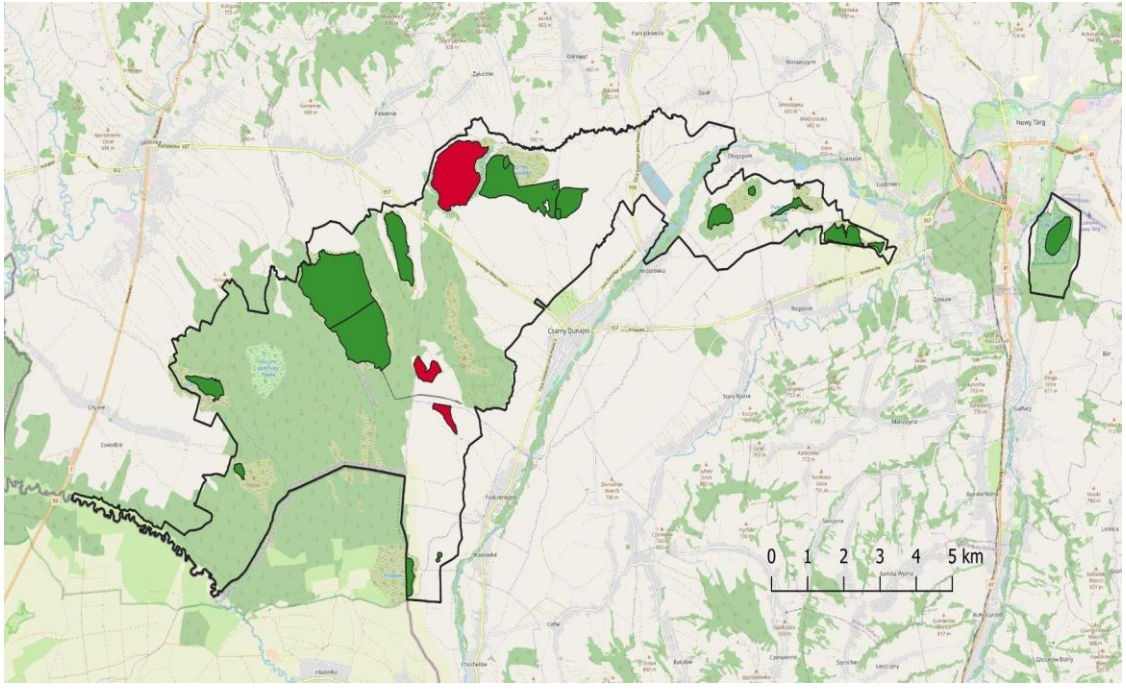
• Up to 50% reduction of Global Warming Potential on all sites (~3600 t CO2-eq./year)

• Establishment of paludiculture solutions in Germany and Belgium and dissemination of the technique's feasibility to farmers and policymakers, as a sustainable alternative to drainage-based agriculture

• Improved communication and coordinated collaboration amongst EU peatland projects • Improved conditions of the peatland habitats and key species

• Dissemination of recommendations for the upscaling of peatland restoration

The LIFE Multi Peat project (2021-2027)



In Poland:

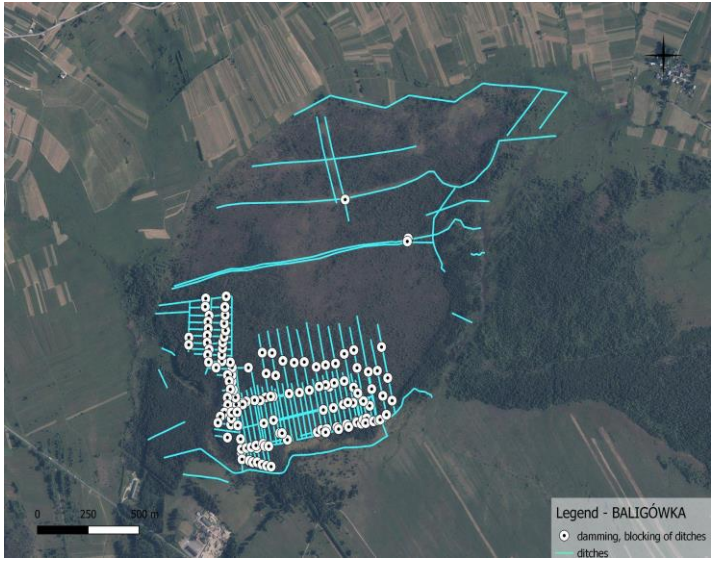
- Torfowiska Orawsko-Nowotarskie (Orawa Bogs) Natura 2000 site
- restoration of 3 different size domes with a total area of ca. 200 ha (red) – diches blocking and trees and shrubs removal

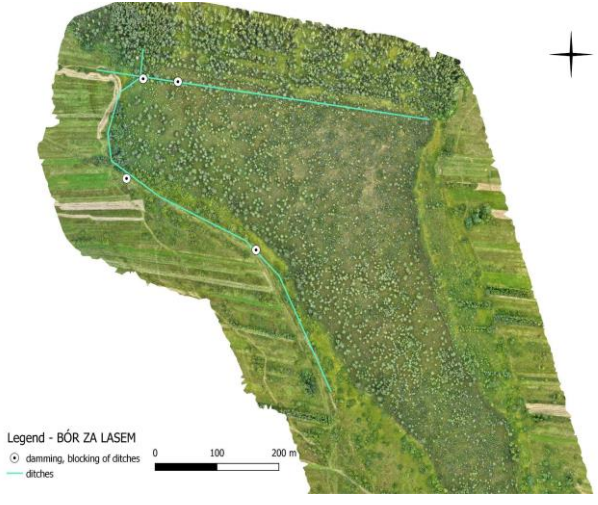
The LIFE Multi Peat project (2021-2027)

Restoration measures in Poland:

• in October and November 2024 blocking systems of various widths and constructions (wooden or combined of wood and soil material) were created in total at 151 locations: 135 at Baligówka peatland, and 16 at Bór za Lasem and Las Kaczmarka peatlands.

The LIFE Multi Peat project (2021-2027)





The LIFE Multi Peat project (2021-2027)

Restoration measures in Poland:

• in January 2025 trees were removed from the dome of the Las Kaczmarka raised bog. Trees and shrubs were removed over a total area of 5 ha. Smaller trees and shrubs were felled and removed from the dome area, the largest trees were ringed and left standing on the location.

Thank you for yor attention and questions!

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