



GREIFSWALD  
MIRE  
CENTRE

# Challenges in peatland rewetting for climate protection - strengths and weaknesses of paludicultures

*Dr. Franziska Tanneberger, 20.09.2022*



# Why do we talk about peatlands...

Europe has ~1 mio km<sup>2</sup> of the World's >6 mio km<sup>2</sup> of peatland



## The peatland map of Europe

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Hans Joosten, Franziska Tanneberger & Asbjørn Moen (eds.)

## Mires and peatlands of Europe

Status, distribution and conservation



Schweizerbart  
Science Publishers

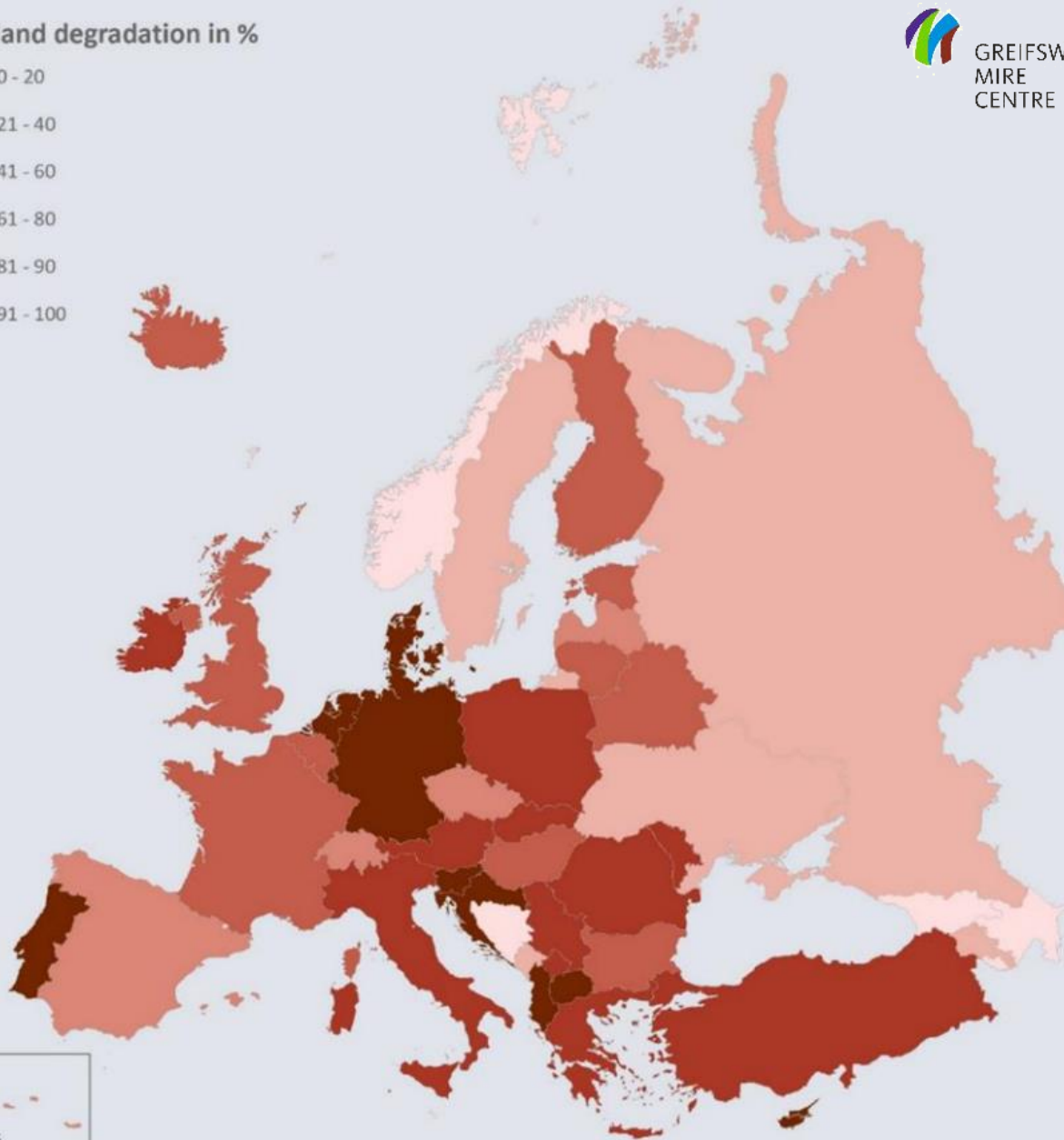
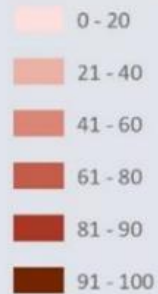
What we all dream of:

Mires: peat accumulates = long term CO<sub>2</sub> sink



# BUT: Europe has a high degree of peatland degradation

## peatland degradation in %



→ **25%** of the total peatland area in Europe is degraded

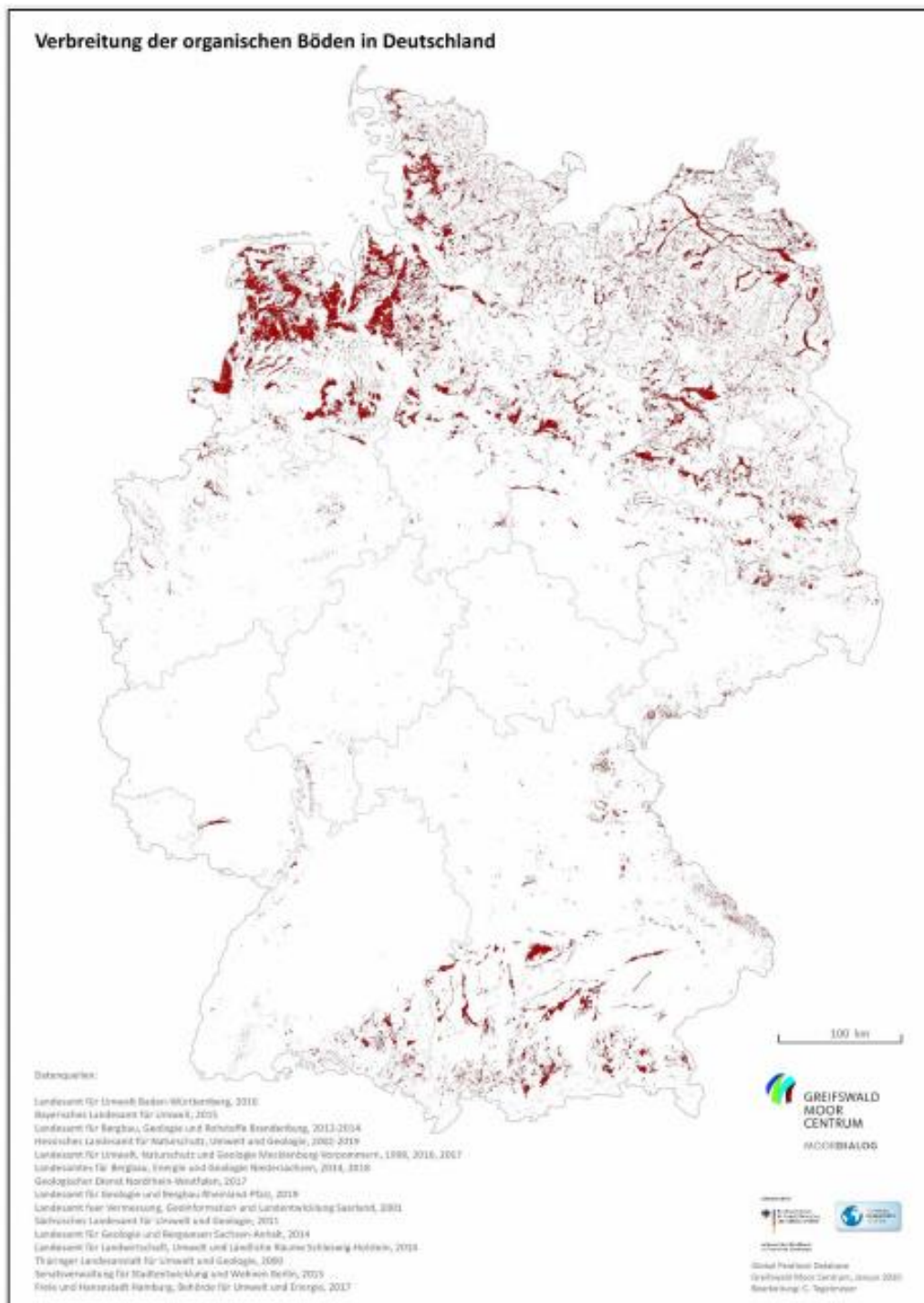
→ in the EU, it is **50%**

→ in several countries, more than **90%**!

In Germany:  
1,8 mio ha

This equals  
~5% of the land

Lower Saxony: 14%  
Meckl.-Vorp.: 12%  
Schleswig-Hols.: 10%  
Brandenburg: 9%



Near-natural



2%

Drained

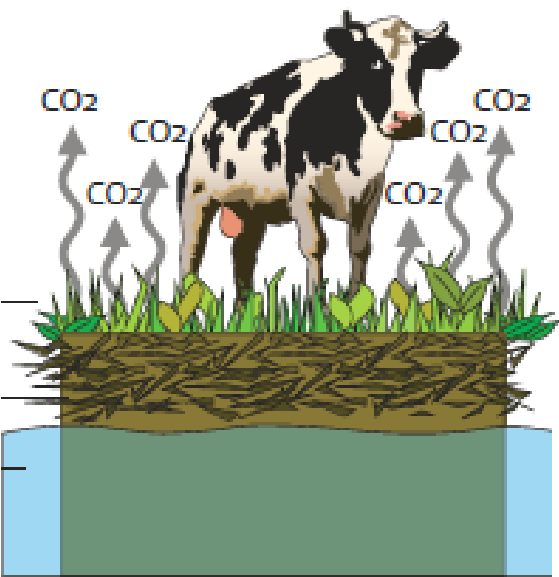


94%

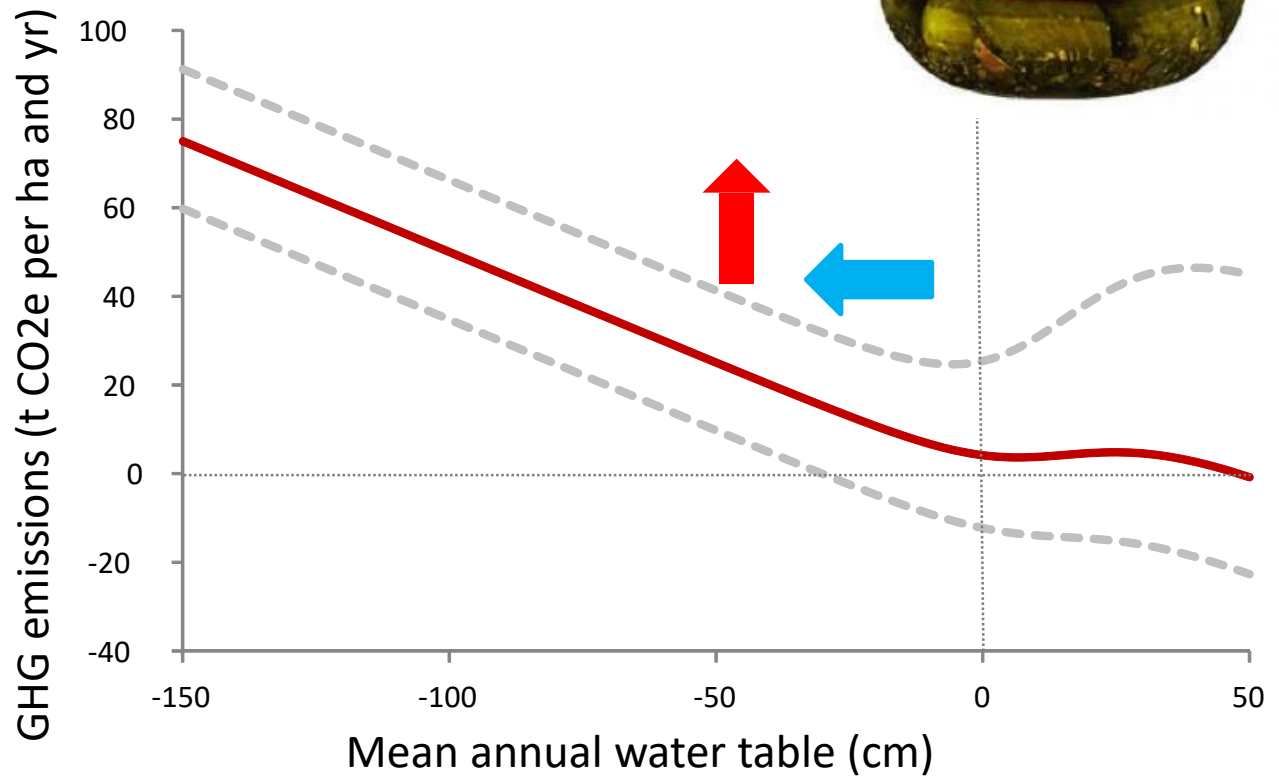
Rewetted



4%



GHG emissions from peatlands → depend mainly on the mean water table





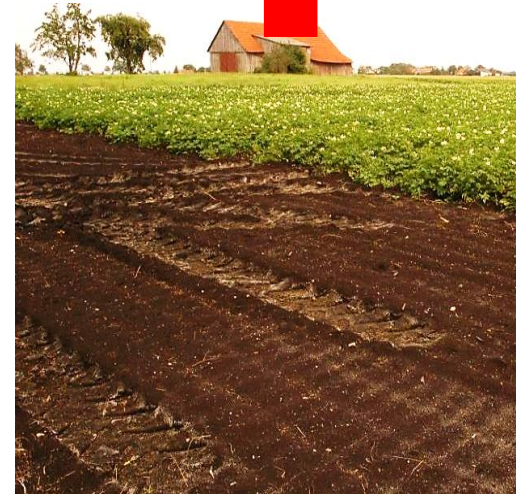
# GHG emissions from peatlands

**~30 t CO<sub>2</sub>e per  
ha and year**



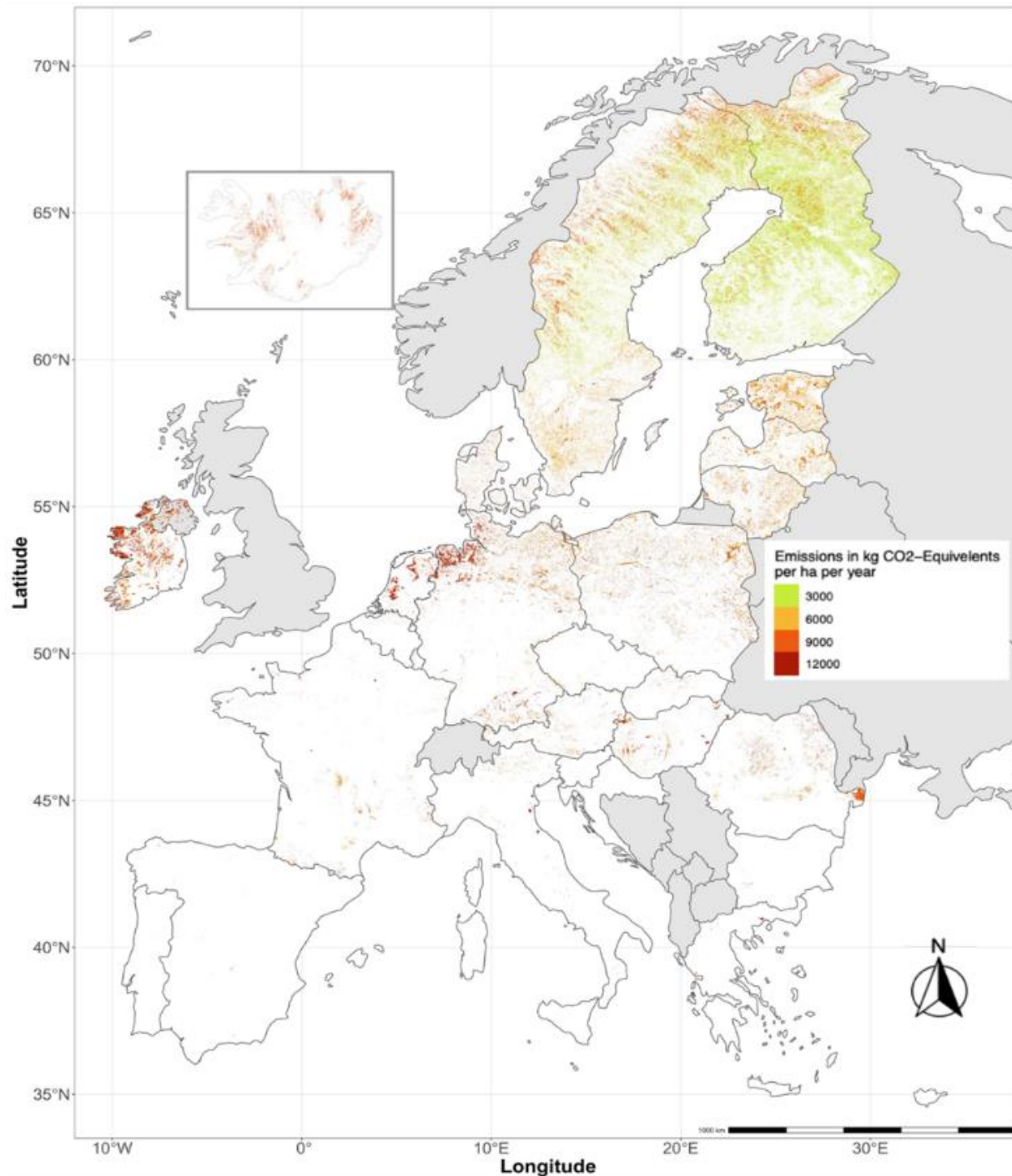
**Grassland on peatland**

**~40 t CO<sub>2</sub>e per  
ha and year**



**Cropland on peatland**

Our peatland area x  
emission factors → total  
GHG emissions from  
drained peatlands



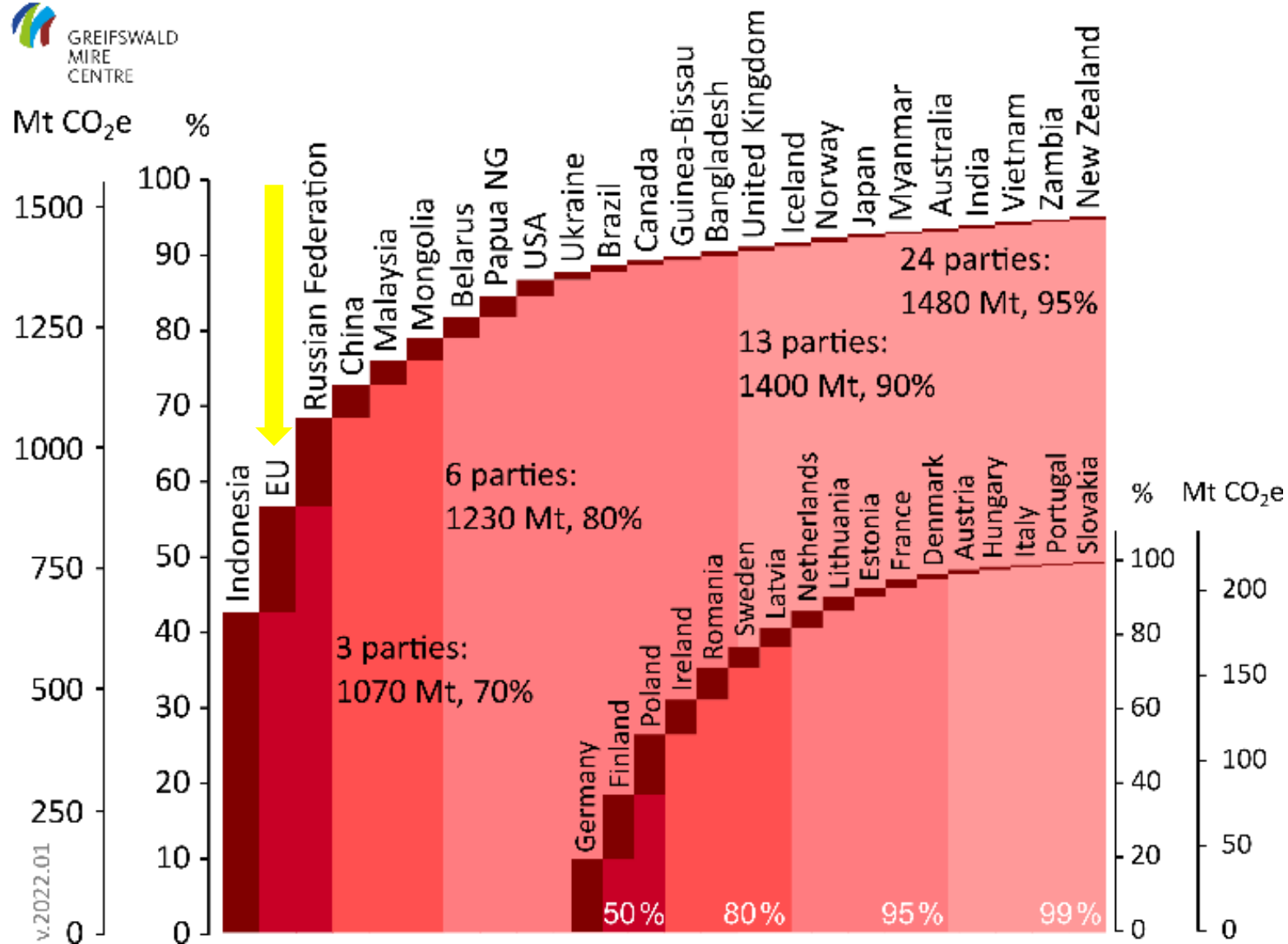
Van Giersbergen (2022)  
WUR/LUKE/GMC



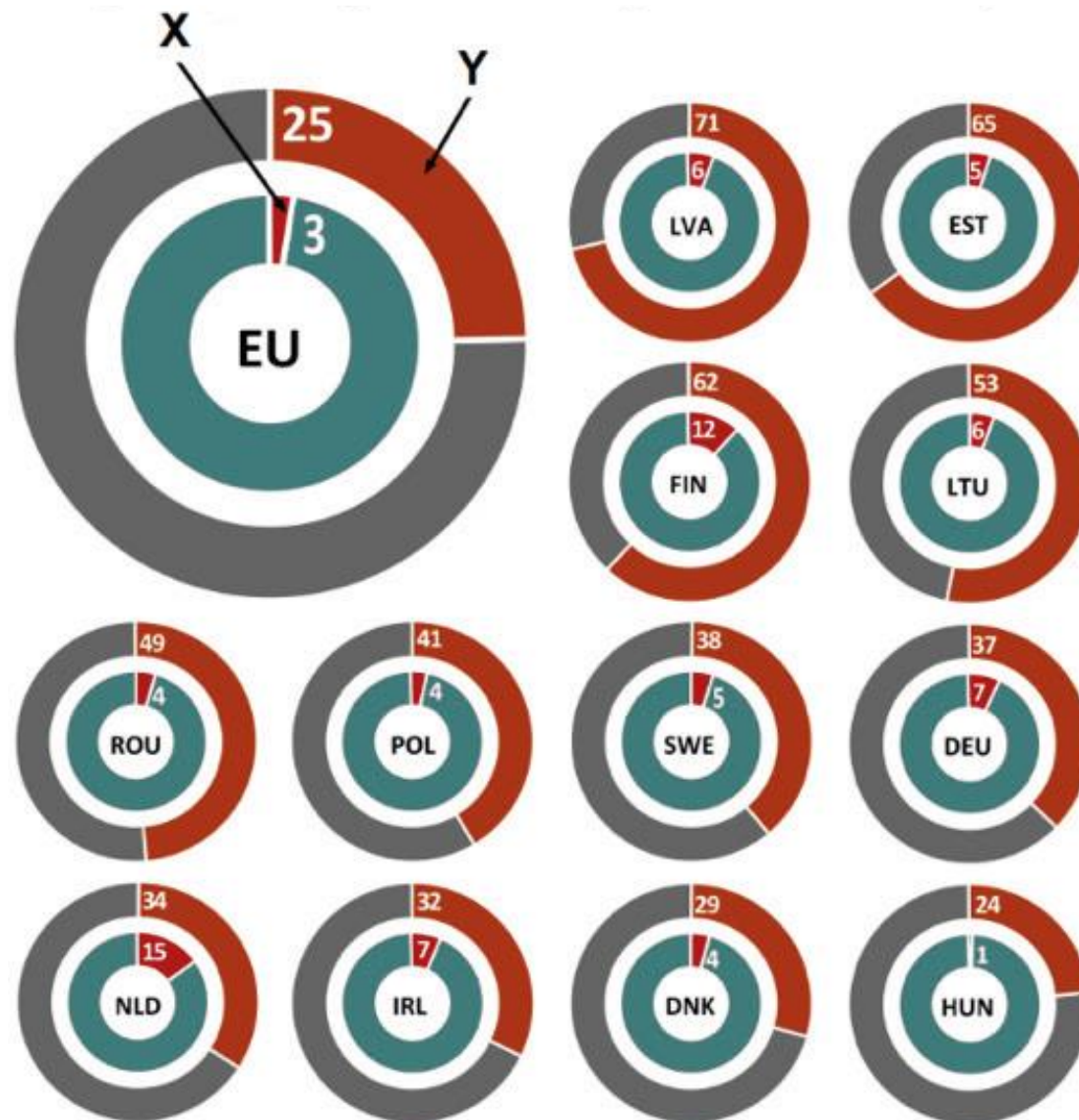
= 7 % of EU GHG emissions



# EU = one of the two global peatland GHG emission hotspots



# Small part of agricultural land = large potential for emission reduction!



A small part of the agricultural land (3%) causes a large part of the GHG emissions related to agriculture (25%)

Rewetting peatlands to **reduce** CO<sub>2</sub> source!

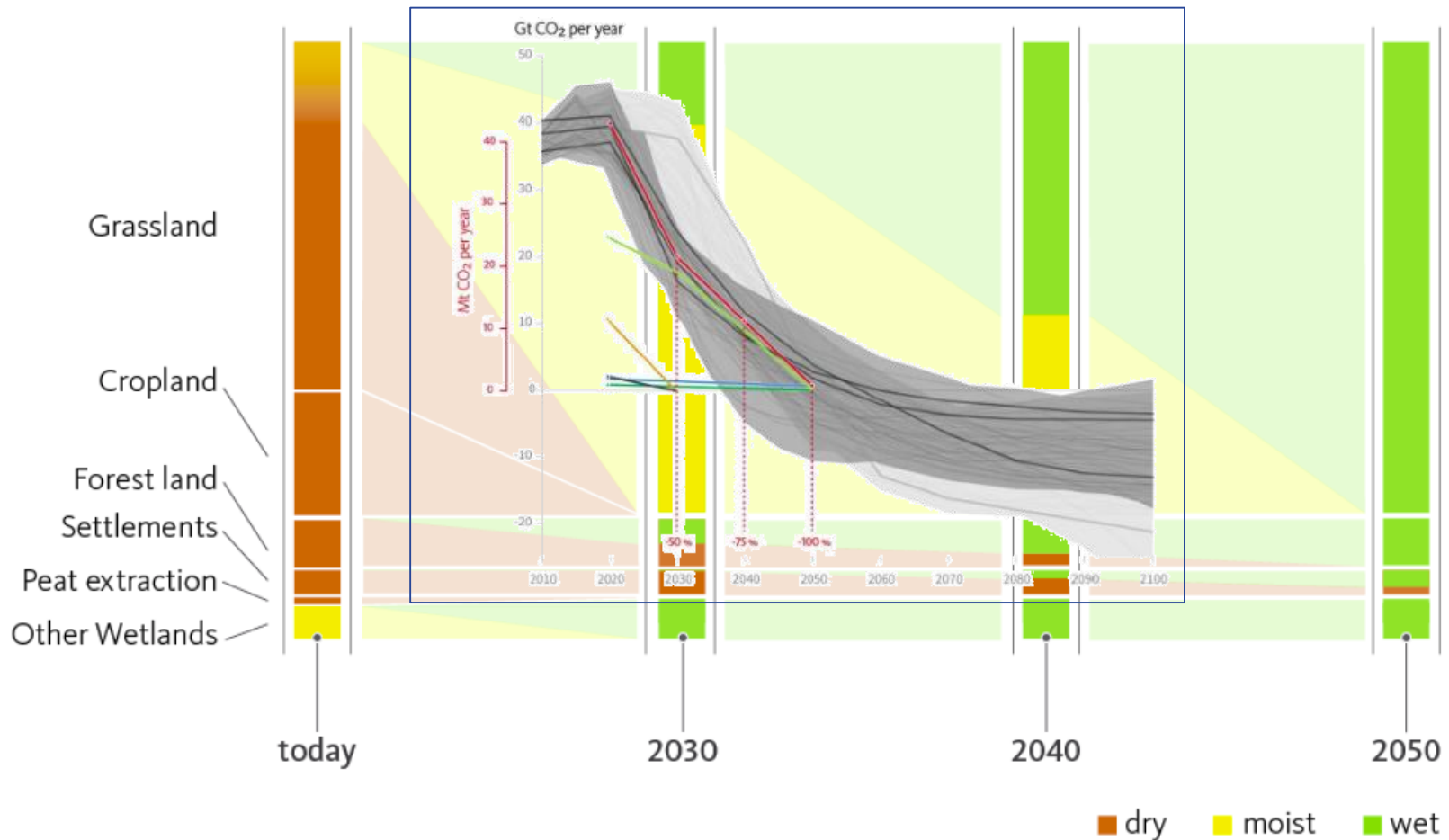
→ Adapt agriculture to wet soil conditions



Western Pomerania

# Key tasks: ‚Translating‘ societal objectives to peatlands

- 2019 Peatland GHG pathway for Germany based on Paris Agreement
- 2022+ other EU countries in preparation (NL, AT, PL, FI)



## Key tasks: Create capacity and new funding streams

- 2022: Substantial state funding for natural climate solutions (DE 2022-2026: 4 bn Euro), incl. creation of regional peatland rewetting agencies (cf. Indonesia), first one planned in our region
- Involve the private sector (sponsoring, credits, paludiculture value chains – e.g. [www.toMOORow.org](http://www.toMOORow.org))
- Carbon credits: build on existing crediting schemes (MoorFutures, UK Peatland Carbon Code)



*Ihre Investitionen in Klimaschutz.*

- Combine alternative land use on peatlands, e.g. rewetting + solar energy (+ paludiculture) on strongly degraded peatlands





# Key tasks: Develop paludiculture!

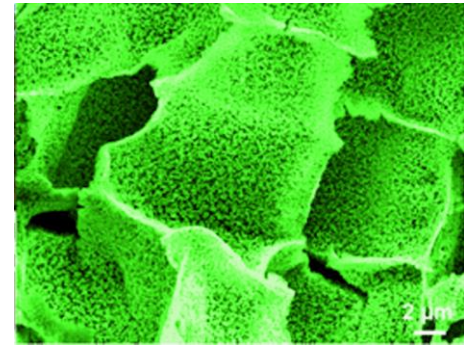
[www.paludikultur.de](http://www.paludikultur.de)



**Key requirement: Preservation of the peat layer**

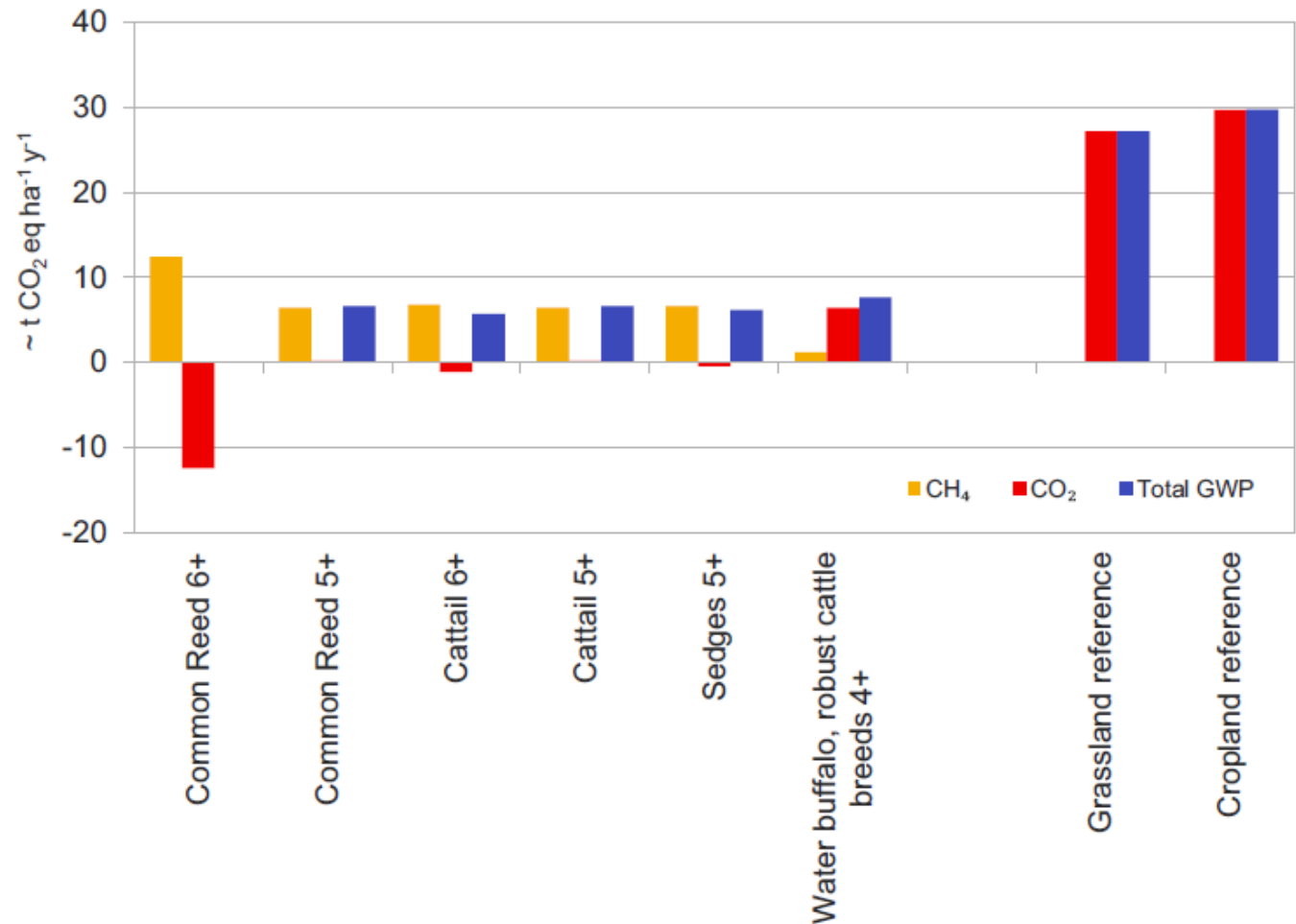
# Characteristics of wetland plants

- High productivity
- Set of adaptations
  - Water absorption capacity
  - Strong structures
  - Aerenchym
  - Rotting protection (silicates!)



# Initial insights into site emissions

- Here: Fen paludiculture
- Tendency clear
- More data needed



# Pilot sites do exist

Fens: Cattail

Cultivation on rewetted fen  
→ 10 ha pilot site in NE Germany



Foto: ASEA arial



# Pilot sites do exist

Bogs: Sphagnum

Cultivation on rewetted bog  
→ 17 ha pilot site in NW Germany



# New value chains for products with negative emissions needed

- Construction and insulation material
- Fibre for paper and moldings
- Bioenergy
- Biorefinery
- Potting soil and substrates

## Products are climate protective 3-fold:

- a) Reduction of soil-borne emissions
- b) Replacement of fossil resources
- c) Carbon sequestration in long-life products
- d) Carbon sequestration through new peat formation



# Wilderness



# Paludiculture



## Wet meadows



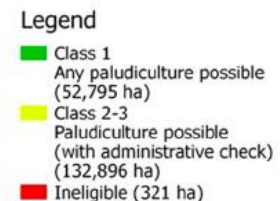
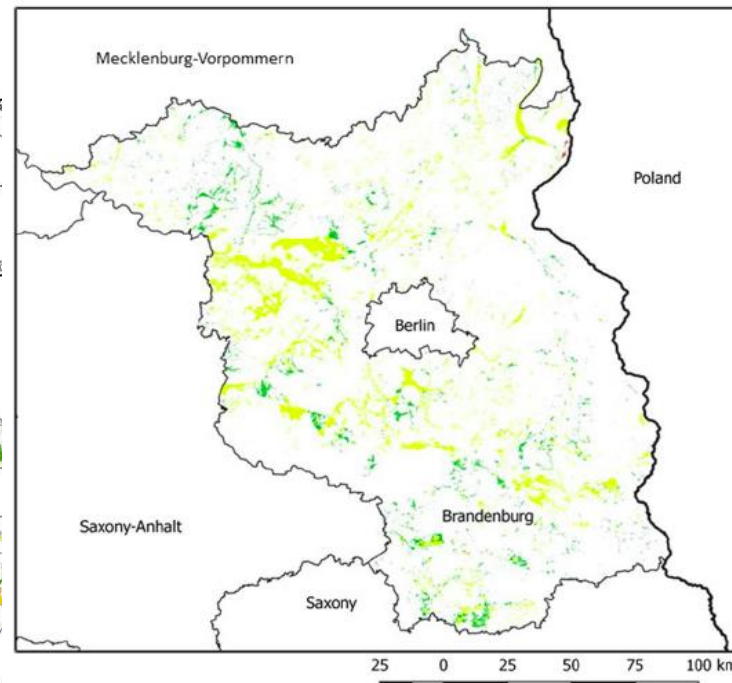
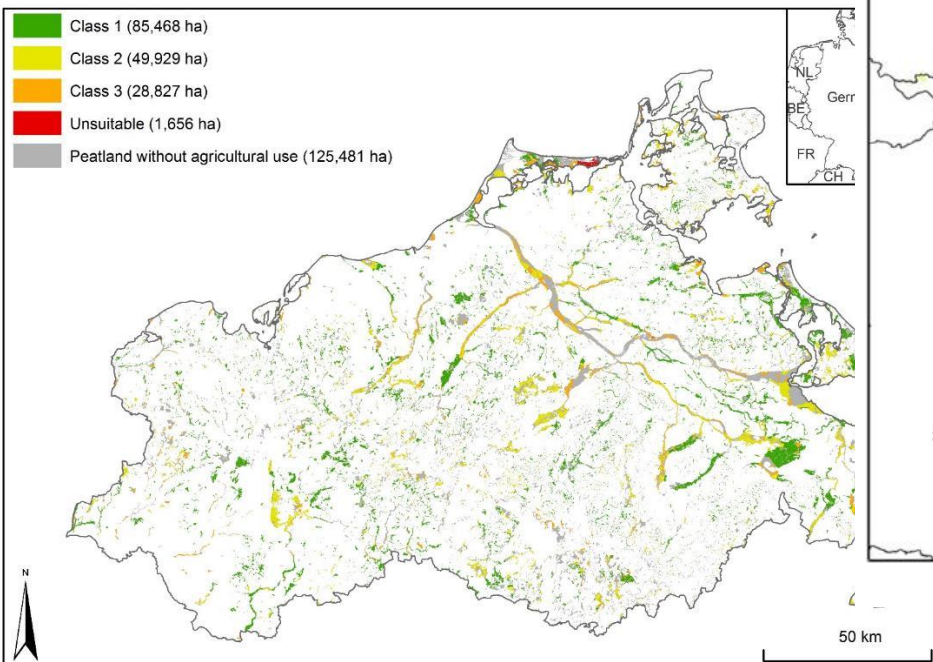
## Cropping paludiculture

+ wind/solar  
energy?



# Planning needed – where to do what?

- Spatial planning for wet grassland and cropping paludicultures based on nature conservation legislation
- first in MV, now also in most other German federal states
- fen peat soils only: total potential N-Germany >500,000 ha, on ~230,000 ha any paludiculture possible



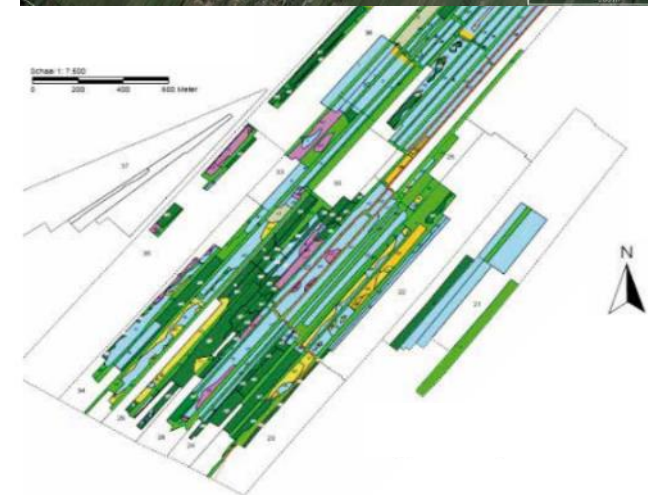
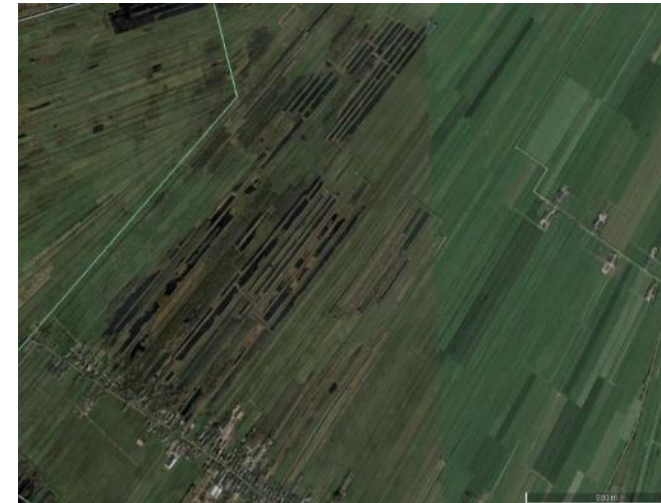


# Challenges

- Break with **traditions** (except for reed cutting)
- **Transform the business structure**
- **Collect experiences** with paludiculture
- **Build value chains**
- **Remunerate** climate protection
- **Land ownership**

→ **but: no climate neutrality with drained peatlands!**

→ **agriculture has a strong innovation potential!**



# Make policy-makers aware!!

(or get one yourself ;-)

→ MV Future Council 10/2020-03/2021

→ Final report = future programme for MV

→ Peatlands one of the core topics

## MEMBERS OF THE MV FUTURE COUNCIL

All Council members have worked together on this document of department orientation and core statements.



# MV

## OUR FUTURE IS NOW!

FOR A SUSTAINABLE & DIGITAL MV  
SERVED TO THE COMMON GOOD

Bildungsoffensive  
Naturbasierter Klimaschutz  
Kunst- und Kulturlandschaften  
(Wahl)Heimat und Weltoffenheit  
Green IT  
Oxygensäuredecksungen  
Dauertour Energieversorgung  
Kreiselwirtschaft  
Strukturalternativierungsgewalt  
Nachhaltigkeit als Akkumulationsprozess  
Senkung unserer CO<sub>2</sub>-Emissionen  
Bündelung des Elementen  
Energieversorgung und Ressourcenschutz  
Soziale und technische Innovationen  
Bildung und Qualifizierung  
Wasser, Wald und Moore  
Digitale Gesellschaft  
Jugendmitbestimmungsgesetz  
Nachhaltigkeits-Zertifikat  
Diversitäts-Signale  
Life-Sciences  
Biodiversität

Nachhaltigkeitsökonomie  
Gemeinwohlorientierung  
Vernetzte Dörfer und ländliche Produktionsorte  
Kreislaufwirtschaft und grüne Industrie  
Forschung und Wissensökonomie  
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Anreize für klimafreundliche Produktion  
Ländnutzung und Landleben  
Landes-Klimaschutzgesetz

MV  
Ministerium für Klimaschutz  
Nachhaltigkeit

From wet islands in a drained landscape to peatland carbon farmers....



Thank you for your attention.  
#peatlandsmatter

