EUKI Paludiculture in Baltics Workshop
14th June 2018 – Vilnius, Lithuania

Succow Stiftung

Partner in the

GREIFSWALD MIRE CENTRE

Paludiculture – Perspectives of wet agriculture on peatlands.

Andreas Haberl, Michael Succow Foundation

A. Haberl

W. Wichtmann

EUKI – a new Programme of the BMU German Federal Ministry for the Environment

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- The EUKI was launched in 2017.
- Fostering climate cooperation within the European Union to **mitigate greenhouse gas emissions** by strengthening **cross-border dialogue** and cooperation, **exchange** of **knowledge** and **experience**.
- "**Paludiculture in the Baltic States**" is one of the first running 22 projects.

Check: www.euki.de

On behalf of:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

European **Climate Initiative** EUKI

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

EUKI – Paludiculture in the Baltics

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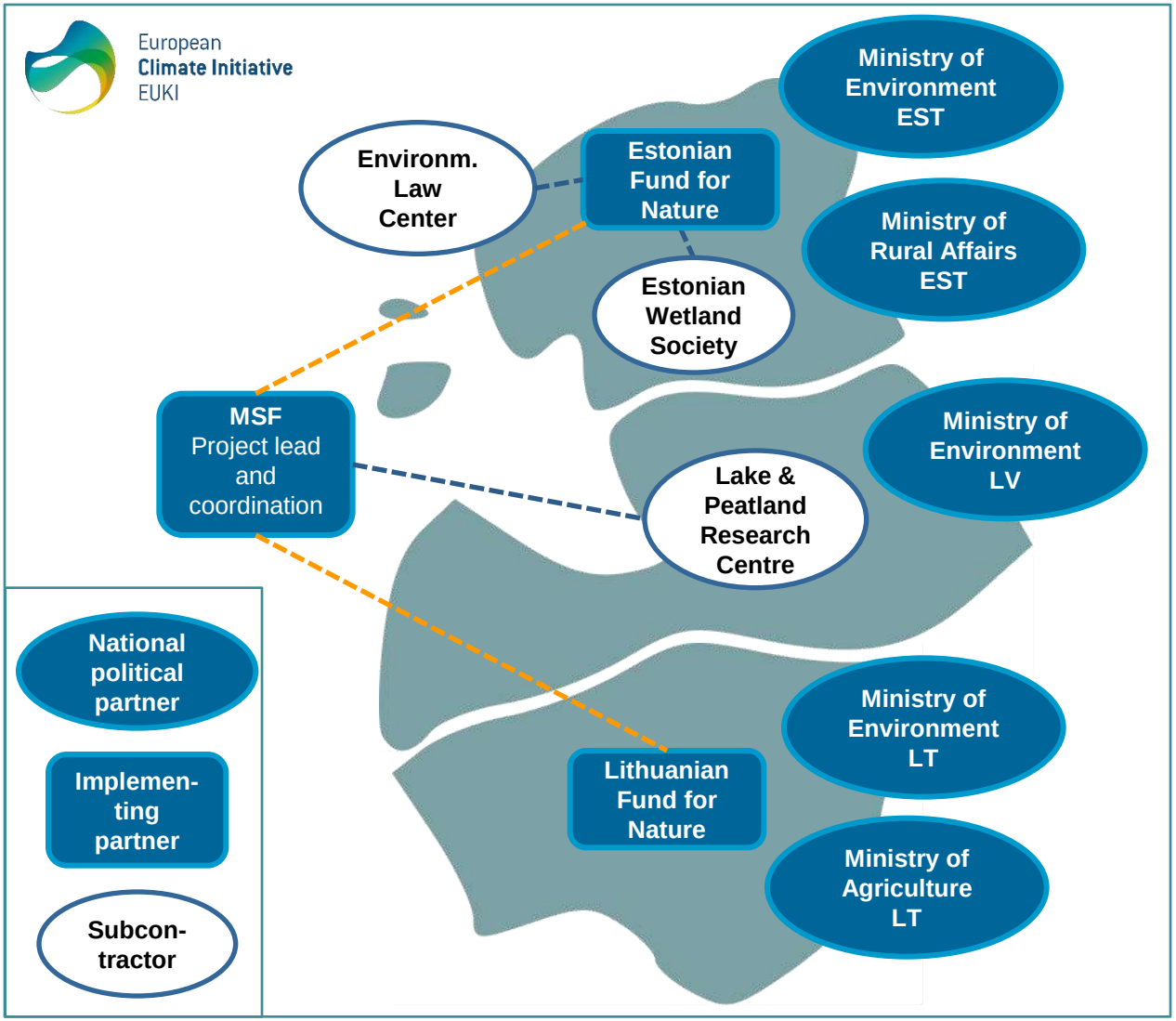

Implementing partners:

Succow Stiftung

ELF

LJF LITHUANIAN FUND FOR NATURE

EUKI – Paludiculture in the Baltics

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Work packages:

I. **Feasibility study** incl. GIS assessment on the climate-smart land use alternatives for peatland areas (bogs / fens) → Paludiculture

II. **Knowledge transfer** on paludiculture to key stakeholders in the target group

III. **Advocacy** to adapt framework conditions for paludiculture and incentive-based mechanism in national and EU policies

Peatlands in Europe are largely degraded

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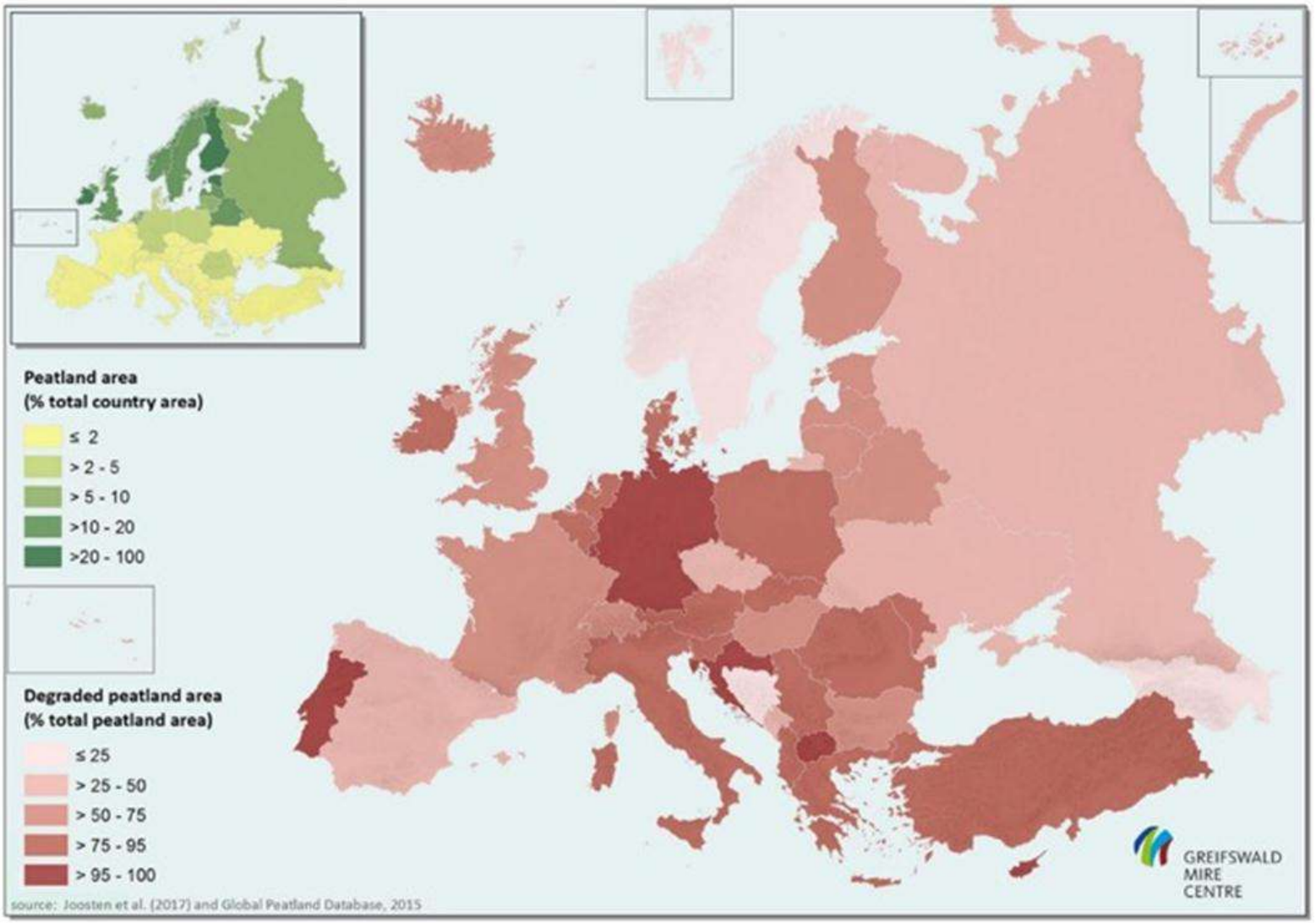
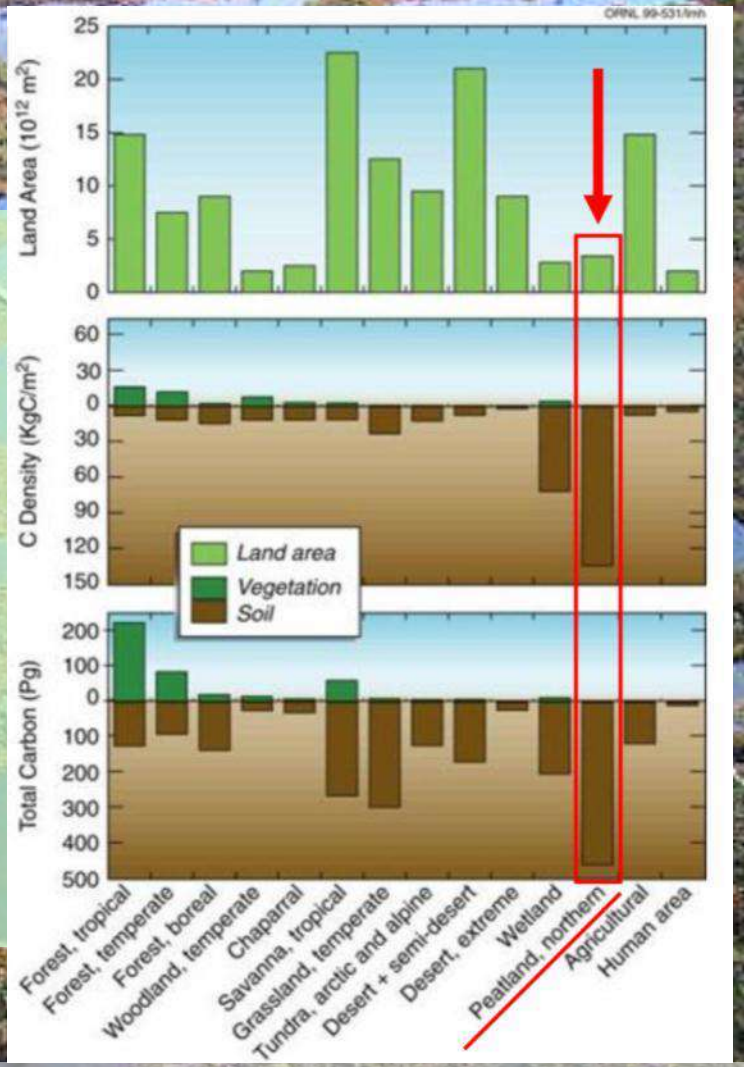


Peatlands globally

- cover “only” 3 % of the land area
- but contain 30% of the world’s soil carbon
- an equiv. of 60% of all atmospheric carbon
- as much carbon as in all terrestrial biomass

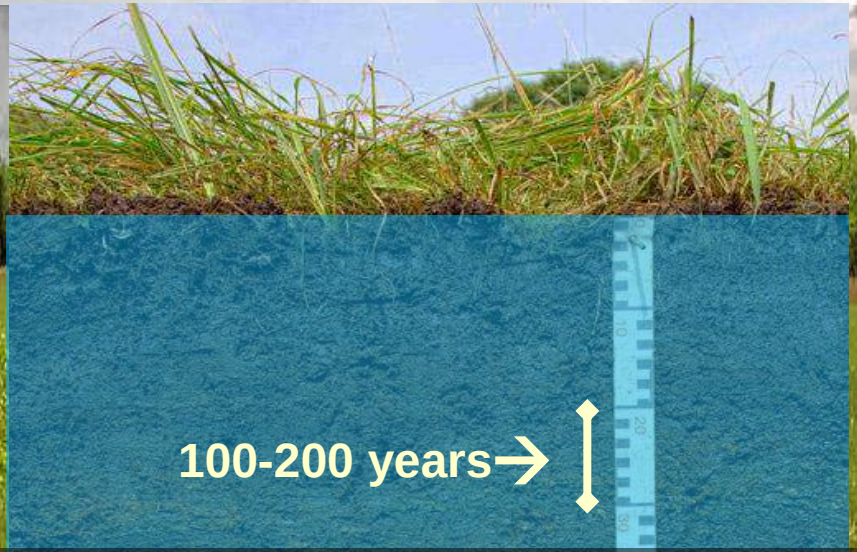
➢ Peatlands are important for the global carbon cycle



Sequestration and long term storage of carbon in peatlands require water logging

Patterned bog Endla - Estonia

Peat accumulates in wet mires…



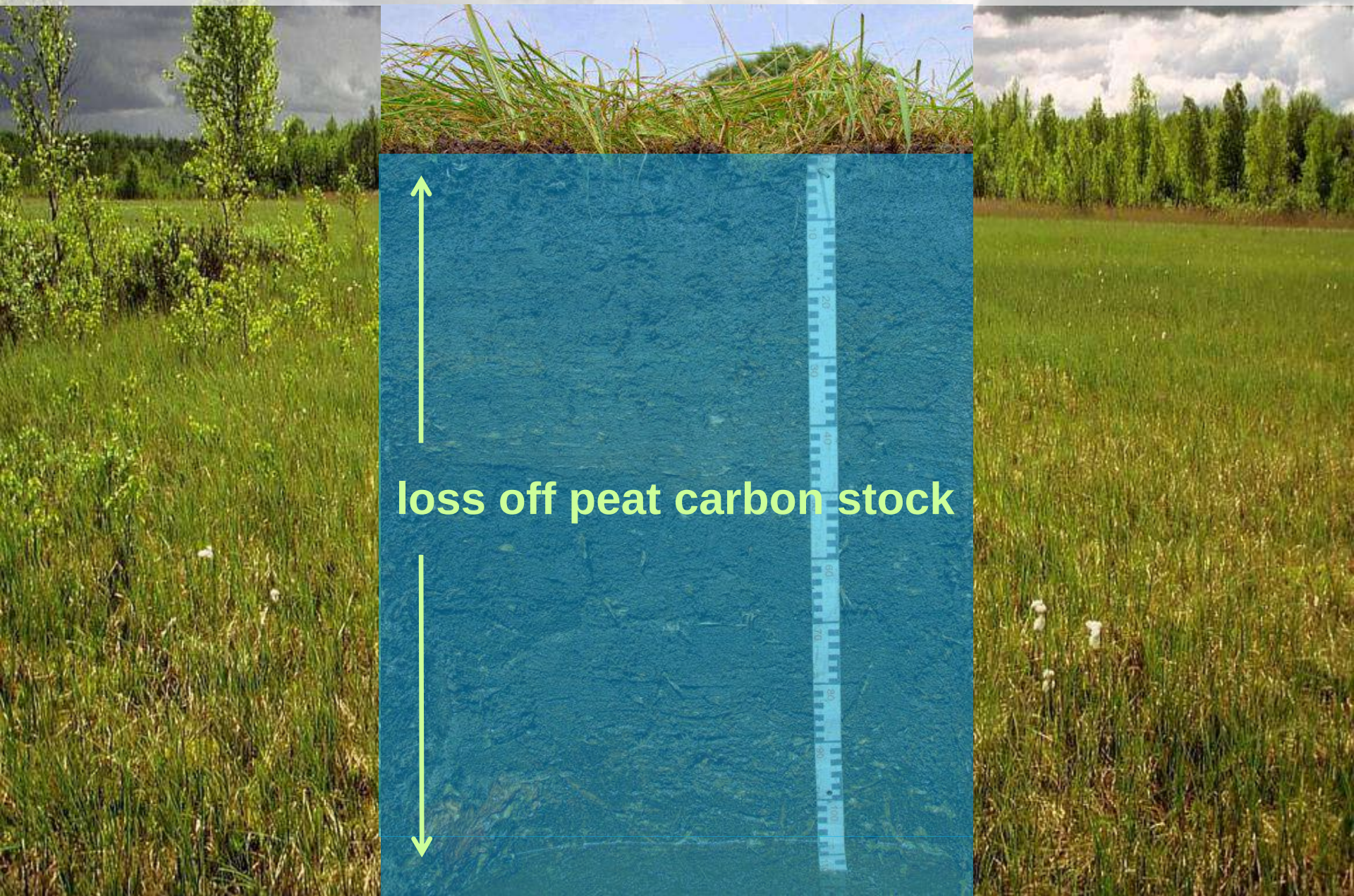
…over **centuries** from died off **mire plants** and under **water saturation** that inhibits decay

⇒In the boreal and temperate zone 0.5-1 mm/year

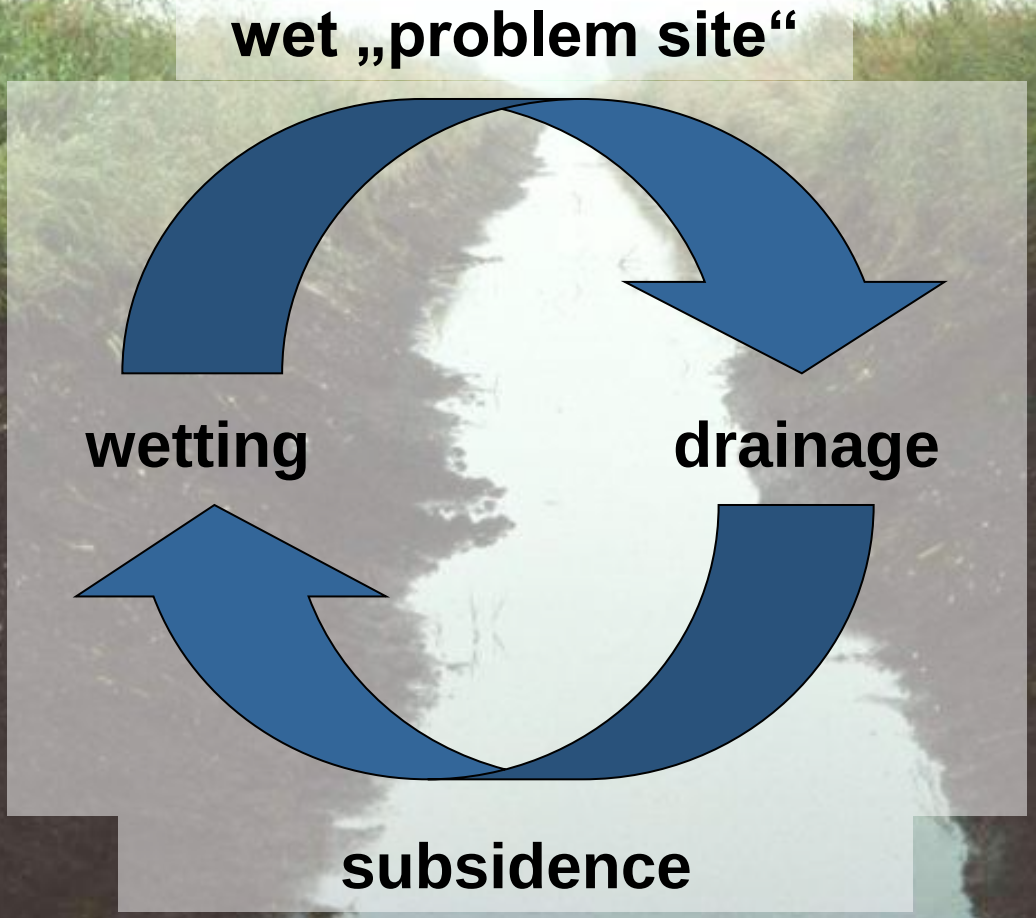
⇒Peat is not renewable under an economic aspect

⇒Peat is a fossil and finite resource

…for utilisation we draine(d) wet mires…



…and drainage brings peatlands down!



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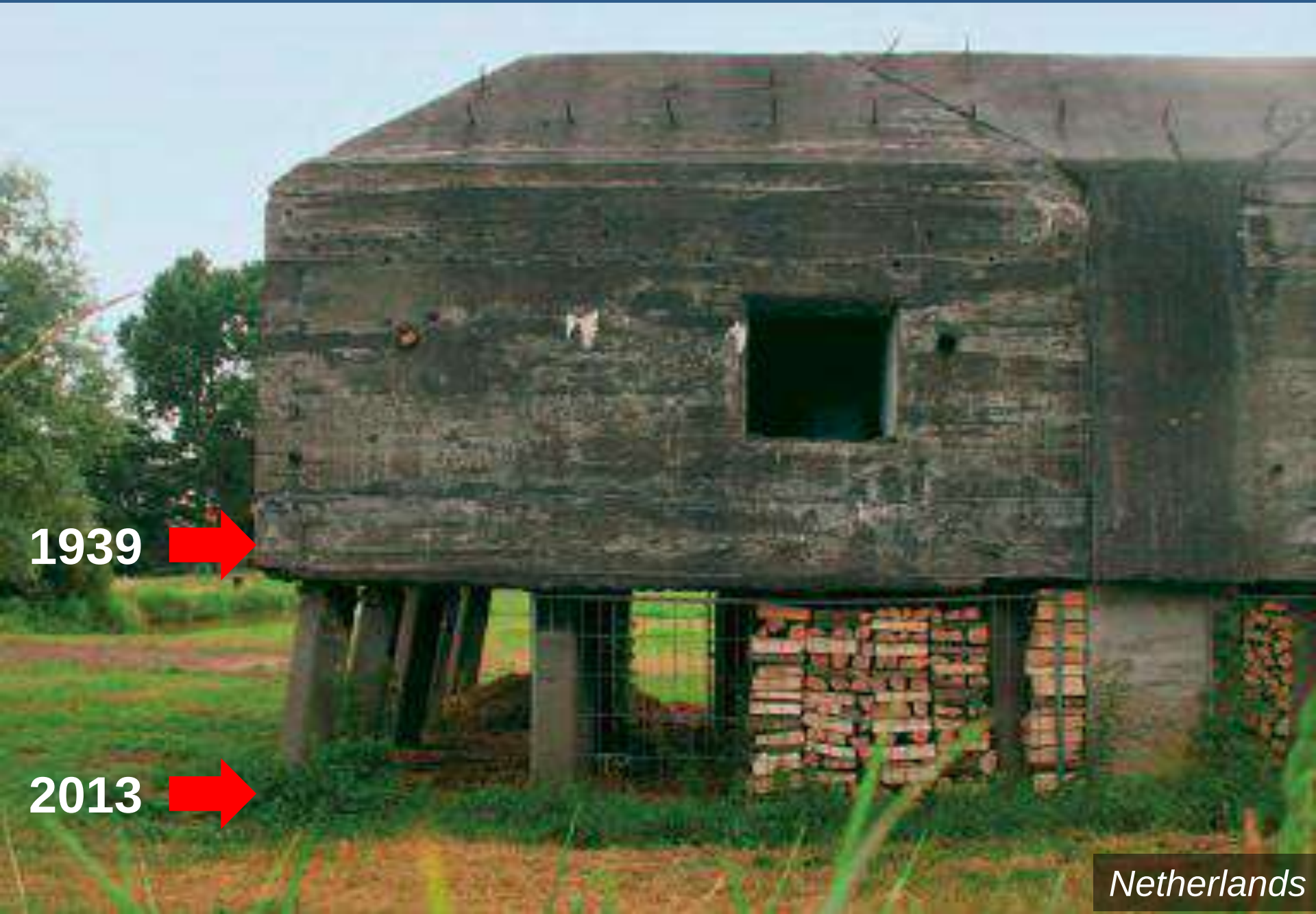

Conventional peatland utilisation includes drainage

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Peat extraction

Agriculture

Forestry

→ Drainage of peatlands for conventional agriculture, forestry, and peat extraction is responsible for

2 Gtons of CO_2 emissions annually.

(from ~0.6 % of the global terrestrial landcover)

Environmental impacts of drainage based peatland utilisation

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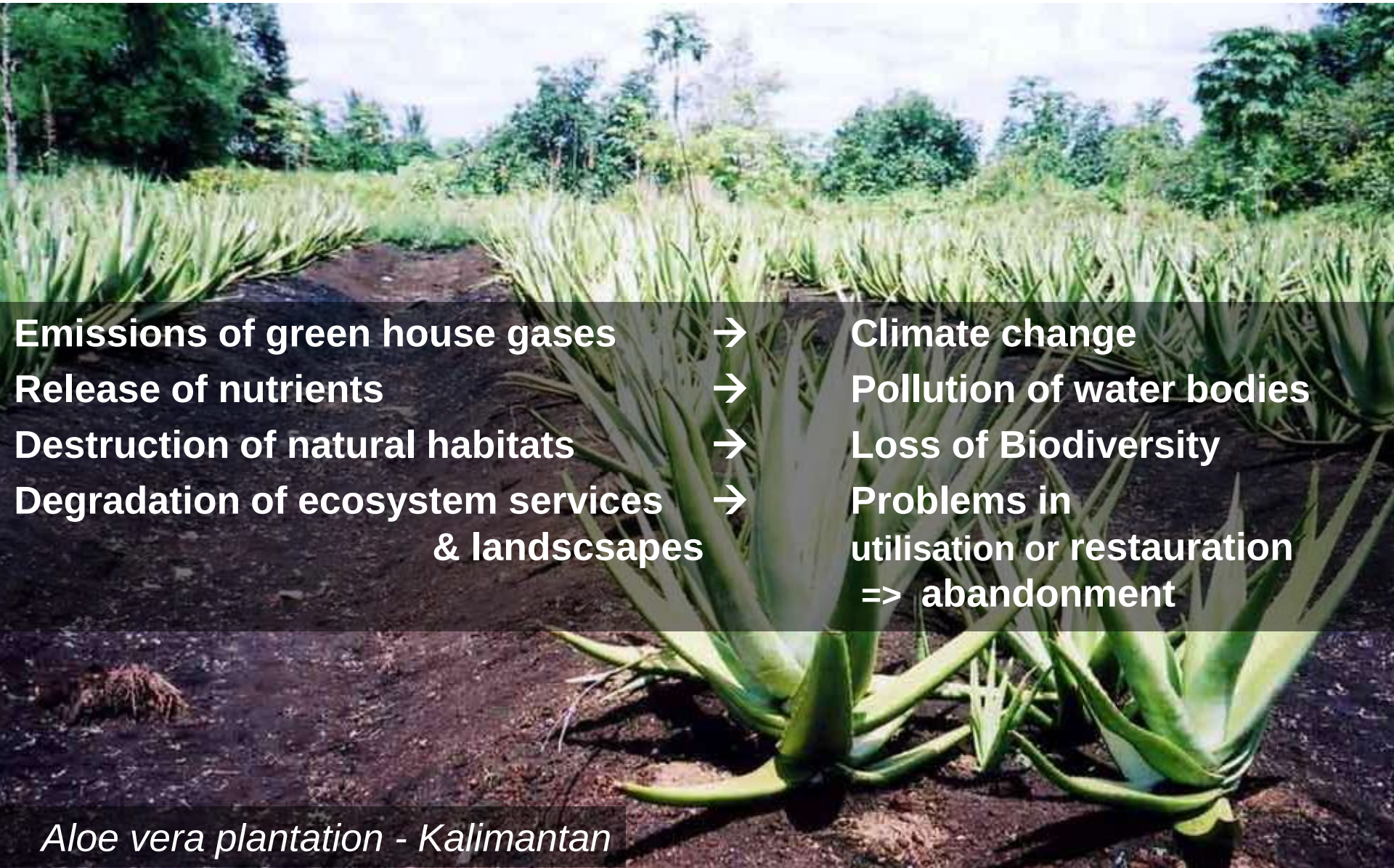

Emissions of green house gases	→	**Climate change**
Release of nutrients	→	**Pollution of water bodies**
Destruction of natural habitats	→	**Loss of Biodiversity**
Degradation of ecosystem services & landscsapes	→	**Problems in utilisation or restauration => abandonment**

Aloe vera plantation - Kalimantan

Drained peatlands – global CO_2-emission hot spots

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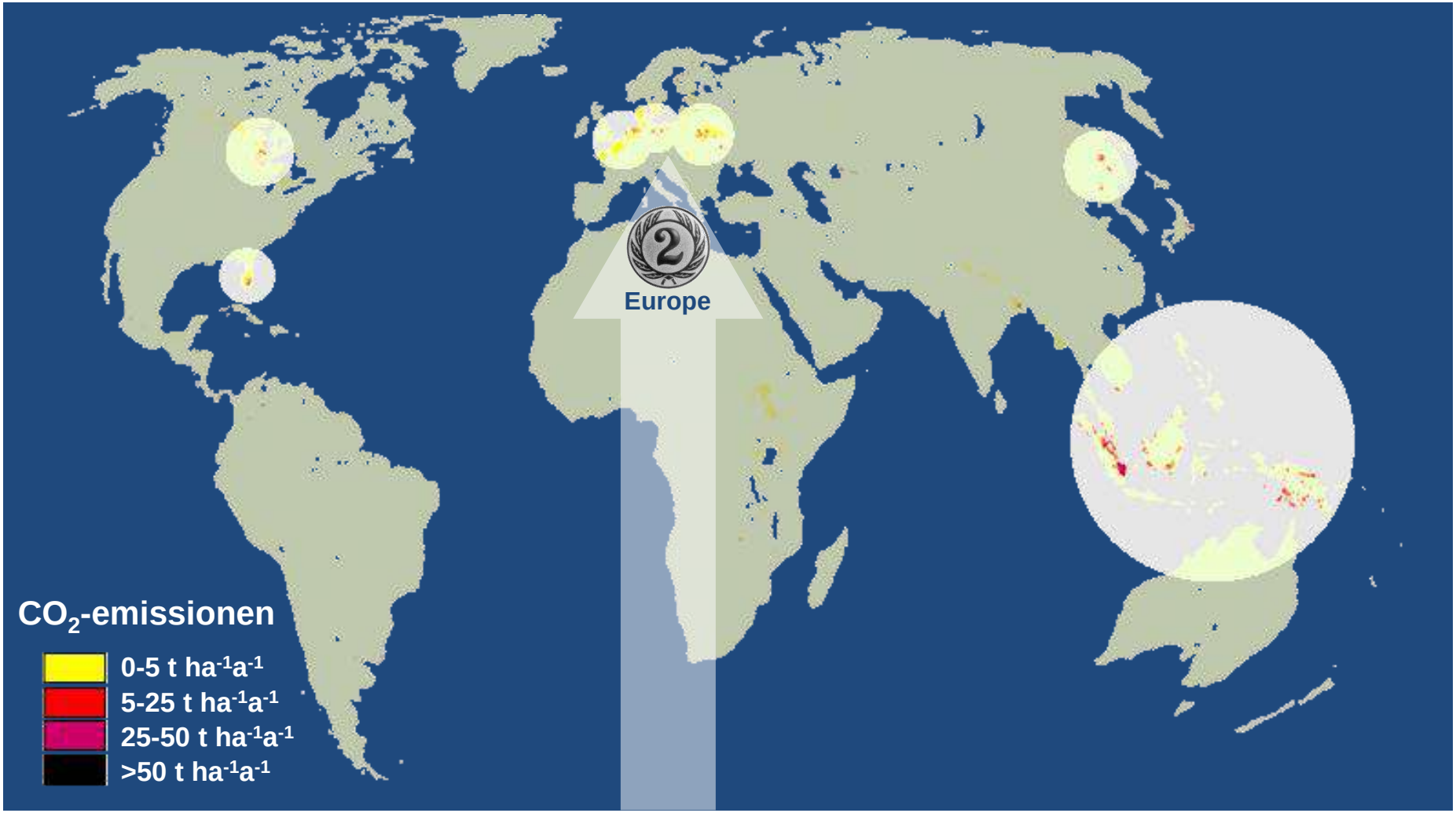

⇒Conventional drainage based land use of peatlands is not sustainable

Water level drives GHG emissions in peatlands

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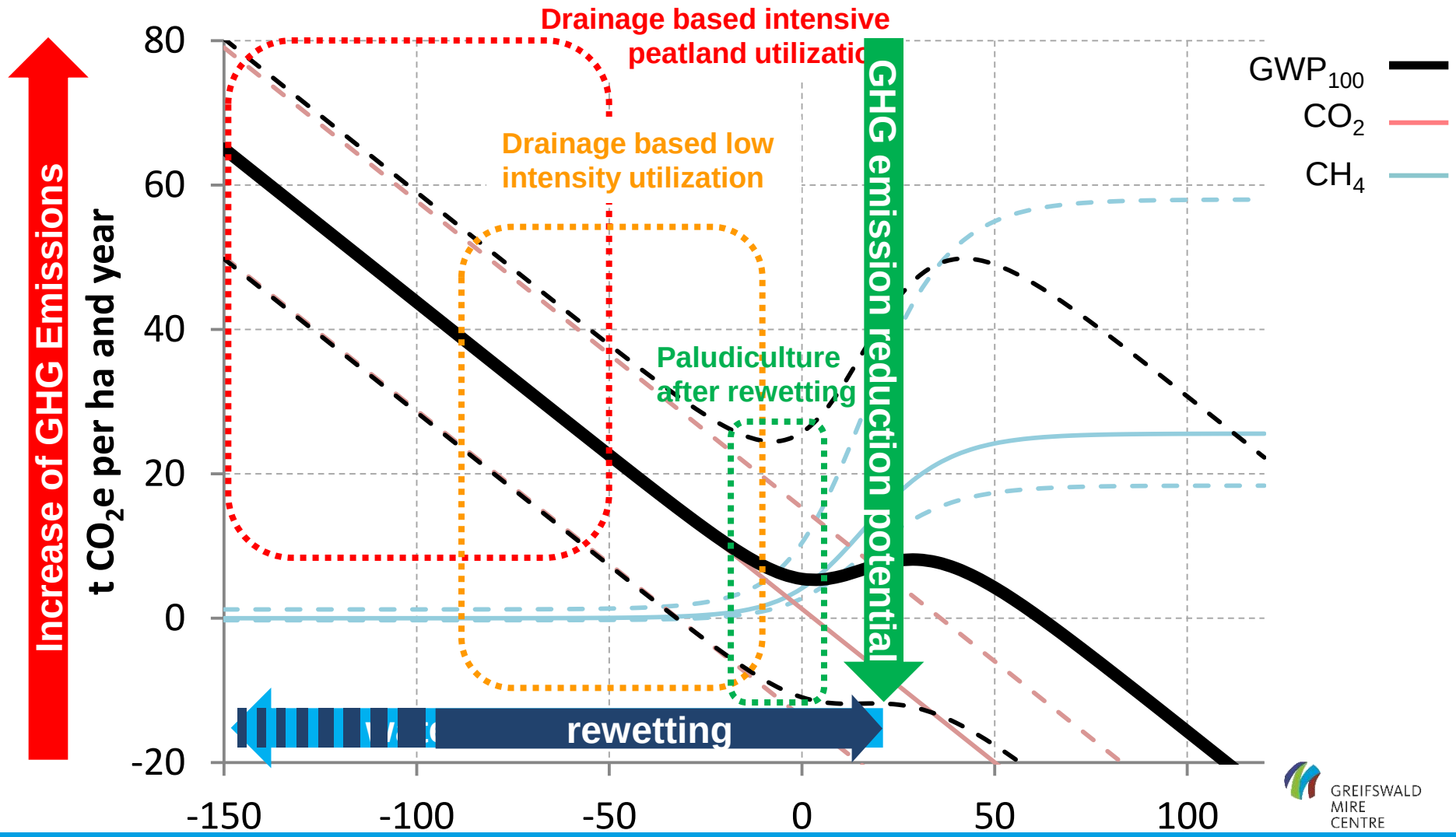

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Source: GMC emission database

Paludiculture on top

What is Paludiculture?

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PALUDI CULTURE

EUKI-Baltics

„palus" – lat.: swamp

"***Cultivation of biomass*** *on wet and* ***rewetted peatlands*** *with plant species that contribute to the* ***conservation of peat deposits*** *and ideally to the formation of peat"*

What is Paludiculture?

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PALUDI CULTURE

EUKI-Baltics

Paludiculture provides and safeguards **Ecosystem Services** of Peatlands

- **Production services**
  - Biomass for material use
  - Biomass for energetic use
  - Utilisation as fodder or food (comestibles)
- **Regulation services**
  - Soil protection
  - Biodiversity (nature near habitats)
  - Water quality protection (retention of nutrients)
  - Water quantity (harmonisation of discharge)
  - Climate protection (mitigation of GHG emissions)
  - Archives (landscape and human history)

Paludiculture on fens

Black Alder (*Alnus glutinosa*)

productivity: 3 – 10 t DM/ha*a

emissions: ~ 0 t CO_2eq/ha*a

Reed canary grass (*Phalaris arundinacia*)

productivity: 3.5 – 15 t DM/ha*a

emissions: ~12 t CO_2eq/ha*a

Common Reed (*Phragmites australis*)

productivity: 3 – >25 t DM/ha*a

emissions: ~ 10 t CO_2eq/ha*a

Cattail (*Typha* spec.)

productivity : 5 - 22 t DM/ha*a

emissions: ~ 10 - 15 t CO_2eq/ha*a

Tall Sedges (Carex spp.)

productivity: 3 – 12 t TM/ha*a

emissions: 0 – 8 t CO2 -eq / ha*a

Harvest - Individual solutions

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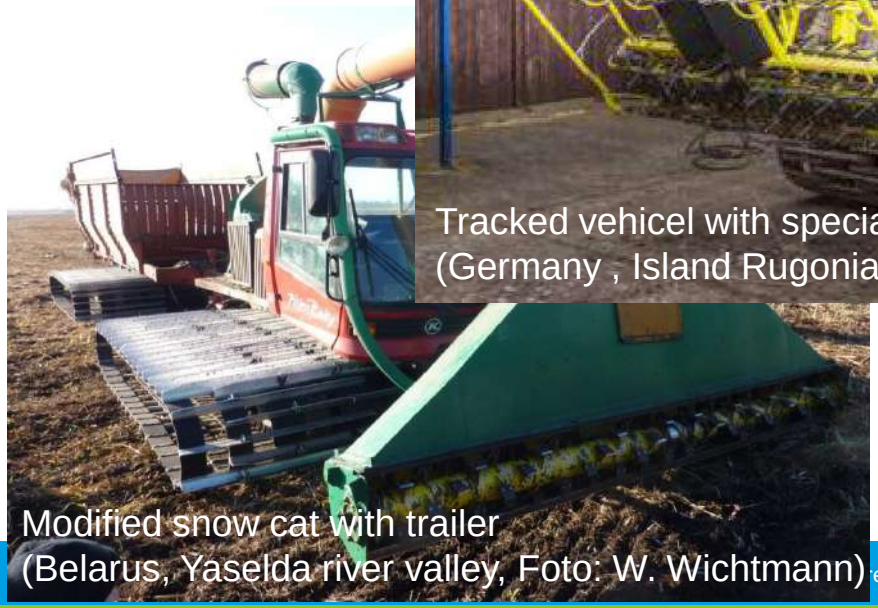
Ratrak mowing device w
(Poland: Bierbza river va

eiga based field chopper
nd, Foto: W. Wichtmann)

Tracked vehicel with special harvester unit for Cattail *Thypha*
(Germany , Island Rugonia Foto: T. Dahms Wichtmann)



Modified snow cat with trailer
(Belarus, Yaselda river valley, Foto: W. Wichtmann)

Caterpillar mounted mowing and baling
device (Austria: Neusiedler See, Foto: S. Wichmann)

Material utilisation of fen biomass

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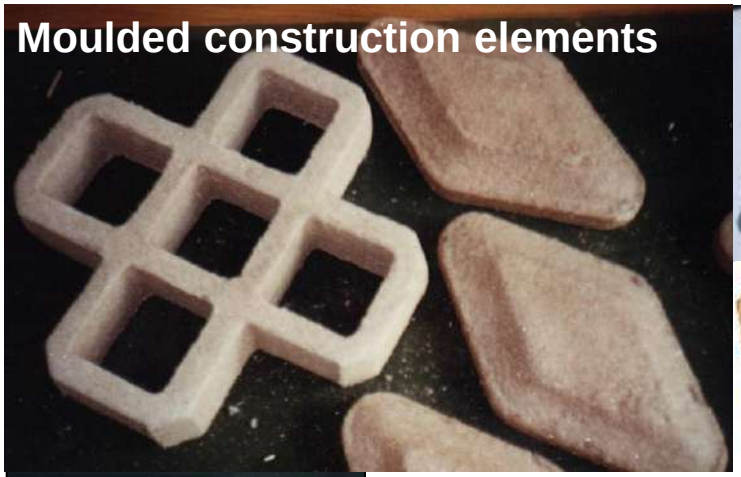
Moulded construction elements



Furniture made from high quality alder timber

Insulation and construction plates (cattail)

Reed – roof thatching material & insulation mats

www.typhatechnik.com

www.naporo.com

Traditional Paludiculture
reed for roof thatching

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50%

50%

Energetic utilisation of fen biomass

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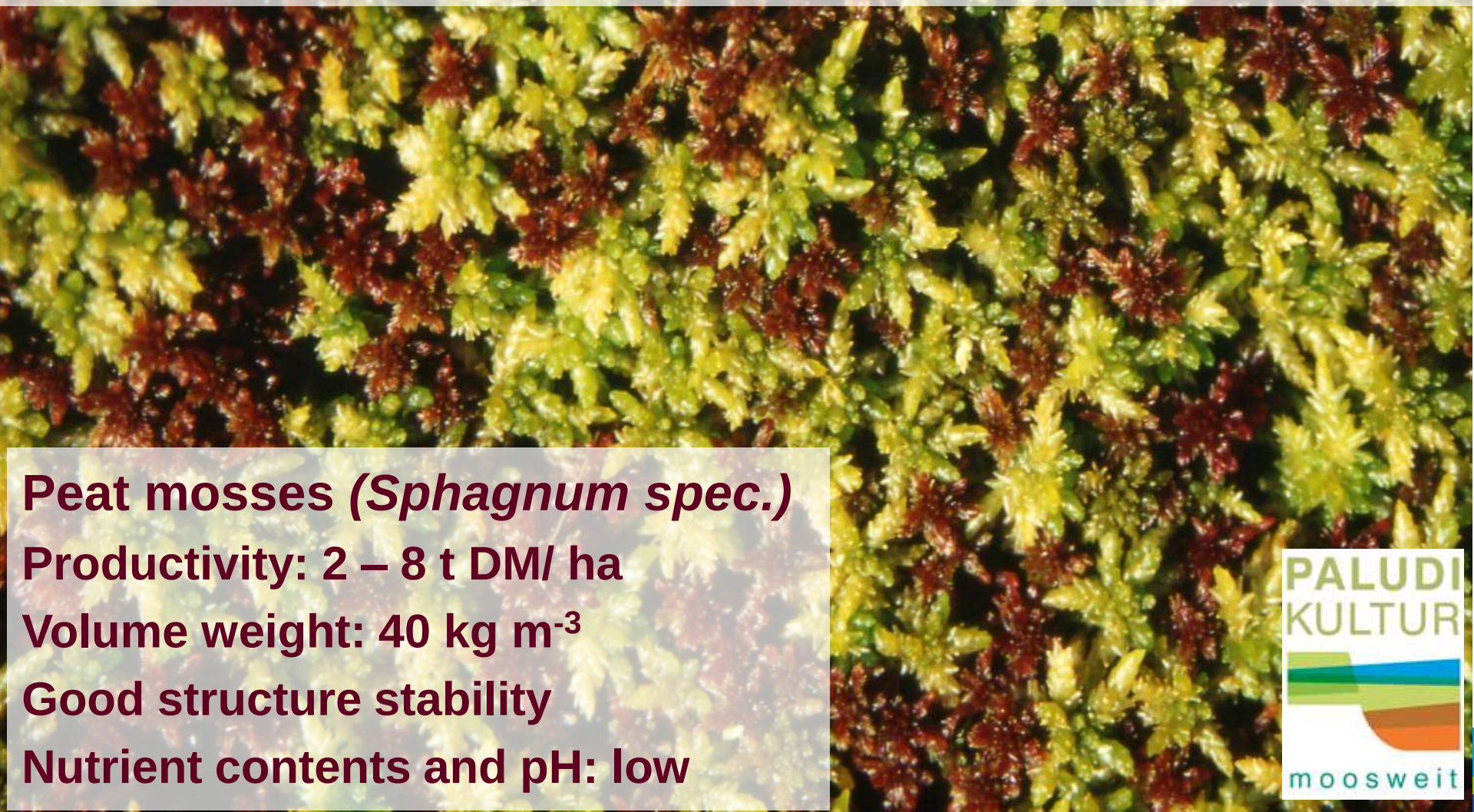
Mecklenburg-Western Pomerania heating plant Malchin

- Landcare in rewetted peatlands
- Production of biomass for energy
- Produce heat for grid supply

Paludiculture on bogs

- Cultivation of peat mosses (*Sphagnum* farming)
- Substrate for horticulture (substitute for white peat)



Peat mosses *(Sphagnum spec.)*

Productivity: 2 – 8 t DM/ ha

Volume weight: 40 kg m^{-3}

Good structure stability

Nutrient contents and pH: low

PALUDI KULTUR moosweit

Why a horti-cultural peat substitute?

ERNST MORITZ ARNDT
UNIVERSITÄT GREIFSWALD

Partner in the
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slightly humified peat moss peat is…

… an irreplaceable resource in professional horticulture

… offers optimal quality as substrate

… most important material

… globally about 30 million m³ per year

Pilot site preparation in Latvia

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Ačiū už dėmesį!

Foto: Jūratė Sendžikaitė

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http://greifswaldmoor.de
http://paludiculture.de