DISTRIBUTION OF PEATLANDS AND ORGANIC SOILS IN THE BALTIC SEA REGION

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GAPS IN KNOWLEDGE AND CHALLENGES FOR CLIMATE CHANGE MITIGATION

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LIFE OrgBalt
End of project conference
13th of June 2024
Riga, Latvia

Peatland use in the EU

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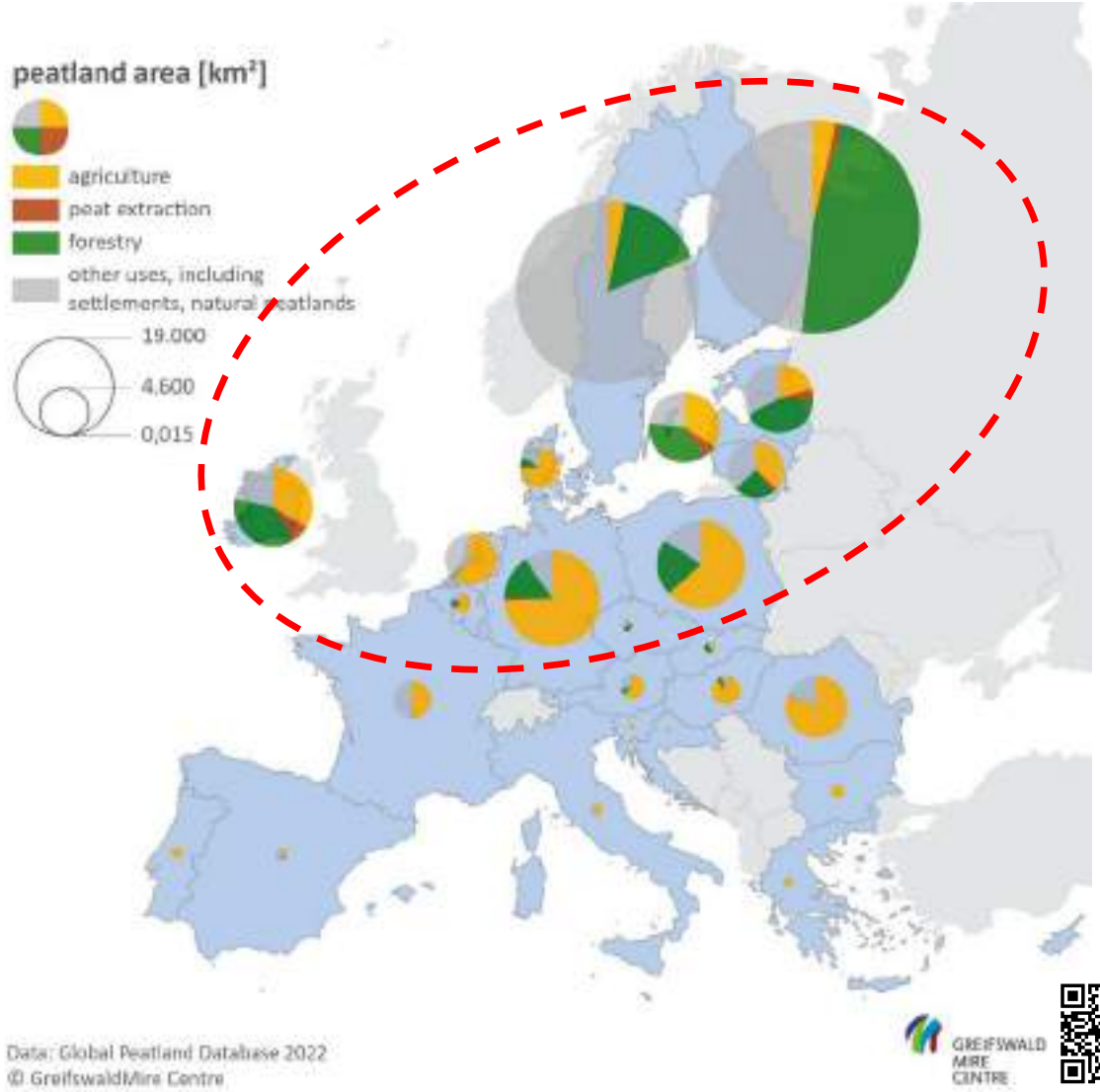
⇒ Peatlands in the EU are **drained and used** for agriculture forestry and peat extraction

⇒ Peatland rich countries of the EU are in **Northern-Central** Europe.



Source: GMC/WI Policy Briefing: https://europe.wetlands.org/download/6860/

Peatland use in the EU

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⇒ EU is the **2nd largest** emitter of GHG from drained peatlands globally.

⇒ **7%** of the EU's annual GHG emissions = **230 Mt CO_2eq** from total drained peatlands.
(GPD 2022, EEA (2021) https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer)

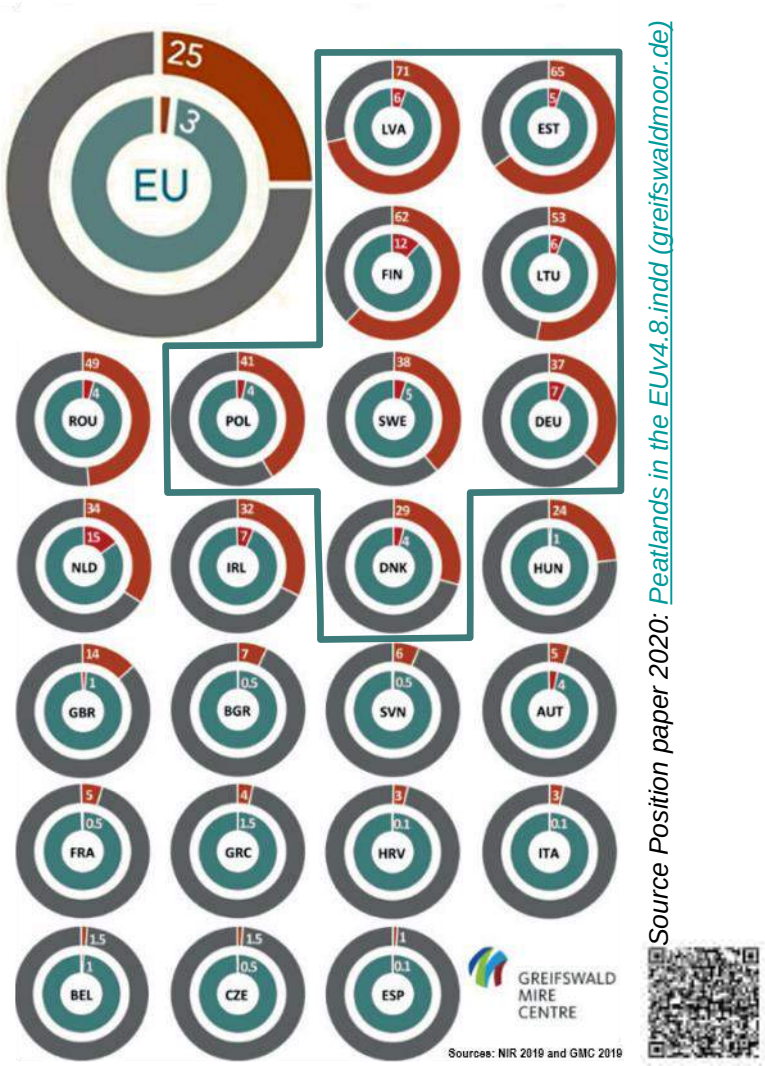
⇒ Disproportional high emissions in some sectors e.g. **agriculture land use**:

EU: 25% of agricultural emissions,

⇒ from **3%** of the production area.

Baltic sea littoral countries: **29%-71%** of agricultural emissions,

⇒ from **4%-7%** of the production area



Source Position paper 2020: Peatlands in the EUv4.8.indd (greifswaldmoor.de)

Fig: % of agricultural land on organic soils (inner circle) and % of their GHG emissions of total agricultural emissions (incl. LULUCF - outer circle)

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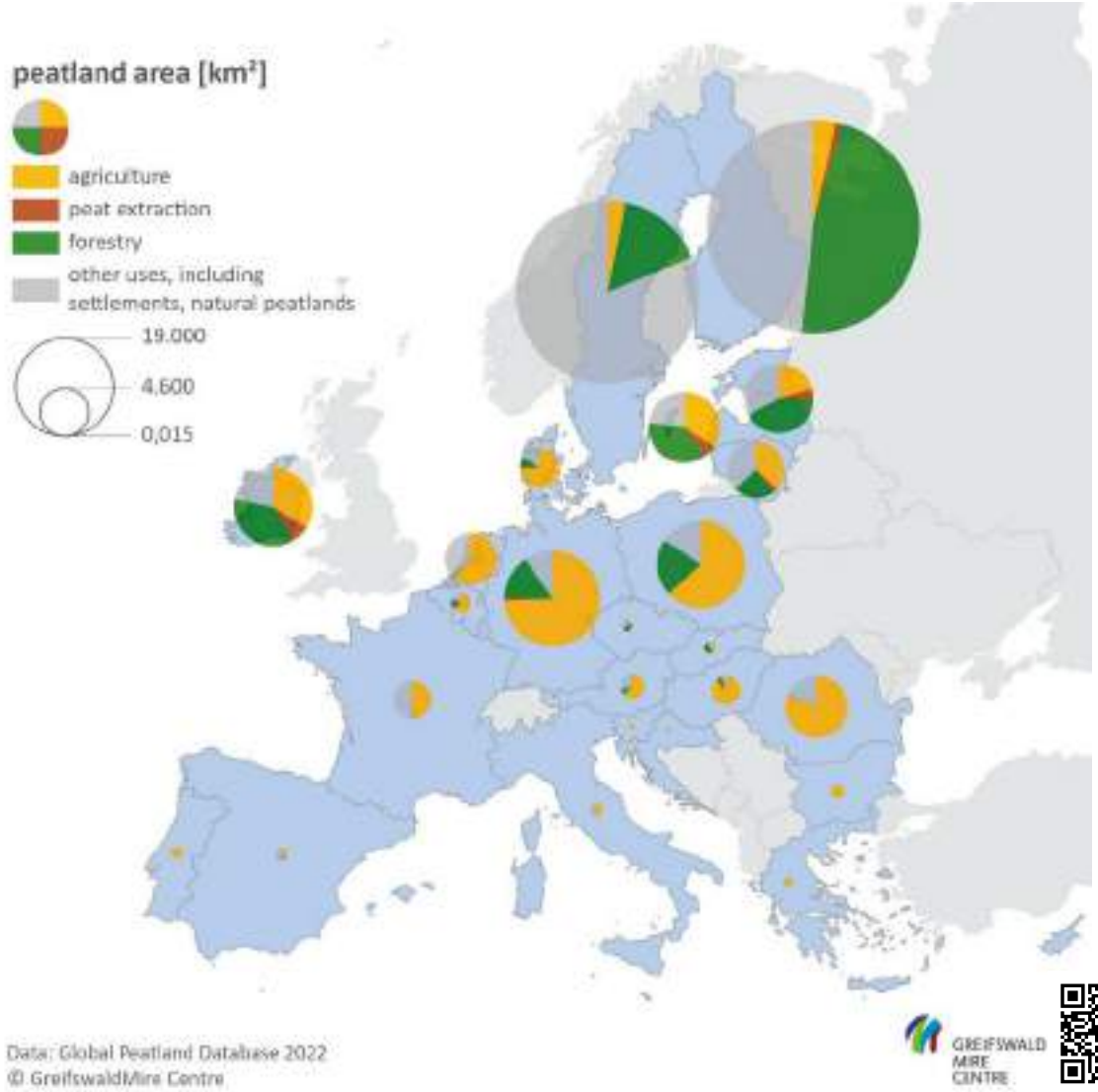
⇒ Larger areas of **still pristine mires** in the North-East in the **Baltic sea region**

- Protect what is left
- Rewet drained sites



Source: GMC/WI Policy Briefing: https://europe.wetlands.org/download/6860/

Peatlands & organic soils in the Baltic sea region

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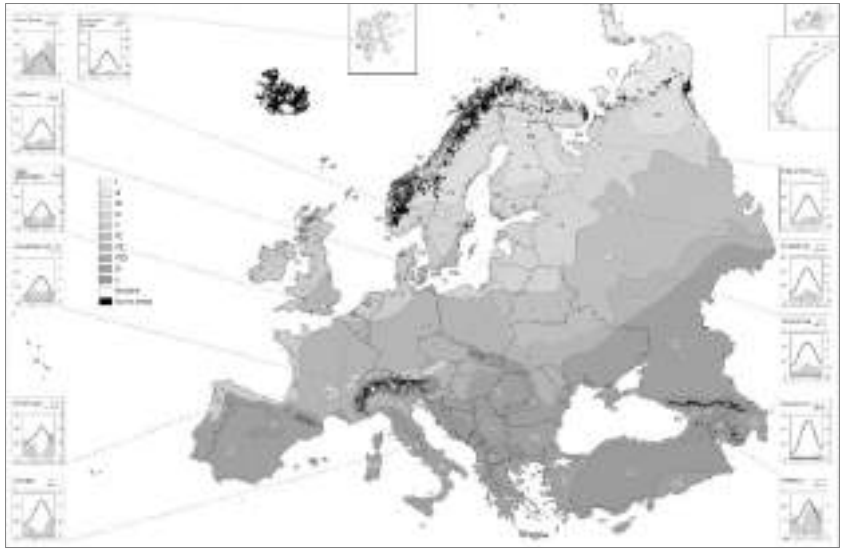
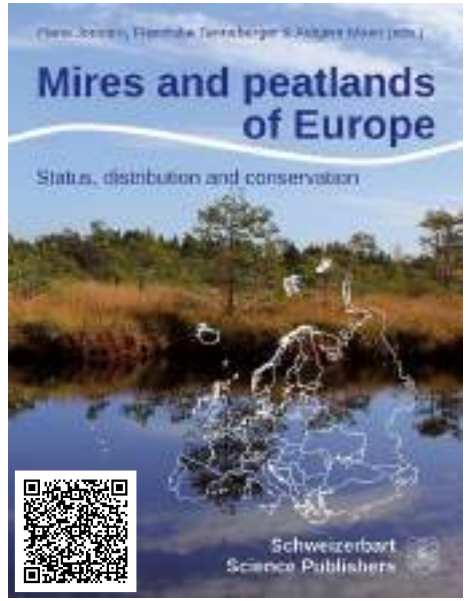
⇒ Compiled from available data sources for organic soils in Baltic sea countries (Global Peatland Database 2024)

⇒ Landscape approach and ecosystem understanding (geomorphology / topography, hydrology, and climate determine occurrence of peatlands)

⇒ All peatlands have formed as mires (in) landscapes



The 10 mire regions and 51 subregions in Europe (Moen et al. 2017)



https://www.schweizerbart.de/publications/detail/isbn/9783510653836/Joosten_Tanneberger_Moen_Mires_and_peat

Mire diversity in the Baltic sea region

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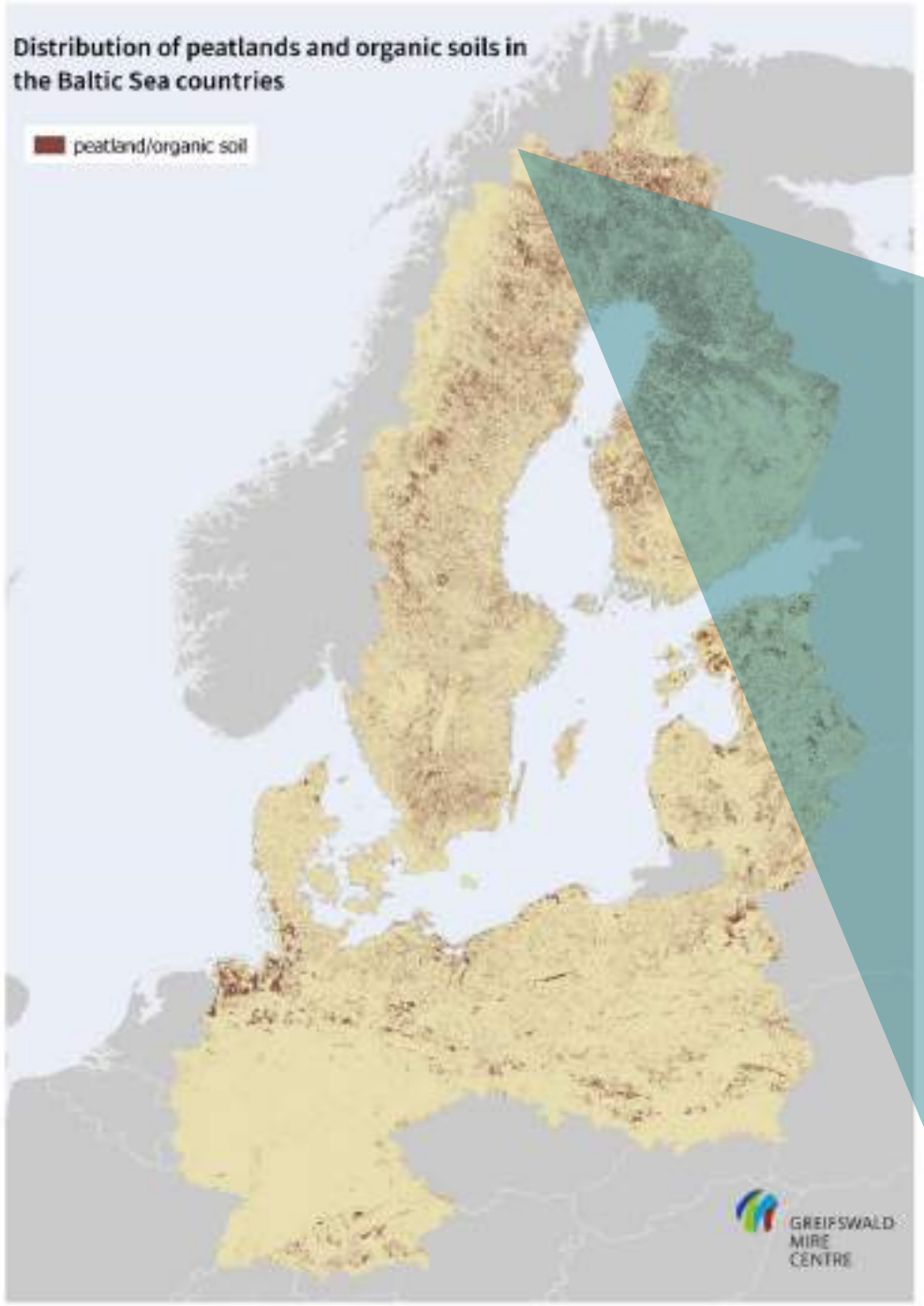

II Palsa mire region: Palsa mire at Kilpisjärvi, Finland

Mire diversity in the Baltic sea region

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III Northern fen region: Aapa mire complex, Hämeenjänkä, Finland

(Image © 2024 Maxar Technologies / GoogleEarth, satellite image 17.08.2012)

Mire diversity in the Baltic sea region

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IV Typical raised bog region: Männiku Raba, Estonia

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IV Typical raised bog region: Purezera purvs, Latvia

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IV Typical raised bog region: Reiskiai raised bog, Lithuania

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V Atlantic bog region: Store Mosse, Sweden

Pristine Mires in the Baltic sea region

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V Atlantic bog region: Tofte Mose, Denmark

Pristine Mires in the Baltic sea region

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VI Continental fen and bog region: Čepkeliai Pelkyno, Lithuania

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VII Nemoral-submeridional fen region: Recknitz river valley mire, Germany

Peatlands & organic soils in the Baltic sea region

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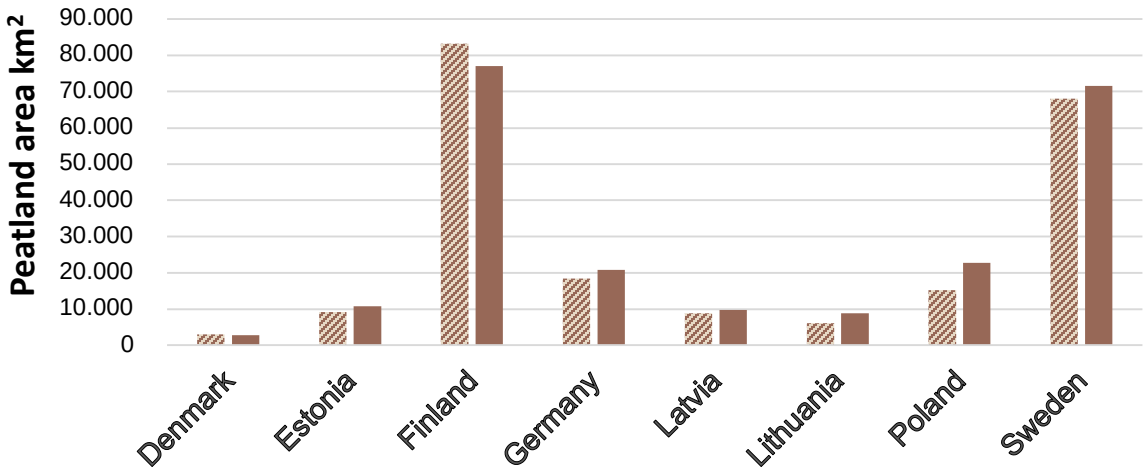
⇒ **224 050 km²** total peatland area in the EU Baltic Sea littoral states (GPD 2024)

⇒ **~61%** are drained and degraded (GPD 2022/NIS 2021, agriculture, forestry, and peat extraction)



Drained peatland for agriculture, forestry & peat extraction in the EU Baltic sea countries GPD'22/NIS'21 vs NIS'23

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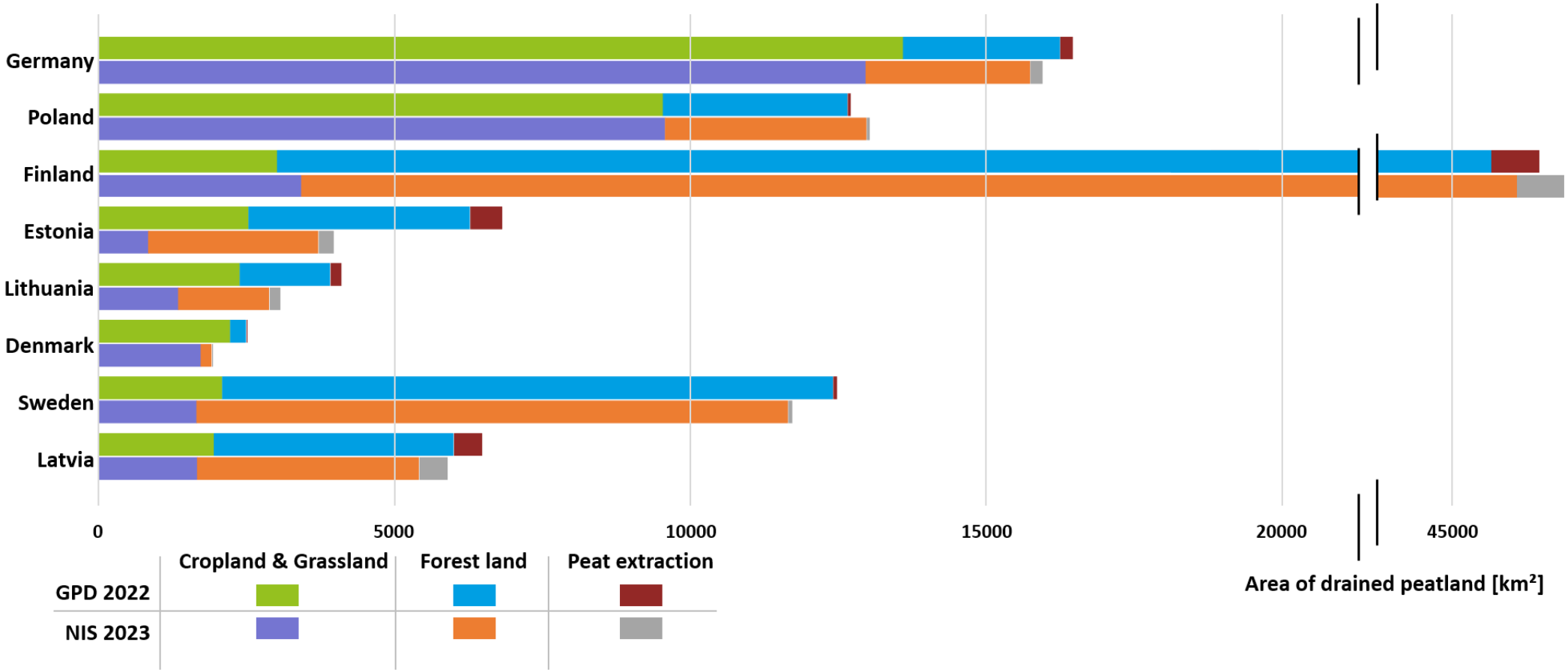

⇒ **The general picture is clear! And we know where we need to start!**

Why there are inconsistencies with other inventories?

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⇒ Differences in modelling and strategic focus

- **incomplete model training data**
  (field assessment, up to date ground data)
- **activity data bias**
  (sectoral differences in cadasters & definitions)
- **administrative expert knowledge gap**
  (lack of ecosystem understanding– technocratic focus)
- **administrative restrictions**
  (bureaucratic procedures, e.g. UNFCCC or EU regulations)
- **political programs**
  (conflicting priority settings)

⇒ **Communication and ground truthing is needed for further best knowledge updates!**

Inconsistencies point at gaps in knowledge – SE Latvia

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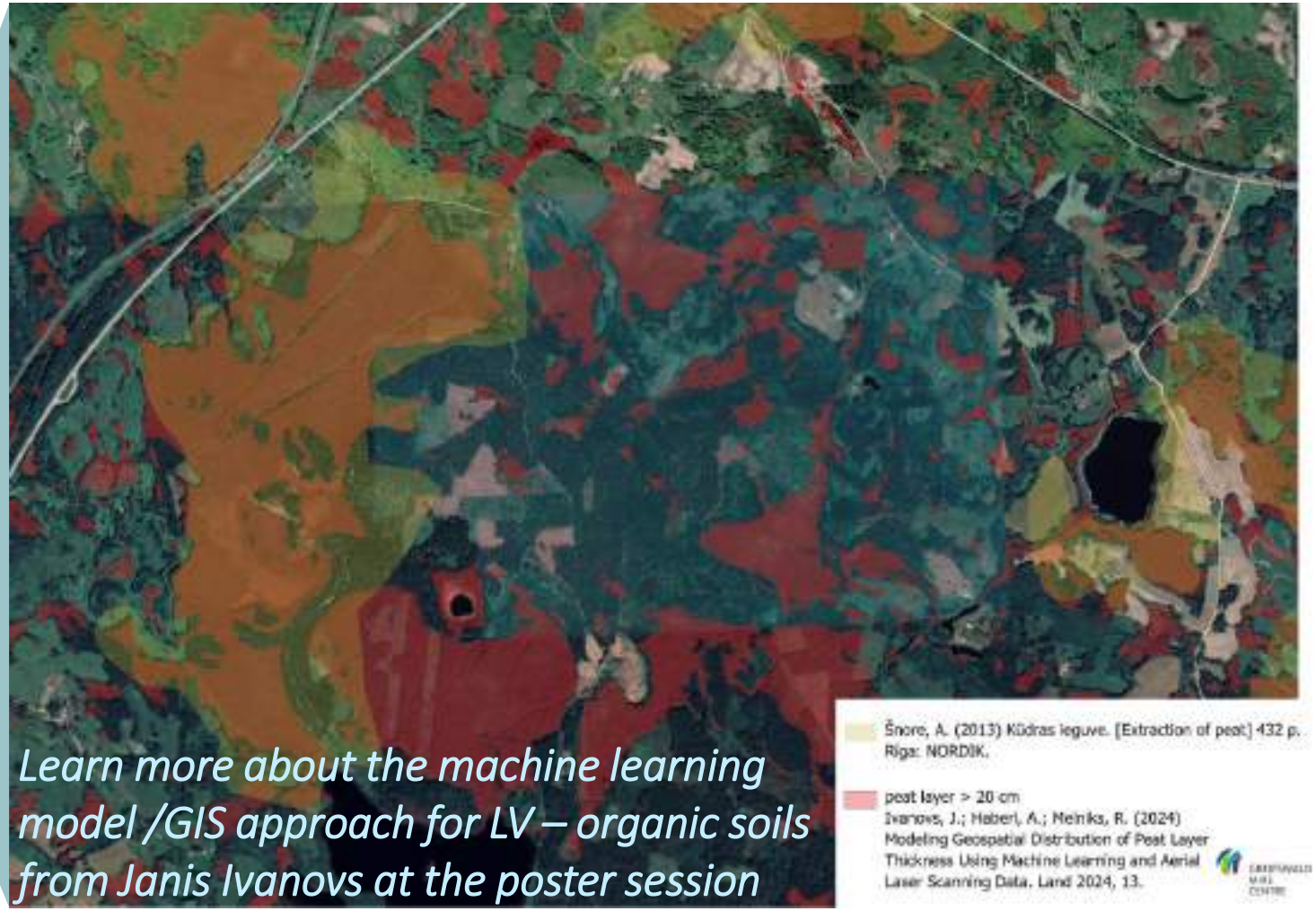
Sectoral inventory vs. landscape based machine learning



Learn more about the machine learning model /GIS approach for LV – organic soils from Janis Ivanovs at the poster session

Inconsistencies point at gaps in knowledge – on our doorstep

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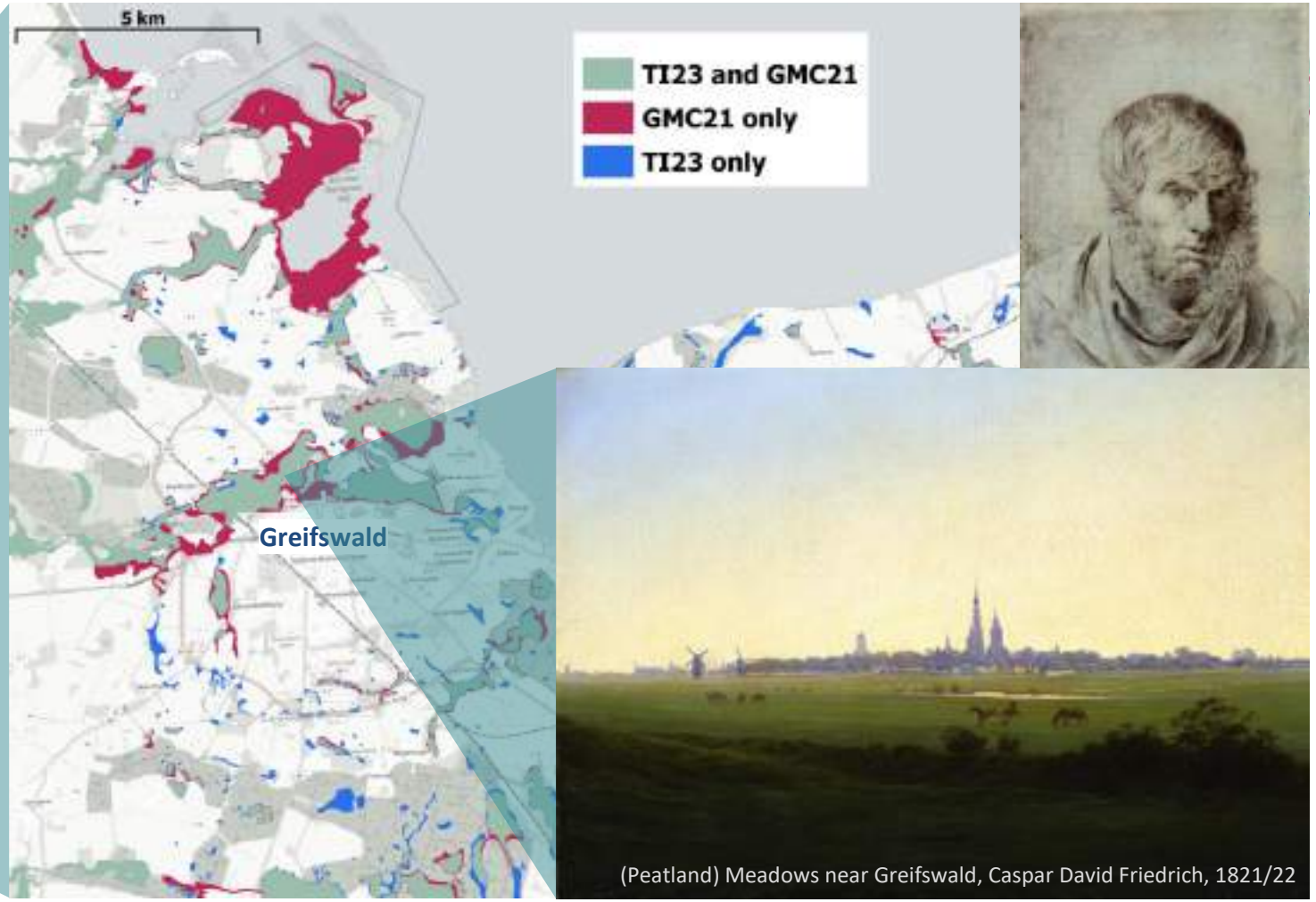
Thünen Institute 2023 vs. GMC/GPD 2021



(Peatland) Meadows near Greifswald, Caspar David Friedrich, 1821/22

Inconsistencies point at gaps in knowledge – we need to fill!

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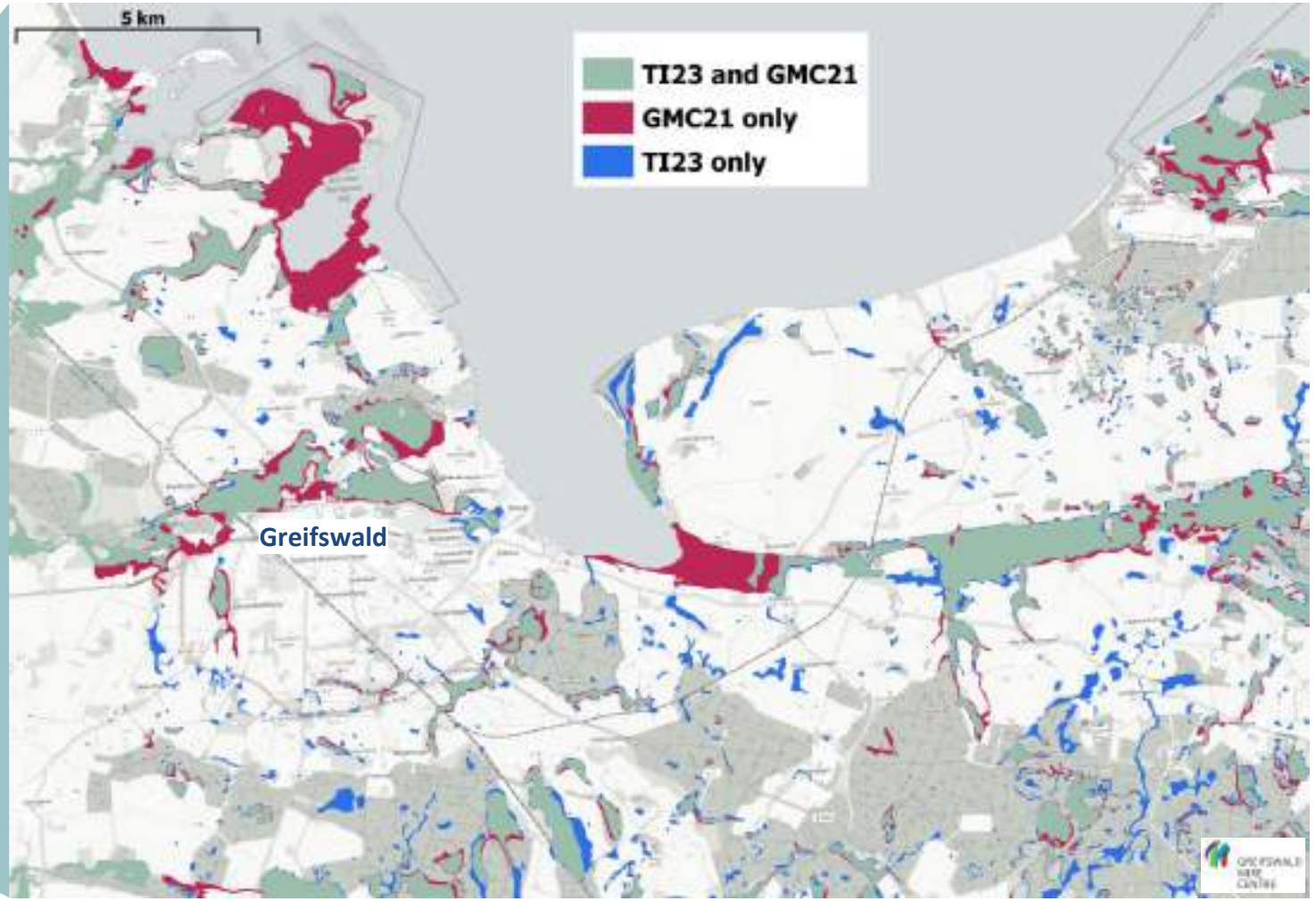
Thünen Institute 2023 vs. GMC/GPD 2021



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Conclusions

⇒ There is no universal and best map.

⇒ We know already enough to act.

⇒ Inconsistencies should make us aware and stimulate exchange and improvement.

⇒ Inclusion of ground water models & topological data improve maps.

⇒ To improve modelling more and up to date on ground training plots are needed.

Data References, GPD 2024

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PEATLANDS MUST BE WET!

Learn more about Baltic paludiculture at the poster session:
EUKI Carbon capturing by Baltic peatland farmers

PALUDI CULTURE

EUKI-Baltics

Implementing Partners:

Succow Stiftung

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https://www.succow-stiftung.de/en/peatland-climate/euki-carbon-capturing-by-baltic-peatland-farmers