Luke
NATURAL RESOURCES
INSTITUTE FINLAND

Global Peatlands Assessment: Europe

Status of Peatlands
Hotspots of change
Hotspots of response
Knowledge Gaps

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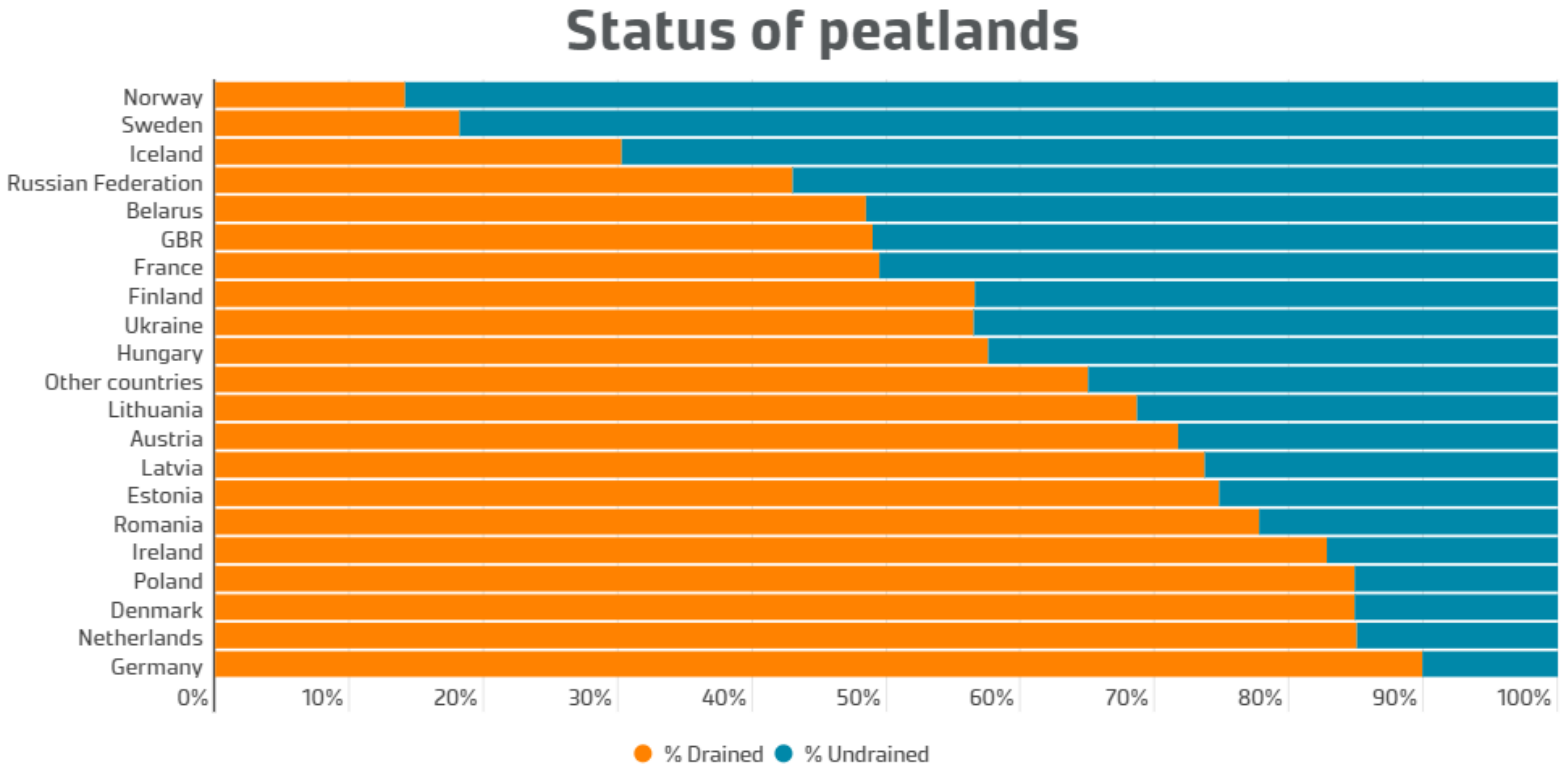
Coordinating lead author

Photo H. Nousiainen

Almost 50% of the European peatland area is degraded

Over 50% of Europe's peatlands located outside EU

5.4.1 Status of Peatlands, Box 5.1



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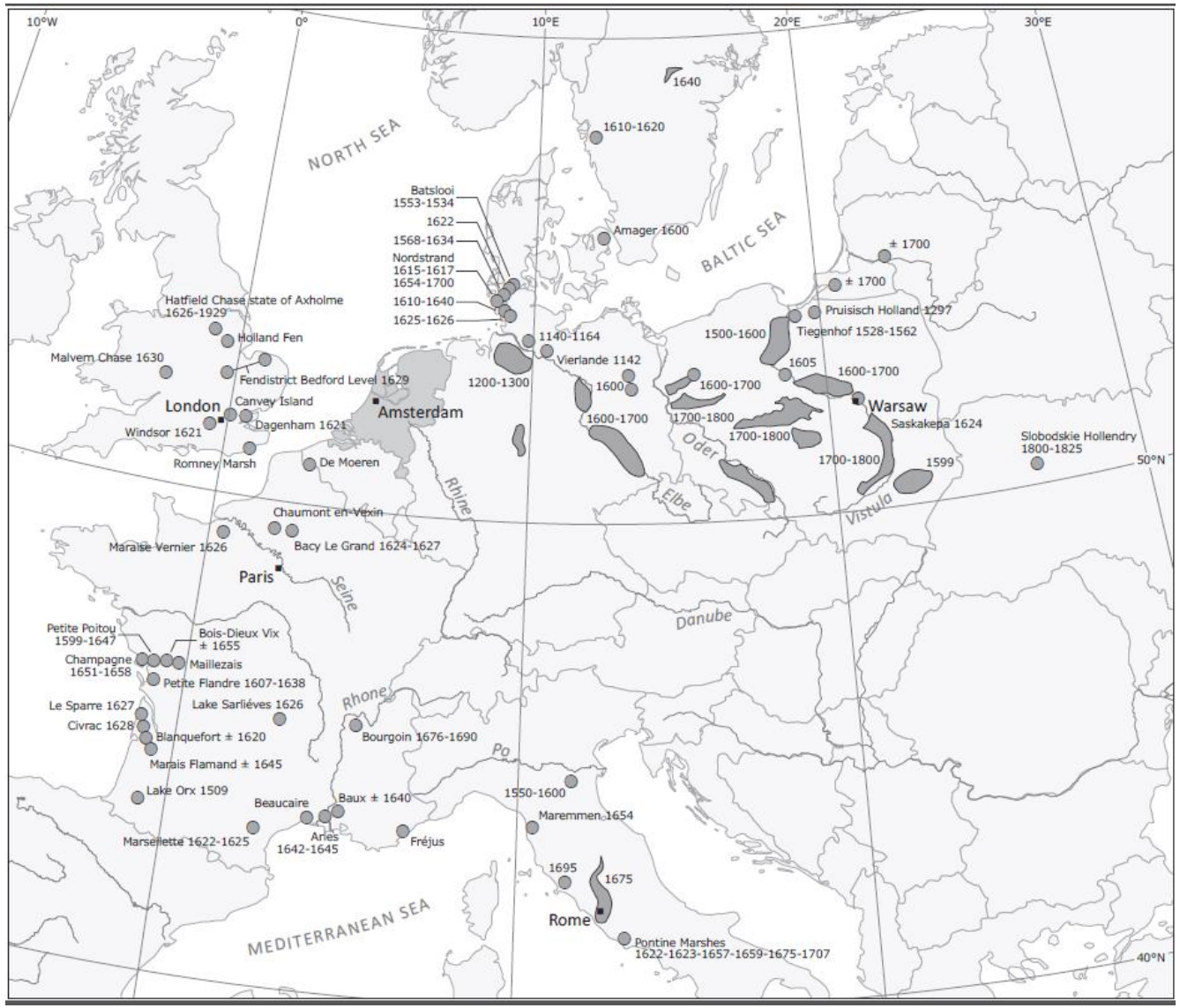
Proportion of drained and undrained peatlands in Europe per country (partly including organic soils). Calculations are based on the drained area for forestry, agriculture and peat extraction. *Sum of European countries with less than 100,000 hectares of peatland area. Source: Global Peatlands Assessment data retrieved from the Global Peatland Database compiled by the Greifswald Mire Centre.

Large-scale, drainage-based economic use of peatlands began in Europe over a 1000 years ago



Export of Dutch peatland reclamation expertise to other European countries (from Joosten & Tanneberger 2017; after Danner et al. 2005).

Long-term drainage caused land reclamation and production but also land subsidence, at rates of c. 6 mm/year, max c. 8 m/1000 year (Ruyssenaars et al. 2020).

1st documented peatland drainage to increase tree stand productivity, Norway 1700's, larger scale after WWII

5.4.2. Drivers of Change

Peatland use in the EU

Food, fodder

Timber

Energy production from peat extraction

Rewetted 1% area

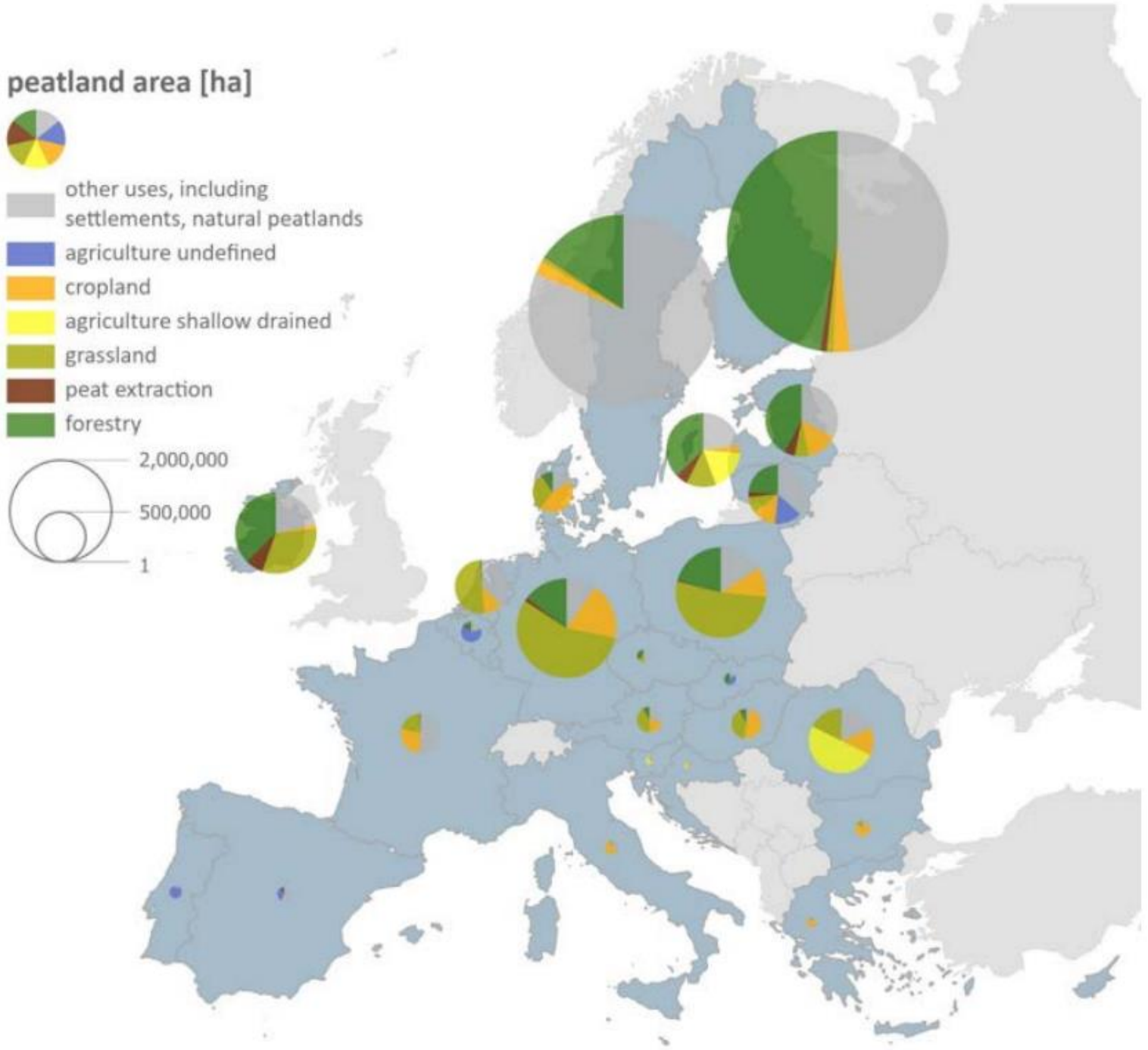
Europe including All European countries the 2nd largest current GHG emitter from drained peatlands 582 Mt CO_2eq/ year

The highest historical emitter in cumulative terms

Peatland area and proportions of different land use categories per country in the EU. and the GHG estimate for Europe

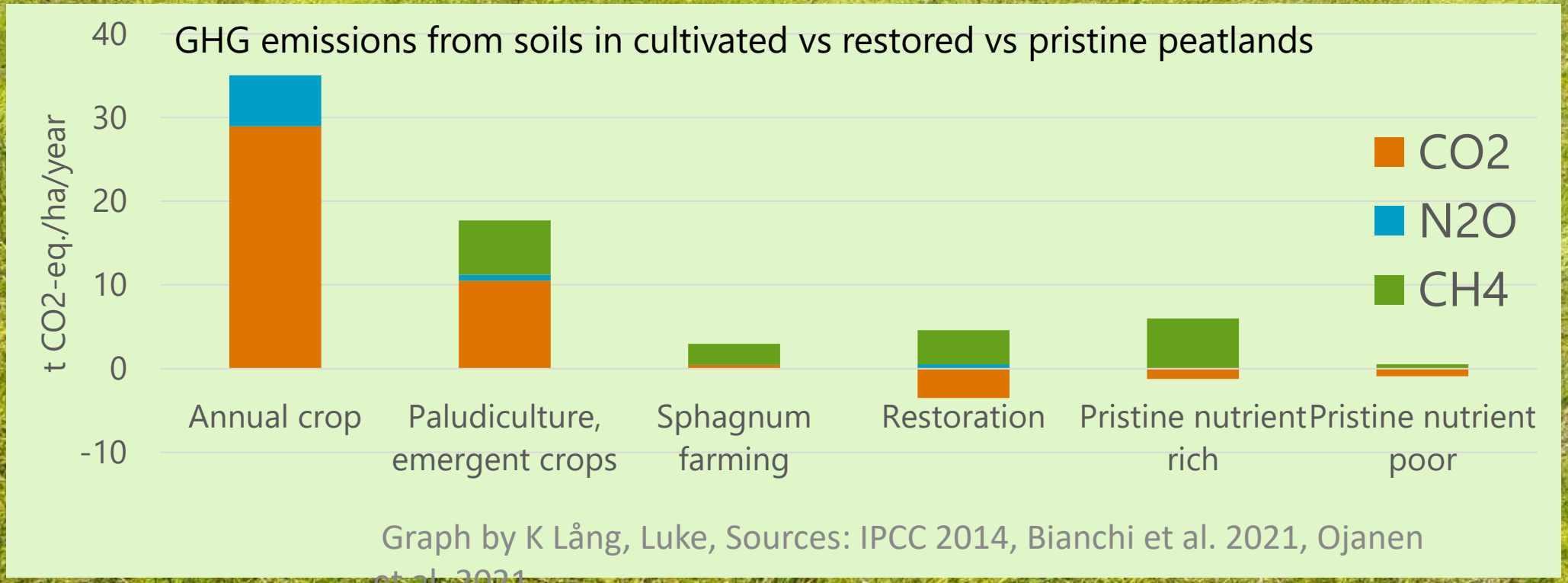
Source: Global Peatlands Assessment data retrieved from the Global Peatland Database compiled by the Greifswald Mire Centre

5.4.2. Drivers of Change



Sustainable management and restoration- a cost efficient nature-based solution

to mitigate GHG emissions, to halt biodiversity loss and support climate change mitigation



Graph by K Lång, Luke, Sources: IPCC 2014, Bianchi et al. 2021, Ojanen et al. 2021

5.4.3 Hotspots of Change: Paludiculture

Sphagnum farming Hankhauser Moor photo T. Larmola

The vast majority of undrained peatlands are “not pristine”

Northern fen region (Aapa mire region III) 25% drained

The surrounding drainage disturbs mires’ hydrology, minerotrophic water discharge to fens from their upper catchment and has led to partly drained margins

Disturbances in hydrology or a warmer, drier climate may induce tree encroachment, hummock formation and fen–bog transition

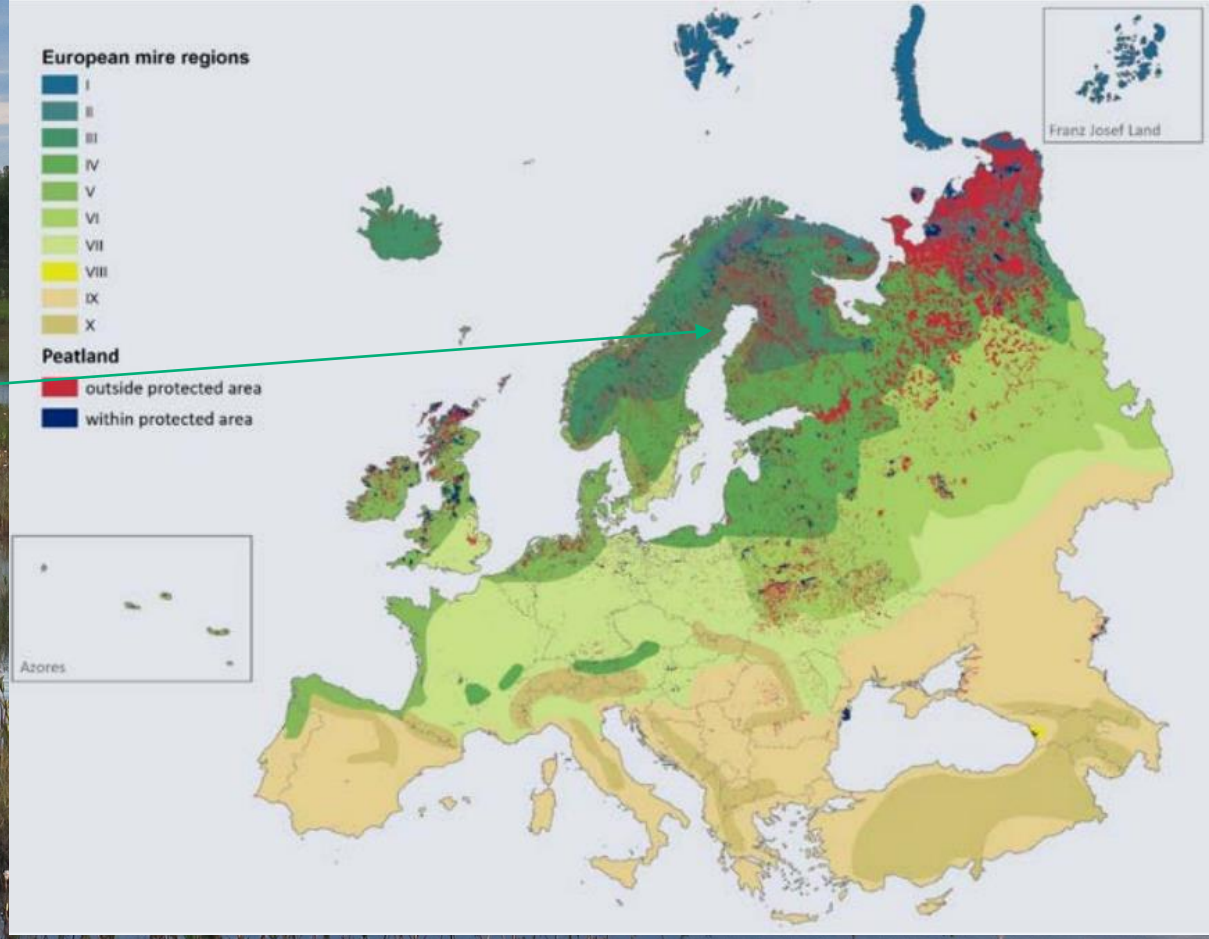


Photo H. Nousiainen

Large and rapid losses of old permafrost locked carbon begun

Arctic seepage and polygon mire region I; **Palsa mire region II**

Greater than 50% reduction in palsa or peat plateau area since the late 1950s (Zuidhoff and Kolstrup 2000; Borge et al. 2017).

Permafrost peatlands in Europe are close to or may have already passed a climatic tipping point. All of Fennoscandia will become climatically unsuitable for peatland permafrost by 2040 (Fewster et al. 2022).

Policy Context and Options for action

Current uses, extent and proportion of peatlands in Europe differ strongly between countries

This highlights the different potential for GHG mitigation in land use, land-use change and forestry (LULUCF) and Climate Change Mitigation (CCM), the potential for restoring biodiversity and the applicable incentives/compensations.

Photos H. Nousiainen, T Larmola,Luke, GPA (top right)

Policy context and options for action

Policies presented for
5 most peatland-rich countries (in ha):
Russia, Finland, Sweden, Norway, Belarus

5 countries with ambitious approaches:
Denmark, Germany, Ireland, Lithuania, UK.

Examples of 17 countries' targets and implementation actions for protecting, restoring and rewetting peatlands in Annex IV (Table IV.2) as in August 2022

Restored mire Zwarte Beek, Flanders, BE, photo T Larmola, Luke

Hotspots of Response

Collaboration in Ireland

involves direct engagement between peatland ecologists, land managers, farm advisors, catchment scientists and local farming communities.

developed a results based agri-environment payment scheme (Result-Based Agrienvironment Payment Schemes [RBAPS] to reward farmers for managing their lands for good peatland habitat quality supported by state

Community Wetlands Forum established in 2013, is supporting local groups to conserve, restore and appreciate their local peatlands.

The state is also supporting rewetting of former state owned Bord na Móna (the Irish Turf Board) peatlands from the perspective of reducing carbon losses

Photo from GPA

Finland: How to Manage Peatland Forests More Sustainably?

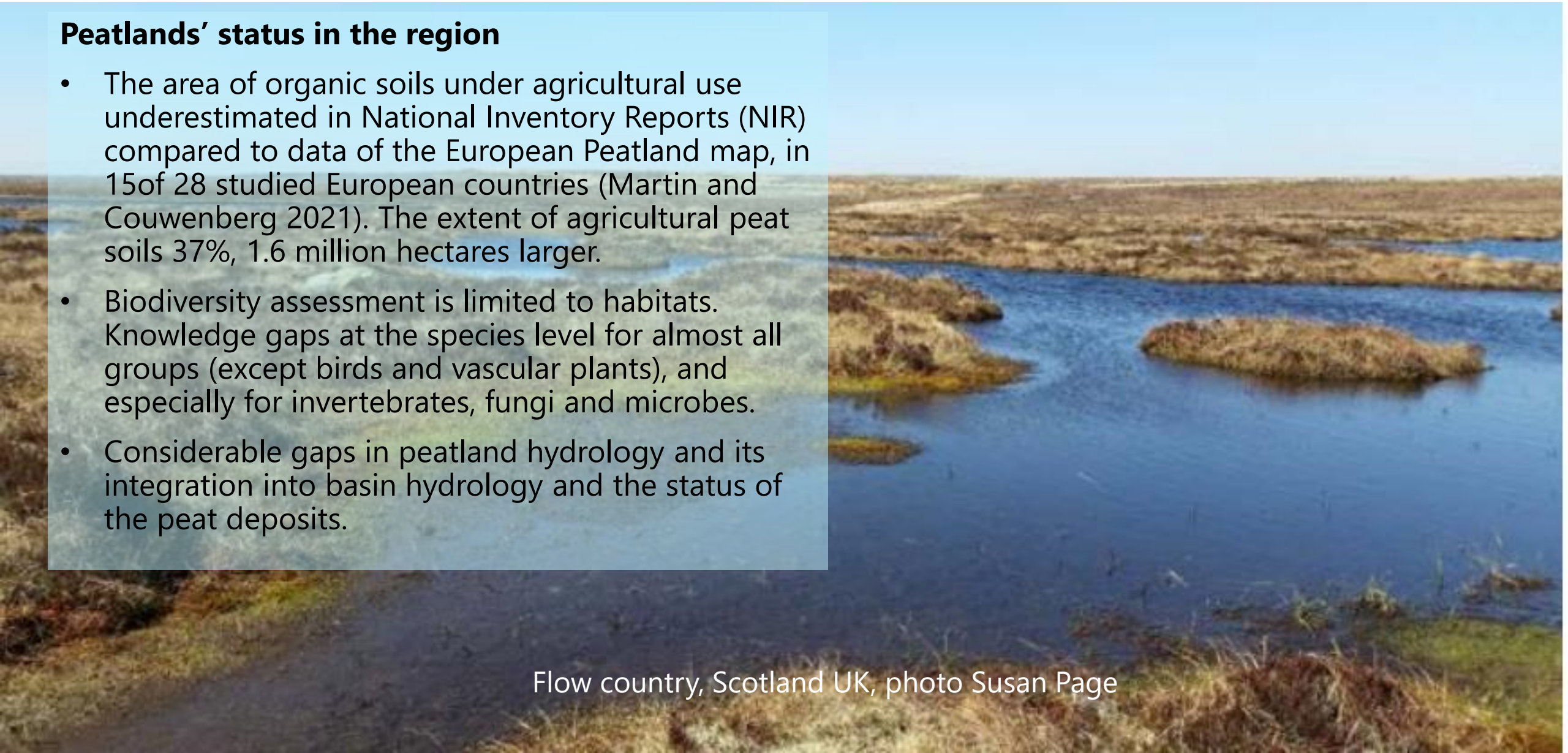
Potential benefits of continuous forest cover forestry practices:

- Lower impact to environment conditions in forest stand
- Controlled rise in soil water-table level due to impact of remaining tree stand evapotranspiration
- Reduced/no need for ditch network maintenance
- Reduced soil CO2 emissions from peat due to reduced change in soil water-table after harvesting
- Reduced inputs of water and plant nutrients to surface water bodies

Knowledge Gaps I

Peatlands' status in the region

- The area of organic soils under agricultural use underestimated in National Inventory Reports (NIR) compared to data of the European Peatland map, in 15of 28 studied European countries (Martin and Couwenberg 2021). The extent of agricultural peat soils 37%, 1.6 million hectares larger.
- Biodiversity assessment is limited to habitats. Knowledge gaps at the species level for almost all groups (except birds and vascular plants), and especially for invertebrates, fungi and microbes.
- Considerable gaps in peatland hydrology and its integration into basin hydrology and the status of the peat deposits.

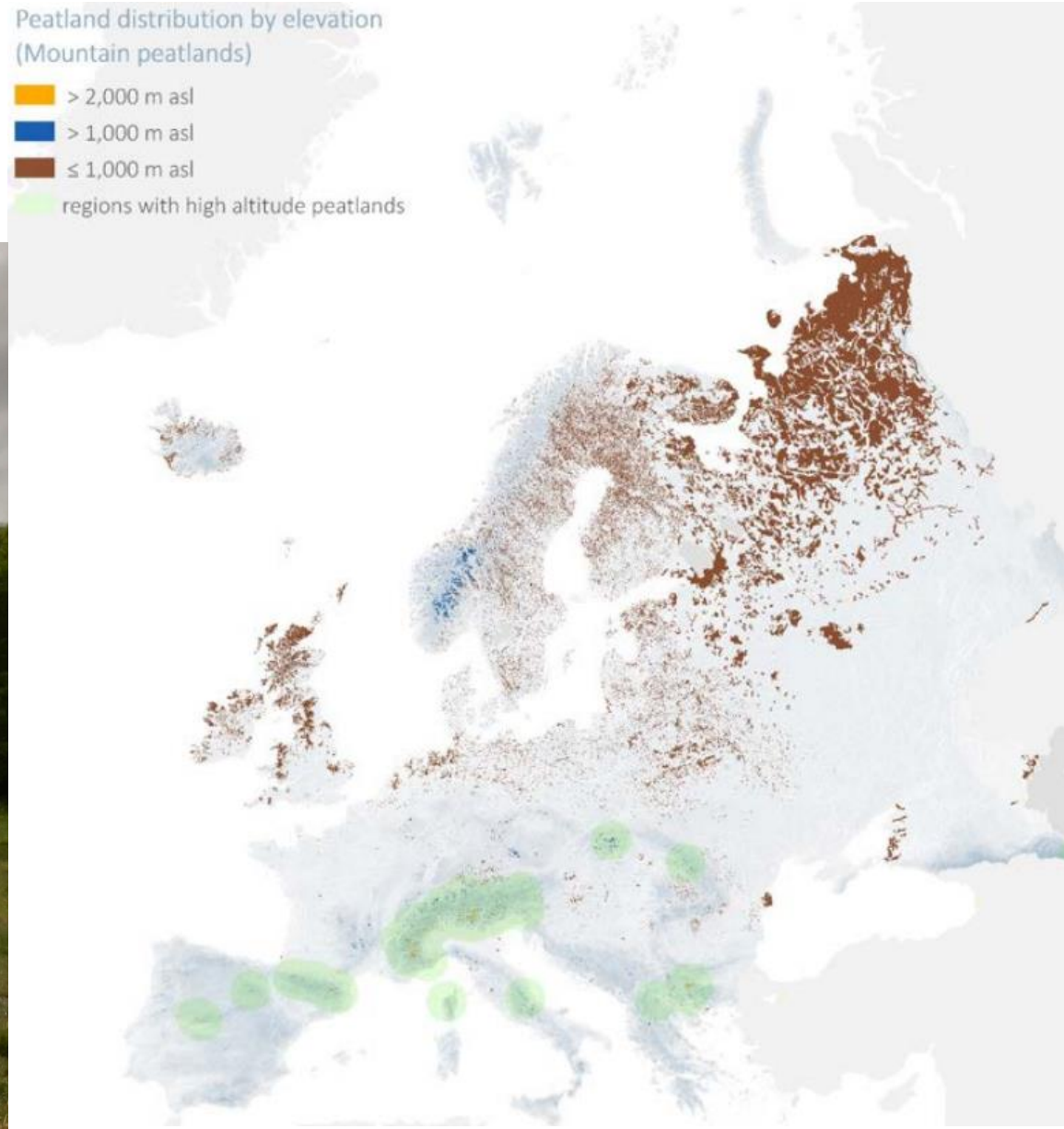


Flow country, Scotland UK, photo Susan Page

Knowledge Gaps II

Highland peatlands neither properly recognized in regional mire classification nor appropriately addressed in the peatland conservation and restoration strategies or relevant policies

Photo T. Larmola



Knowledge Gaps III

No European country has completed national inventories of peatlands ecosystem services as part of **natural capital accounting**, but significant steps have been made in Ireland, the UK and Finland.

1. step **Peatlands (or wetlands) in almost all national inventories of ecosystem services** that EU countries provided within the EU Biodiversity Strategy to 2020 (2011-2020).

2. step **Valuation of the ecosystem services**, has been rarely applied to peatlands.

3. step, **The development of mechanisms for payment of ecosystem services** in Europe is in its infancy Integration of ecosystem services in the economies requires developing financial, fiscal, certification, eco-compensation and other mechanisms.

Restored spruce swamp, photo T Larmola, Luke

Thank you!

https://www.unep.org/resources/global-peatlands-assessment-2022

UN environment programme

Global Peatlands Initiative

Global Peatlands Assessment: The State of the World's Peatlands

EVIDENCE FOR ACTION TOWARD THE CONSERVATION, RESTORATION, AND SUSTAINABLE MANAGEMENT OF PEATLANDS

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Ramsar

Photo T. Larmola