UNFCCC COP13

Side event

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Global Assessment on Peatlands Biodiversity and Climate Change

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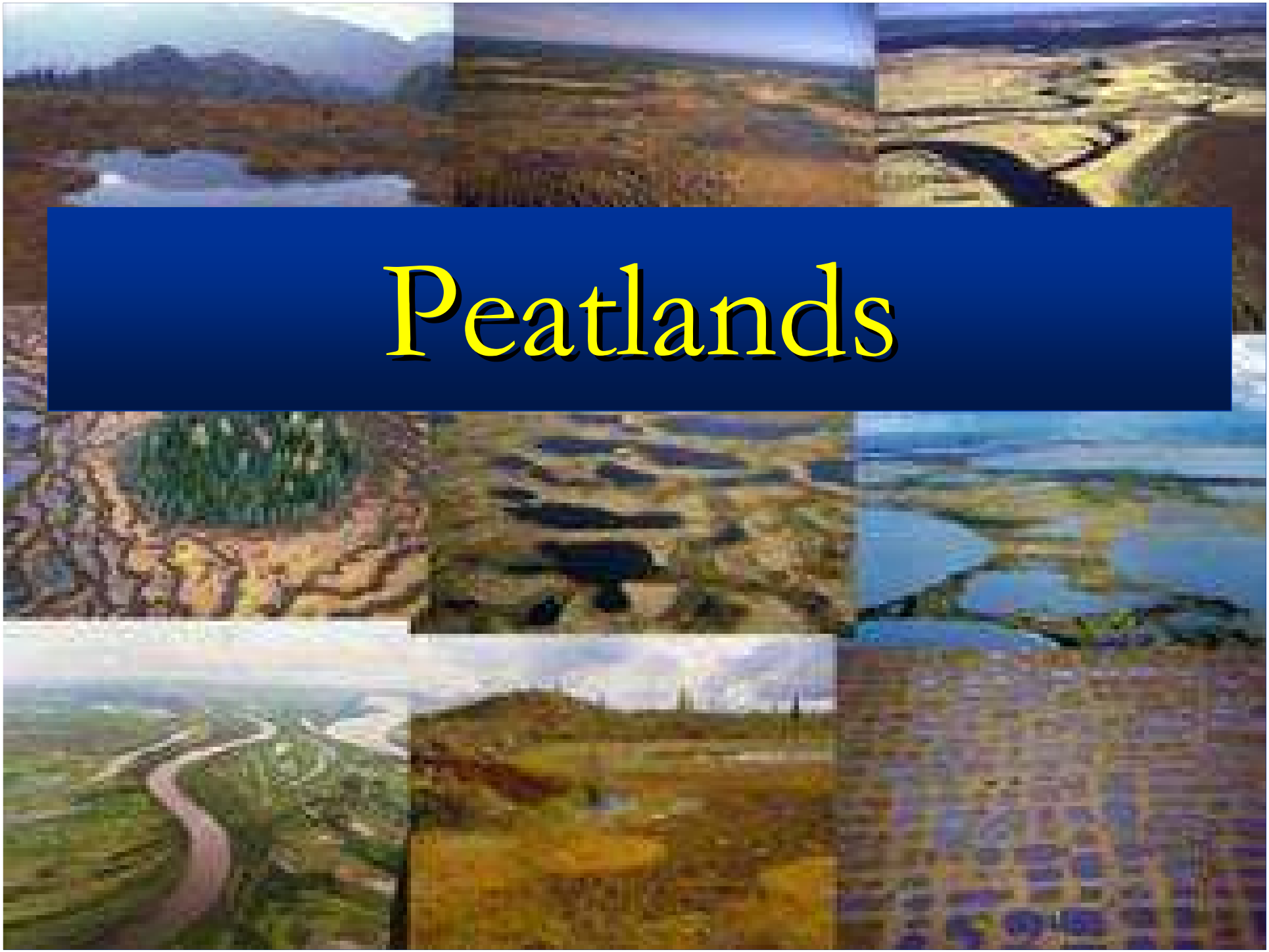


Peatlands

Assessment on Peatlands Biodiversity and Climate Change

- Global Multidisciplinary team
- Pilot countries China, Russia and Indonesia
- 2005-2007
- Coordinated by Global Environment Centre and Wetlands International
- Part of UNEP-GEF project on Integrated Management of Peatlands for Biodiversity and Climate Change
- Financed by UNEP-GEF
- Supported by Canada, Netherlands, APN, ECBP
- Nine Chapters on different subjects

Ch. 2 What are peatlands

As a result of different climatic and biogeographic conditions, a large diversity of peatland types exists.

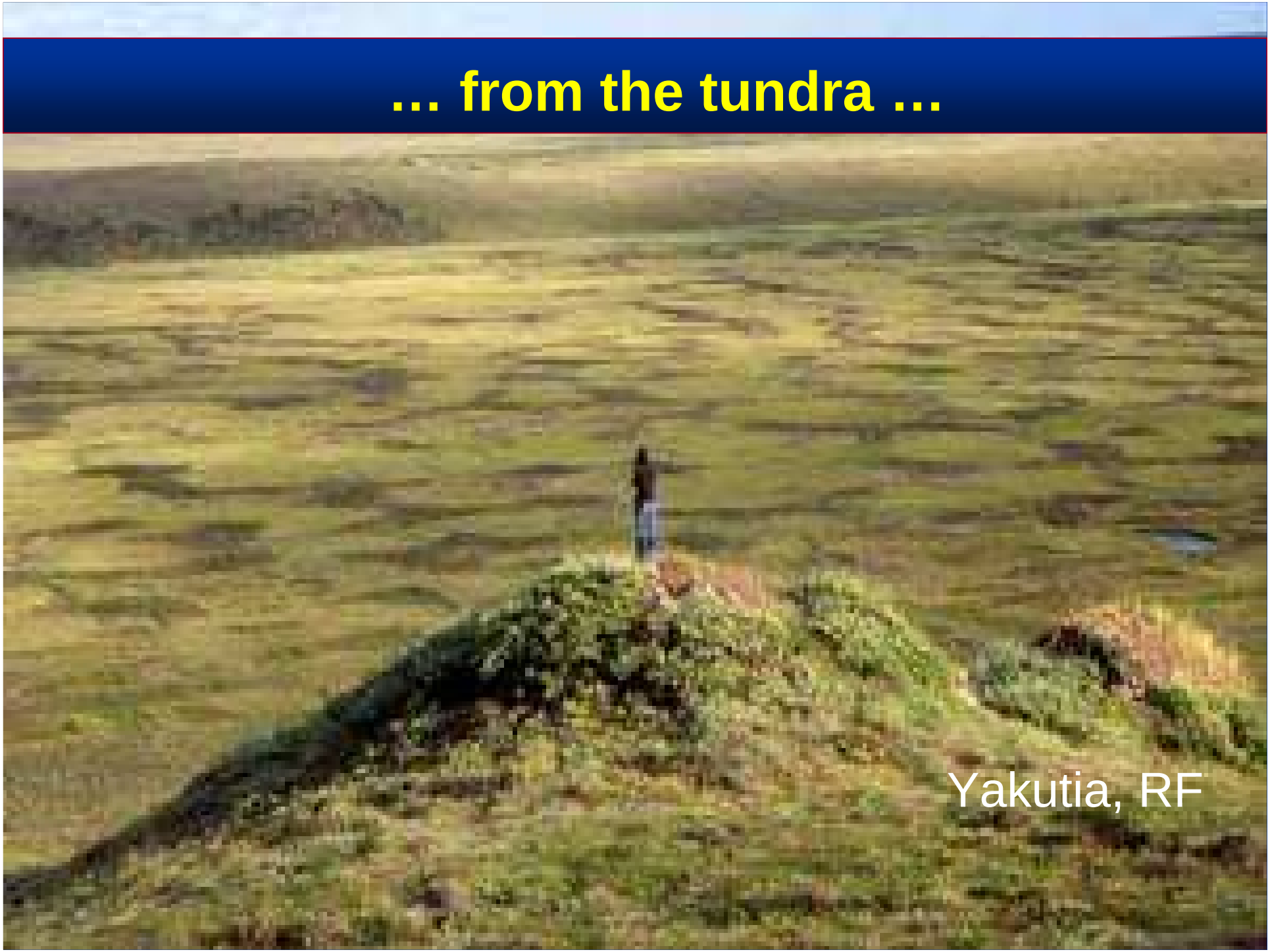

Peatlands are wetlands where : waterlogging delays decay and dead plants form peat
Colchis,Georgia

Peat accumulates for thousands of years storing concentrated Carbon in thick layers

Peatlands are everywhere…

Covering 4 million km^2, primarily in the boreal, subarctic and tropical zones, peatlands are found in almost every country.

… from the tundra …



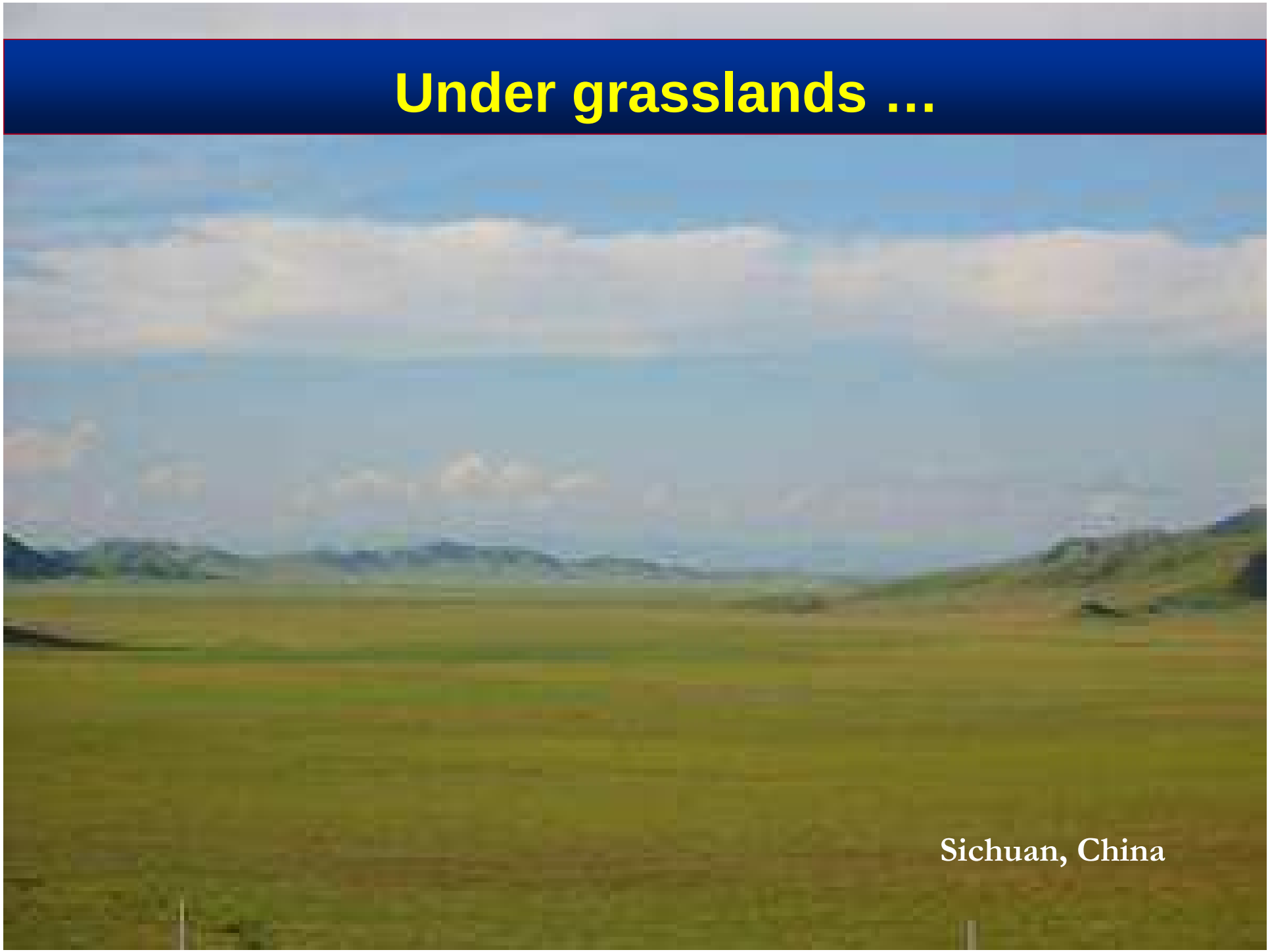
… to the tropics and …

…to the end of the Earth…

… from the mountains …

Over permafrost

Under grasslands …



... along the rivers ...

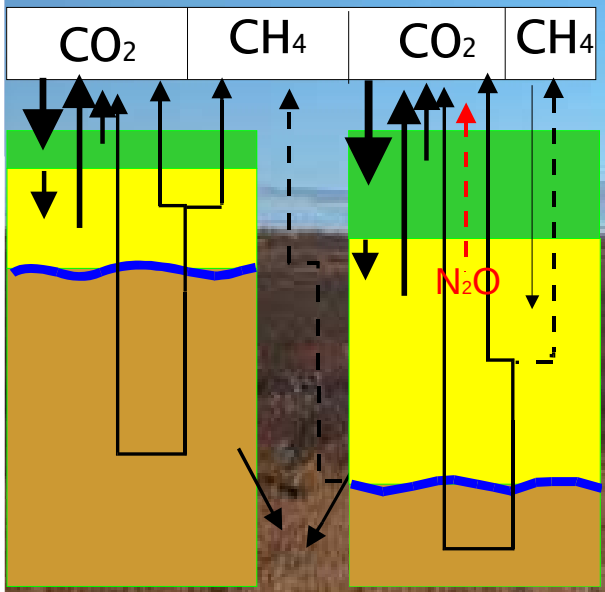
Ruaha River Tanzania

... to the sea ...

Peatlands are water

Flow Country, Scotland

Peatlands regulate climate



Pechora, RF

Peatlands have species biodiversity

Peatlands have high ecosystem diversity

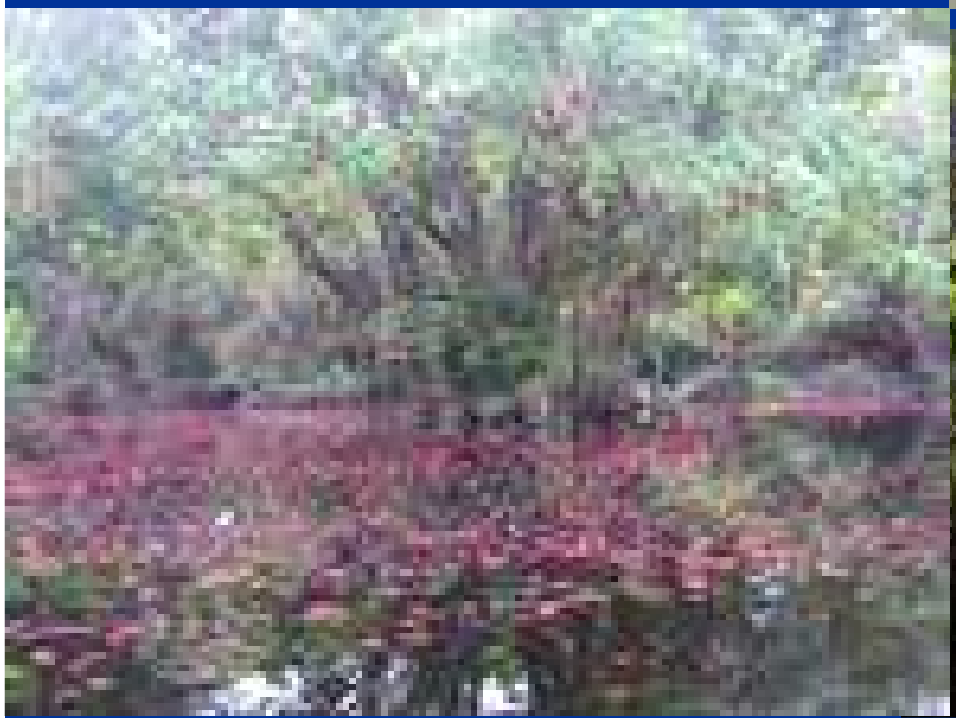
Peatlands support communities

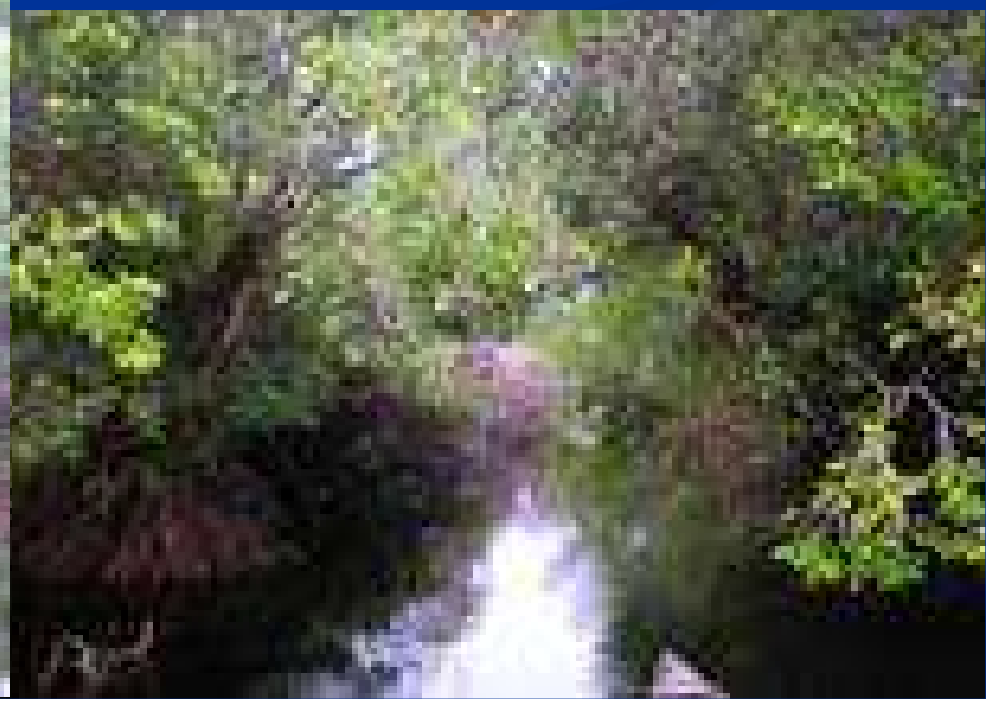
Jelutong - Chewing Gum tree, Indonesia

Peatlands Feed communities

Fishing, Pahang, Malaysia

Peatlands provide water and prevent floods

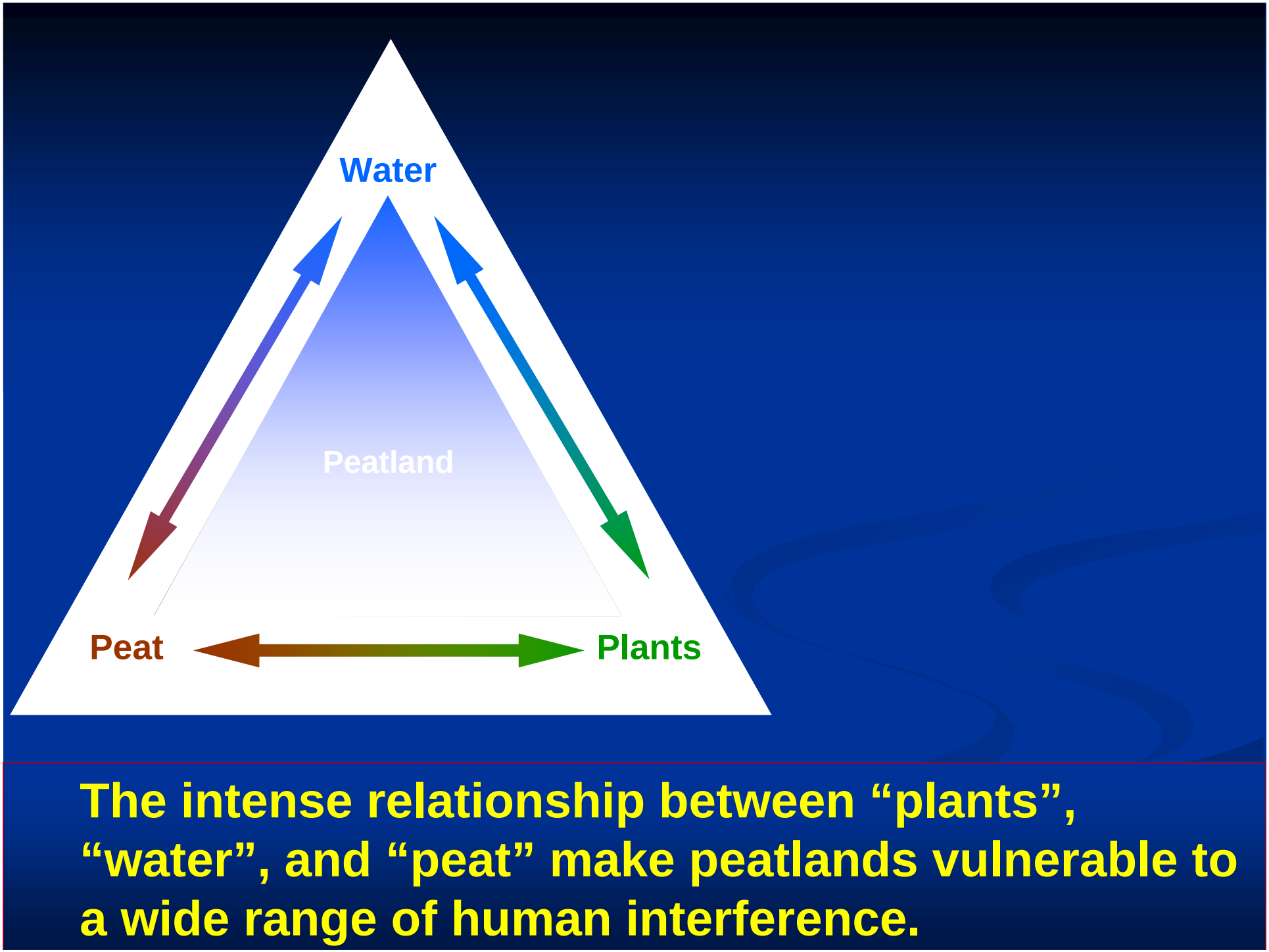




Peatlands preserve history

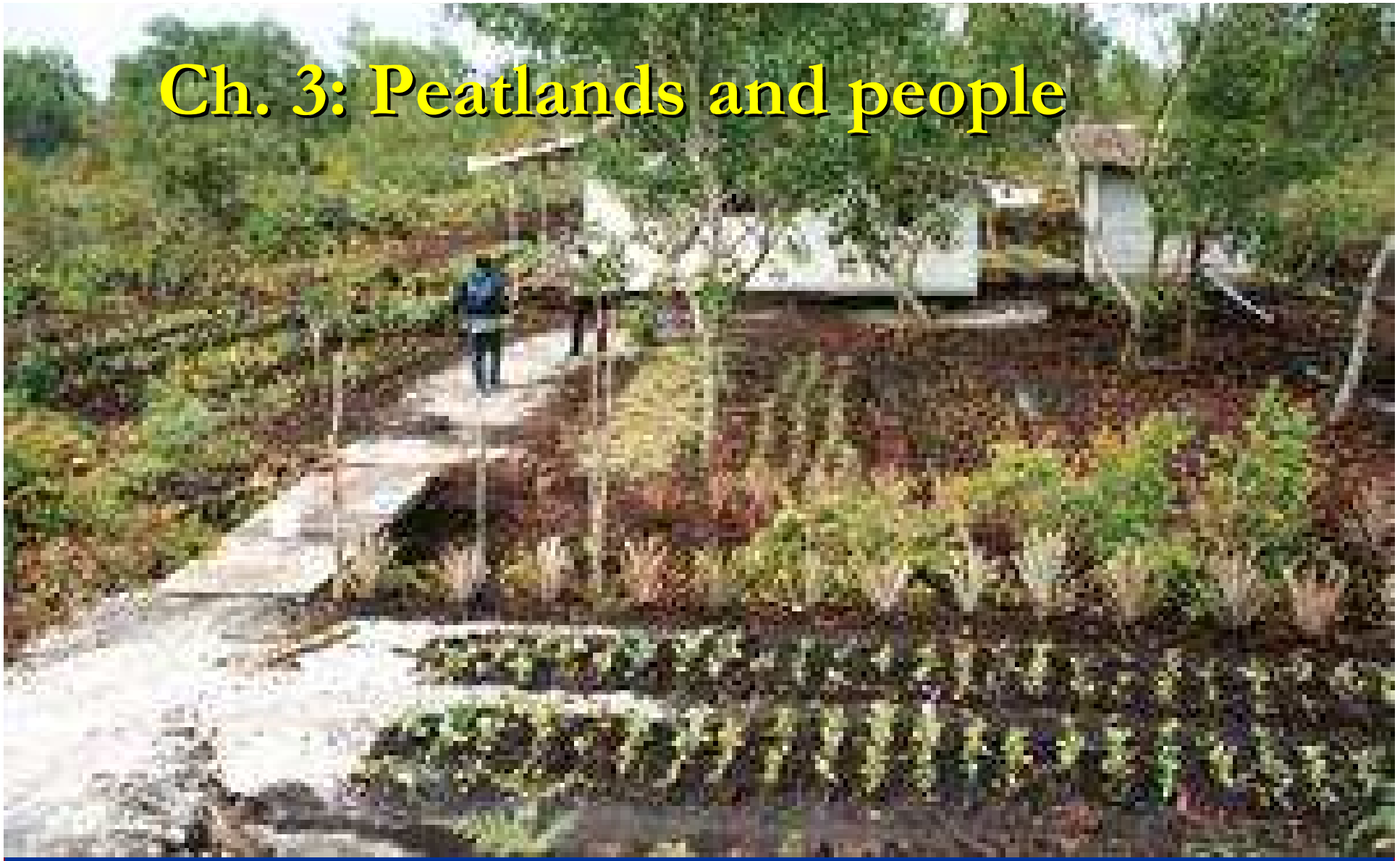
Because of similar ecohydrological processes, peatlands share many ecological features and functions.

In northern regions and highlands, peatlands and permafrost are mutually dependent.



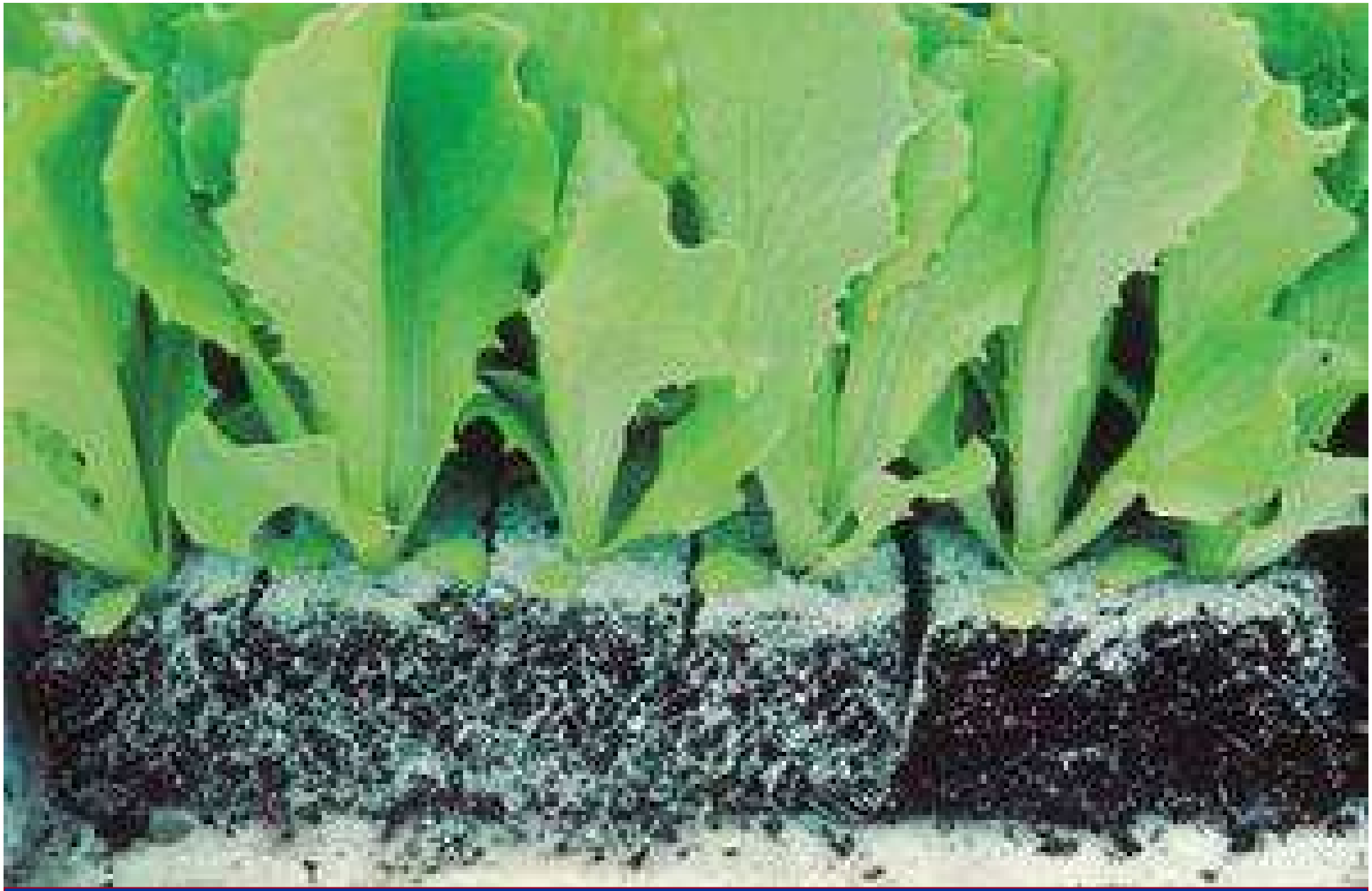
The intense relationship between “plants”, “water”, and “peat” make peatlands vulnerable to a wide range of human interference.

Ch. 3: Peatlands and people



Peatland ecosystems provide a wealth of goods and services such as livelihood support, carbon storage, water regulation and biodiversity conservation.

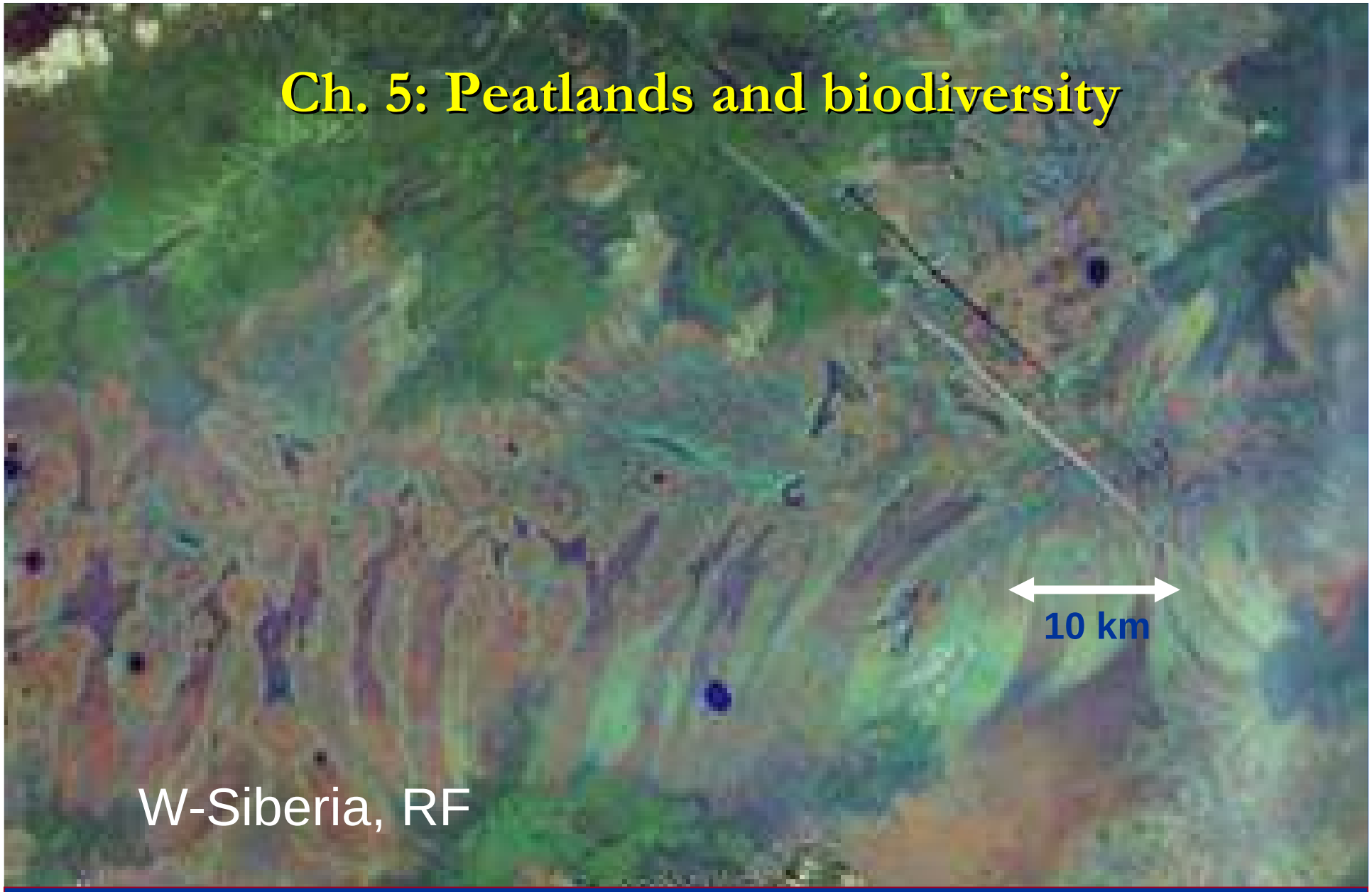
Many indigenous cultures and local communities depend on peatlands.



Also for industrial societies, peatlands provide goods and services that not yet can be substituted.

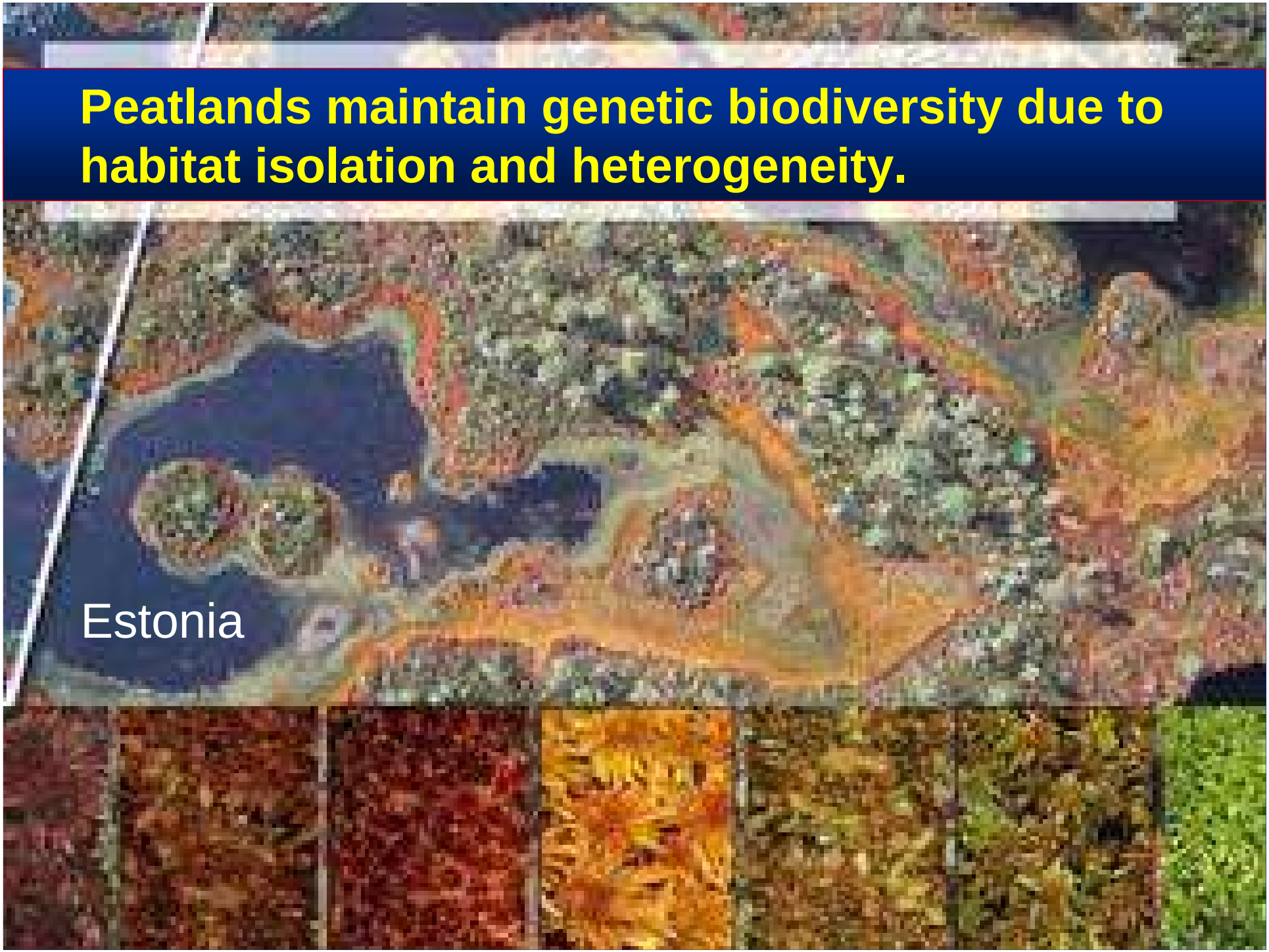
The main impacts on peatlands include drainage for agriculture and forestry and associated peat fires, peat extraction, building over, road construction, inundation, contamination and pollution.

Ch. 5: Peatlands and biodiversity



Peatlands are unique and complex ecosystems of global importance for biodiversity conservation

Peatlands maintain genetic biodiversity due to habitat isolation and heterogeneity.



Peatlands maintain ecosystem biodiversity due to long-term self-regulation and -organisation

Peatlands support biodiversity far beyond their borders by regulating the hydrology and climate of adjacent areas

They provide habitats for endangered species and those displaced by climate changes (adaptation).

Ch. 6: Peatlands and carbon

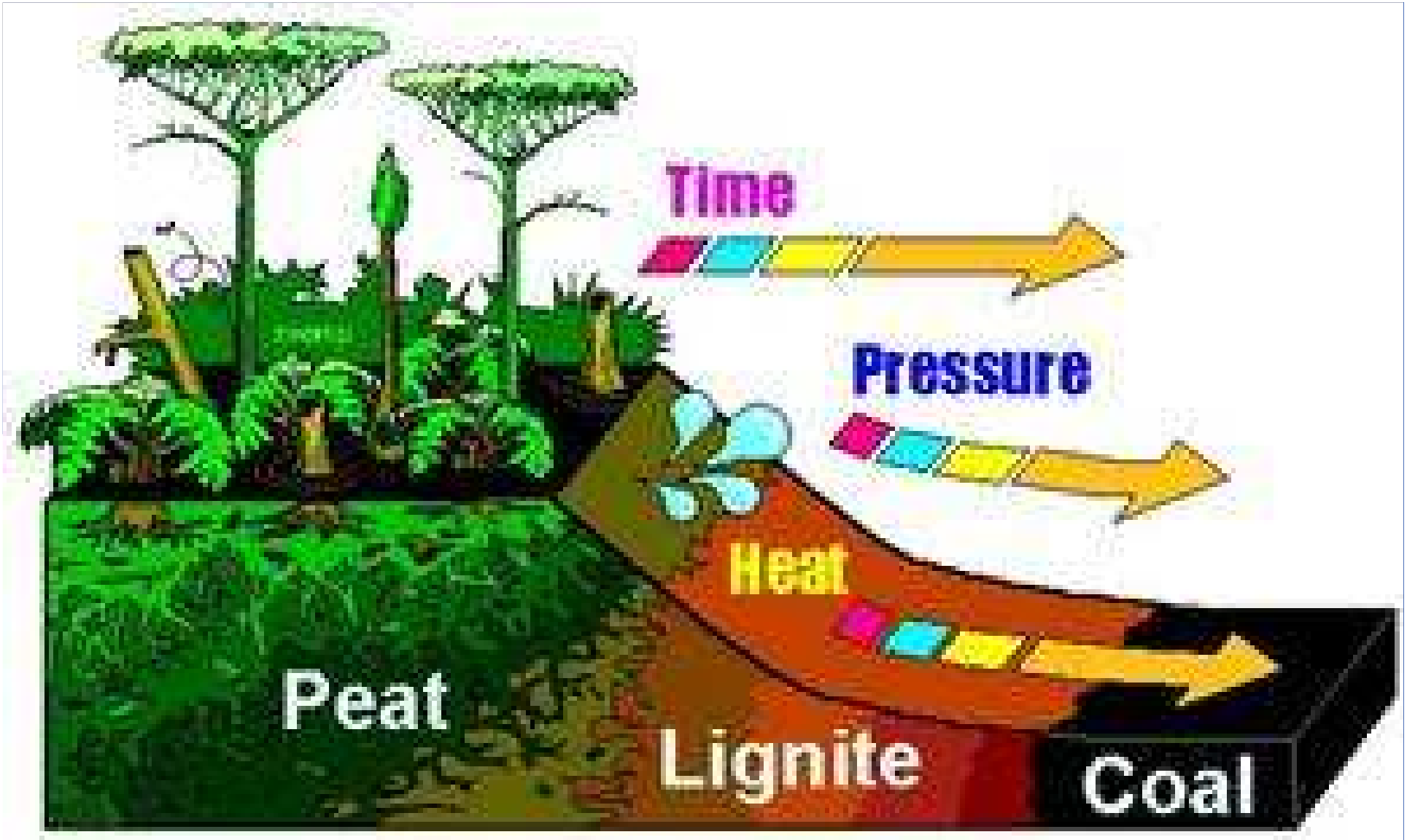
Peatlands are the most space-effective carbon (C) stocks of all terrestrial ecosystems.

In the (sub)polar zone, peatlands contain 3.5 times, in the boreal zone 7 times, in the tropical zone 10 times more carbon per ha than other

While covering only 3% of the World's land area, peatlands contain 550 Gt of carbon in their peat.

This is equivalent to, 75% of all atmospheric C, equal to all terrestrial biomass, and twice the carbon stock in the forest biomass of the world.

This makes peatlands the top long-term carbon stock in the terrestrial biosphere.



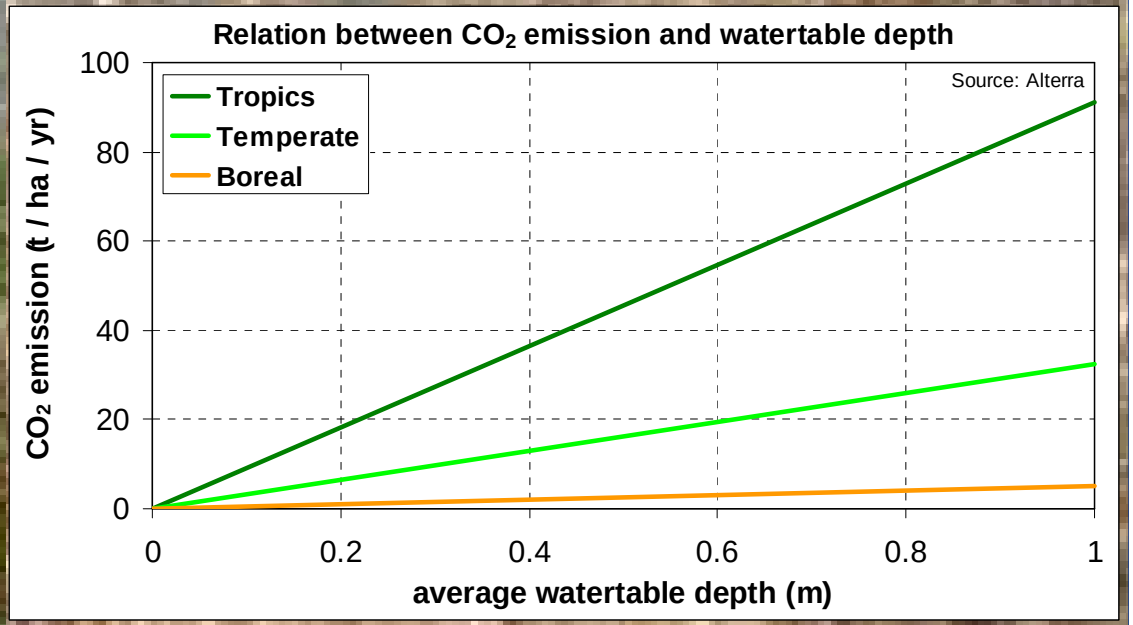
Coal and lignite and part of the “mineral” oil and natural gas originated from peat deposits of previous geological periods.

Peatland drainage and fires are currently the largest single source of carbon released to the atmosphere from the land use sector.

Chapter 7 peat and greenhouse gasses

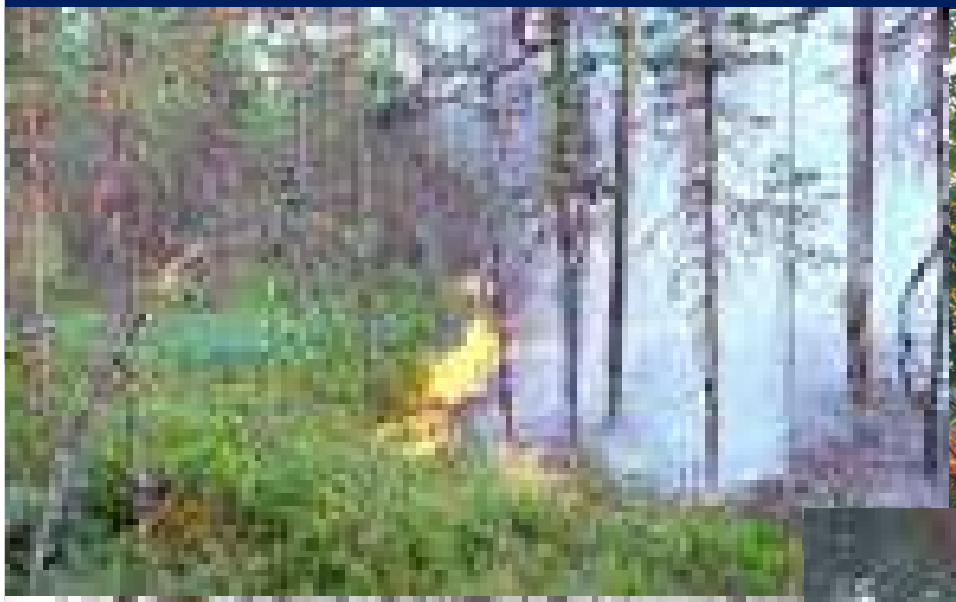
- Since the last ice age peatlands have played an important role in global GHG balances by sequestering an enormous amount of atmospheric CO2.
- Small changes in eco-hydrology can lead to big changes in GHG fluxes through influence on peatland biogeochemistry.
- Peatland drainage leads to increased CO2 emissions, a rise of N2O release in nutrient rich peatlands but may not significantly reduce CH4 efflux.
- Because of these huge emissions, restoration of degraded peatlands is the most cost-effective way of avoiding anthropogenic greenhouse gas emissions.

Drained peat releases carbon



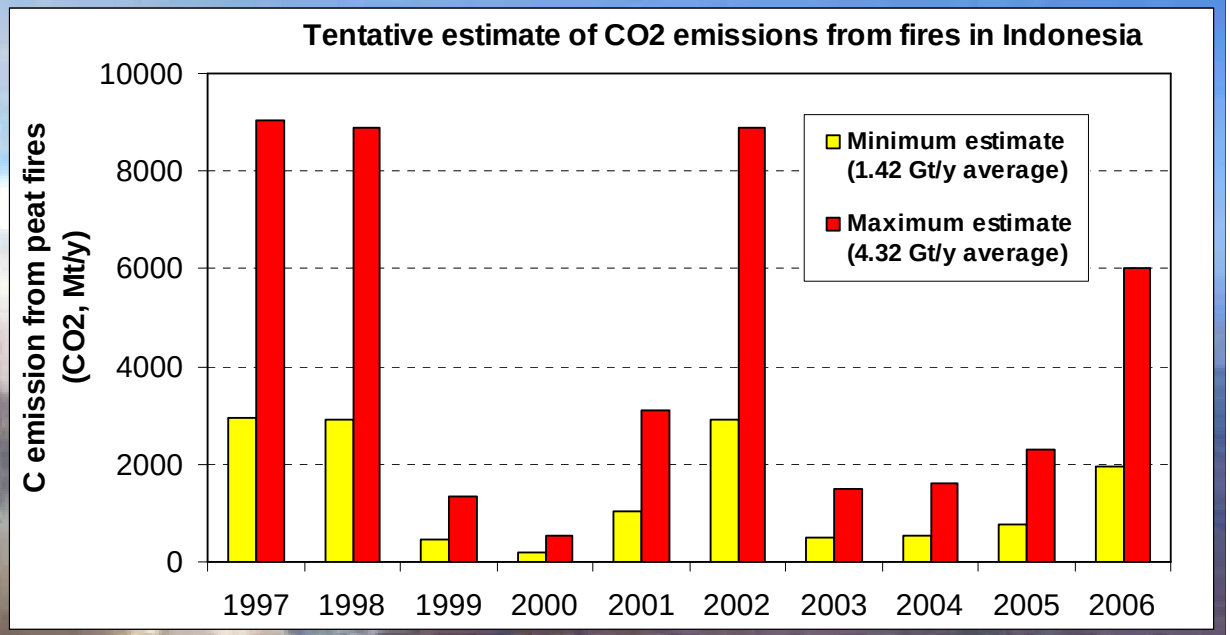
- **Drainage to 1 meter = emission of 90 ton CO_2/ha/yr**
- SE Asia: Agriculture & agro-forestry on 12 million ha contributes around **600 $MtCO_2$/yr** (drainage only)

Burning peat releases more carbon



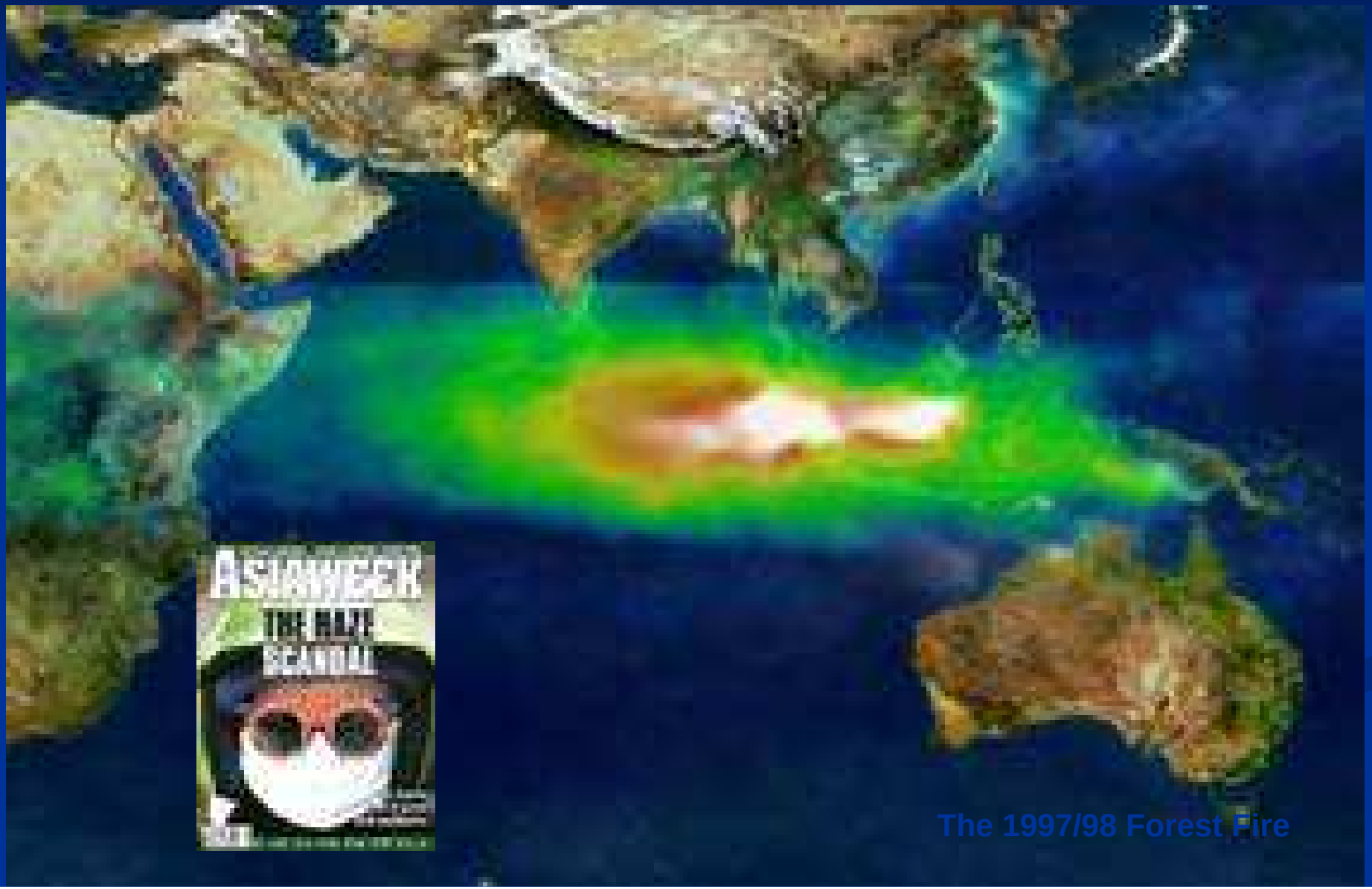
Peatland Fires Russia

CO_2 emissions from peat fires



- **> 60,000 fires in 3 out of 10 years (1997, 1998, 2002)**
- **In 2006: > 40,000 fires**
- **Tentative average annual emissions estimate: 1400 to 4300 Mt CO_2/y**

Global Impacts -The Asian Haze



The 1997/98 Forest Fire

Chapter 8 Future climate impacts

- Climate change scenarios suggest major changes in temperature, precipitation and other phenomena, that will have significant impacts on peatland carbon store, GHG flux and biodiversity.
- Impacts on peatlands will be regionally differentiated – such as melting of permafrost; inundation and salinisation in coastal zones or desiccation in mountain and steppe regions.
- Human activities in many cases increase peatlands vulnerability to climate change.
- The most vulnerable peatland types (tropical peat swamp forests, permafrost, mountain and coastal peatlands) require urgent adaptation measures.

Chapter 9 Integrated management of peatlands

- The current management of peatlands is generally not sustainable and has major negative impacts on biodiversity and the climate.
- A wise use approach is needed to integrate protection and sustainable use
- Strict protection of intact peatlands is critical
- Changes in peatland management can reduce land degradation and can limit negative impacts on biodiversity and climate.
- Optimising water management in peatlands (i.e. reducing drainage) is the single highest priority.
- Restoration of peatlands can be a cost-effective way to generate immediate benefits

Chapter 9 Integrated management of peatlands

- Local communities have a very important role as stewards of peatland resources and should be effectively involved in activities to restore and sustain the use of peatland resources.
- The emerging carbon market provides new opportunities for peat swamp forest conservation and restoration and can generate income for local communities.
- If implemented on peatlands, climate mitigation measures such as hydropower or biofuel production can have serious negative impact on peatland carbon storage, GHG flux and biodiversity.
- Plans for integrated peatland management should be developed at local, national and regional level, as appropriate.
- Enhancing awareness and capacity, addressing poverty and inequity, and removing perverse incentives are important to tackle the root causes of peatland degradation.

- Rehabilitation of Degraded peatlands through blocking abandoned drainage

Rehabilitation of peatland vegetation

Alternative Livelihoods

Community based Sustainable peatland management

- Non-timber forest products
- Agriculture – appropriate species
- Fisheries
- Animal Husbandry
- Appropriate financing mechanisms (eg Biorights)

Links to UNFCCC recommendations

- Recognise peatland ecosystems as the world's most important terrestrial carbon stores
- Forested peatlands should be a major part of REDD
- Peatlands should be considered in the Post 2012 Regime
- Reporting on emmisions from peatlands in Annex 1 Parties should be enhanced
- Recognise peatland conservation and rehabilitation as one of the most cost effective strategies for climate mitigation.
- Included peatlands in national adaptation strategies
- Stimulate concerted and coordinated action from CBD, UNFCCC, UNCCD and the Ramsar Convention
- Consideration of alternative finance mechanisms, including voluntary trade in avoided carbon emissions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