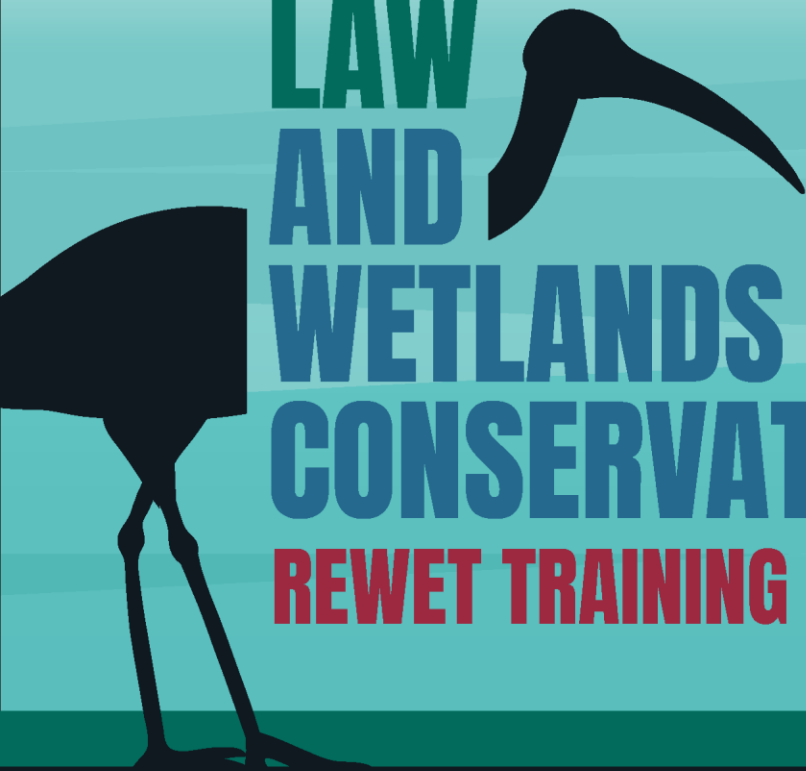


**NATURE
RESTORATION
LAW
AND
WETLANDS
CONSERVATION**
REWET TRAINING



**3
OCTOBER
2024**

**HYBRID EVENT
SEVILLE, SPAIN & ONLINE
EUROSTARS TORRE SEVILLA**



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The Nature Restoration Regulation

Towards large-scale wetland restoration in the EU ?!

Kris Decler

Research Institute for Nature and Forest
Society for Ecological Restoration Europe

RESEARCH INSTITUTE
NATURE AND FOREST



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Wetlands: worldwide threatened !

Environment ▶ Climate crisis **Wildlife** Energy Pollution

The age of extinction
Biodiversity

Half the wetlands in Europe lost in past 300 years, researchers calculate

Assessment shows 20% global loss since 1700 - far less than thought - but Europe, US and China bear the brunt

The age of extinction is supported by



About this content

Phoebe Weston

🐦 @phoebe0

Wed 8 Feb 2023 16.00 GMT



📷 The Orshinski Mokh peatlands in the Tver province of Russia, where restoration efforts have been interrupted by the war in Ukraine

Half the wetlands in Europe, continental US and China have been destroyed in the past 300 years, with some areas - including the UK, Ireland and Germany - losing more than 75%, new research shows. Globally, an area the size of India has disappeared.

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The Guardian





Wetlands are crucial to reduce and adapt to climate change

1. Key player in global **greenhouse gas budgets: sink <> source**
2. **Flood risk reduction:**
 - Terrestrial wetlands and floodplains: slowing and storing floodwaters + **water purification** ('kidneys' of the landscape)
 - Coastal wetlands: reduced impact of storms and sea level rise
3. **Drought risk reduction:**
 - Freshwater storage (recharging ground- and surface water)
 - Wildfire risk reduction (rewetted peat soils)

BUT

Wetlands are also vulnerable to climate change !



Wetland area and importance for biodiversity

1. Wetlands support 40-45% of the world's species

2. Total area in Europe (Corine land cover data):

- Lakes and ponds: 50,000-70,000 km²
- Tidal wetlands: 12,000-15,000 km²
- Mires: ± 187,000 km²
- Rivers: 1,2 mio km
- Floodplains (incl. wet grasslands and wet forests): 100,000-200,000 km²

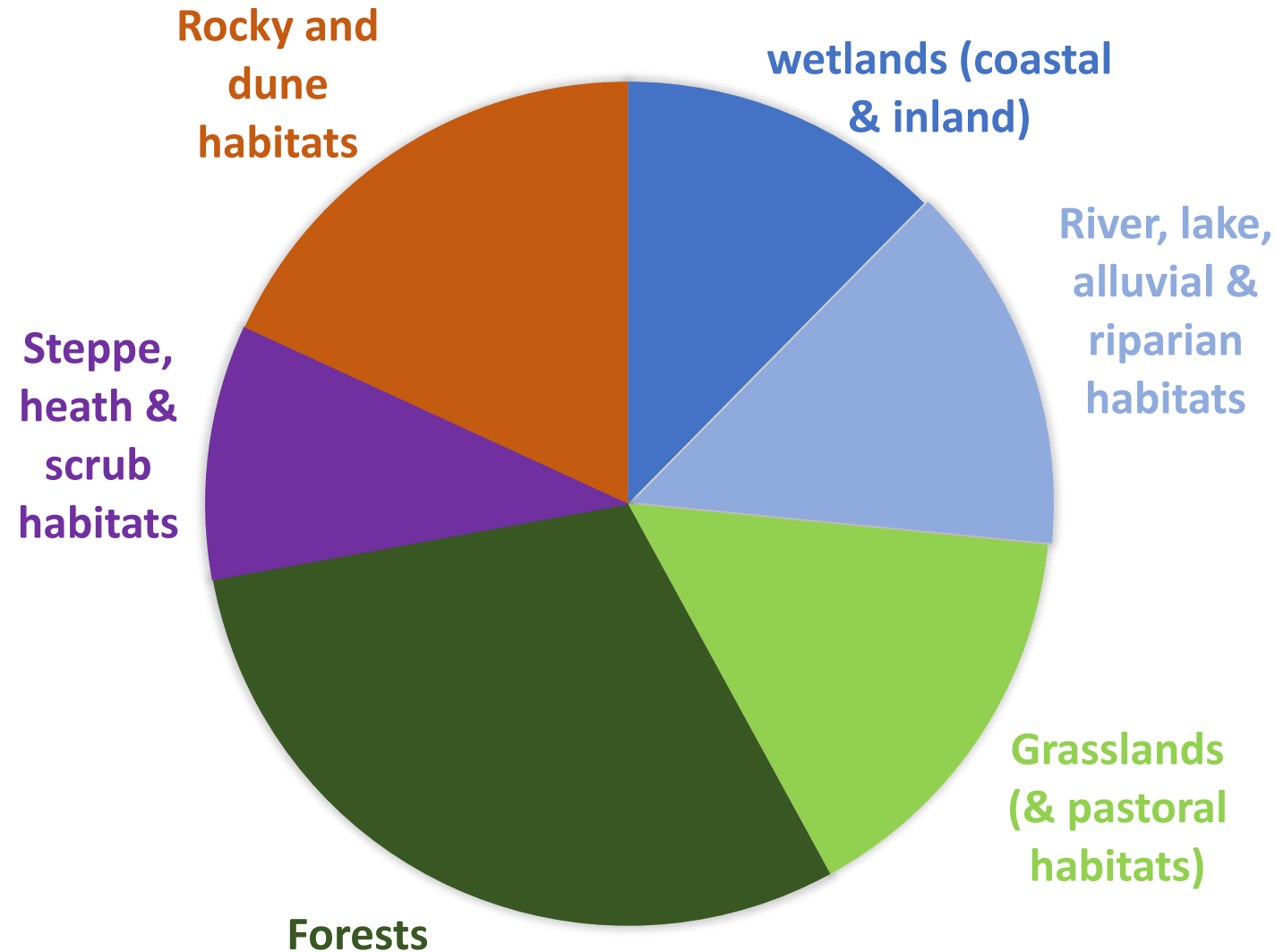
249,000 – 272,000 km²
(± 6.5% of the EU)



Forests: 38-40% of the EU



Wetland area and importance for biodiversity



60 ANNEX I
HABITAT TYPES
(Habitats Directive)



Wetland classification in NRR

1. **(Terrestrial) wetlands:** mires (bogs & fens), coastal (tidal) wetlands, permanent wet forests and grasslands
2. **(Aquatic wetlands):** lakes, ponds, rivers, riparian **and alluvial** habitats

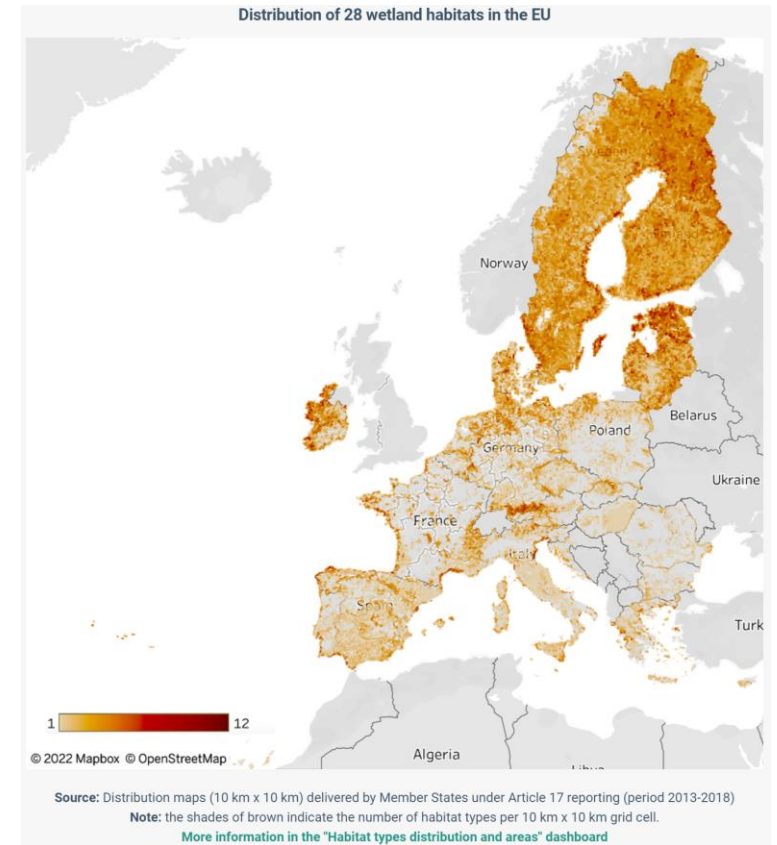
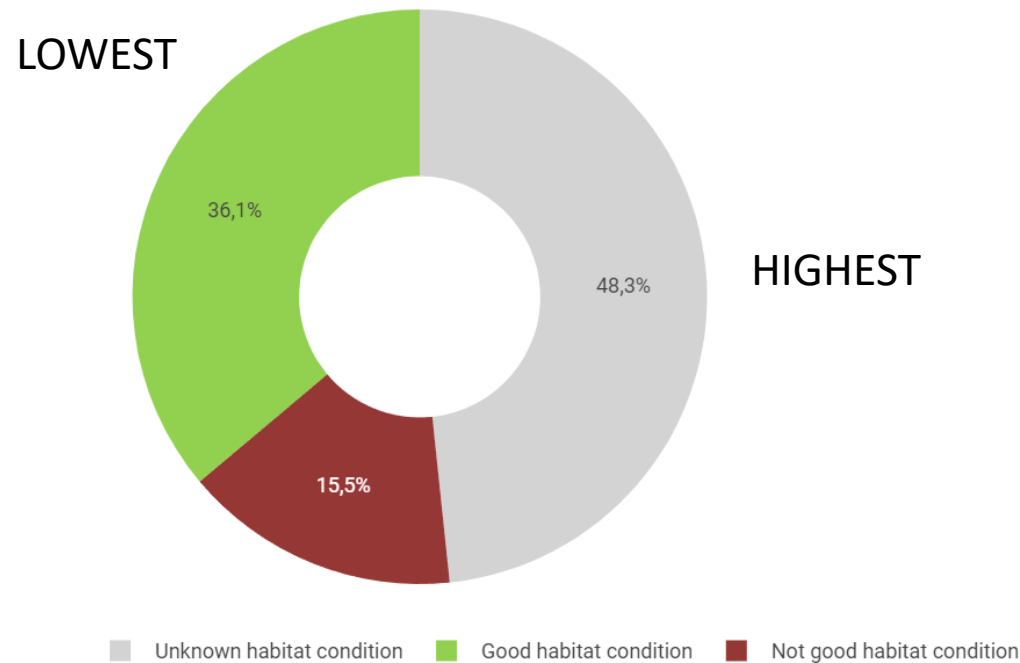
Large variation in ecological conditions:

- Salinity
- Humidity: tidal, permanent wet (peat!), temporary wet, open water
- Productivity: oligotrophic, mesotrophic, eutrophic, hypertrophic
- Succession stage
- Naturalness: man-made, traditional exploitation by humans, wild...
- Impact of human influences

Conservation status of our wetlands (1)

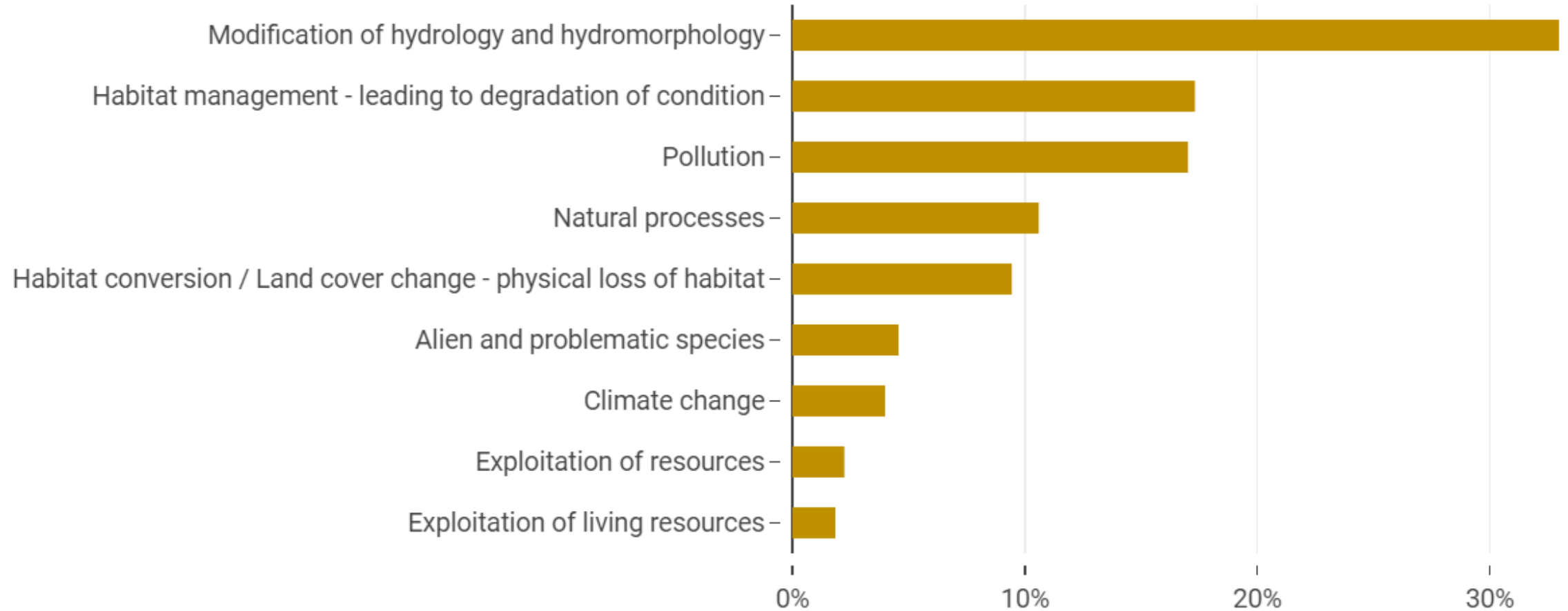
28 Annex I (terrestrial) wetlands
174 400 km² (4.5 % of the EU excluding Romania)

Habitat condition reported for wetland habitats



Conservation status of our wetlands (1)

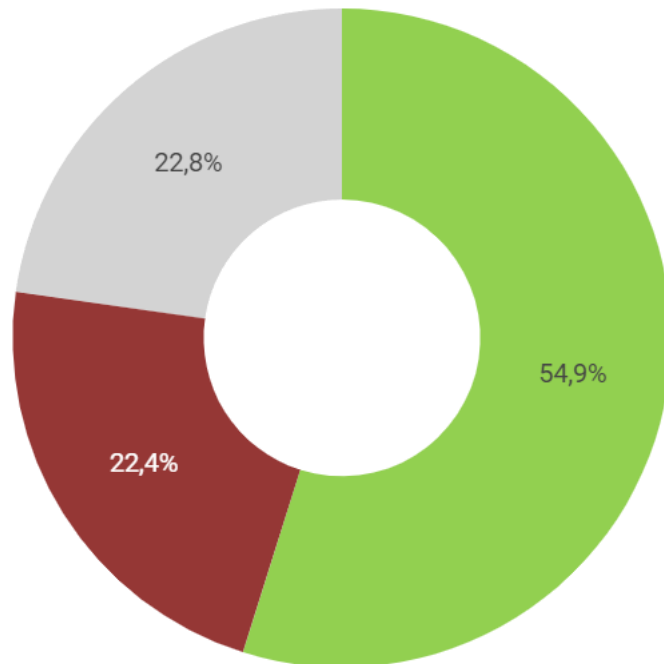
PRESSURES



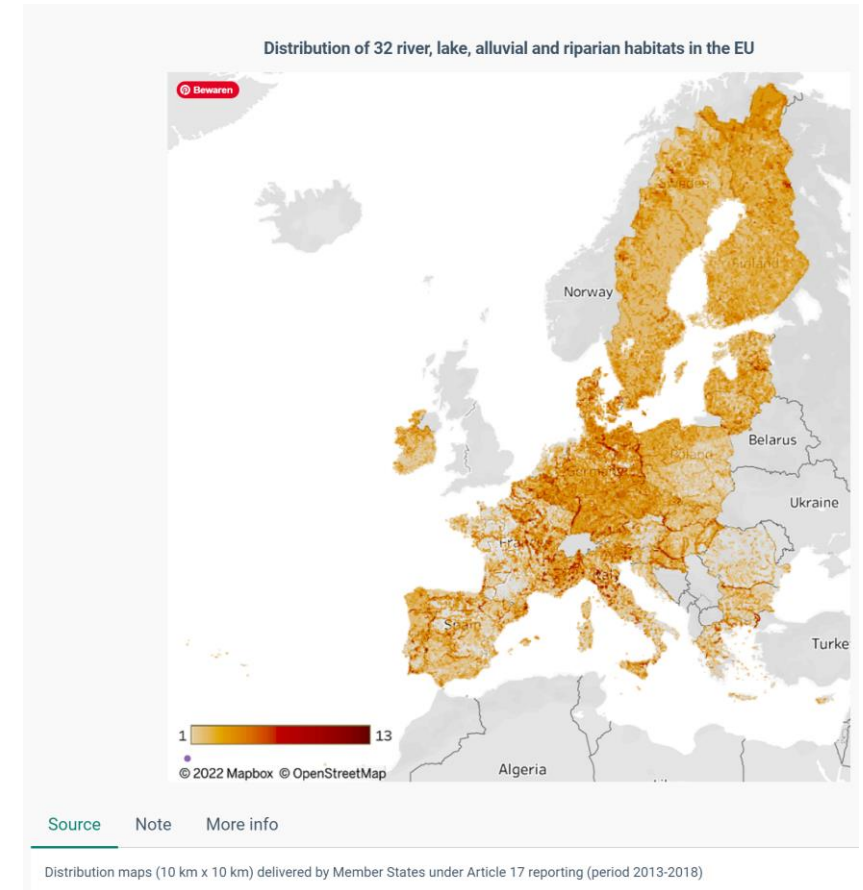
Conservation status of our wetlands (2)

32 Annex I (aquatic and alluvial) wetlands
96,500 km² (2.4 % of the EU excluding Romania)

Habitat condition reported for river, lake, alluvial and riparian habitats

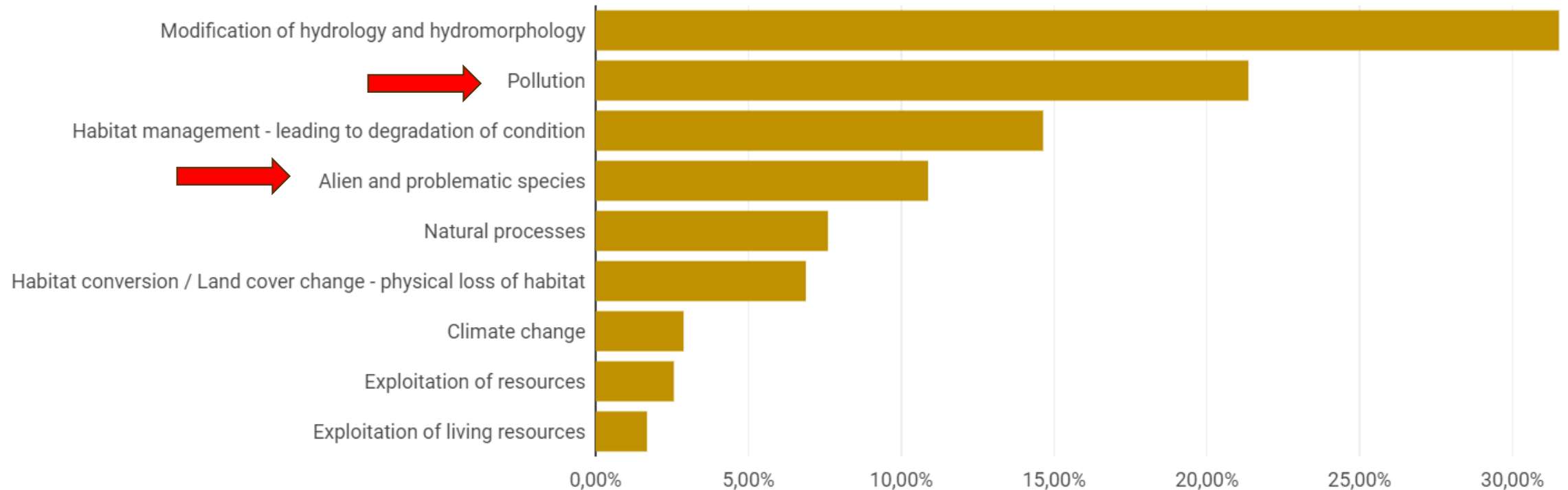


■ Good habitat condition ■ Unknown habitat condition ■ Not good habitat condition



Conservation status of our wetlands (2)

PRESSURES





NRR and wetland restoration

Art. 4. Annex I **habitat types** and **protected species** habitats

Art. 8. **Urban** wetlands

Art. 9. **River connectivity** and natural functions of **floodplains**

Art. 10. **Pollinator** populations of wetland ecosystems

Art. 11. **Agricultural ecosystems** (blue-green infrastructure, peat soil rewetting, meadow birds)

Art. 12. **Forest ecosystems** on wet soils

Art. 4: Restoration Annex I habitat types

- **by 2030: restoration measures in 30% of habitat (groups) + (if necessary) restoration measures in 30% of the area necessary to achieve favourable reference area (FRA*)**
- **by 2040: 60% under restoration to achieve good condition + 60 % FRA**
- **By 2050: 90% under restoration to achieve good condition + 100% FRA**
- **Species Habitats/Bird Directive: improve connectivity and habitat quality/quantity**
- **Obligation to use best available scientific knowledge**
- **Continuous improvement obligation**
- **Non-deterioration obligation (exceptions for projects of overriding public interest, disaster events, climate change)**

*FRA = total area of a habitat type necessary to ensure the long-term viability of the habitat type and its typical species or typical species composition



Art. 4: Restoration Annex I habitat types (weakening)

- by 2030: restoration measures in **30% of total area habitat (groups) in N2000** + (if necessary) restoration measures in 30% of the area necessary to achieve favourable reference area (FRA)
- by 2040: **60%** under restoration to achieve good condition + 60 % FRA
- By 2050: **90%** under restoration to achieve good condition (**80% for habitats > 3% country**) + 100% FRA (**90%**)
- Species Habitats/Bird Directive: improve connectivity and habitat quality/quantity
- Obligation to use **best available scientific knowledge**
- Continuous improvement obligation
- **Non-deterioration obligation** (exceptions for projects of overriding public interest, disaster events, climate change, **renewable energy, defence**) ...



Art. 4: Restoration Annex I habitat types (weakening)

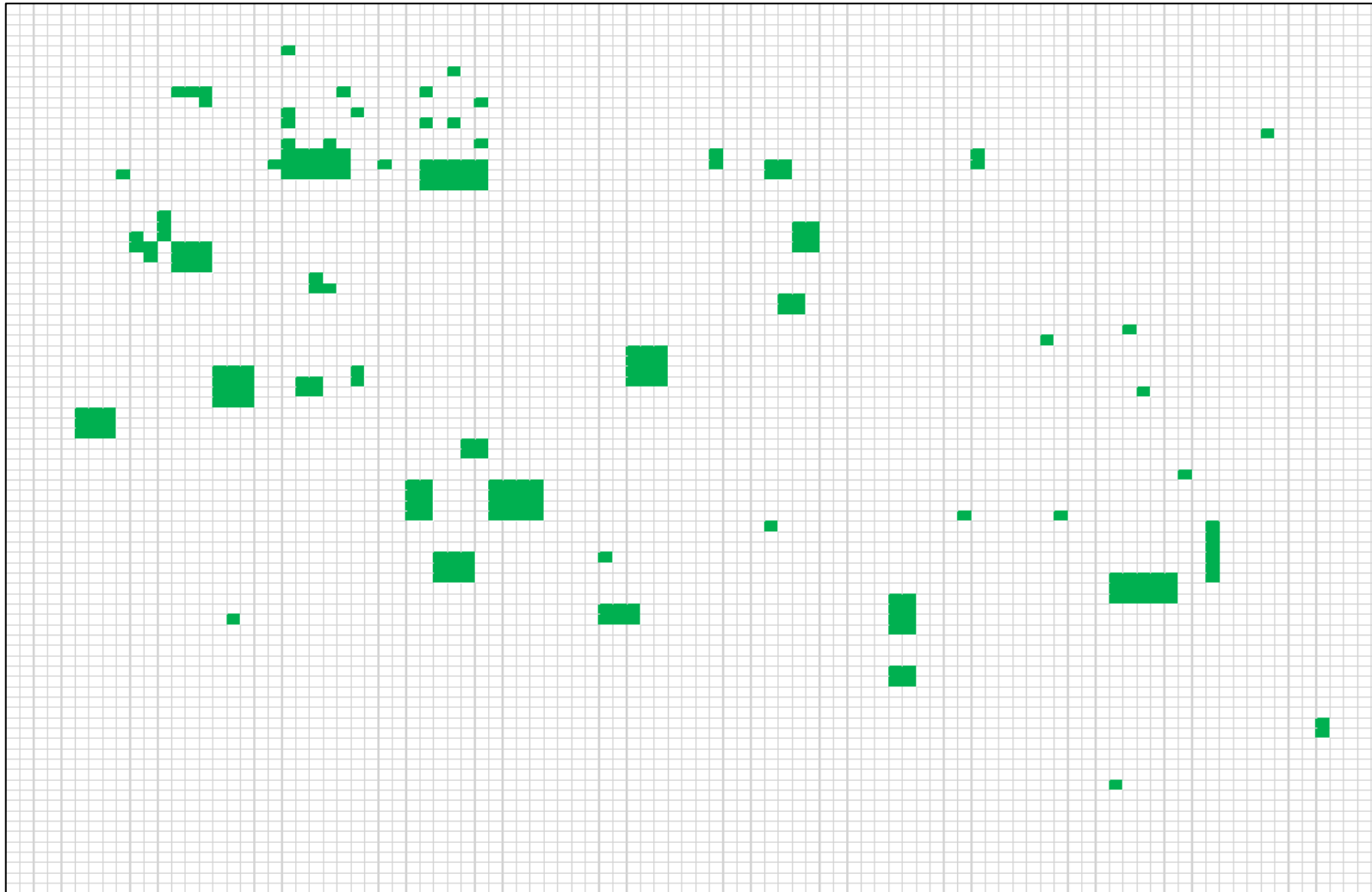
- **Non-deterioration obligation** (exceptions for projects of overriding public interest, disaster events, climate change, **renewable energy, defence**)
 - **No deterioration → no significant deterioration**
 - **Obligation of result → obligation of effort (MS shall 'endeavour'...)**
 - **(outside N2000) non-deterioration can apply at level of biogeographical region within MS instead of at site level**



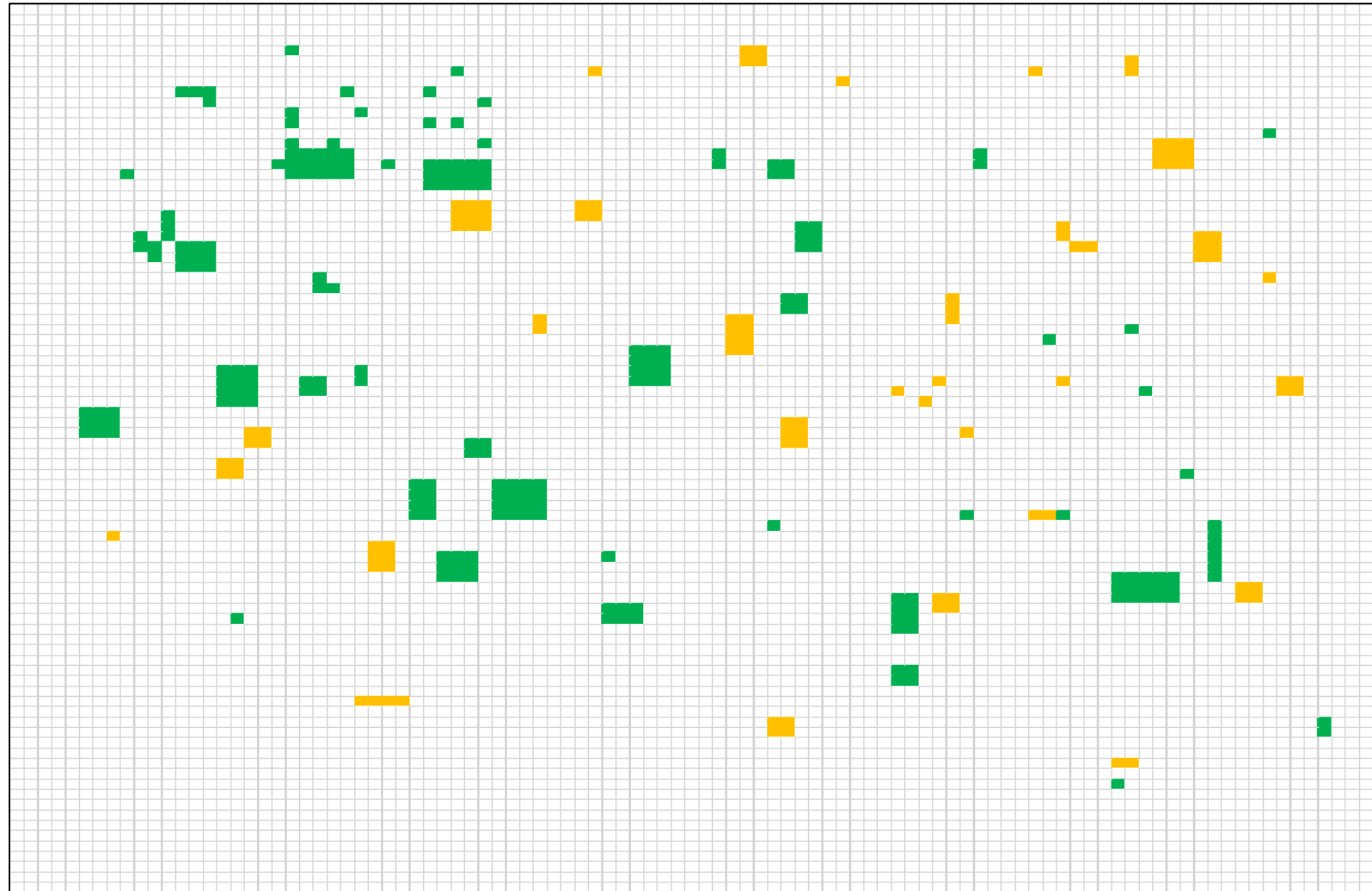
Art. 4: Implementation in practice

Wetlands in Country X

■ in N2000



Art. 4: Implementation in practice



Wetlands in Country X

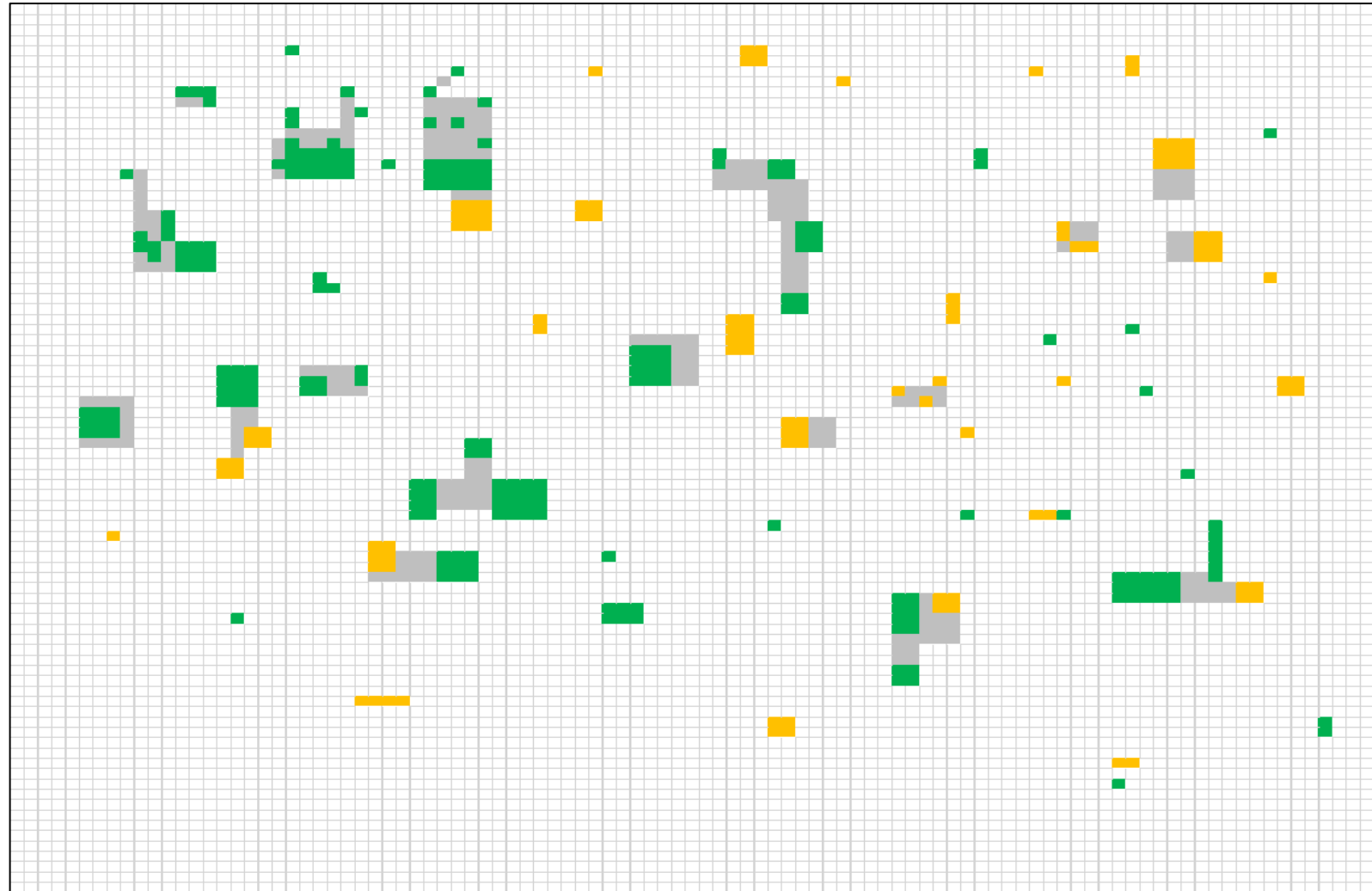
 in N2000

 outside N2000




+ identify sites not in good condition (and condition unknown)



Art. 4: Implementation in practice

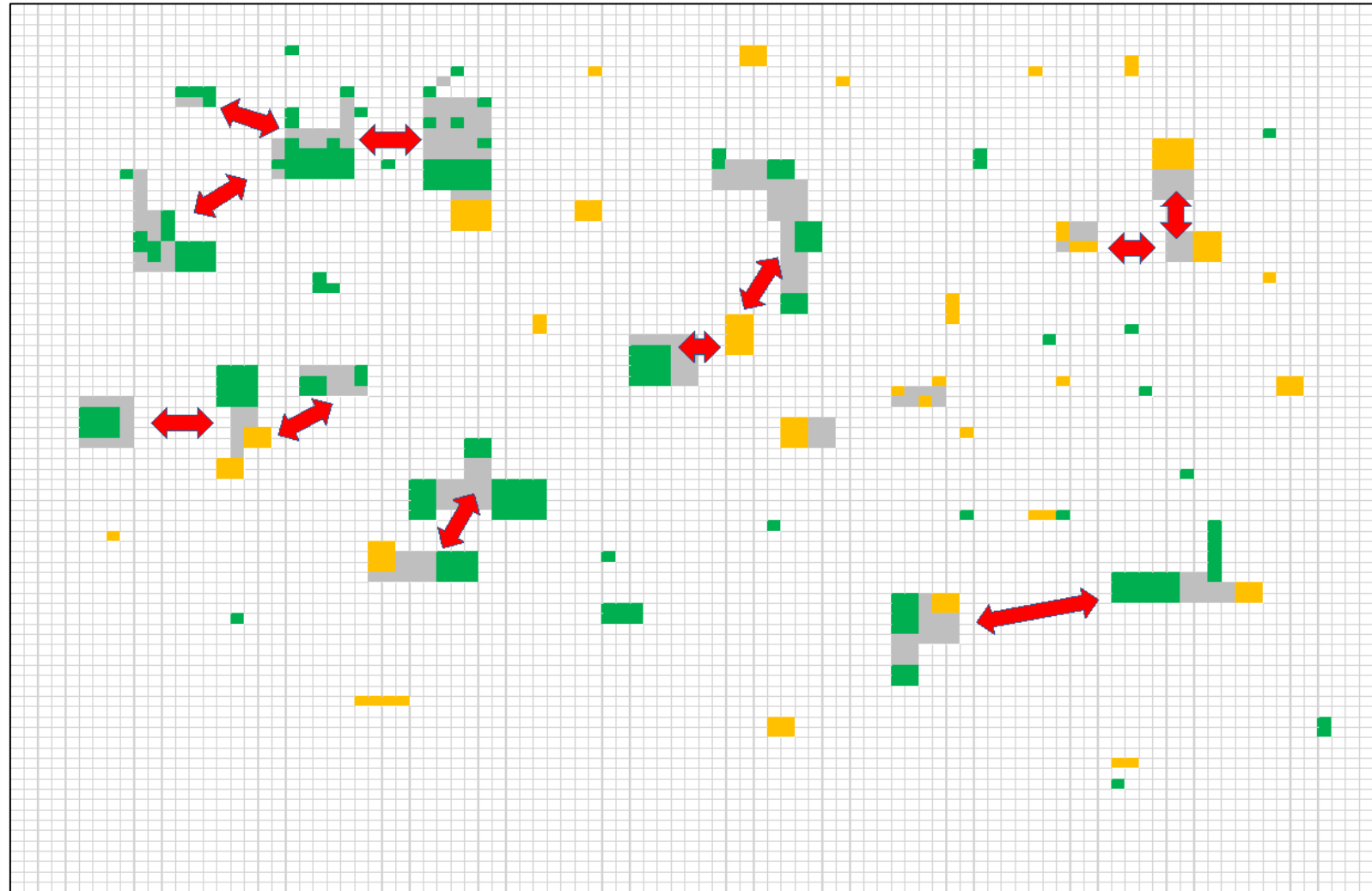


Wetlands in Country X





-  in N2000
-  outside N2000
-  heavily degraded / lost (FRA)



Art. 4: Implementation in practice

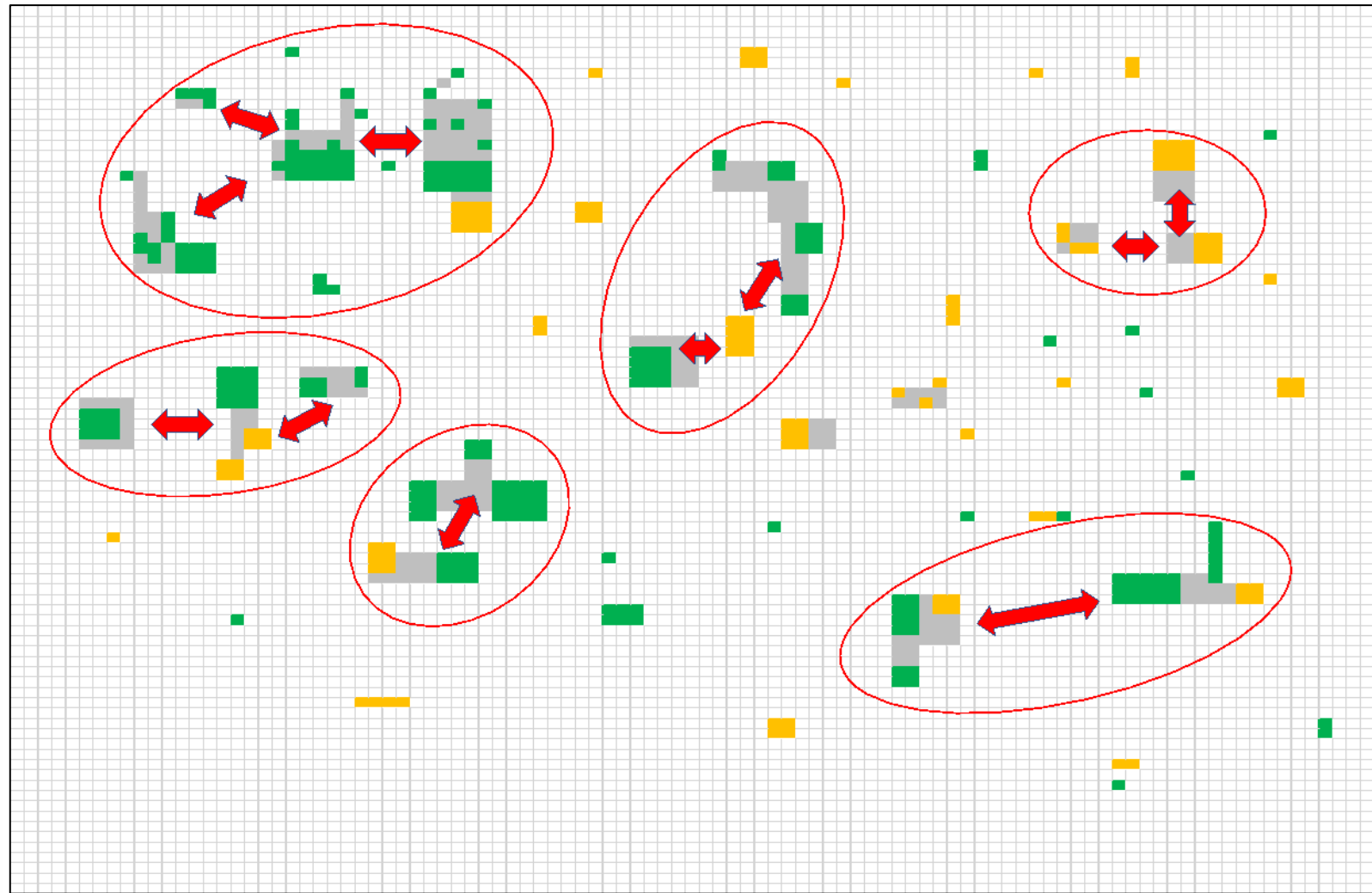


Wetlands in Country X





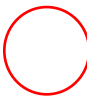
-  in N2000
-  outside N2000
-  heavily degraded / lost (FRA)
-  need for ecological corridors (species)



Art. 4: Implementation in practice

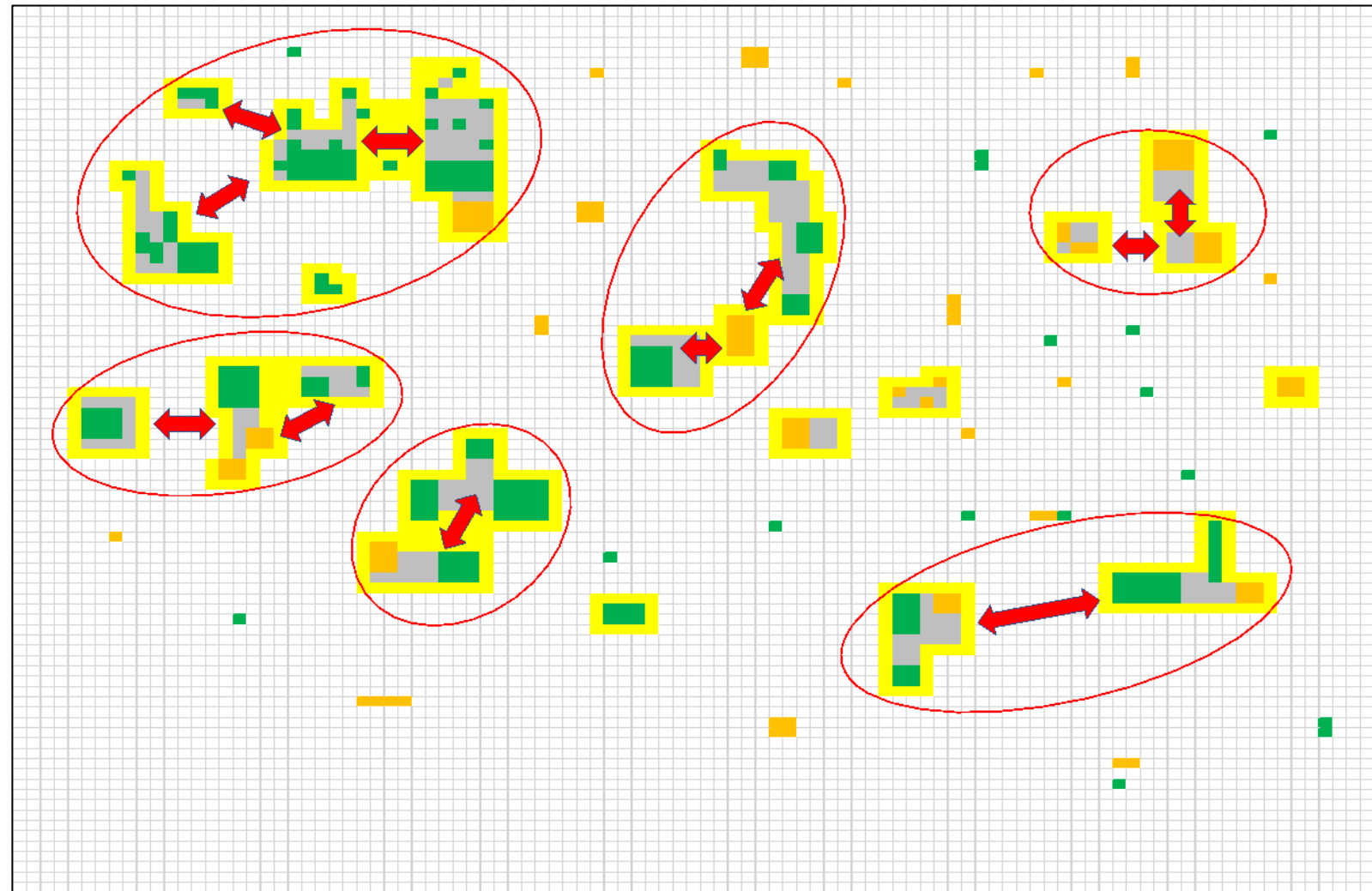


Wetlands in Country X







-  in N2000
-  outside N2000
-  heavily degraded / lost (FRA)
-  need for ecological corridors (species)
-  robust, resilient ecosystem cluster in 'good condition' (landscape approach)



Art. 4: Implementation in practice




Wetlands in Country X

-  in N2000
-  outside N2000
-  heavily degraded / lost (FRA)
-  need for ecological corridors (species)
-  robust, resilient ecosystem cluster in 'good condition' (landscape approach)
-  Buffering against negative pressures (eutrophication, drainage, climate change impact, fragmentation...) (cfr. art 9, 11, 12)





Art. 4: Critical success factors

- Assessment of the **condition** of the site and the **pressures**
 - Identification of **favourable reference area (FRA)**
 - Identification of the target situation (**good condition**) and necessary **measures**
 - **Public participation**: stakeholder vs. public interests; scientific evidence vs. local perceptions
 - Implementation of measures following '**best practice**'
 - **Monitoring** key parameters
 - **Adaptive management**
-
- 

Wetland biodiversity in crisis

Healthy wetlands play an essential role as a habitat for biodiversity that can help to adapt to climate change. Mediterranean wetlands are a particularly important habitats for migratory birds. However, they are threatened by human pressures, thus reducing their capacity to preserve biodiversity. Find out more at offyourmap.org



Climate change is driving sea level rise which will flood 95% of coastal wetland sites used by birds



Habitat fragmentation
makes adapting to climate change much harder for wetland animals like birds

Pollution of natural wetland
ecosystems from agricultural run-off

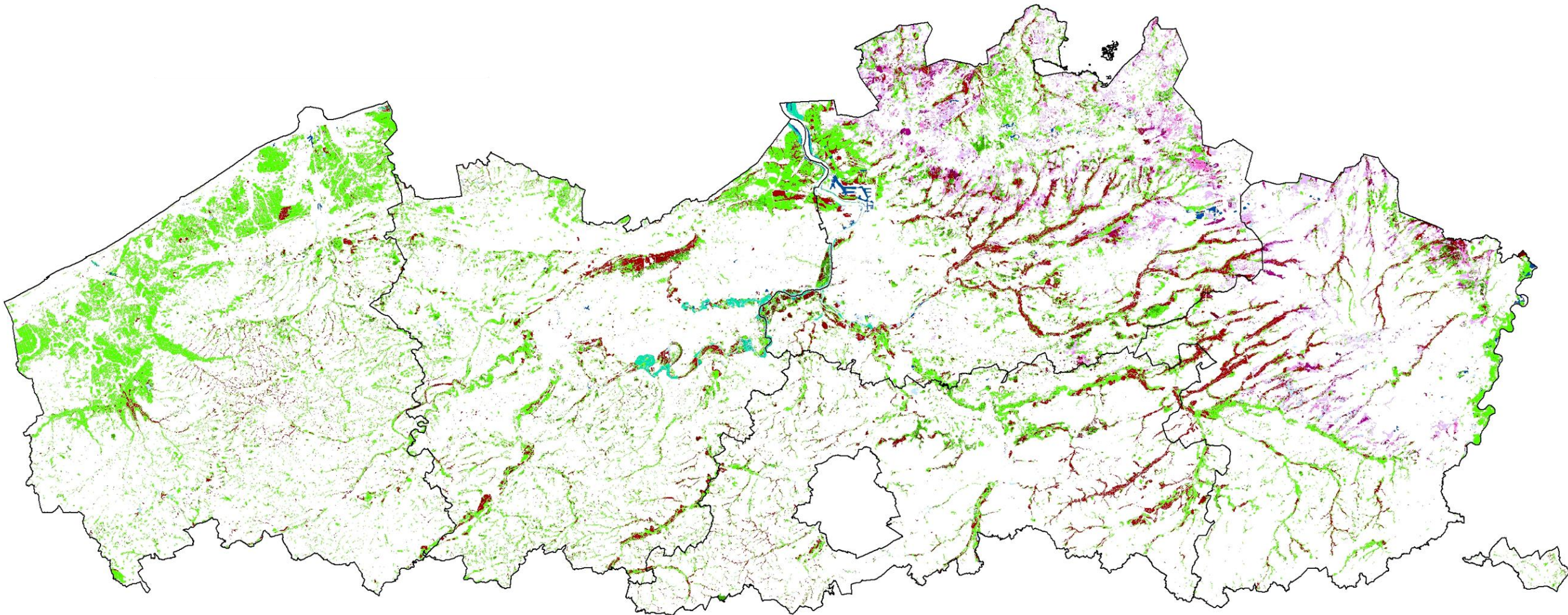
Conversion of wetlands
to agricultural lands and fish farms

Diversion of water
from wetlands to other purposes, leading to shortages of water in the ecosystem

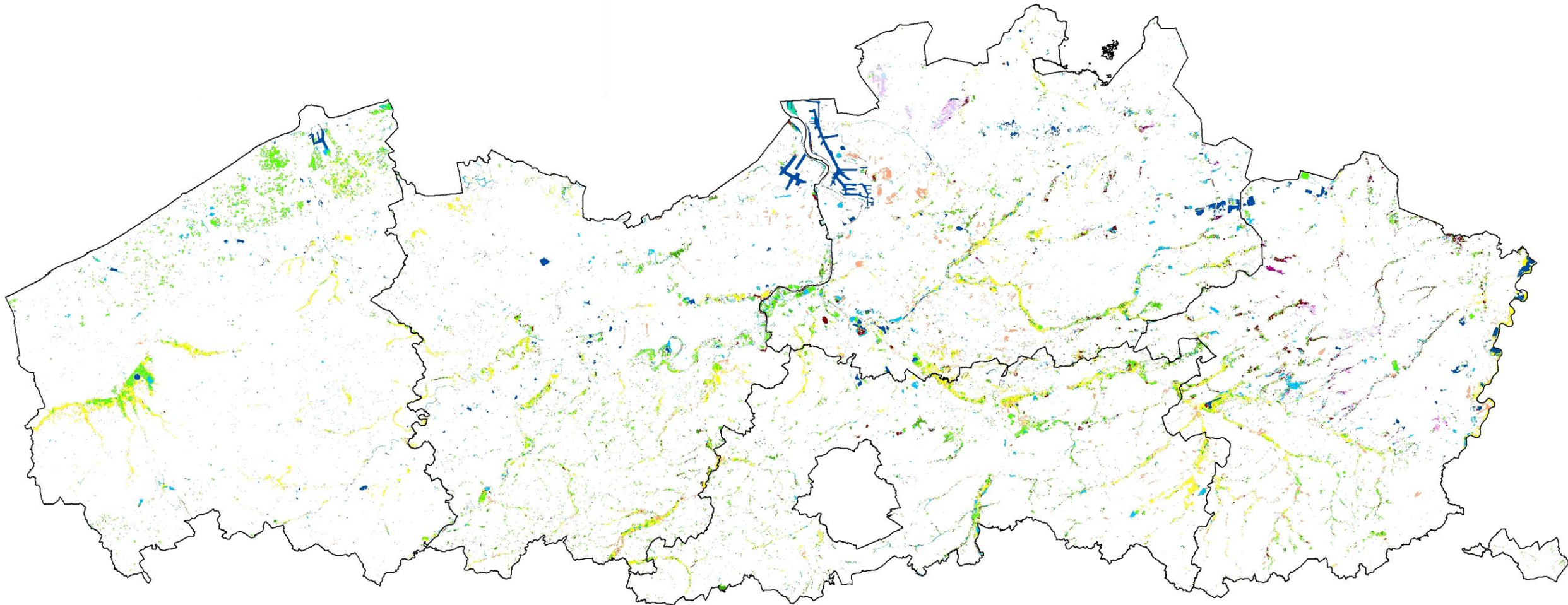
Urbanisation
building on wetlands, particularly on the coast



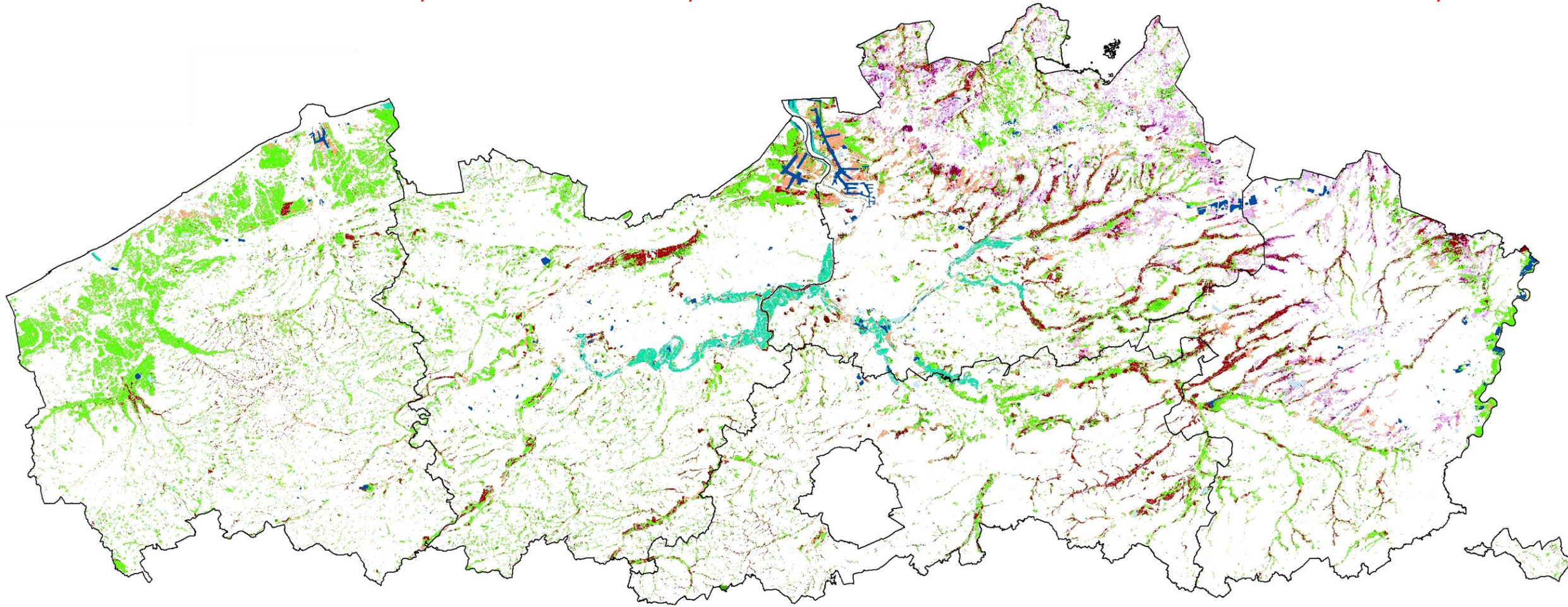
Wetlands in Flanders (± 1950): ± 236,000 ha (19% FL)



Wetlands in Flanders (± 2005-2010): ± 50,000 ha (-80%) (5% FL)



Actual en potentially to be restored wetlands in Flanders: ± 196,000 ha (17% FL)



Wetland expansion in Flanders by 2050 as part of Natura2000 policy

	Min-max expansion target (ha)	proportion of 'restoration opportunity' (%)
Temporary wet soil (meso-eutrophic)	3,490-6,275	4-8
Temporary wet soil (oligotrophic)	128	1
Permanently wet soil (meso-eutrophic)	551-775	2-3
Permanently wet soil (oligotrophic)	736-966	19-25
Tidal marsh	2,491	26
Shallow water (oligo-mesotrophic & eutrophic)	1,485-2,366	?
TOTAL	8,892-13,002	?
TOTAL excl. open waters	7,406-10,636 ha	5-7*

* but: **30% (49,000 ha) of 147,000 ha** potential wetland already has appropriate spatial planning and protection status to justify wetland expansion



Monetary cost-benefit estimates of 147,000 ha wetland restoration in Flanders: C-sequestration, water retention, water purification, agriculture, forestry (ECOPLAN-project, Staes et al.)

	Wetland restoration Forest landscape scen.	Wetland restoration Open landscape scen.
Low estimate change in ES-delivery (mio €/yr)	-112,3	-67,3
Mean estimate change in ES-delivery (mio €/yr)	9,4	43,3
High estimate change in ES-delivery (mio €/yr)	131,2	154,0

Note: not taken into account are

- Benefits for health, tourism and recreation (Broekx et al. 2013)
- Average cost of €50 mio/y for economic damage due to flood hazards (VMM 2014)
- Public money spend for drainage and to provide financial support to farmers
- Carbon sequestration due to restored, active peat formation



Wetlands and climate change: trade-offs!!

mitigation/adaptation CC	Tidal	Temporary wet (e.g. floodplains)	Permanent wet (peat)	Open freshwater (e.g. rivers/lakes)
carbon sequestration	+++	+++ ⁴	+++	++ ¹
flood risk reduction	+++	+++	+++	+++
drought risk reduction		++	+++	++
water purification	+++	+++ ²	+++ ²	+++ ²
CC: risks for the ecosystem				
eutrophication	-	---	---	---
erosion	shores	on slopes	on slopes	river banks ⁵
desiccation		--	---	--- ³
wildfires			---	
biodiversity loss (excl. pioneer species)	-	---	---	---

[1] especially shallow, low-productive, standing water

[2] especially eutrophic subtypes

[3] especially shallow systems

[4] especially on forested productive soil

[5] if erosion-sedimentation processes are undesired

Art. 8: Urban wetlands



Art. 8: Urban wetlands



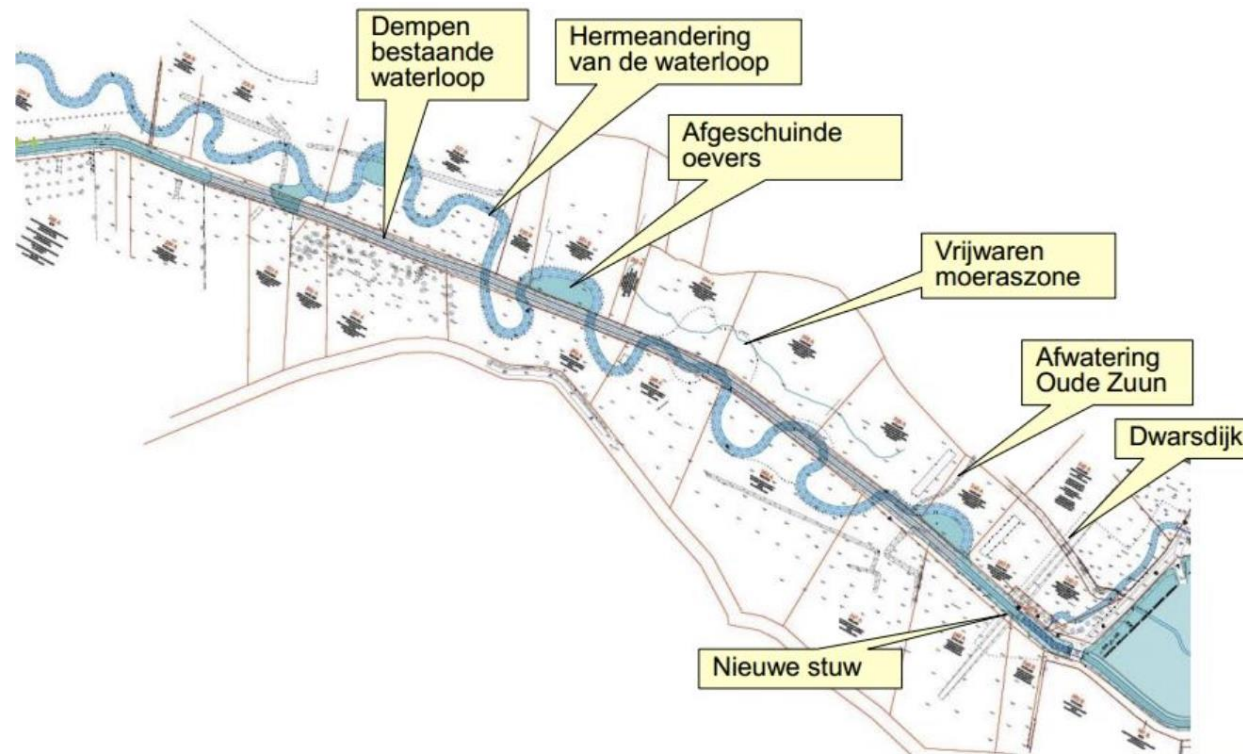
Art. 8: Urban wetlands



- No decrease in total national area of urban green spaces
- From 2031 onwards: increasing trend in total national area of green spaces



Art. 9: River connectivity and natural functions of floodplains



- Inventory of artificial barriers (transverse and longitudinal)
- Removal of barriers so that by 2030: at least 25,000 km of free-flowing rivers and improvement of natural functions of floodplains



Art. 9: River connectivity and natural functions of floodplains



Art. 10: Pollinator populations



Euphydryas aurinia

- reverse the decline of pollinator populations at the latest by 2030 and thereafter achieve an increasing trend of pollinator populations



Art. 11: Agricultural ecosystems (blue-green infrastructure, peat soil rewetting, meadow birds)



Art. 11: Agricultural ecosystems (blue-green infrastructure, peat soil rewetting, meadow birds)



- Common farmland bird index at national level: 110 (by 2030), 120 (by 2040), 130 (by 2050)



Art. 11: Agricultural ecosystems (blue-green infrastructure, peat soil rewetting, meadow birds)



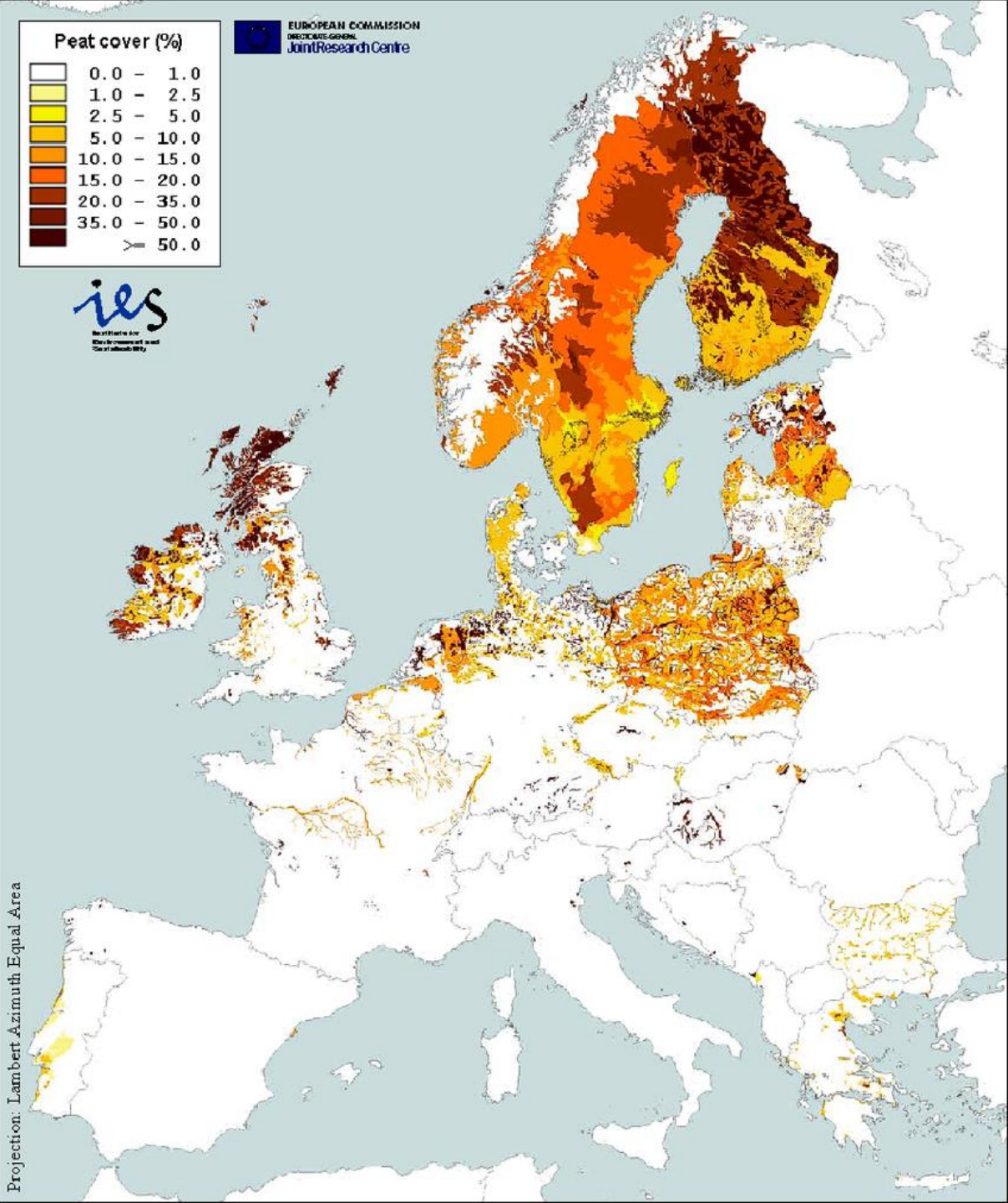
- 3% of agricultural area is drained peat and emits 25% of GHG of the agricultural sector
- 7% of all EU GHG emissions comes from drained peatland (aviation in EU = 3%)



- Agriculture is not sustainable (land subsidence of 20-30 mm/yr)



Figure 1. There has been almost 2 m subsidence since 1908 on Bälänge mosse (Berglund, 2008) (left, photo by Kerstin Berglund), and about 4 m since 1848 at the Holme fen post (Hutchinson, 1980) (right, original photo by Rodney Burton, height visualisation by Örjan Berglund).



Solution: paludiculture / wet agriculture / carbon farming



Tobias Dahms, lensescape.org



Scientific evidence:

<https://europe.wetlands.org/publication/higher-ambition-for-peatlands-in-the-eu-nature-restoration-law-proposal/>





Restoration of drained peatlands in agricultural use (art. 11): weakening of Commission proposal

Commission (2022)	Final text (2024)
Restoration measures on at least: 30 % by 2030, of which at least a quarter rewetted; 50 % by 2040, of which at least half rewetted; 70 % by 2050, of which at least half rewetted	Restoration measures on at least: 30 % by 2030, of which at least a quarter rewetted; <u>40 %</u> by 2040, of which at least <u>a third</u> rewetted; <u>50 %</u> by 2050, of which at least <u>a third</u> rewetted
Restoration measures of peatlands under land uses other than agricultural use and peat extraction counting for max. 20% of targets	... counting for max. <u>40%</u> of targets
	Rewetting may be reduced to less than required if rewetting is likely to have significant negative impacts on infrastructure, buildings, climate adaptation or other public interests and if rewetting cannot take place on other land than agricultural land





Restoration of drained peatlands in agricultural use (art. 11): weakening of Commission proposal

Commission (2022)	Final text (2024)
	Rewetting obligation does not imply an obligation <u>for farmers and private landowners</u> to rewet their land, for whom rewetting on agricultural land remains <u>voluntary</u> , without prejudice to obligations stemming from national law (art. 11)
	Financing: no obligation for Member States <u>to reprogramme any funding</u> under the CAP, the CFP or other agricultural and fisheries funding programmes and instruments under the MFF 2021-2027 (art. 14, § 11)
	'Emergency brake': temporary suspension of restoration obligations for agricultural ecosystems (art. 27)



Art. 12: Forest ecosystems



- Additional restoration measures to enhance biodiversity of forest ecosystems
- Increasing trend of forest indicators (including stock of organic carbon)



Wetland restoration in the EU: MAKE IT HAPPEN!





THANK YOU



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