SER EUROPE SOCIETY FOR ECOLOGICAL RESTORATION

RESEARCH INSTITUTE NATURE AND FOREST

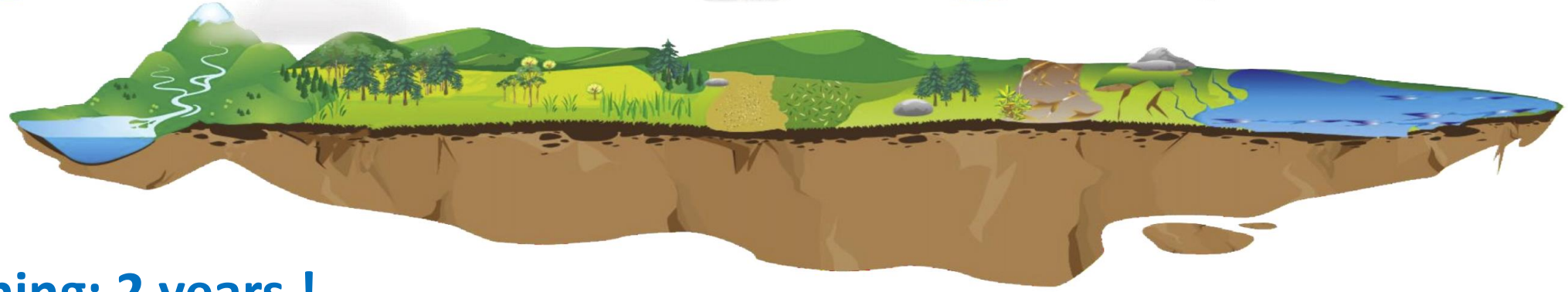
Upscaling effective nature restoration in the EU: challenges for the scientific community

Kris Decleer

info@ser-europe.org · http://ser-europe.org/

Restoration Resource Center: https://www.ser-rrc.org/

National Restoration Plan (NRP)



Timing: 2 years !

Preparation of the NRP

Art. 11.1:
MS shall prepare NRP and carry out…

preparatory monitoring and research*…*

needed to ***identify restoration measures necessary****…*

to meet the targets and obligations art. 4 to 10…

taking into account ***the latest scientific evidence***
…and expertise

Preparation of the NRP: HABITATS (art. 4-5)

Quantification of area for restoration based on:

1. Distribution of habitats inside + outside N2000

➔ **Good condition**

= state where physical, chemical, compositional, structural and functional state, and its landscape and seascape characteristics, reflect the high level of ecological integrity, stability and resilience necessary to ensure its long-term maintenance

= including typical species

66% of non-marine habitats are outside N2000

Preparation of the NRP: HABITATS (art. 4-5)

Quantification of area for restoration based on:

2. Potential for re-establishment

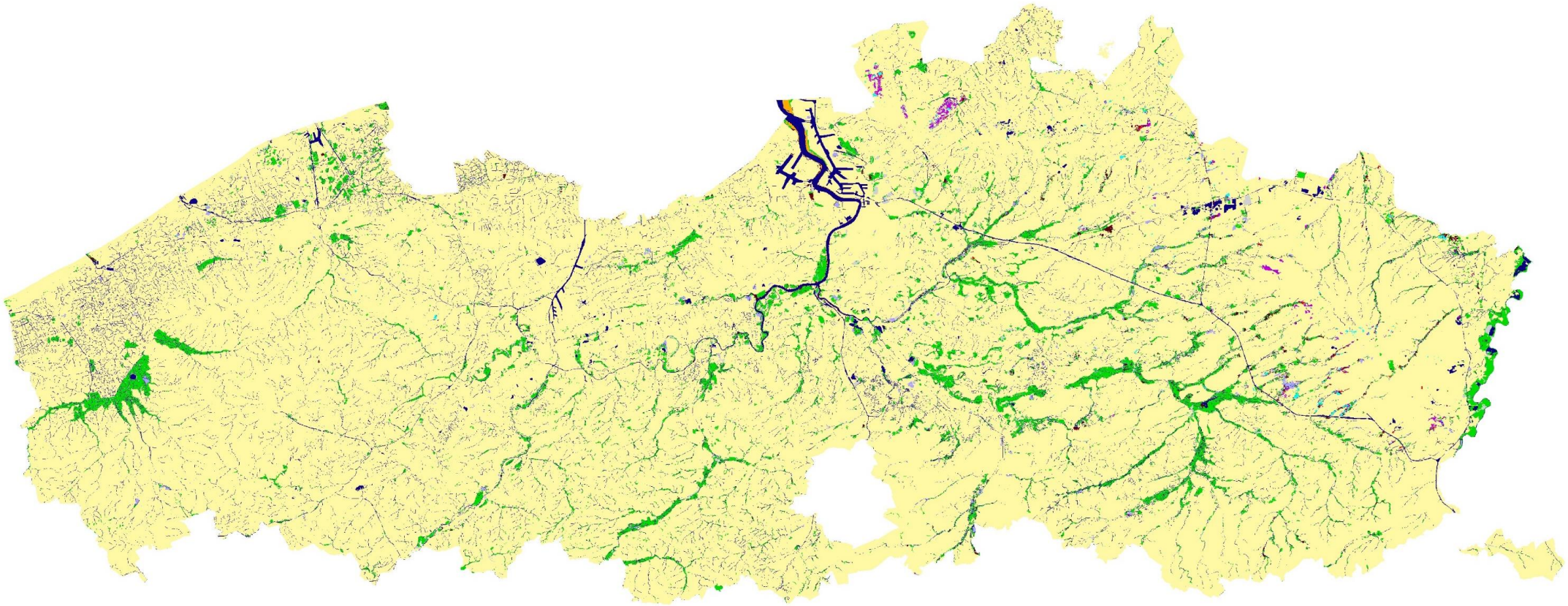
➔ Favourable reference area

*= minimum necessary total area at national level to ensure **long-term viability of the habitat type and its species**, and all its **significant ecological variations in its natural range*** (= existing area + area to be re-established)

(art. 11.2.a.): *taking into account the…*

- *documented losses over at least the last 70 years;*
- *projected changes to environmental conditons due to climate change*

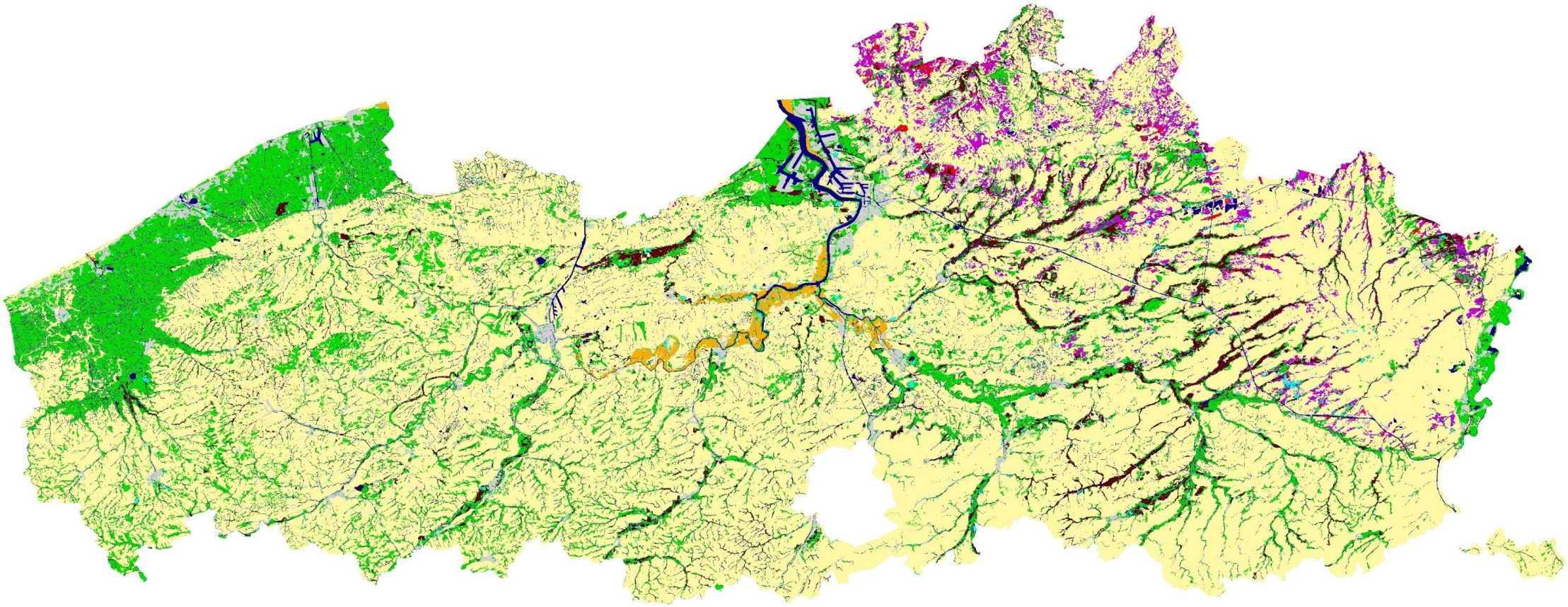
add: or any other science-based reference period or data



- not wet
- temporary wet soil (flooded or seepage) : meadows, forests,..
- fen or swamp (permanent wet: flooded or seepage)
- temporary wet heath
- permanent wet heath/bog
- shallow water, oligo-mesotrophic
- shallow water, eutrophic
- deep water / watercourse
- tidal marsh
- urban

Flanders lost 75% of its wetlands in the last 50-60 yrs

Decleer, K., J. Wouters, S. Jacobs, J. Staes, T. Spanhove, P. Meire, and R. Van Diggelen. 2016. Mapping wetland loss and restoration potential in Flanders (Belgium): an ecosystem service perspective. *Ecology and Society* 21(4):46. https://doi.org/10.5751/ES-08964-210446



- not wet
- temporary wet soil (flooded or seepage) : meadows, forests,..
- fen or swamp (permanent wet: flooded or seepage)
- temporary wet heath
- permanent wet heath/bog
- shallow water
- deep water / watercourse
- tidal marsh
- urban

Potential for re-establishment of wetlands in Flanders (example FRA)

Decleer, K., J. Wouters, S. Jacobs, J. Staes, T. Spanhove, P. Meire, and R. Van Diggelen. 2016. Mapping wetland loss and restoration potential in Flanders (Belgium): an ecosystem service perspective. *Ecology and Society* 21(4):46. https://doi.org/10.5751/ES-08964-210446

Preparation of the NRP: HABITATS (art. 4-5)

Identify restoration measures for sites with existing habitats not in good condition or to be re-established

→ based on best available knowledge

→ timing: <u>measures in place</u> per habitat <u>group</u>: 30% by 2030; 60% by 2040; 90% by 2050

→ + non-deterioration measures

Terrestrial, coastal and freshwater habitat groups

1. Wetlands (inland & coastal)
2. Forests
3. Grasslands and other pastoral habitats
4. River, lakes, alluvial and riparian habitats
5. Heath & scrub
6. Rocky and (Coastal) & dunes

Marine habitat groups

1. Seagrass beds
2. Macroalgal forests
3. Shellfish beds
4. Maerl beds
5. Sponge, coral and coralligenous beds
6. Vents and seeps
7. Soft sediments (above 1000 meters of depth)

Preparation of the NRP: HABITATS (art. 4-5)

ANNEX VII

LIST OF EXAMPLES OF RESTORATION MEASURES REFERRED TO IN ARTICLE 11(8)

(1) Restore wetlands, by rewetting drained peatlands, removing peatland drainage structures or de-poldering and discontinuing peat excavation.

(2) Improve hydrological conditions by increasing quantity, quality and dynamics of surface waters and groundwater levels for natural and semi-natural ecosystems.

(3) Remove unwanted scrub encroachment or non-native plantations on grasslands, wetlands, forests and sparsely vegetated land.

(4) Apply paludiculture.

(5) Re-establish the meandering of rivers and reconnect artificially cut meanders or oxbow lakes.

(6) Remove longitudinal and lateral barriers (such as dikes and dams), give more space to river dynamics and restore free-flowing river stretches.

(7) Re-naturalise river beds and lakes and lowland watercourses by e.g. removing artificial bed fixation, optimising substrate composition, improving or developing habitat cover.

(8) Restore natural sedimentation processes.

(9) Establish riparian buffers, e.g. riparian forests, buffer strips, meadows or pastures.

(10) Increase ecological features in forests, such as large, old and dying trees (habitat trees) and amounts of lying and standing deadwood.

(11) Work towards a diversified forest structure in terms of vegetation and age, enable natural regeneration and succession of tree species.

(12) Enhance forest diversity by creating mosaics of non-forest habitats such as open patches of grassland or heathland, ponds or rocky areas.

(13) Make use of “close-to-nature” or “continuous cover” forestry approaches; introduce native tree species.

(14) Enhance the development of old-growth native forests and mature stands (e.g. by abandonment of harvesting).

(15) Introduce high-diversity landscape features in arable land and intensively used grassland, such as buffer strips, field margins with native flowers, hedgerows, trees, small forests, terrace walls, ponds, habitat corridors and stepping stones, etc.

(16) Increase the agricultural area subject to agro-ecological management approaches such as organic agriculture or agro-forestry, multicropping and crop rotation, integrated pest and nutrient management.

(17) Reduce grazing intensity or mowing regimes on grasslands where relevant and re-establish extensive grazing with domestic livestock and extensive mowing regimes where they were abandoned.

(18) Stop or reduce the use of chemical pesticides as well as chemical and animal manure fertilizers.

(19) Stop ploughing grassland and introducing seeds of productive grasses.

(20) Remove plantations on former dynamic inland dune systems to re-enable natural wind dynamics in favour of open habitats.

(21) Improve connectivity across habitats to enable the development of populations of species, and to allow for sufficient individual or genetic exchange as well as for species’ migration and adaptation to climate change.

(22) Allow ecosystems to develop their own natural dynamics for example by abandoning harvesting and promoting naturalness, wilderness.

(23) Remove and control invasive alien species, and prevent or minimize new introductions.

(24) Minimise negative impacts of fishing activities on the marine ecosystem, for example by using gear with less impact on seabed.

(25) Restore important fish spawning and nursery areas.

(26) Provide structures or substrates to encourage the return of marine life, for example coral/oyster/boulder reefs.

(27) Restore seagrass meadows and kelp forests by actively stabilising the sea bottom, reducing and, where possible, eliminating pressures or by active propagation and planting.

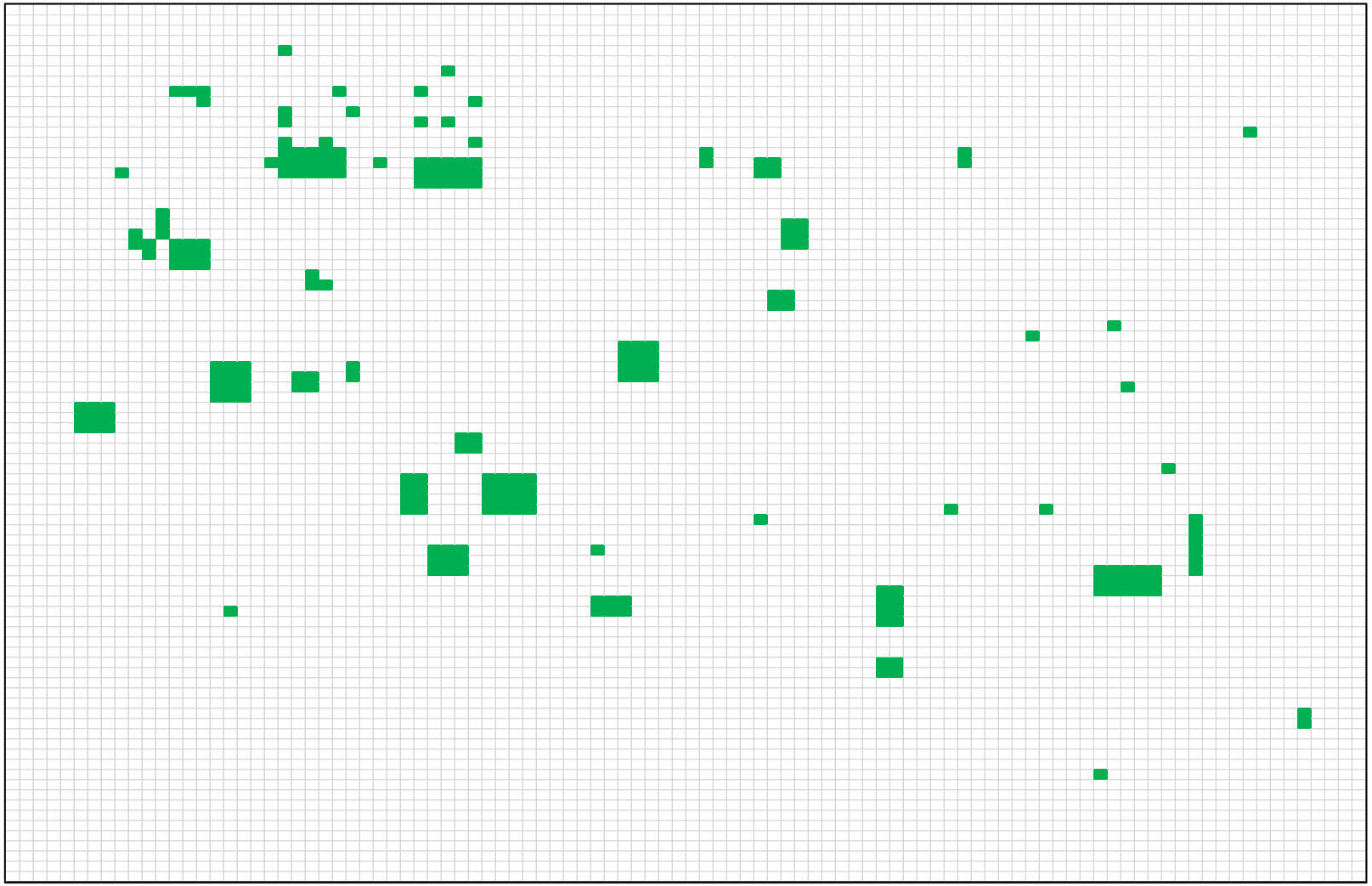
(28) Reduce various forms of marine pollution, such as nutrient loading, noise pollution and plastic waste.

(29) Increase urban green spaces with ecological features, such as parks, trees and woodland patches with native species, green roofs, wildflower grasslands, gardens, city horticulture, tree-lined streets, urban meadows and hedges, ponds and watercourses.

(30) Stop, reduce or remediate pollution from pharmaceuticals, hazardous chemicals, urban and industrial wastewater, and other waste including litter and plastics as well as light in all ecosystems.

(31) Convert brownfield sites, former industrial areas and quarries into natural sites.

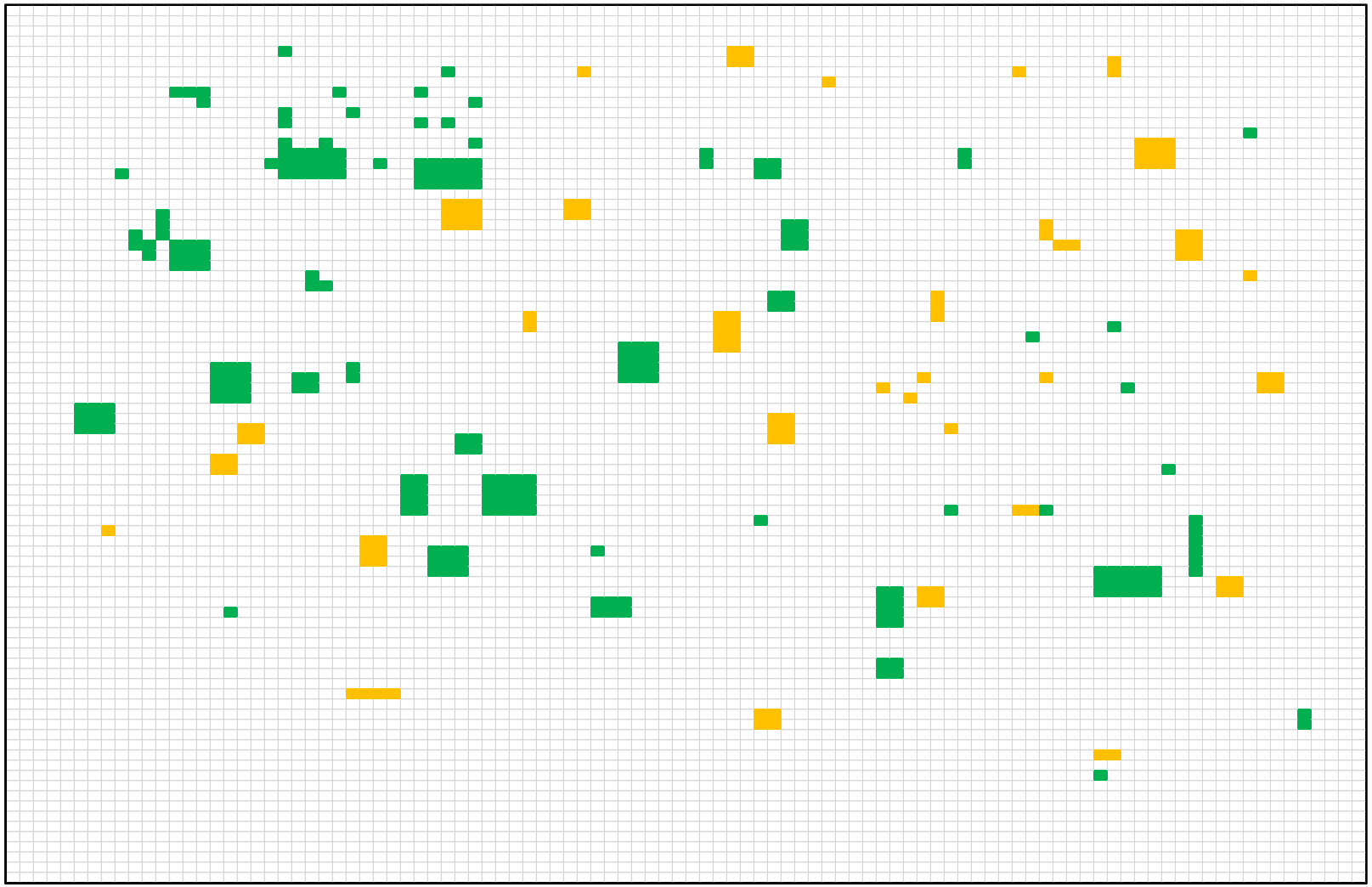
Preparation of the NRP: HABITATS (art. 4-5)



Habitat X in Country Y
(Habitat Group X)

in N2000

Preparation of the NRP: HABITATS (art. 4-5)



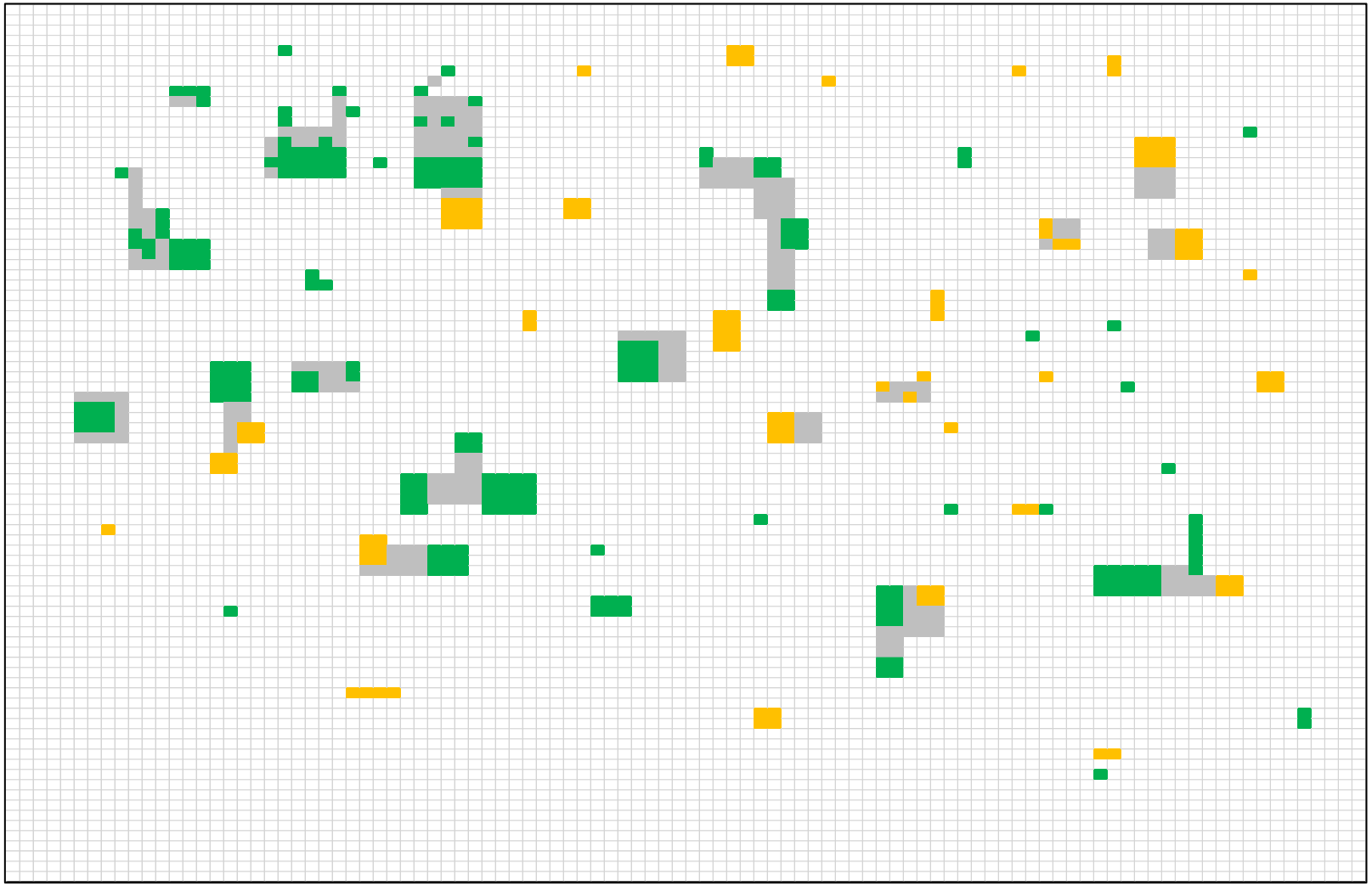
Habitat X in Country Y

in N2000

outside N2000

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

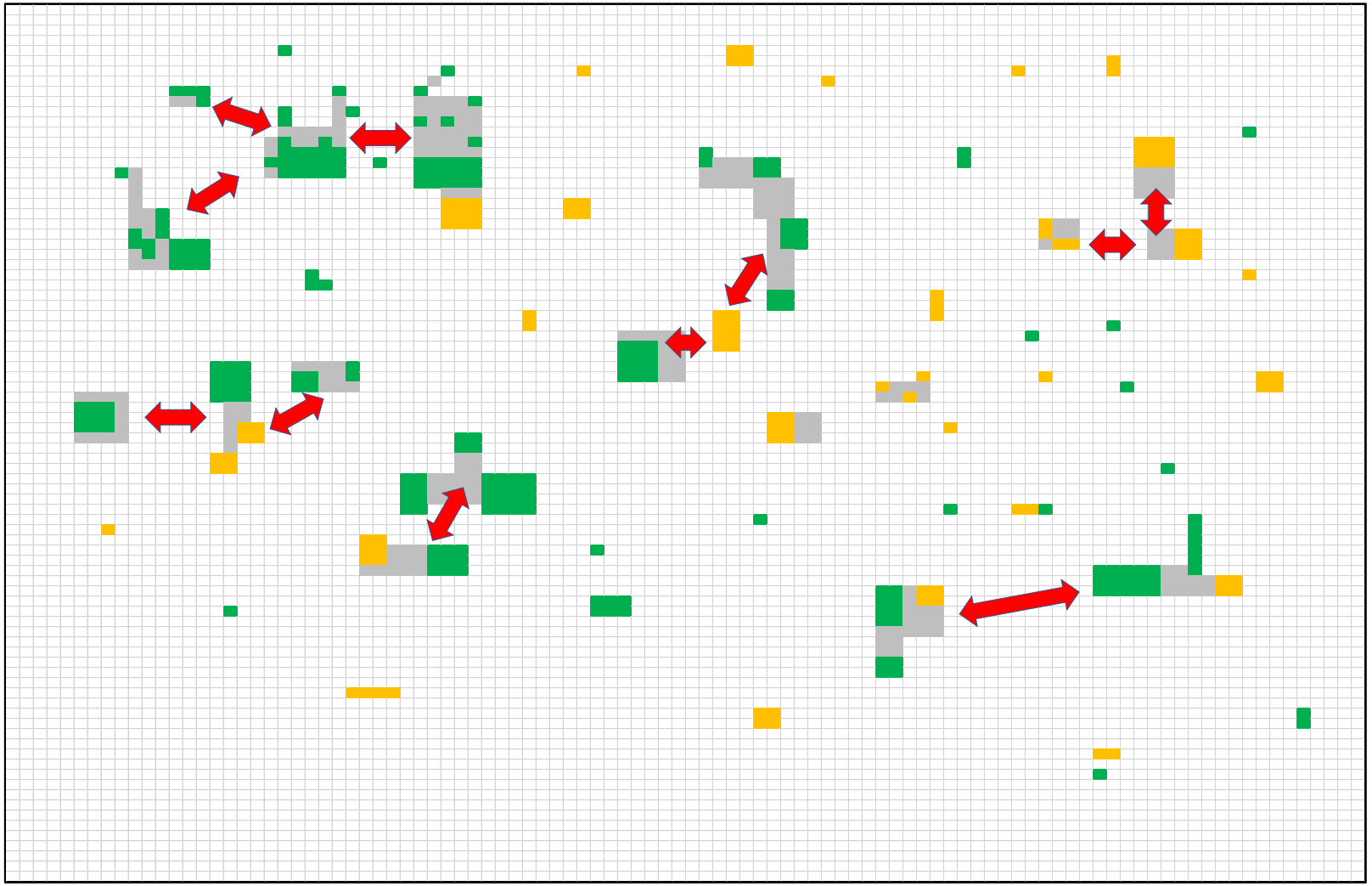
Preparation of the NRP: HABITATS (art. 4-5)



Habitat X in Country Y

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

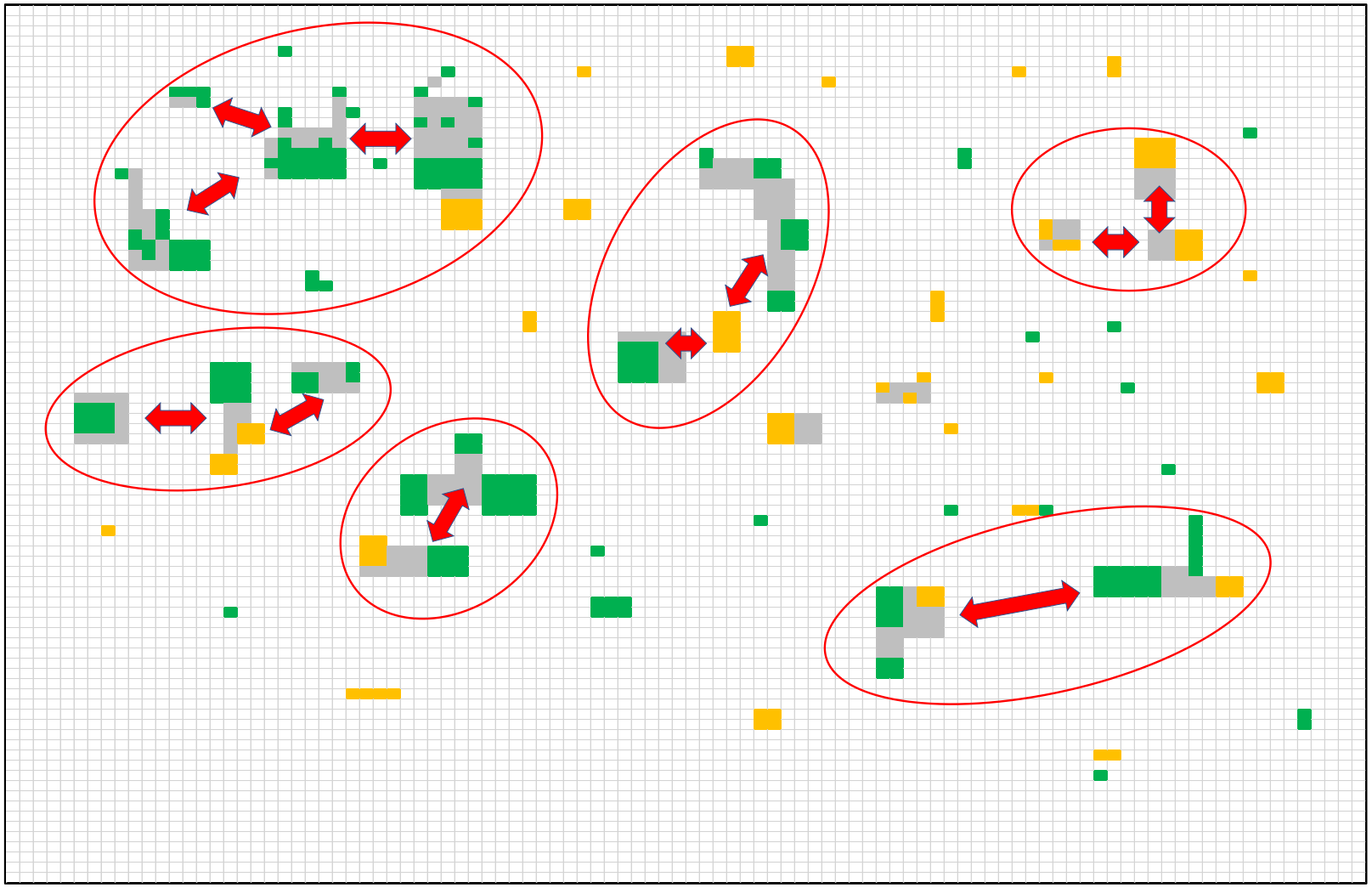
Preparation of the NRP: HABITATS (art. 4-5)



Habitat X in Country Y

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

Preparation of the NRP: HABITATS (art. 4-5)



Habitat X in Country Y

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

Preparation of the NRP: HABITATS (art. 4-5)

Habitat X in Country Y

- in N2000
- outside N2000
- heavily degraded / lost (FRA)
- need for ecological corridors
- robust, resilient ecosystem cluster in 'good condition' (landscape approach)
- Buffering against negative pressures (eutrophication, desiccation, climate change impact, fragmentation…) (cfr. art 9-10)

Preparation of the NRP: HABITATS OF SPECIES (art. 4-5)

Quantification of area for restoration based on:

1. ***Distribution of habitats of species inside + outside N2000***
2. ***Connectivity needed***
3. ***Re-establishment of habitats needed***
4. ***Anticipating on impact climate change***

Identify necessary restoration measures for existing habitats and habitats to be re-established

→ Timing: Increasing trend towards sufficient quality and quantity to achieve Favourable Conservation Status

= quality/quantity which allows the ecological requirements of a species to be met at any stage of its biological cycle so that it is maintaining itself on a long-term basis as a viable component of its habitat in its natural range

Preparation of the NRP: AGRICULTURE (art. 9)

Mapping areas for enhancing biodiversity
+ identify measures + timing for improvement of:

- **Status common farmland birds**
- **Rewetting of drained peatlands**
  - **➔ Time-bound targets**
- **Areas for enhanced connectivity (cf. art. 4)**

+ measures to enhance:

- **biodiversity (grassland butterfly index*)**
- **carbon stocks cropland***
- **Share high-diversity landscape features***
  - **➔ Identify satisfactory levels:***
  - **➔ Increasing trend**
- **???Reduction of pressures (drainage, nutrient leaching)???**

Preparation of the NRP: FORESTRY (art. 10)

Mapping areas for enhancing biodiversity
+ identify measures + timing for improvement of:

- **Status common forest birds**
- **Areas for enhanced connectivity (cf. art. 4)**

+ measures to enhance:

- **Standing and lying deadwood***
- **Share with uneven-aged structure***
- **Stock of organic carbon***
  - **➔ Identify satisfactory levels:***
  - **➔ Increasing trend**

- **???Reduction of pressures (drainage)???**

Preparation of the NRP: River barriers (art. 7)

Mapping barriers and (obsolete) barriers for removal

+ measures to re-establish/improve natural floodplain functioning

+ identify timing of measures

➔ 25,000 km of free-flowing rivers by 2030

Preparation of the NRP: POLLINATORS (art. 8)

measures to reverse decline of pollinator populations

+ timing

→ **reverse decline by 2030**

→ **increasing trend after 2030**

EUROPEAN COMMISSION

Brussels, 24.1.2023

COM(2023) 35 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Revision of the EU Pollinators Initiative

A new deal for pollinators

https://environment.ec.europa.eu/topics/nature-and-biodiversity/pollinators_en

Preparation of the NRP: SYNERGIES WITH CLIMATE CHANGE

IDENTIFY SYNERGIES WITH
- climate change mitigation;
- climate change adaptation;
- disaster prevention
- designation of renewable go-to areas

+ restoration measures to minimise climate change impacts **on nature**

Preparation of the NRP: stakeholder participation

- Public participation
- Optimising ecological, economic and social functions of ecosystems
- Contribution to sustainable development
- Financial support of affected stakeholders
- Identify (phase out) adverse subsidies

➔ support needed from social and legal science!

Implementation of the NRP

Information needed at site-level: e.g.

- baseline situation: abiotic and biotic conditions, pressures
- ecological potential, opportunities, barriers
- vision and ecological targets
- cost-effective restoration measures
- non-deterioration measures
- socio-economic measures + financial support
- legal support
- indicators and monitoring
- reporting
- adaptive management

What we need:
National Knowledge Network hubs

National secretariat (coordination)

Thematic expert teams
- Forests
- Wetlands
- Grasslands
- Heathlands
- Rivers
- Coastal
- Marine
- Agriculture
- Forestry
- Urban
- Post-mining
- Polinators
- Species groups
- …

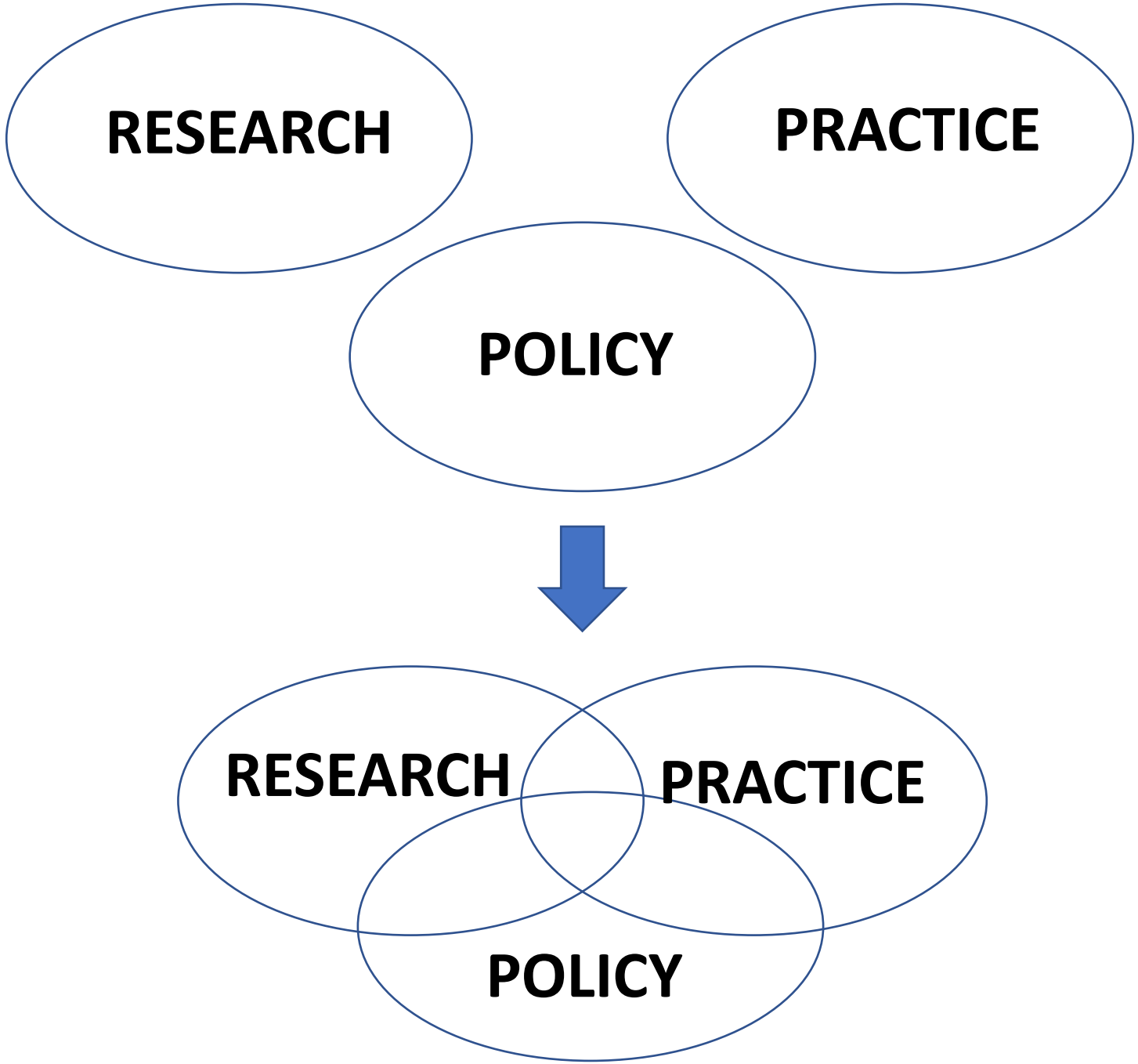
+ Financial support programs
+ Stakeholder participation platform

Science-based support for National Restoration Plan:
- Priority areas for restoration
- Favourable Reference area
- Ecological network (30%-10% objective)
- Cross-ecosystem coordination (landscape approach)
- Priority Research actions

Science-based support for Site Restoration Plan:
- What is 'good condition' (soil, hydrology, typical species, connectivity etc.)
- What are cost-effective measures?
- Support for site assessments, studies and follow-up

Training of site managers (novice and advanced):
- Field trips
- Workshops & Symposia
- Documentation Platform with best practice guidance

Monitoring and reporting
- Data base restoration sites & actions
- Coordination monitoring actions & data
- Reporting (thematic + national reporting)
- Best practice (what works and what not?)
- Socio-economic benefits


RESEARCH
PRACTICE
POLICY
RESEARCH
PRACTICE
POLICY

What we need:

European Knowledge Network hub

European coordination platform

Thematic expert teams
- Forests
- Wetlands
- Grasslands
- Heathlands
- Rivers
- Coastal
- Marine
- Agriculture
- Forestry
- Urban
- Post-mining
- Polinators
- Species groups
- …

+ Financial support service
+ Stakeholder participation (Biodiversity platform)

Structural knowledge exchange facilitation
- Regular thematic workshops and symposia with national experts
  - **Development of standards of good practice**
  - Share advances in knowledge & knowledge gaps
  - Demonstration projects (certification?)
- European Conferences on restoration where science, practice and policy meet (SERE)

Training
- 'Train the trainers' program (SERE, Biogeographical process)
- Documentation Platform & search engine (BISE, WISE)

Monitoring and reporting (EEA & ETC)

Research (Bioagora, Biodiversa+, Horizon)
- Defining the research agenda
- Science Service
- Support tools (Europabon, Eionet a.o.): e.g. spatial information on land use, socio-economic benefits, climate change, presence of red listed species etc.

But… the NRL is not approved yet…

Main bottlenecks for the approval

- “Loss of jobs”
- “Loss of food security”
- Non-deterioration outside N2000
- Rewetting of drained peatlands outside N2000
- REPowerEU plan

But… the NRL is not approved yet…

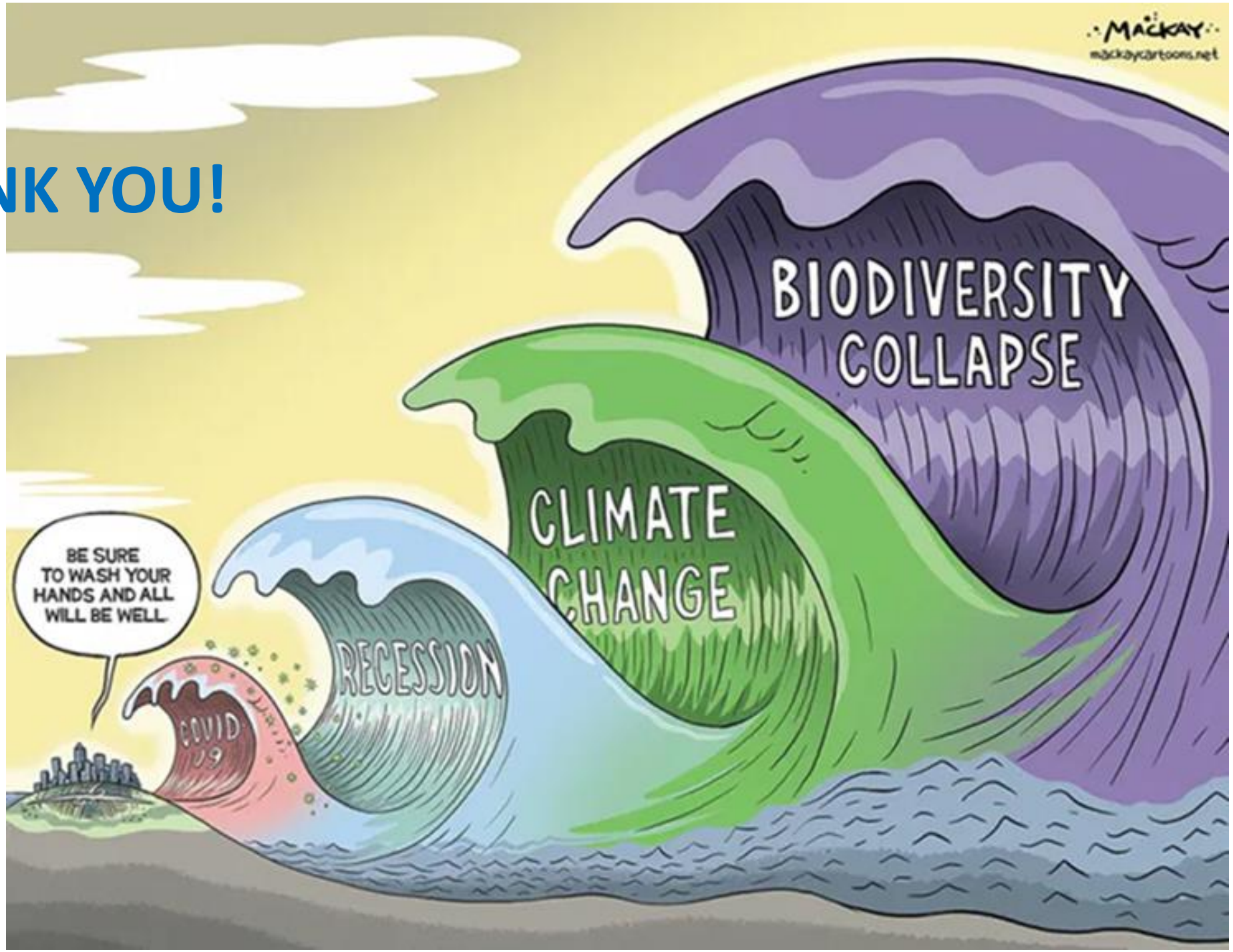
Short-term need for:

scientific evidence/case studies demonstrating that restoration helps to maintain/enhance:

- **job creation**
- **food security (agriculture)**
- **sustainable forestry**
- **coexistence wind and solar power plants**

➔ statement/conclusion in English (+ reference/e-link) → Kris.Decleer@inbo.be
➔ or set up a task force??

THANK YOU!


MACKAY
mackaycartoons.net
BIODIVERSITY COLLAPSE
CLIMATE CHANGE
RECESSION
COVID 19
BE SURE TO WASH YOUR HANDS AND ALL WILL BE WELL