

MERLIN



Mainstreaming Nature-Based Solutions for transformative river restoration: The Merlin project and the Scheldt case study in Belgium

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RIBES

MSCA-Ribes
River flow regulation, fish BEhaviour and Status

MERLIN in a nutshell

- The project commits to transformative **ecosystem restoration, mainstreaming Nature-based Solutions** for the urgent systemic change of our society
- Solutions that are **inspired and supported by nature**, which are **cost-effective**, simultaneously provide **environmental, social and economic benefits** and help build resilience.



Other examples of Nature-Based Solutions (NBS)



photo: nwrn.eu



photo: nwrn.eu

Other NBS examples: Mangrove rehabilitation



photo: mangrove action project

In the MERLIN project: Three ecosystems covered



**PEATLANDS
AND WETLANDS**



**SMALL STREAMS
AND BASINS**



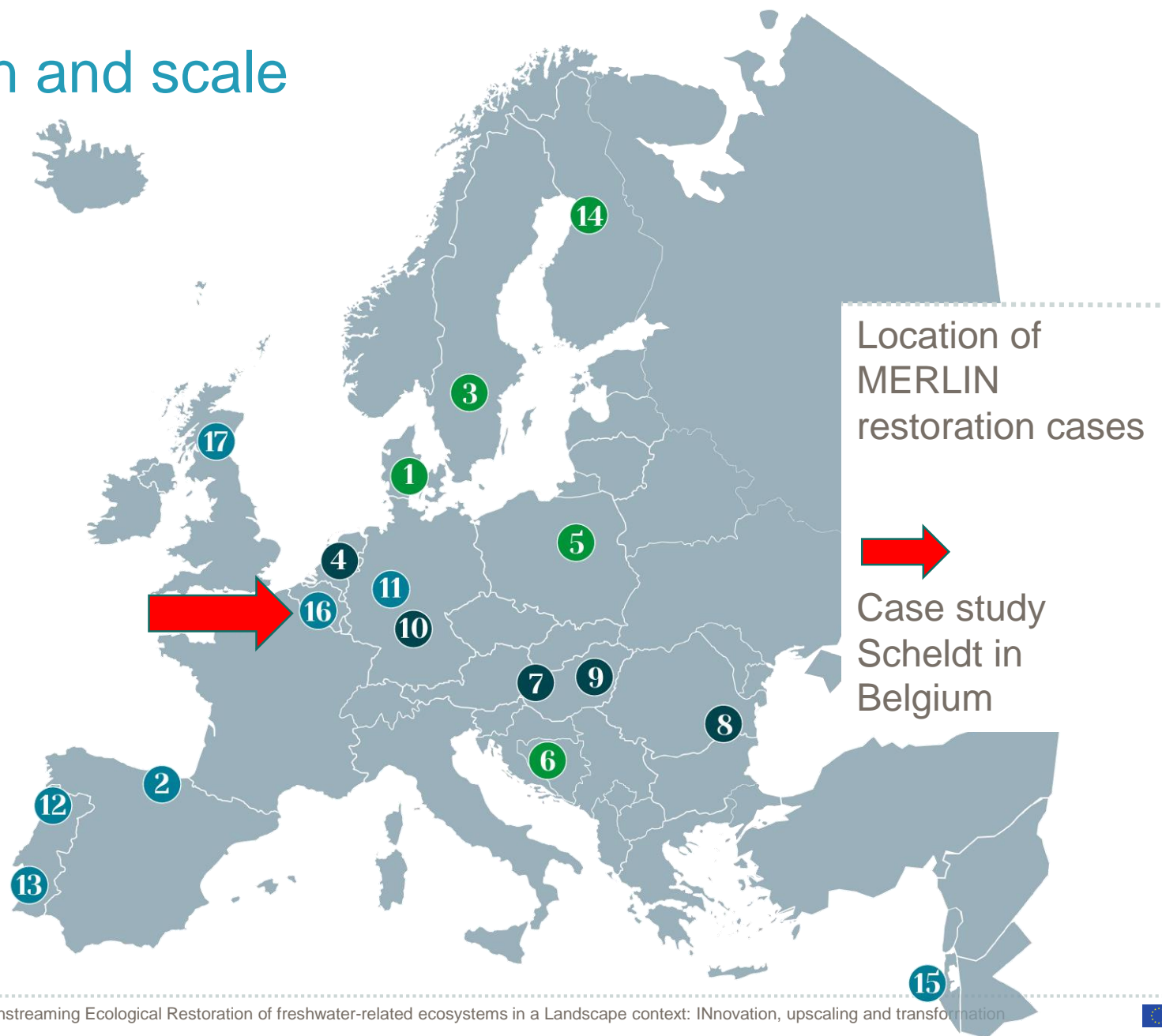
**LARGE
TRANSBOUNDARY
RIVERS**

Geographical location and scale

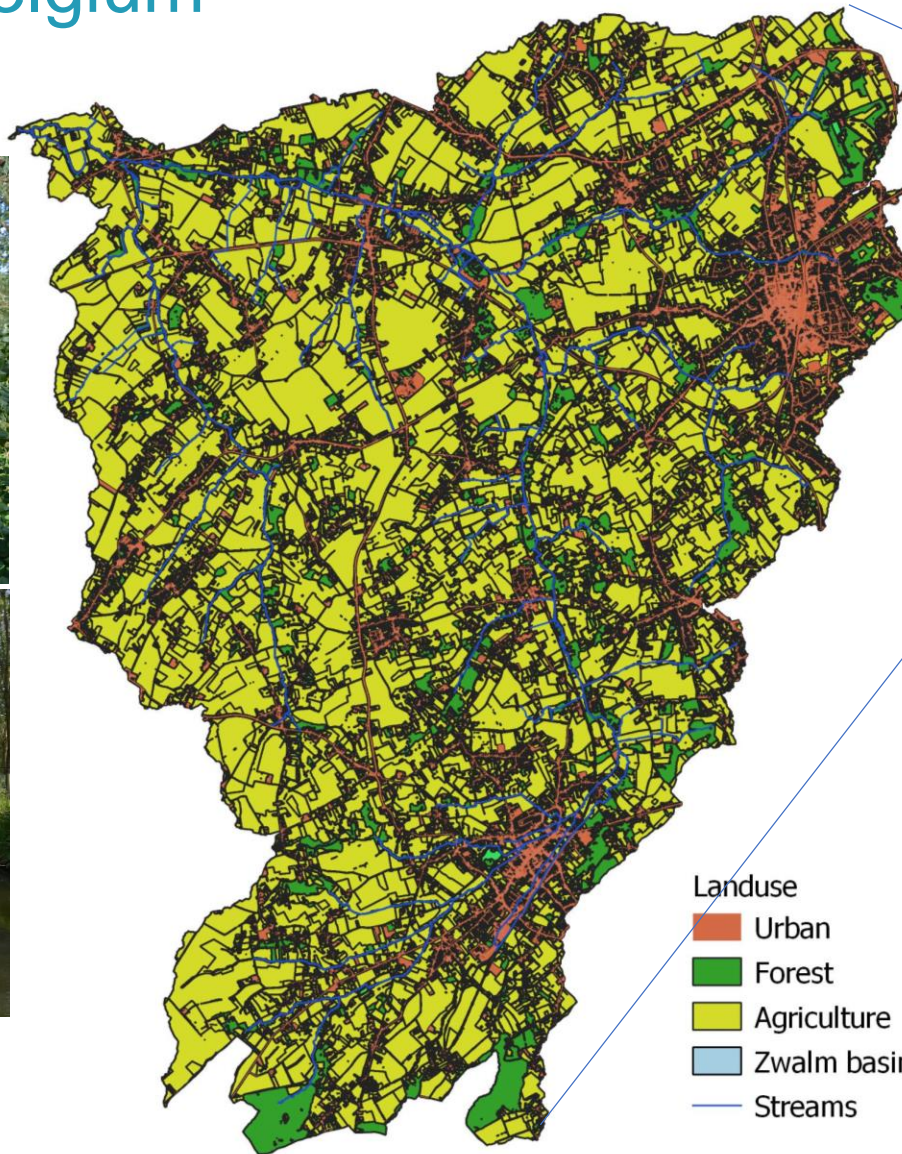
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Case study in Belgium



- Landuse
- Urban
 - Forest
 - Agriculture
 - Zwalm basin
 - Streams

0 2.5 km



- 3 municipalities
- 117 km²
- Zwalm river - tributary of the Scheldt river

Problems in Zwalm basin

1. Presence of weirs (small dams)
2. Majority of the land is agriculture
 - Erosion
 - Nutrients
 - Pressure on ecosystems/biodiversity
3. Not all houses are connected to sewer systems/WWTPs
4. Invasive species
5. Climate change

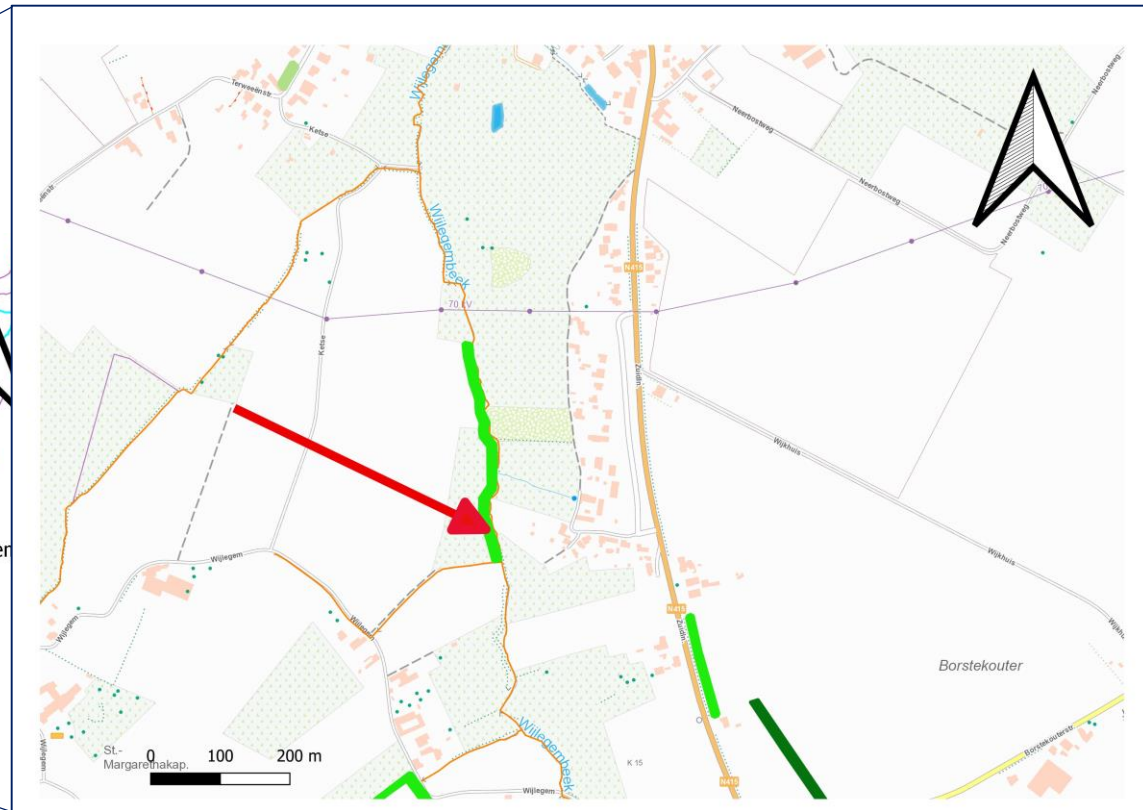


Restoration measures

1. Grass flower buffer strips

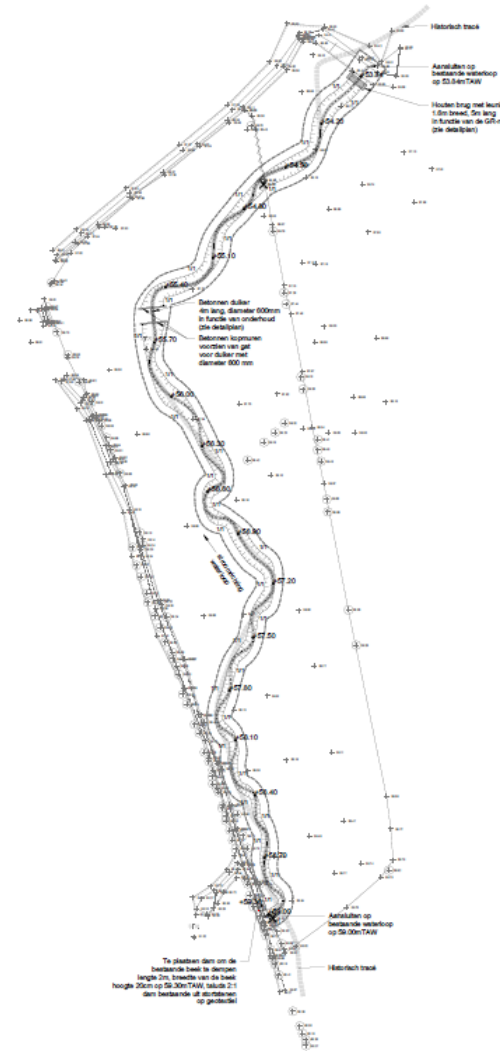
- To reduce erosion
- Beneficial for biodiversity
- Mitigate climate change impact
- Implementation is on a voluntary basis
- Farmers get compensation





Restoration measures

1. Grass flower buffer strips
2. **River restoration of an upstream stream**
 - Remeandering
 - Removal of two small fish barriers
 - Levelling up part of the river
 - Implementation of spawning beds
 - Establishment of a buffer pond/erosion pond
 - Installation of two new bridges
 - Removal of pine trees and replaced by indigenous trees



How to know if these
measures are
effective???

Monitoring of restoration measures

The European Green Deal will transform the EU into a **modern, resource-efficient** and **competitive economy**, ensuring:

- No net emissions of greenhouse gases by 2050
- Economic growth decoupled from resource use
- No person and no place left behind



photo: copernicus.eu

Monitoring of restoration measures

1. Biodiversity Net Gain
2. Climate regulation
3. Flood resilience
4. Drought resilience
5. Health and well being
6. Zero pollution goals
7. Sustainable food systems
8. Sustainable energy
9. Sustainable transport
10. Inclusivity
11. Circular economy
12. Financing the transition
13. Green growth



photo: ceer.eu

Thank you for your
attention