

Building Climate Resilience through Nature-based Solutions

NBRACER is advancing from the design of Nature-based Solutions (NbS) to their practical demonstration, showing how NbS can strengthen climate resilience across 5 Demonstrating and 3 Replicating regions in the European Atlantic biogeographical area. The project highlights tangible progress in Marine & Coastal, Urban, and Rural landscapes, where local actors are co-designing and implementing place-based solutions. These demonstrators address regional climate risks while generating knowledge, tools, and guidance to support replication and scaling of NbS across Europe.



Discover the NBRACER
Pilots & Demos

NBRACER Replicating Regions (RRs)

Role of replicating regions in NBRACER

In NBRACER, RRs play a key and active role in testing and validating the solution portfolios, pathways, and innovations developed within the DRs. This iterative process allows for the refinement of solutions and methods, ensuring and facilitating broader NbS implementation, upscaling, and mainstreaming.

Cavado

- Named after the Cávado River**, a defining feature of the region's identity.
- Predominantly rural the region links iconic interior mountains with the Atlantic coast.
- Characterised by agricultural areas and forests.
- Urban centres are situated along the coastline and rivers in the Cávado Valley.

Region at a glance



Cantabria

NBRACER Demos



River Saja

Goal: To recover and improve river habitats while providing protection against flooding

- Expanding the floodplain, reactivating historic secondary channels and planting native species.
- Includes volunteering days, workshops and custody agreements for the maintenance of spaces.



Oyambre estuary

Goal: To reduce erosion risks at the mouth of the estuary and flooding risks at the inner sections.

- Lowering of a dyke that has restricted the tidal flow.
- Intermediary solution found that allows local communities to continue to cross at low tides.



Picos de Europa

Goal: To avoid the soil and vegetation degradation caused by cattle grazing or trampling on raised bogs, mires and fens.

- Excluding livestock seasonally to restore habitats and strengthen mountain wetland resilience.



Dr. Diego Madrazo Avenue

Goal: To reduce pluvial flooding and the impact of heatwaves through re-naturalisation of an urban area.

- Replacing pavement with diverse species and tall trees to boost shade, biodiversity, and infiltration.
- Modelling temperature at the street and city scale to assess impacts and explore replication potential.



Native Forest Restoration

Goal: To reduce climate change impacts by restoring native riparian and hillside forests

- Supporting forests deliver ecosystem services such as thermal regulation, erosion control, and sediment filtration.

Climate risks & hazards



Coastal risks



Fires



Heat waves



Water stress

Central Denmark

NBRACER Demos



Climate Road

Goal: Infiltration and purification of water (captures water running in the road surface)

- Surface water is collected from the surrounding area and stored in the road-structure.
- The road has an inherent filtration capability, which can capture sediments and particles.
- The use of permeable asphalt pavements has been found to reduce flooding, traffic noise, as well as contribute to urban cooling.



Decentralised cleaning of rainwater

Goal: To test the decentralised capture and cleaning of rainwater through nature based solutions.

- To improve water quality and prevent flooding by avoiding utility overflows during heavy rainfall.
- Testing decentralised systems that mimic traditional treatment plants through natural aerobic and anaerobic zones to clean water.

Climate risks & hazards



Water overflow



Surface runoff



Saltwater intrusion



Extreme rainfall

Nouvelle-Aquitaine

NBRACER Demos



Ramage

Goal: Test artificial recharge of the Garonne aquifer near Tonneins to support low summer flows by infiltrating 8–10hm³ annually

- The project, located in Lot-et-Garonne, focuses on the section of the river bordered by the Garonne Canal on the left bank.
- The three main study sectors are located upstream and downstream of the nodal point of Tonneins
- Methods include infiltration ditches, gravel pits, and poplar flooding with hydroclimatic modeling



Marais poitevin

Goal: Reconnect the Vendée river to its floodplain to slow flow, improve ecological continuity, reduce flooding, and boost groundwater recharge

- Tributary of Mignon in Marais poitevin; highly modified, often dries out
- Restoration (1.5 km) aims to re-meander and reconnect river to floodplain
- Area includes Natura 2000 & RAMSAR wetlands

Climate risks & hazards



Floodings



Water stress



Fires



Heat waves



Coastal risks

East-Flanders

Test regional Cases



Flemish Ardennes

Goal: Make cropland agriculture more climate-proof with no-tillage and carbon farming.

- Applying soil-friendly, no-inversion tillage to enhance infiltration and soil health.
- Increasing soil carbon storage to boost resilience and reduce runoff and erosion.

Molenbeek Ronse

Goal: Restore stream dynamics and ecological functions through renaturation

- Reconnecting watercourses with their floodplains to reduce flood risks.
- Enhancing biodiversity and habitat quality by restoring natural watercourses.



Moervaartvallei

Goal: Adapt waterways to rising levels by restoring natural river processes.

- Re- and micro-meandering streams to improve flow and habitats.
- Naturalising riverbeds and banks, with differentiated mowing and pond management to boost retention and ecological quality.



West-Flanders

NBRACER Demos



Constructed wetlands

Goal: Apply constructed wetlands to treat domestic and industrial wastewater where conventional systems are not suitable.

- Installing reed fields to treat domestic wastewater from villages/houses not connected to the sewer network (monitored until 2026 with follow-up plans).
- Operating a willow field in Koksijde to treat brine from drinking water production, with monitoring (2024–2025) and further research in Horizon Europe Circsyst.



Rural water & stream management

Goal: Improve water quality, biodiversity, and climate resilience through sustainable management of rural waterways, streams, and croplands.

- Apply differentiated mowing of waterways in West Flanders to balance flood protection and habitats.
- Restore and re-naturalise streams to enhance hydrology, biodiversity, and connectivity.
- Raise cropland water levels and install riparian buffers in the Machutvallei to retain nutrients and boost agricultural resilience.



Soil & farming practices

Goal: Strengthen soil health and farming practices to boost climate resilience, biodiversity, and sustainable agriculture.

- Apply agro-ecological practices—cover crops, reduced tillage, and crop diversification, to build soil fertility and carbon storage.
- Test soil improvement measures in the Ilzer basin to enhance water retention, reduce erosion, and support resilient yields.
- Promote sustainable farming with local farmers to combine productivity and ecosystem benefits.



Coastal water management

Goal: Adapt water levels in the Oudlandpolder to boost flood resilience, support agriculture, and safeguard coastal biodiversity.

- Adjust drainage and storage in the Uitkerke Polder.
- Combine flood protection with measures for biodiversity, farming, and landscape quality.
- Develop governance and stakeholder agreements to balance land-use interests.

Climate risks & hazards



Drought



Pesticide runoff



Sea level rise



Extreme rainfall

Porto Municipality

NBRACER Demos



Quinta de Salgueiros

Goal: Create the first urban laboratory forest in Portugal

- Quinta de Salgueiros is located on the grounds of an old farm in Campanhã, one of the most deprived parishes in Porto. Porto's municipality has made public its interest and priority to invest in Campanhã to promote inclusion and social, environmental and economic improvement.
- This territory is crossed and surrounded by natural topographic barriers and heavy road structures that create a series of connection and mobility challenges.
- This demonstration and NbS implementation will expand Porto's Green Corridor urban network restoring native biodiversity and increasing connectivity for people and wildlife.
- The Quinta de Salgueiros project aims to restore ecosystems such as streams, woodlands, and meadows to enhance biodiversity, ecosystem services, and climate resilience.

Climate risks & hazards



Floodings



Heat stress



Heat waves



Extreme rainfall

