ALFAwetlands Living Labs

Types of wetlands

- Agripeat
- Peat extraction areas
- Constructed wetlands
- Drained but non-productive peatlands
- Wetland for water management
- Drained peatland forests
- Coastal wetlands
- Floodplains

Follow ALFAwetlands for more information

Contact us: info@alfawetlands.eu

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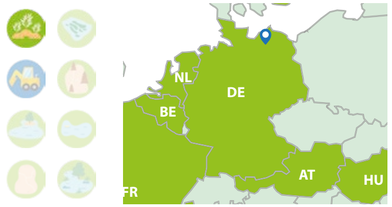
VN.: 25-067

Living Lab Germany



Site: River Peene Valley

Challenges: Two-thirds of the peatland area of the Upper Peene Valley (15,000 ha fens in total) are used for agriculture and large parts are drained through a complex drainage system consisting of ditches and water regulation structures. Rewetting of peatlands demands from farmers a shift of land use practices, new utilization options and value chains need to be established to process biomass from wet peatlands.

Restoration method: Rewetting of drained peatlands via ditch blocking and reconnection to natural running and standing waters. Where possible, the management of agriculturally used peatlands is adapted to the wet conditions (Paludiculture).

Stakeholder involvement: To build trust and develop a common problem understanding, stakeholders are invited to participate in different dialogue and discussion formats, like field visits, round-tables and landscape walks.

Expected impacts: In the long-term, the use of sedge-dominated wet meadows or cattail fields (Paludiculture) supports the reduction of GHG emissions, biodiversity, downstream water quality, biomass production, recreation, and flood risk reduction.

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Living Lab Latvia

Sites: Kaigu 14, Kaigu 11 & Kalna 12, LVC301, 302, 303, 115

Challenges: The peat extraction sites in Latvia comprise approximately 50,000 ha, including 16,000 ha of areas where peat extraction takes place and about 20,000 ha of abandoned peat extraction fields, which are not covered by vegetation, and the remainder predominantly covered with natural forest.

Restoration method: Reforestation of former peat extraction site with different tree species applying various dosages of wood ash to imitate wildfire effects. Berry cultivation in areas where peat extraction was stopped before 2010 as a transitional method from peat mining toward a natural peatland ecosystem.

Stakeholder involvement: Participation in educational events (field trips) and round-table discussions.

Expected impacts: In the long-term, the application of wood ash will contribute to increase CO2 sequestration and biodiversity. Cultivation of berries on depleted peatlands will reduce GHG emissions from soil and increase CO2 binding in living biomass and litter pools.

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Living Lab Spain

Sites: Rubió, Estanyeres, Les Madrigueres, Roureda de Tordera & Canoves stream

Challenges: The intensification of livestock farming damages the remaining ecosystems. Climate change intensifies these environmental problems. Water scarcity affects the ability of these ecosystems to regulate the quantity and quality of water. Human pressure from tourism and second residences causes the loss of biodiversity.

Restoration method: Exclusion of livestock through fencing. Riparian forests as tertiary treatment of wastewater from Wastewater Treatment Plant (WWTP), increasing riparian water availability and stream water quality. Conservation of dunes and marshes and creation of new lagoons.

Stakeholder involvement: The Besós-Tordera Consortium organizes outreach activities to disseminate the scientific knowledge of the area. Land Stewardship agreement between City Council and local environmental NGOs to preserve this co-creation area.

Expected impacts: In the long-term, an increase in biodiversity, better water and stream water quality, conservation of unique biodiversity, development of tourism infrastructures and recreational opportunities are expected.

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Living Lab Sweden

Site: Öland

Challenges: The area is increasingly threatened by climate change through drought and water scarcity, a situation exacerbated by the history of ditching and draining land for agriculture.

Restoration initiatives: The aim is to overcome locked-in positions and rigid regulations. There are a number of specific, partial 'solutions' (dams and retention basins, wetlands, filling in ditches) that potentially can be aligned and turned into a modular, landscape level solution.

Stakeholder involvement: The work is guided by stakeholder knowledge about the challenges of sustainable use of land and water, together with landscape protection and development; stakeholders are invited to join different dialogue and discussion formats: field visits, round-tables and landscape walks.

Outcomes: More reliable access to water. The ALFAwetlands dialogue series focused on the latter and opened up new relationships and better understanding between different actors, which had a positive impact on the management capacity in Öland and Kalmar County, e.g. by working together to promote awareness, communication and engagement for sustainable resource use.

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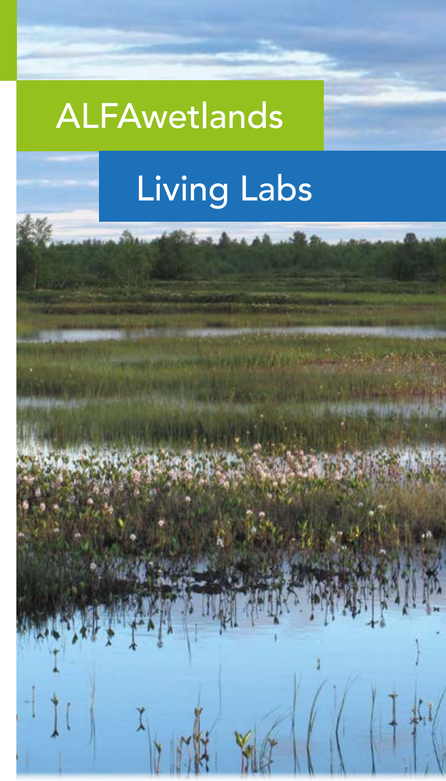

ALFAwetlands

Living Labs

Restoration for the future WETLANDS
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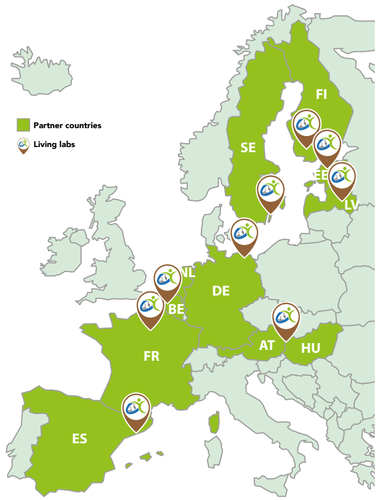
ALFAwetlands Living Labs

Wetlands have a remarkable capacity to store carbon. Globally, the estimated carbon storage of wetlands is 225 billion tons whilst covering just 5-8% of the world's terrestrial area. The restoration of degraded wetlands provides nature-based solutions to decrease emissions of greenhouse gases (GHG) and to increase carbon storage in the soil. Furthermore, restoration of wetlands positively impacts biodiversity and various ecosystem services. The ALFAwetlands project applies a research concept with so-called Living Labs.

Within the project, there are nine different Living Labs, representing a variety of European wetlands: from peatlands to coastal wetlands. Living Labs are located in Belgium, Germany, Estonia, Finland, France, Latvia, Spain, Sweden as well as on both sides of the Austrian-Hungarian border. Living Labs are platforms for collaboration, they involve partners from different backgrounds, and are usually composed of several sites, where ecological and social science work and modelling are conducted.

They have a key role in supporting and integrating interdisciplinary research on ecological, environmental, economic, and social science at the local level. The research conducted on the Living Labs is contributing to the implementation of the EU Water Framework directive, EU Nature Directives, and to meeting restoration targets of the Nature Restoration Law.



Living Lab Austria - Hungary

Site: Fertő/Neusiedl Lake, Hungary & Neusiedler See-Seewinkel National Park, Austria

Challenges: Economic use, management and nature conservation, climate change: reed belt dieback, production and emission of methane, water level fluctuations, tourism pressure. Reed cutting partially restricted and concentrated on peripheral areas due to warmer winters.

Restoration method: Restoration efforts include mowing and grazing of reed edge areas, testing fire management as a potential tool, and comparing different areas to evaluate effectiveness. Additionally, channels in the reed belt are being reopened to improve water flow and support ecosystem restoration.

Stakeholder involvement: Stakeholders will be involved in a fire management experiment with the aim of adapting the legal framework accordingly. If successful, the fire management legislation can be changed. Stakeholders are also involved into citizen science: biodiversity monitoring, bioblitz campaign; participation in Living Lab Open Days as well as in PP-GIS surveys. Landowners will also be invited to join a survey on restoration costs.

Expected impacts: Decrease in GHG emissions, adaptation of the fire management legislation, increase in biodiversity, improvement of water quality and structure in the reed belt.

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Living Lab Belgium

Sites: Valley of the Zuidleie, Zwarte Beek, Dijle River Valley

Challenges: High nutrient load of flooding water and sediment deposits alter the ecosystem. Eutrophication in infiltration zones and drainage structures downstream alters water quality and quantity. Unfavourable hydrologic conditions due to extreme weather events.

Restoration method: Restoration of hydrology and river morphology, mowing & grazing management. Filling of ditches, raising of riverbed, acquisition of land, mowing management. Removal of historical sludge and waste deposits.

Stakeholder involvement: Voluntary working days or camps for nature conservation, guided tours, nature restoration study days are planned.

Expected impacts: In the long-term: restoration of floodplain, preservation of biodiversity, better water quality.

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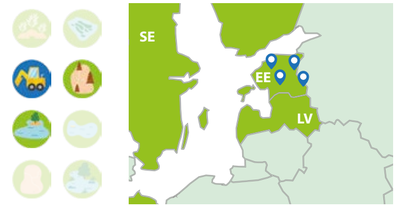
Living Lab Estonia



Sites: Vända, Laiuse, Ess-soo, Kuresoo

Challenges: 70% of Estonian peatlands are drained. Former peat extraction areas are under consideration for site restoration.

Restoration method: Ecological restoration. Here partners are working to restore drained wetlands by blocking or filling ditches and rewetting them. In the center of the area, there is an artificial wetland developed to clean drainage water from nitrate pollution.

Stakeholder involvement: Guided field trips, for example, to the National Park.

Expected impacts: Rewetting will decrease GHG emissions, increase biodiversity, support recreation.

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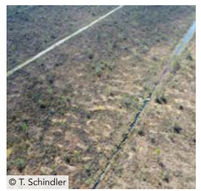
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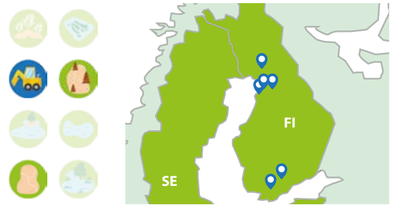
Living Lab Finland



Sites: Lettosuo, Kivalo, Rottasniitunsuo, Sanginjoki, Siikajoki

Challenges: Almost 50% of Finnish peatlands have been drained for forestry. Drained peatland forests are a net carbon sink due to their tree growth while their soils are a carbon source.

Restoration method: 1) Continuous Cover Forestry (CCF): regulates water level, 2) ecological restoration: rewetting.

Stakeholder involvement: At Sanginjoki co-creation workshops on peatland restoration and Living Lab Open Days are planned. A PP-GIS survey on the recreational use of wetlands and citizens' willingness to pay for restoration activities will be conducted in the extended Sanginjoki region. A landowner survey on compensation expectations for restoration and policymakers' data needs, focusing on the country level.

Expected impacts: CCF: Decrease in GHG emissions (through slower peat decomposition), decrease in leaching of nutrients into recipient waterbodies, increase in biodiversity, incomes continue, no negative effects on recreational activities.

Rewetting: Decrease in GHG emissions (through slower peat decomposition), increase in leaching of nutrients into recipient waterbodies (first years after rewetting), increase in biodiversity and return of the open peatland environment with functioning carbon sequestration. Negative effect on future incomes, may have negative effect on recreational activities in first years after rewetting, but positive in long-term.

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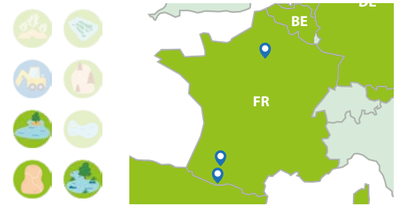
Living Lab France



Sites: Bernadouze-Pyrénées, Confluent-Toulouse, Rampillon - Ancoeur catchment

Challenges: The subsurface drainage and land reclamation in France during the last century contributed to a 70% decrease in wetlands areas. Increase in agricultural nitrate pollution, flooding due to higher winter precipitation, and rising temperatures in high-altitude peatlands are the main challenges tackled by the Living Lab France.

Restoration method: The Living Lab in France includes one artificial wetland, built in a former cultivated area, and one natural restoration site in a riparian forest area, which is continuously monitored, as well as one preservation of a mountain peatland with traditional pasture and forestry practices.

Stakeholder involvement: Co-creation process involving farmers, water managers, National Natural Reserve, National Forest Office.

Expected impacts: It is planned to restore biodiversity closer to its natural ecological trajectories, mitigate the emission of GHG (CO_2, CH_4, N_2O), improve water quality and organic matter input and retention, as well as foster cultural and educational aspects of recreational activities through the preservation of biodiversity.

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