

# Climate change mitigation targeted management practices on organic soils – summary of Life OrgBalt project sites

Reference and demo sites in LIFE OrgBalt project – range of land uses and management practices and rationale of establishment

Stakeholders meeting in Estonia Date: June 29<sup>th</sup>, 2020

LIFE OrgBalt, LIFE18 CCM/LV/001158

EU LIFE Programme project

"Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland"

























### The scope of establishment of reference and demo sites

Elaboration of activity data for accounting of GHG emissions and  $CO_2$  removals in organic soils in the National GHG inventories and methodologies for modelling of activity data for the projections of GHG emissions

Elaboration emission factors for nutrientrich organic soils in forest land, cropland, grassland and wetlands under conventional management conditions

Evaluation of impact of the proposed climate change mitigation measures on GHG emissions from nutrient-rich organic soils

Data support for development and verification of GHG modelling solutions for organic soils

Demonstration of reduction of GHG emissions from nutrient-rich organic soils by implementation of mitigative measures

Establishment of demo site for further training, education and monitoring purposes



# Two step verification procedure of impact of the implemented measures

Long term monitoring of GHG fluxes to evaluate GHG emissions during the transitional stage

Reference site at steady stage before implementation of the measure, e.g. conventionally managed cropland with nutrient-rich organic soil

Demo site representing GHG fluxes directly before and after implementation of the measure, e.g. afforestation of cropland with nutrient-rich organic soil

Reference site at steady stage after implementation of the measure, e.g. forest stand with nutrient-rich organic soil



### Measurement procedures in reference and demo sites

C02 Continuous water level measurement

C01 Continuous soil temperature measurement

M06 Periodic soil moisture measurement

M05 Water temp., pH, conductivity, oxygen content

M04 Transparent chambers – photosynthesis

M03 Measurement of  $N_2O \& CH_4$ +  $CO_2$  emissions

M02 Heterotrophic respiration, small chambers

M01 Periodic litter sampling & analysis

P01 Soil sampling & analyses

P02 Carbon stock in herbaceous vegetation

P03 Carbon stock in shrubs

P04 Carbon stock in tree biomass

P05 Carbon stock in fine roots

P06 Soil infrared spectroscopy tests

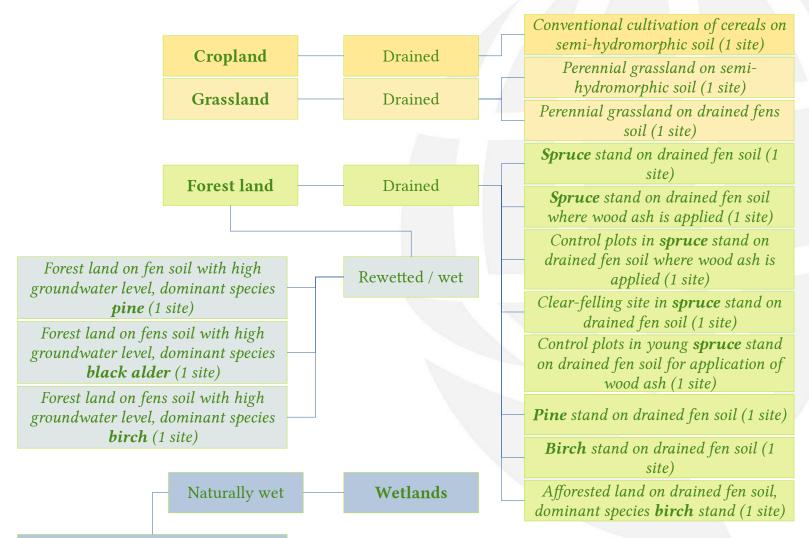
Y01 Litter decomposition trials

Y02 Root ingrowth trials

Reference and demo sites



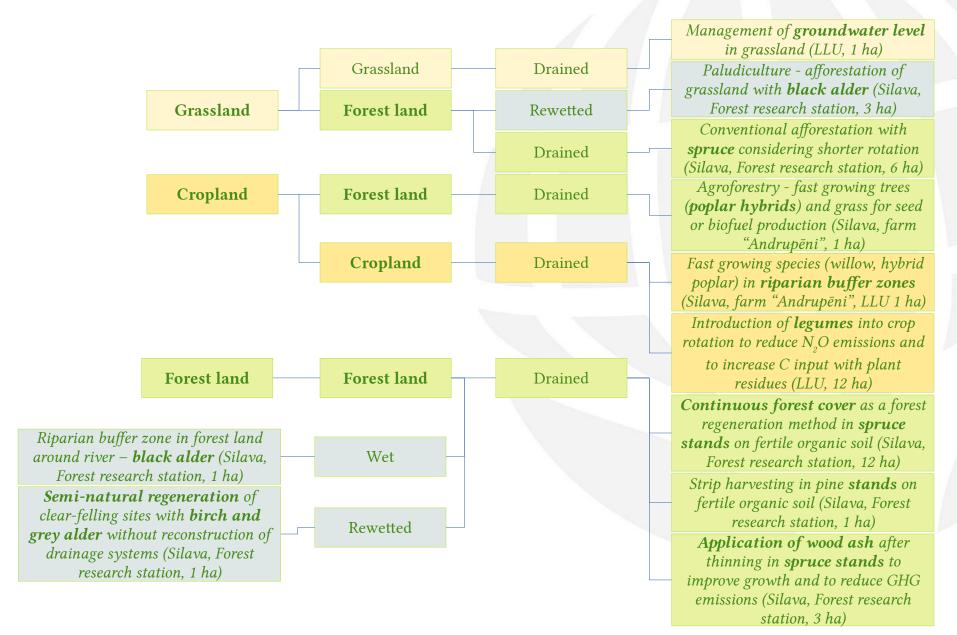
### Reference sites in Latvia



**Non-managed fen** (nutrients rich mire) not corresponding to FAO forest definition thresholds (1 site)

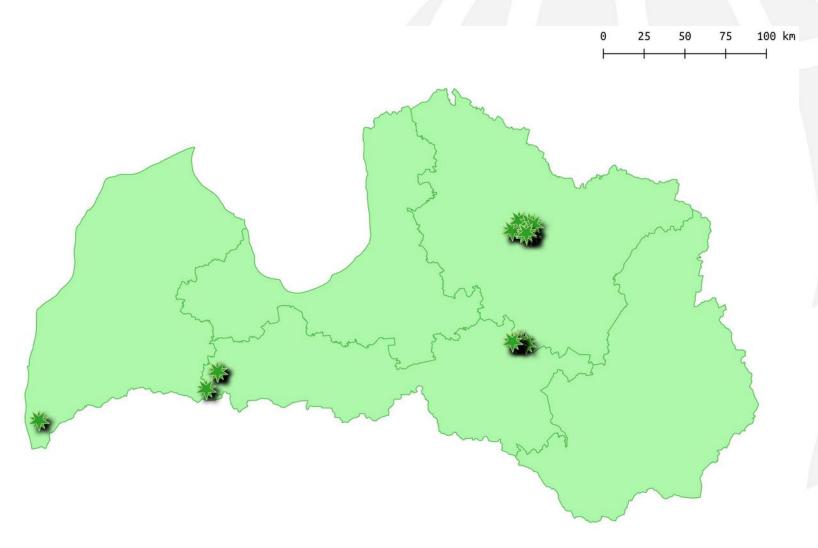


#### Demo sites in Latvia



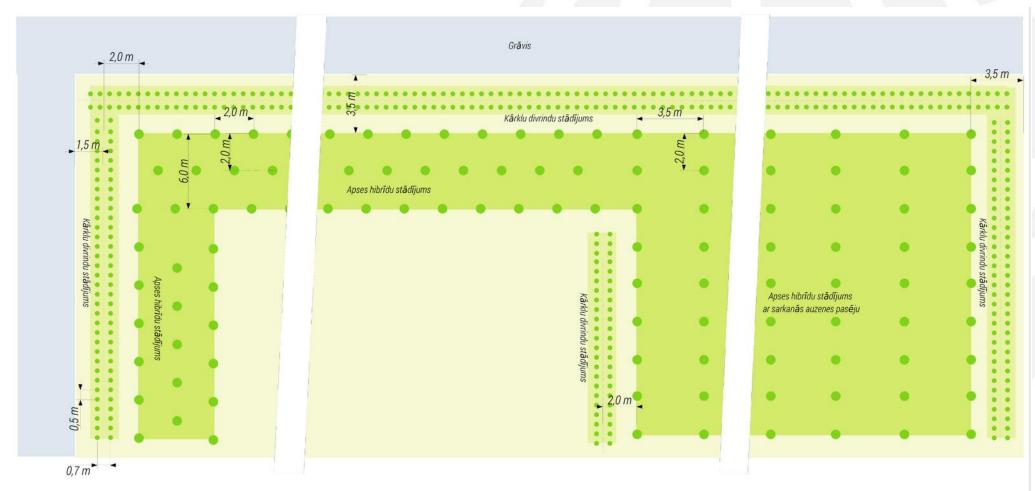


# Location of already identified demo and reference sites in Latvia, in cooperation with Research forest agency & farm "Andrupēni"



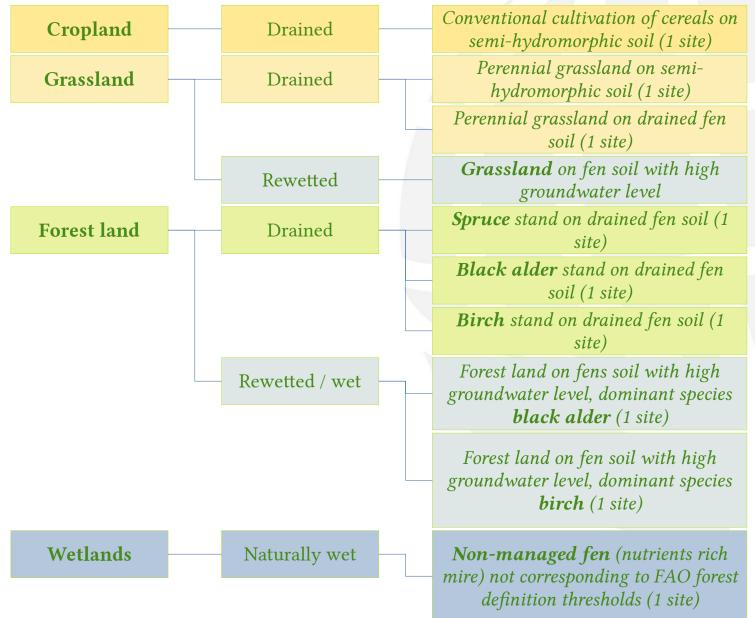


# Example of demo field design in cropland – agroforestry, conversion to grassland, buffer zones





## Reference sites in Lithuania (similar in Estonia)





### Demo sites in Finland

Forest land

Forest land

Drained / reduced drainage

Continuous forest cover as a forest regeneration method in spruce stands on fertile organic soil (Luke, 4 ha)

Continuous forest cover (utilization of existing spruce-birch understorey) as a forest regeneration method in mixed forest dominated by Scots pine on fertile organic soil (Luke, 14 ha)

Continuous forest cover (partial strip harvesting, small gaps) as a forest regeneration method in mixed coniferous stands on fertile organic soil (Luke, 10 ha)



# Thank you for attention!













The project "Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland" (LIFE OrgBalt, LIFE18 CCM/LV/001158) has received funding from the LIFE Programme of the European Union and the State Regional Development Agency of Latvia. 

\*\*Regional Development Agency of Latvia.\*\*

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