



# LIFE ORGBALT NEWSLETTER



*“Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland”*



## IN THIS ISSUE

### WHERE DO WE STAND?

### LATEST EVENTS

### DISSEMINATION ACTIVITIES

### THE PROJECT IN BRIEF

#### Abbreviations

EU - EUROPEAN UNION

GHG - Greenhouse gas

LULUCF - Land use, land use change and forestry



Welcome to the 5th edition of the LIFE OrgBalt project newsletter, which updates and highlights the project's progress. In 2022 measurements from demonstration sites were continued; by the end of 2022, the 2nd year of data collection will be over. Continuous data analysis has also been done and important results will soon come out. The activities and practices of the project were communicated in media, articles, and events, reaching new levels of interest from both the general public and stakeholders. We were proud to demonstrate the measuring and data-gathering procedures at the demonstration sites of OrgBalt in a short documentary, which was also aired on the public TV network in Latvia. Moreover, we were excited to welcome a group of stakeholders to an event dedicated to showcasing the project demonstration sites and informing them about the general progress of LIFE OrgBalt activities.

Read more to get the latest updates on the LIFE OrgBalt activities, developments and events!

THE LIFE ORGBALT PROJECT TEAM





## WHERE DO WE STAND?

More than two years of active implementation work of LIFE OrgBalt project is bringing results, and the public interest about the project activities is growing equally.

The scientific outputs of the project can be seen in more than 12 articles, 4 video materials, and 3 scientific publications. The project partners participated in various events and conferences and engaged in networking with stakeholders and other projects.

In one of the 17 demonstration sites, "Scattering of wood ash in the forest after maintenance felling", in Mežole, Smiltene County, the geocaching site of the Life-IP LatViaNature project of the Nature Protection Board is located. As part of the geocaching series "Geocaching for LIFE", 16 caches have been placed in the locations of LIFE program projects in cooperation with the LIFE integrated project "Optimisation of the Governance and Management of Natura 2000 Protected Areas Network in Latvia" LIFE19 IPE/LV/000010 or LIFE-IP LatViaNature.

In year 2022 remarkably wider audiences are getting to know about the project and climate change mitigation scenarios tested on nutrient-rich organic soils via articles, videos and events. The project monitors and measures its key performance indicators (KPI) every year. The latest report on the LIFE OrgBalt project KPI shows that the interest of the stakeholders and public is high and increasing, already exceeding the initial target values. For instance, the official website has more than 25 000 unique visits registered. The articles published on the website are downloaded more than 3200 times and the short documentaries and other projects video materials has been viewed more than 39 000 times.

Moreover, active work continues in the field of socio-economic analysis of the project activities and creation and testing of the tools for the elaboration, implementation and verification of the efficiency of CCM policies.

- A set of maps as a practical tool for planning sustainable soil management activities, both in the forestry and agricultural sectors, are completed. Firstly, depth-to-water maps for the entire territory of the Baltic States, which is the single source of



- information, allow modelling of the water accumulation sites by showing water table depth in meters. And secondly: the wet area maps for the territory of the Baltic States were created. The wet area maps are generated in 5 m horizontal resolution and show the surface of water objects, areas and possible accumulation areas of surface water (as the initial input the wet area maps for Latvia were created in frame of the Interreg BSR WAMBAF Tool Box).
- The public and private sector cooperation model (PPC model) is created to examine the benefits and costs of proposed CCM practices, financing opportunities, institutional arrangements and enabling conditions that could motivate the implementation of CCM measures. This model is a support tool for estimations of the economic benefits of the CCM land-management measures on multiple levels – national and individual farm levels. The PPC model is in the testing stage, and the tool implementation and training sessions for stakeholders and landowners will take place starting in 2023.
- The simulation model for regional-level projections of GHG emissions and socio-economic outputs is developed as a policy planning support tool for the application at a local or regional level for estimation of GHG emissions and socio-economic benefits of various land-management approaches.
- Another digital tool elaborated within another project but successfully tested for the project needs and adapted to the circumstances of Baltic states is the peatland simulator SUSI created originally in the Natural Resource Institute Finland (Luke). The simulator uses a hydrological model that uses weather and stands data inputs to estimate water table levels and forms projections of GHG emission levels in organic soils. The model's value is in producing these estimates for sites for which actual GHG measurements are unavailable.

In year 2023 more information about the measurements gathered in the demonstration sites will be published, revealing the impacts of climate change mitigation measures implemented in the 17 demonstration sites on agricultural and forestry land.

## LATEST EVENTS

### **“Geocaching for LIFE” places a geocache in one of the demonstration sites of OrgBalt**



As part of the geocaching series "Geocaching for LIFE", 16 caches have been placed in the locations of LIFE program projects. The cache can be found in one of the 17 demonstration sites for LIFE OrgBalt "Scattering of wood ash in the forest after maintenance felling" in Mežole, Smiltene County.

## **LIFE OrgBalt presents the demonstration sites and tells about project progress in a live event**

On May 19, 2022, the LIFE OrgBalt team organised the opening event of LIFE OrgBalt demonstration sites – a practical demonstration of climate change mitigation measures for the management of drained nutrient-rich organic soils and an interactive demonstration of GHG and environmental data measuring technologies used in the project.



## **OrgBalt featured in a presentation in an international conference, BIOGEOMON 2022: 10th International Symposium on Ecosystem Behavior**

On June 26–30, 2022, the 10th International Symposium on Ecosystem Behavior took place at the University of Tartu. OrgBalt was represented within the Symposium with the presentation “Drainage impact on N<sub>2</sub>O & CH<sub>4</sub> fluxes from grassland on drained nutrient-rich organic soils – sites, steps and preliminary results” by Hanna Vahter, Muhammad Kamil Sardar Ali, Thomas Schindler, Andis Lazdiņš, Ain Kull, Ieva Līcīte, Aldis Butlers, Kaido Soosaar.

## **OrgBalt takes part in The Baltic Peat Producers Forum 2022 : Peat through ages**

On September 15, 2022, Andis Lazdiņš, Senior researcher at Latvian State Forest Research Institute “Silava”, gave a presentation “Wetland GHG emissions inventory and research” including the practices developed and implemented within LIFE OrgBalt.

# DISSEMINATION ACTIVITIES

## *Scientific publications*

Leppä, K. et al. 2020. Vegetation controls of water and energy balance of a drained peatland forest: Responses to alternative harvesting practices. Agricultural and Forest Meteorology 295, 108198. <https://doi.org/10.1016/j.agrformet.2020.108198>

[Access the publication here](#)



Upenieks, E.M. & Rudusāne, A. 2021. Afforestation as a type of peatland recultivation and assessment of its affecting factors in the reduction of GHG emissions. Rural Development 2021: 295-300.

<https://doi.org/10.15544/RD.2021.052>

[Access the publication here](#)

Butlers, A.; Lazdiņš, A.; Kaleja, S.; Bārdule, A. Carbon Budget of Undrained and Drained Nutrient-Rich Organic Forest Soil. Forests 2022, 13, 1790.

<https://doi.org/10.3390/f13111790>

[Access the publication here](#)

Bārdule, A., Butlers, A., Lazdiņš, A., Līcīte, I., Zvirbulis, U., Putniņš, R., Jansons, A., Adamovičš, A., & Razma, Ģ. Evaluation of Soil Organic Layers Thickness and Soil Organic Carbon Stock in Hemiboreal Forests in Latvia. Forests, 2021, 12(7), 1–15.

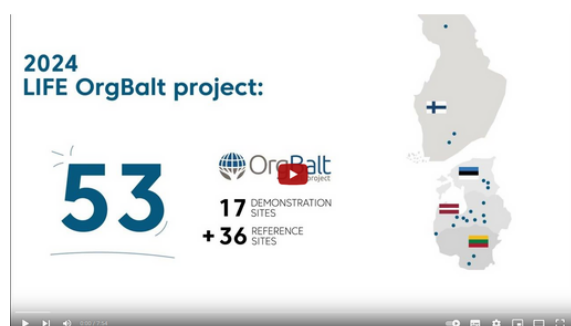
<https://doi.org/10.3390/f12070840>

Valujeva K., Freed, E.K., Nipers, A., Jauhiainen, J., Schulte, R.P.O. (2023). Pathways For Governance Opportunities: Social Network Analysis to Create Targeted and Effective Policies for Agricultural and Environmental Development. Journal of Environmental Management 325: 116563. <https://doi.org/10.1016/j.jenvman.2022.116563>

Līcīte, I., Popluga, D., Rivža, P., Lazdiņš, A., & Meļņiks, R. Nutrient-Rich Organic Soil Management Patterns in Light of Climate Change Policy. Civil Engineering Journal, 2022, 10(8), 2290-2304. <https://doi.org/10.28991/CEJ-2022-08-10-017>

## Video

### [WATCH IT HERE](#)



The second documentary about LIFE OrgBalt has been published in the LIFE OrgBalt website. In addition on June 11 2022, this documentary was featured on the Latvian national TV broadcast “Vides Fakti” (“Environmental facts”). The documentary discusses the importance of the project in providing the data needed to correctly calculate GHG emissions and carbon sequestration in the soil and the need for the data to improve the properly functioning inventory system as the main tool to tackle the progress of GHG reductions and assessment the effectiveness of the GHG emission reduction measures. The documentary also discusses the process of performing GHG fluxes measurements and other environmental data sampling.



## Articles

### **17 sites for demonstrating climate change mitigation approaches within LIFE OrgBalt project**

Demonstration of climate change mitigation (CCM) practices in nutrient-rich organic soils is one of the key elements of the LIFE OrgBalt project. The article describes the measures implemented in the 17 demonstration sites established in Latvia and Finland.

### **GHG emissions measurement and sampling in forest lands: a variety of methods for assessing the effectiveness of climate change adaptation measures**

Discover the measuring and sampling procedures of LIFE OrgBalt in forest lands in the article.

### **GHG emissions measurement and sampling in agricultural lands: towards data-driven decision making for managing carbon rich organic soils**

Discover the measuring and sampling procedures of LIFE OrgBalt in agricultural lands in the article.



#### **GHG EMISSIONS MEASUREMENT AND SAMPLING IN FOREST LANDS: A VARIETY OF METHODS FOR ASSESSING THE EFFECTIVENESS OF CLIMATE CHANGE ADAPTATION MEASURES**

Within the project LIFE OrgBalt, measures for mitigating climate change impacts on nutrient-rich organic soils in agricultural and forestry lands are demonstrated and tested. Climate change mitigation (CCM) measures selected for testing to be implemented in forest land can be divided into three groups: (1) measures related to afforestation and forest restoration, (2) measures that target increasing of tree cover through agroforestry and (3) measures that aim at increase in forest carbon stocks (in soil and biomass) through the modification of forest management practices.

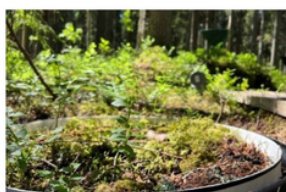


Figure 1. Ring for the SEG fluxes collecting chambers.



#### **GHG EMISSIONS MEASUREMENT AND SAMPLING IN AGRICULTURAL LANDS: TOWARDS DATA-DRIVEN DECISION MAKING FOR MANAGING CARBON RICH ORGANIC SOILS**

The lack of data on greenhouse gas (GHG) emissions in carbon-rich organic soils in the Baltics and Finland is one of the main motives for implementing the project LIFE OrgBalt. During the project, demonstration sites on agricultural lands are used for testing and evaluation various climate change mitigation measures (CCM). These measures include agroforestry, land use change (from cropland to grassland), riparian buffer zones management, controlled water level and crop change (introduction of legumes) related activities whose CCM potential is based either on decrease of soil emissions, reduced leaching of nutrients or increase of CO<sub>2</sub> removals in living biomass on other carbon pools.

In this article, we review the key measurements taken in the project demonstration plots on agricultural land. The measurements of GHG emissions are not only crucial for evaluating CCM measures in agricultural lands, but also contributing to the development of national GHG inventory systems and to the implementation of national and global



### **Mitigating climate change impacts in nutrient-rich organic soils with the application of wood ash after commercial thinning in spruce stands**

One of the climate change mitigation measures applied in the project LIFE OrgBalt relates to the application of ash on soils. Read more about the expected effects of the measure in the article.

### **Wet area maps for the Baltics: improved understanding of the spatial distribution of soil moisture**

Within the framework of the LIFE OrgBalt project, we have created wet area maps for the entire territory of the Baltic States with a 5m horizontal resolution. Wet area mapping methodology was developed by scientists J.Ivanovs and A. Lupikis, 2018. Read more about the maps in the article.



## THE PROJECT IN BRIEF

**Duration:** 08/2019 - 08/2023

**Project code:** LIFE18 CCM/LV/001158

**Total PROJECT budget:** 3 360 948 EUR

**EU LIFE funding:** 1 844 004 EUR



The LIFE OrgBalt project aims to improve GHG reporting data (activity data and emission factors) available for nutrient-rich organic soils. Furthermore, the project aims to identify and to demonstrate sustainable, resilient, and cost-effective climate change mitigation measures applicable in nutrient-rich organic soils and to provide tools and guidance for the elaboration, implementation, and verification of the results of climate change mitigation policies. The project is implemented by eight partners from five EU Member States – Latvia, Lithuania, Estonia, Finland and Germany and unites representatives from public administration institutions, and scientific and non-governmental organizations.

### FIND OUT MORE!

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The Project "Demonstration of climate change mitigation potential of nutrient rich organic soils in Baltic States and Finland" (LIFE OrgBalt, LIFE18 CCM/LV/001158) is implemented with the financial support of the LIFE Programme of the European Union and of the State Regional Development Agency of the Republic of Latvia. [www.orgbalt.eu](http://www.orgbalt.eu)

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