"**Tool for assessment of carbon turnover and greenhouse gas fluxes in broadleaved tree stands with consideration of internal stem decay**" (Nr. 1.1.1.1/21/A/063)

The aim of the project is to develop the tool for calculation of carbon budget and GHG fluxes in broadleaved tree stands with consideration of internal decay. Development of higher tier methods for accounting of carbon turnover in land use, land use change and forestry (LULUCF) sector are determined by the targets set to transform EU economy and society to meet climate ambitions, and especially by the recent changes of these targets in LULUCF sector. Project will focus on widespread tree species birch (silver birch and downy birch) European aspen and alders (black alder and grey alder) on mineral soil. Scientifically novel information will be created based on a comprehensive set of field data and modeling, allowing to improve the accuracy of GHG accounting both at stand (important for the forest owners, aiming at ensuring larger carbon offset in their land) and country scale, as well as propose measures to increase GHG sequestration and monetary value of the stands. It will directly contribute to policy and management decisions, leading to more efficient climate change mitigation and thus comply with the definition of ecoinovative technology. Wide use of the results will also be facilitated by a prepared dataset (parts that are not subject to intellectual property right), following the open-data policy.

The aim of the project will be realized through the following actions:

1. Quantifying the carbon loss associated with internal stem decay in living biomass;
2. Assessment of carbon budget in soil, litter and deadwood;
3. Assessment of impact of internal decay on the replacement effect of wood;
4. Assessment of methane emissions from tree stems;
5. Development of tool for assessment of carbon budget and GHG fluxes with consideration of decay at a stand and landscape scale.

The project results in accordance with RIS goals will be summarized in 7 scientific articles published in magazines or conference proceedings. Enterprises (forest owners and managers) and policy makers will gain more accurate tool for assessment of carbon pools and sequestration in stands depending on their characteristics and management decisions as well as potential to trade carbon credits. Policy and management recommendations will be prepared.

Project is carried ou by LSFRI Silava and Ingka Investments Management

Duration of the project: from January 2022 till November 2023.

Total costs 494533.03 €.

Key words: climate change mitigation, heart rot, carbon cycle, greenhouse gases, carbon pools, carbon storage, hemiboreal forest, forest management