START DATE
1/09/2024

END DATE
31/08/2028

14 PARTNERS

5 COUNTRIES

3 LIVING LABS

SingleTree Consortium

NIBIO

SLU SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES

UNIVERSITY OF EASTERN FINLAND

iuFOR GESTIÓN FORESTAL SOSTENIBLE

NLS FINNISH GEOSPATIAL RESEARCH INSTITUTE FGI

SCA

CREATIVE OPTIMIZATION

KELLUU

KOKO FOREST

ceseFOR FORESTRY HEART, research spirit

NTNU

WSL

SFB EFD

PRS Photogrammetry Remote Sensing ETH zürich

Circular Bio-based Europe Joint Undertaking

Bio-based Industries Consortium

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Optimizing multifunctional forest-based value chains with single tree information and digital technologies.

European forests have a vital role in combating climate change. Embracing sustainable forest management strengthens Europe's bioeconomy, protects biodiversity, and enhances the resilience of forests for future generations.

SingleTree aims to develop an optimised value chain for improved climate change adaptation, forest resilience, multifunctionality, and cascading use of woody biomass in precision forestry

The **SingleTree** Project will develop disruptive forest monitoring strategies based on artificial intelligence and remote sensing, adaptive single-tree level management solutions, intelligent machines for implementing single-tree operations, and improved traceability and ability to predict wood quality early in the value chain as a foundation for optimised biomass supply.

Project Goals

1. AI-Driven Tree Monitoring

Develop AI and remote sensing-enabled methods for detailed tree health, wood quality, and biodiversity monitoring.

2. Adaptive Management Tools

Create adaptive single-tree management tools to enhance forest resilience and multifunctionality.

3. Intelligent Machines

Design intelligent machines for efficient single-tree management and continuous feedback for inventory and management.

4. Enhanced Wood Data

Improve wood property data to optimize biomass value and use.

5. Value Chains in Living Labs

Build connected value chains in living labs, using feedback loops for sustainable, real-life innovation.

Innovation and Collaboration

SingleTree promotes innovation in forest management by shifting from stand-based to single-tree decision-making, enabling more precise monitoring and healthier forests. The project engages stakeholders across the forest value chain, aiming for sustainable forest management solutions.

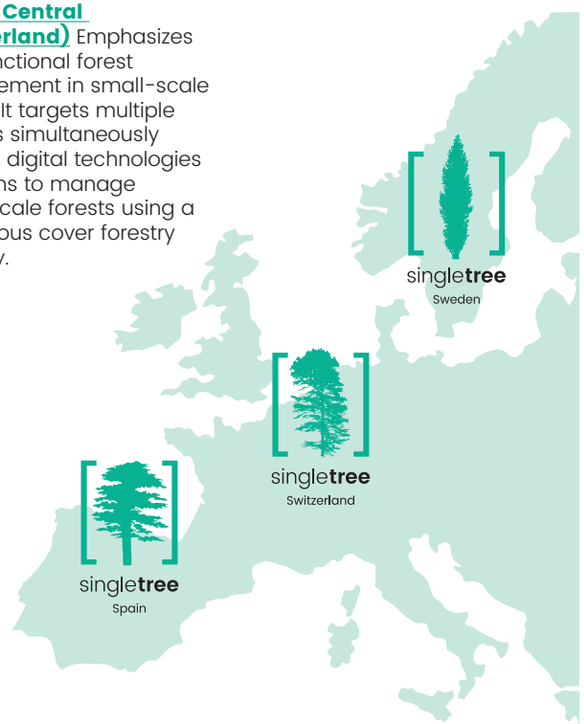
Impact

SingleTree aims to enhance forest management practices, promote sustainable material use, and drive regional innovation, delivering positive environmental, social, and economic impacts for rural development. In line with the European Green Deal, the project supports a circular bioeconomy, improving resource efficiency, carbon sequestration, and biodiversity.

To connect individual technical solutions within fully integrated digital value chains, the SingleTree project showcases innovations across three Living Lab Value Chains (LLVCs) situated in northern, central, and southern Europe.

1. LLVC North (Sweden)
Focuses on integrating single tree value chains within a large industrial context in support of improved multifunctional forest management.

2. LLVC Central (Switzerland) Emphasizes multifunctional forest management in small-scale forests. It targets multiple services simultaneously through digital technologies and aims to manage small-scale forests using a continuous cover forestry strategy.



3. LLVC South (Spain)
Focuses on enhancing climate resilience and value creation in coniferous forests. This area features various silvicultural schemes, diverse site indexes, and significant variability in timber quality.