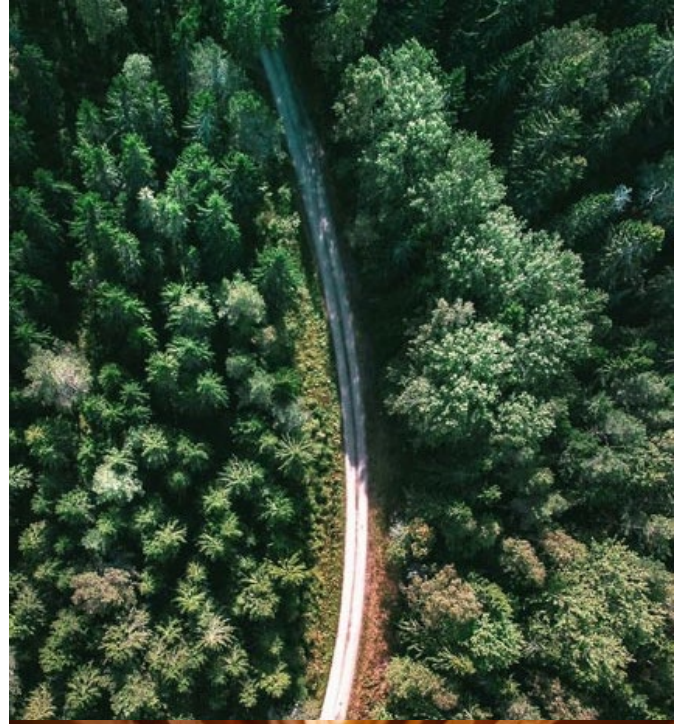
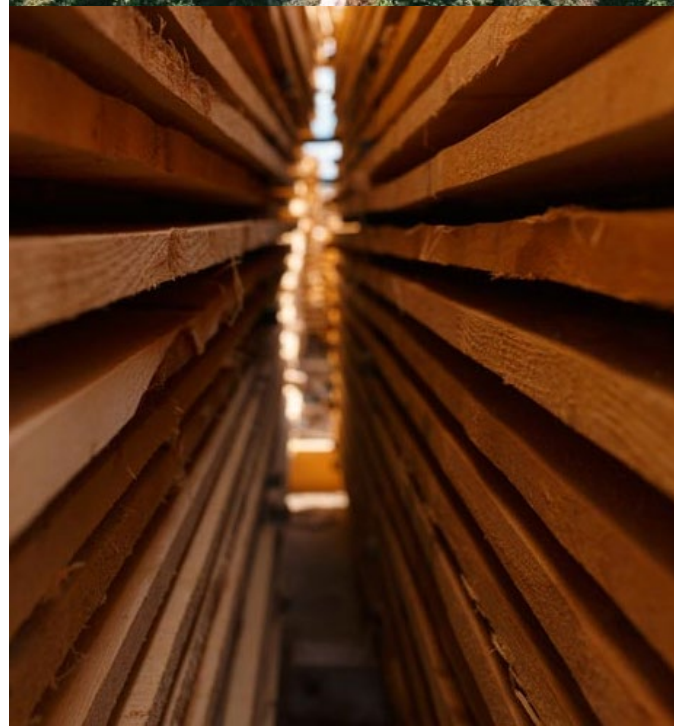
ForestPaths

Co-designing holistic forest-based policy pathways for climate change mitigation

# **Forest-based policy pathways towards a climate-neutral society:** Introducing the ForestPaths project





Funded by the European Union

# About the project

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## CHALLENGES

**EU targets** to significantly reduce greenhouse gas emissions by 2030 and become climate neutral by 2050 **require urgent and major reforms** by all sectors. Simultaneously, the EU has committed to conserving biodiversity.

## OPPORTUNITIES

**Clear policy pathways are needed** to meet these multiple targets. They need to outline alternatives for how European forests and the forest-based sector can contribute to achieving a climate-neutral and resilient society and economy.

## AIM

ForestPaths is co-designing, quantifying and evaluating holistic forest-based policy pathways to optimise the contribution of EU forests and the forest-based sector to **climate change mitigation**, while considering the need to **adapt forests** to climate change, conserve **biodiversity** and sustain **forest ecosystem services** provisioning.

# Our approach

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**CHALLENGE**

Meet climate targets and protect biodiversity

**WHAT IS NEEDED?**

Forest-based policy pathways for a climate-neutral and resilient society

**OUR PROJECT**

Co-designing, quantifying and evaluating forest-based policy pathways to optimise climate change mitigation, adapt forests to climate change, and conserve biodiversity and ecosystem services

**RESULTS**

- CBS forest management options
- Policy pathways
- Policy support platform CANOPY
- High-resolution maps
- Next generation simulation models
- Improved data, tools and methods

**OUR APPROACH**

1. Understanding the barriers and enablers to the uptake of climate and biodiversity-smart forest management (WPs 1 & 3)
2. Developing high-resolution monitoring methods of climate change related risks from forest disturbances (WPs 2 & 3)
3. Assembling a next generation integrated assessment framework (WPs 3-5)
4. Providing quantified and evaluated holistic forest-based policy pathways (WPs 5 & 6)
5. Maximising ForestPaths' impacts through collaboration and knowledge exchange (WP 7)

# Main results

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Climate and Biodiversity-Smart (CBS) **forest management options**

Holistic forest-based **policy pathways**

Policy support platform **CANOPY**

Improved data for understanding changes in climate on **forest disturbances**

Next generation forest ecosystem and management **simulation models**

Improved **data**, **tools** and **methods** for the European forest-based sector

# Timeline

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## Pan-European forest disturbance maps

D2.1 Next generation European forest disturbance map

2023

August 2023

## Policy and stakeholder requirements

D6.2 Synthesis of policy and stakeholder requirements at EU level relevant for the forestry sector

August 2023

## First Policy Lab

The goal is to identify policy objectives and stakeholder needs

28-29 September 2023
Finland

## Forest management approaches

D1.1 Forest management approaches across Europe

September 2023

2024

## Policy instruments

D1.2 Key factors influencing forest practitioners' decisions

February 2024

## CBS management options

D1.3 Decision rules, parameters and narratives for modelling

June 2024

## Pan-European forest composition and structure maps

D2.2 European forest composition and structure maps

August 2024

## Drivers of forest disturbances

D2.3 Drivers of forest disturbances in Europe

August 2024

## Map data products

D2.5 Map data products

August 2024

## Material flow analysis

D4.1 Material flow analysis results

August 2024

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## Life cycle analysis

D4.2 Report on the improved methods and tools

August 2024

## Second Policy Lab

The goal is to elicit visions of European forests and the forest-based sector and policy actions to achieve them

September 2024

## Forest ecosystem models

D3.1 Enhanced and evaluated forest ecosystem models

November 2024

## Forest biodiversity model

D3.3 Biodiversity and ecosystem services model

November 2024

2025

## High conservation value forests in Europe

D2.4 High conservation value forests in Europe

February 2025

## Model of European forest owners

D3.2 Fully calibrated agent-based model of European forest owners

February 2025

## Global impacts model

D3.4 Recommendations for considering implications of forest management in IAMs/ESMs

February 2025

## ForestPaths database

D4.3 Database with the substitution and biodiversity factors

August 2025

## Third Policy Lab

The goal is to critically examine initial pathways results

September 2025

## Policy narratives

D6.3 Narrative analysis of main policy pathways

November 2025

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2026

## Pathways scenarios

D5.1 Simulation framework and database structure

February 2026

## Simulation results

D5.2 Land use & management, climate mitigation potential and policy actions for European forests

June 2026

## Mitigation potential of forest-based products

D5.3 Overall mitigation potential of forest-based products and energy in the bioeconomy

June 2026

## Effective forest management options

D5.4 Effective forest management options securing biodiversity and ecosystem provisions in Europe and globally

June 2026

## Biogenic carbon

D4.4 New impact assessment method for biogenic carbon and biodiversity in LCA

August 2026

## Fourth Policy Lab

The goal is to provide policy recommendations derived from the pathway analysis and evaluation

September 2026

## Policy pathways

D5.5 Policy pathways, trade-offs/co-benefits

October 2026

## CANOPY platform

Official launch of the platform

October 2026

## Policy recommendations

D6.4 Synthesis of policy pathways results and policy recommendations

December 2026

2027

## Policy engagement

D6.1 Policy Engagement Forum's activities

January 2027

## ForestPaths Final conference

February 2027

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# CBS forest management options

- Decision **rules**, **parameters** and **narratives** for modeling
- **Policy instruments** for influencing owner behavior

CBS management options are co-designed with local practitioners and stakeholders through **interviews**, **surveys** and **workshops**.

# Holistic forest-based policy pathways

The policy pathways with their supporting information and evidence will be openly available through the project's **online policy support platform CANOPY**.

- Comprehensive **assessment of climate mitigation potential** of European forests and forest-based sector
- Policy **narratives**
- Policy **recommendations**

# Policy support platform CANOPY

- Interactive **policy analysis tool**
- Detailed **assessment results**
- Policy **recommendations**

CANOPY will be hosted on the **project's website** and will be maintained after ForestPaths' end to ensure the **longevity** of its results.

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# Improved data for understanding changes in climate on forest disturbances

- Open access **pan-European forest maps** for disturbance and forest composition and structure
- Guidance to the use of forest **disturbance**, **composition**, and **structure** maps

These are available to **LULUCF experts** under open access and **training** and guidance is provided for them.

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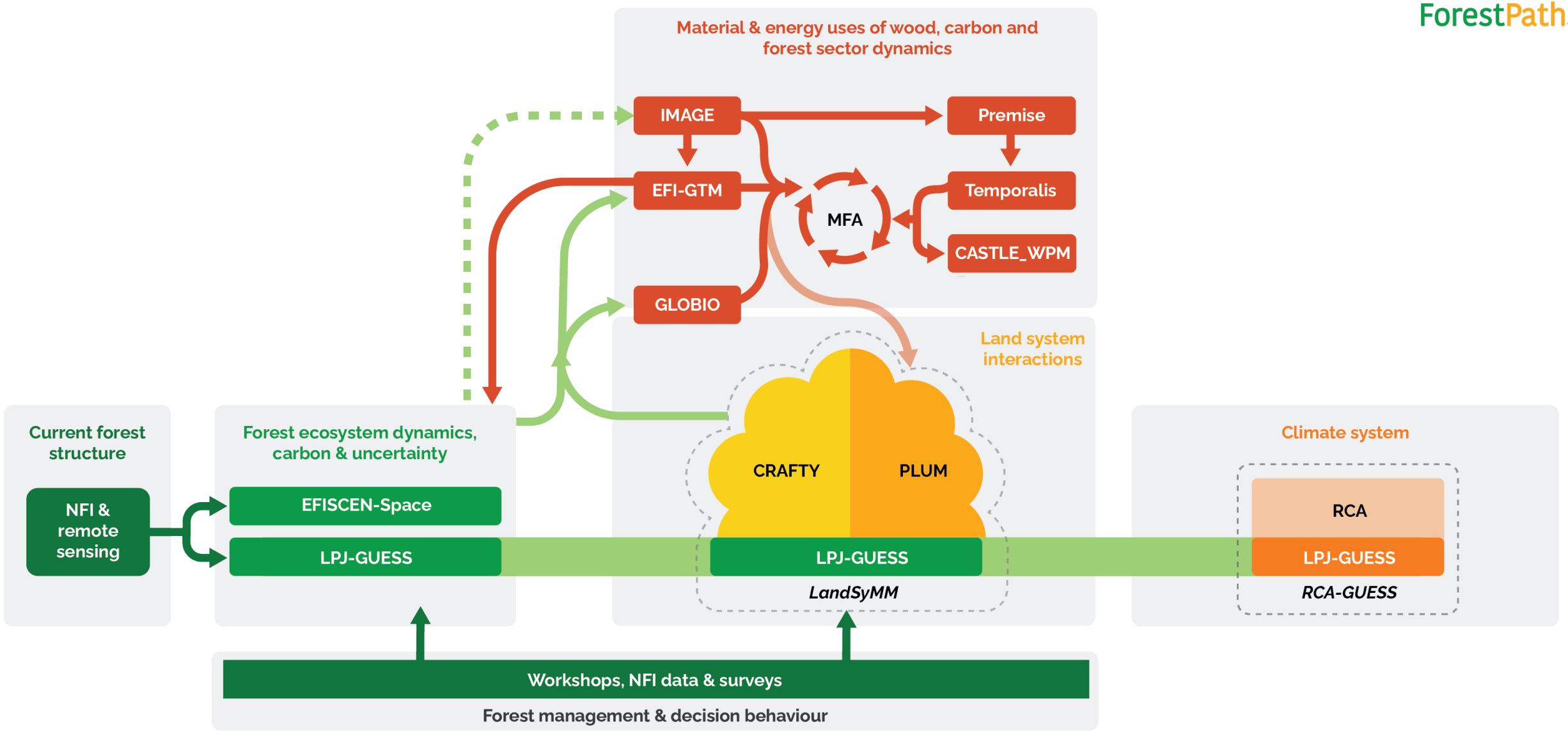
# Next generation forest ecosystem and management models

Simulation results will be synthesised and made available on the **CANOPY policy support platform**, complemented by **training** and **workshops**.

- Forest management **maps**
- **Improved** simulation models for:
  - **forest ecosystems and management**: **EFISCEN-space**, **LPJ-GUESS**
  - **owner behavior**: **CRAFTY**
  - **earth systems**: **RCA-GUESS**
  - **integrated assessments**: **LandSyMM**, **IMAGE**, **EFI-GTM**

# Modelling approach



# Improved data, tools and methods for the European forest-based sector

- Open access **LCA** data and tools
- Database of **substitution factors** and **impact factors**
- Methodologies for **upscaling** substitution impacts

These are **freely available** and **training** is provided for them, along with other supporting materials such as **videos** and **podcast episodes**.

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# Co-design process with stakeholders

**Policy Engagement Forum**

**Demo cases**

**Policy labs**

# Policy Engagement Forum

ForestPaths engages key stakeholders at local, regional, national and European levels in an in-depth dialogue centered around the **co-creation of forest-based policy pathways**.

The project interacts with its stakeholders through a **Policy Engagement Forum**, which has an online basis for ongoing networking and collaboration and combines digital with hybrid and in-person activities.

The Policy Engagement Forum will outlive the project by becoming a part of its **policy support platform CANOPY**.

# Demo cases

ForestPaths has **four demo cases** where it works with stakeholders to ensure that the CBS management options and policy pathways are **practically applicable** and **relevant** in different European contexts.

The selected locations cover **diverse** forest decision-making structures, importance of forests and the forest sector to the national economy, climate change impacts, approach to biodiversity and biogeographic regions.

The four demo cases are located in **Finland**, **Italy**, **Romania** and **the Netherlands**.

# Demo cases

## Boreal climate

- Mostly under private ownership (60%), excl. companies. State forest service responsible for actively managed forests and conservation areas
- High importance to forest industry, as well as NVVFPs, recreation, and GHG balance for climate neutrality
- 106,000 people employed by forest-based bioeconomy
- Increasing productivity, moderate increase in disturbances, challenges to mobilise wood under climate change
- Fairly segregated approach through protection of forests. Management focuses on production and considers biodiversity following certification standards

## Atlantic climate

- Mix of private (52) and state owners (48%)
- Low economic importance for industry, but high for climate change mitigation, recreation and other services
- 86,000 people employed by forest-based bioeconomy
- Increased risk of droughts and occasional wildfire. Loss of vitality by combined impacts of climate change and high nitrogen deposition
- 1/3 of forests have biodiversity as main focus, otherwise integrated approach

## Continental and Alpine climate

- >60% state-owned forests
- Management fully regulated by the state
- Medium importance to industry, high importance for NWFP. About 50% of households rely on wood for heating
- 257,000 people employed by forest-based bioeconomy
- Climate change and natural disturbances so far limited impacts
- Management aimed to increase stand stability through enforcing natural forest type. Significant tracts of old-growth forests at risk of exploitation

## Mediterranean and continental climate

- Mostly under private ownership (66%). Associations are being established as ownership becomes more regulated
- Medium importance to forest industry, large differences between regions. High Importance for protection (35% of the total forest area) and NIFPs
- 440,000 people employed by forest-based bioeconomy
- Decreasing productivity, strong increase in wildfire risk
- Segregated approach through protection of forests. Recent decree introduces important innovations for NWFPs, biodiversity and sustainability

# Policy labs

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ForestPaths' co-creation of policy pathways is supported by **four two-day policy labs**, each with a particular objective.

**Policy lab 1:** identify policy **objectives** and stakeholder **needs**

**Policy lab 2:** elicit **visions** on European forests and the forest-based sector and policy **actions** to achieve them

**Policy lab 3:** critically **examine** initial pathways results

**Policy lab 4:** provide **policy recommendations** derived from the pathway analysis and evaluation

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# Impact

# Expected impact

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Support the transition to a **climate-neutral and resilient society**

- CBS management options
- Forest-based policy pathways

Advance the understanding of **Earth system science and climate ecosystems interactions**

- Next generation models

Improve the monitoring of **forest disturbances**

- LCA tools
- Improved data

Increase research knowledge's **transparency and practicality**

- Policy Engagement Forum
- Demo cases
- Policy Labs
- CANOPY platform

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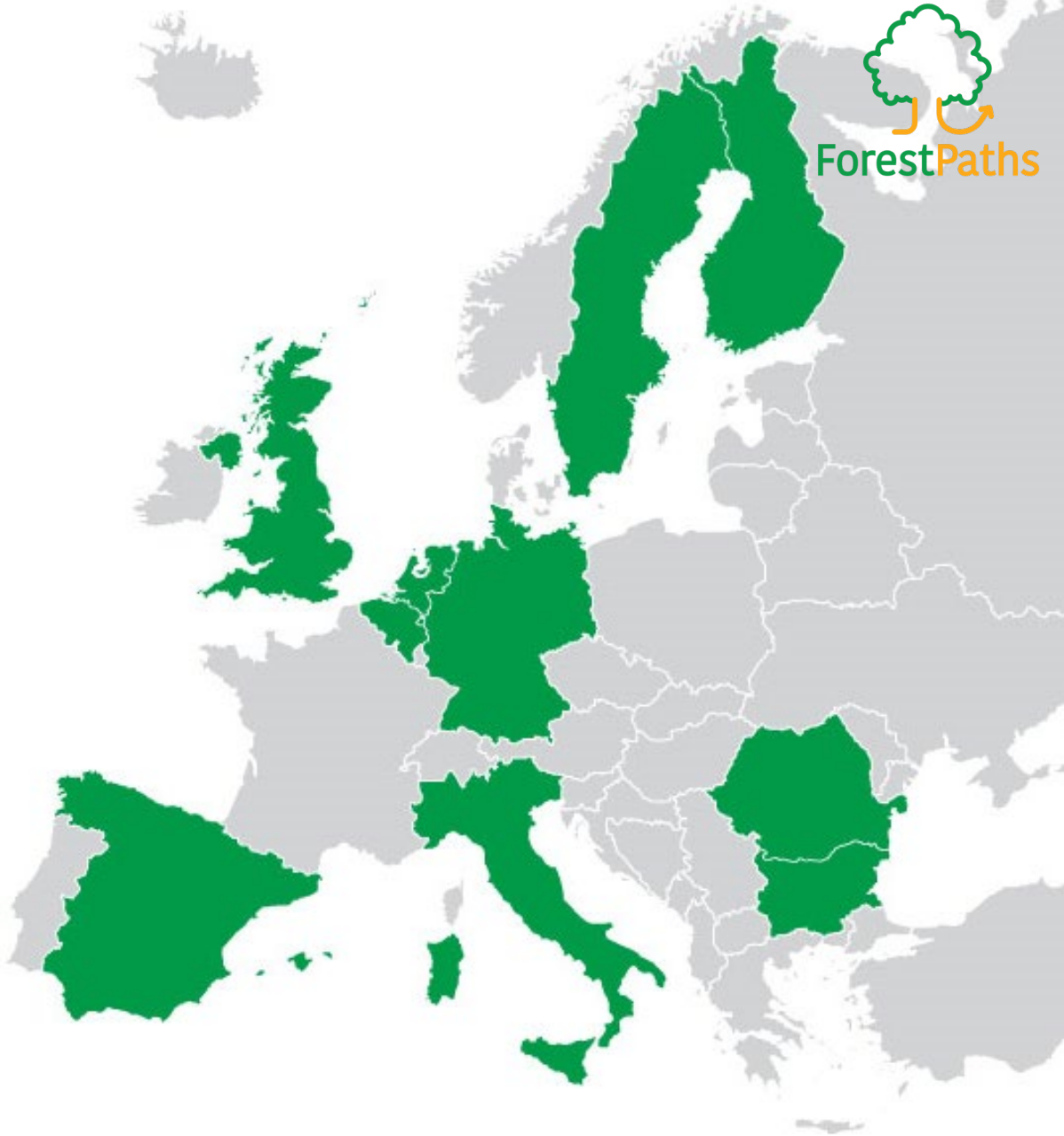
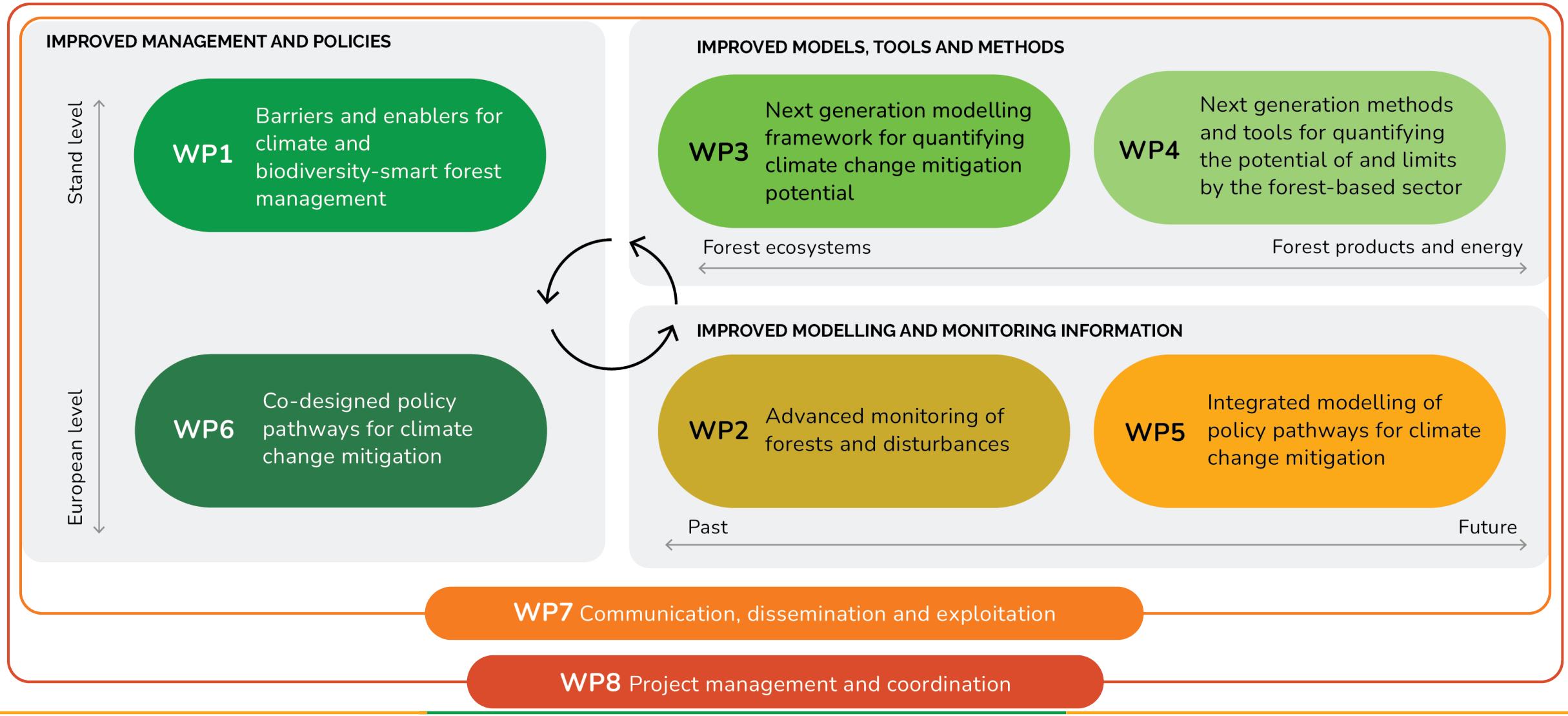
# The project

# The ForestPaths consortium



# Project structure



# Improved management and policies

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**WP1**
**Barriers and enablers for climate and biodiversity smart forest management**

- **Aim:** improve models on land use and climate change by furthering the understanding of how forest management and associated decisions is conducted across Europe and identifying feasible **Climate and Biodiversity-Smart (CBS) forest management approaches**
- **Results:** decision rules, parameters and narratives that will serve to improve modelling (WP3) and support the development of exploratory scenarios in WP5. Information on effective policy mechanisms to facilitate the wider implementation of CBS across Europe

**WP6**
**Co-designed policy pathways for climate change mitigation**

- **Aim:** co-design and analyse diverse and innovative climate change mitigation **policy pathways** related to European forests and forest-based sector
- **Results:** mapped policy landscape, multi-level stakeholder approach to co-design and analyse forest-based policy pathways and policy recommendations

# Improved models, tools and methods

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**WP3**

**Next generation modelling framework for quantifying climate change mitigation potential**

- **Aim:** deliver an advanced **Integrated Assessment framework** that scales the environmental impacts of policy and climate on forests seamlessly from landscape to the European scale
- **Results:** next generation Integrated Assessment framework

**WP4**

**Next generation methods and tools for quantifying the potential of and limits by forest-based sector**

- **Aim:** develop enhanced **tools**, **databases** and **methods** to better estimate the mitigation potential and biodiversity impact of the European forest-based bioeconomy, including the substitution and carbon storage effect of forest-based material and energy products, with appropriate time dynamics
- **Results:** material flow analysis, temporal dynamic, prospective and combinatorial LCA framework, spatio-temporal explicit substitution factors

# Improved modelling and monitoring information

**WP2**
**Advanced monitoring of forests and disturbances**

- **Aim:** improve existing methodologies for high-resolution **monitoring of forest disturbances** to enhance the understanding of the drivers of climate change related risks to Europe's forests
- **Results:** base data and maps on forest composition and structure across Europe, base maps of disturbances (separated by agent), drivers of disturbances

**WP5**
**Integrated modelling of policy pathways for climate change mitigation**

- **Aim:** **quantify** and **evaluate** the climate mitigation potential of EU forests and forest-based products and energy, whilst avoiding the negative trade-offs for other components of the Earth system
- **Results:** evaluated exploratory and normative (target-seeking) scenarios on CC mitigation by forests and the forest-based sector, trade-off analysis

# DEC & coordination

**WP7**
**Communication, dissemination and exploitation**

- **Aim:** **maximise ForestPaths' impact** through tailored communication, dissemination and exploitation strategies aimed at sharing the project's results with relevant stakeholder groups, and particularly supporting policymakers via the **CANOPY platform**
- **Results:** CANOPY policy support platform, targeted communication materials, workshops and trainings for selected stakeholders, established synergies and knowledge exchange with relevant initiatives and networks

**WP8**
**Project management and coordination**

- **Aim:** provide the structure and conditions for the **successful implementation** and completion of ForestPaths

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ForestPaths Newsletter

# Thank you!

Funded by the European Union

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