POLICY BRIEF

A Governance Structure for a European Forest Monitoring System

A Federated System with a Centralized Component

The proposed governance structure for a European Forest Monitoring System (EFMS) adopts a stepwise, bottom-up approach, leveraging existing national-level data collection efforts and standardising information at the European level (see figure below).

Key actors in this structure include the European Commission, European Environment Agency (EEA), Member States, European National Forest Inventory Network (ENFIN), and ICP Forest (ICPF). ENFIN and ICPF, both serving as expert groups, offer distinct areas of monitoring focus; ENFIN concentrates on forest structure, land use, and biodiversity, whereas ICPF targets forest health and vitality. Additionally, both groups provide expertise on monitoring forest soils. Each of these actors plays a critical role in ensuring the collection, analysis, and dissemination of high-quality forest data. Consequently, this collaborative effort ensures the monitoring system's capacity to support evidence-based policymaking and contribute to the resilience and sustainability of European forests.

To meet the goals of the EFMS, a clear structure for decision-making is needed.
We therefore propose

1. The European Commission holds responsibility for the overall coordination of the monitoring system.

2. The European Commission, Member States, ENFIN, and ICPF collectively define the goals and outcomes of the EFMS, and develop common descriptions and protocols. The ENFIN and ICPF expert groups facilitate coordination and the exchange of best practices among Member States, operate a data analysis platform, and disseminate forest information in the form of estimates and maps to the European Commission. The EEA further communicates and disseminates the information provided by the Commission through its Forest Information System for Europe (FISE).

3. The EFMS will be jointly funded by the European Union and Member States. The EU will provide initial setup costs and ongoing support for the central coordination and data analysis platform. Member States will be responsible for funding their national data collection efforts, with additional EU support available for countries establishing new systems.

4. Member States are responsible for collecting and sharing harmonised forest data using their National Forest Inventories (NFIs), ICPF plots, and other monitoring networks. They integrate field observations with remote sensing data to provide comprehensive datasets. National correspondents, serving as liaisons between Member States and the European level, coordinate data preparation, ensure compliance with technical specifications, and facilitate communication.

5. Data acquisition is carried out by NFI and ICPF organisations. The data to be utilised in the EFMS are stored in national systems, adhering to the nFIESTA (new Forest Inventory ESTimation and Analysis) standard, which enables Pan-European integration and enhancement of estimates with remote sensing or other auxiliary data sources. ENFIN and ICPF are granted access to the national EFMS data by the Member States, and they use nFIESTA as a module of the mapping and estimation platform to generate forest information.

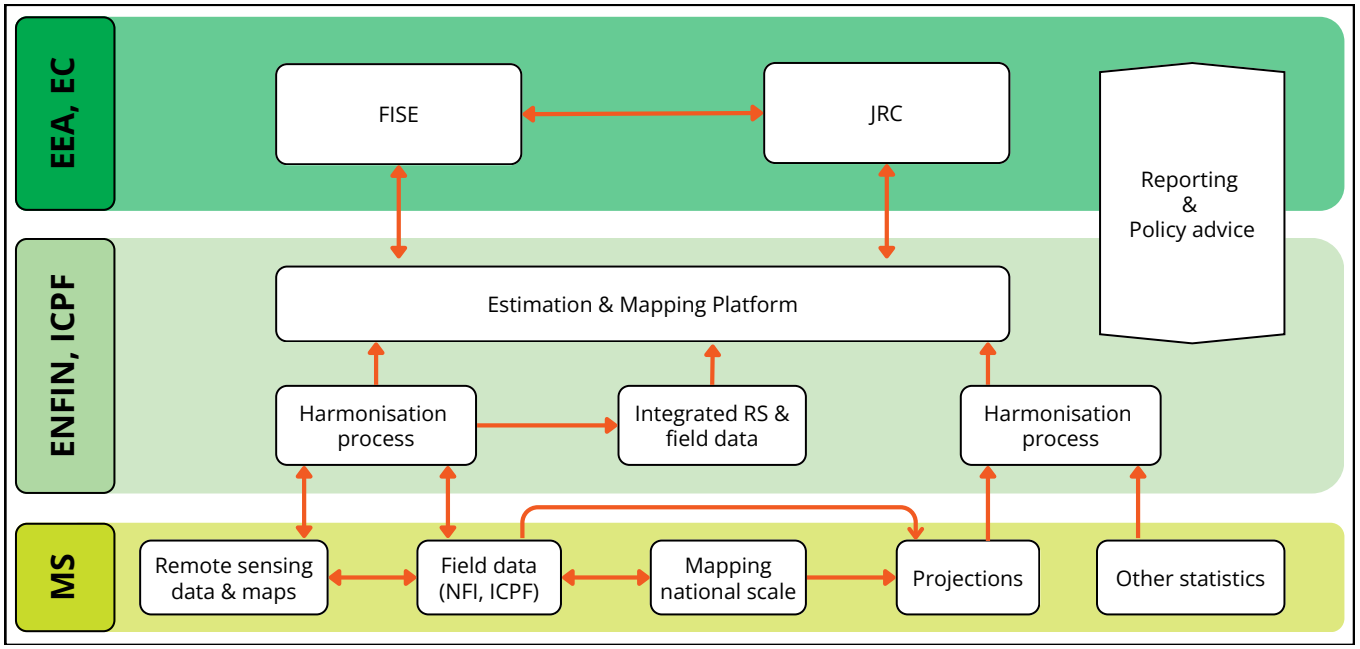
6 ENFIN and ICPF will coordinate the exchange of the raw field data with external organizations, which may be particularly relevant for scientific applications, involving JRC as a major actor.

7 The proposed governance structure gives high priority to data privacy and security. All data will be anonymised at the source before entering the system. Access rights will be tiered, with raw data accessible only to authorised researchers and policymakers. Public access will be limited to aggregated, non-sensitive information.

8 Projections of the current status into future forests are a crucial aspect of the EFMS that will be implemented by Member States in a harmonised manner. This will enable detailed scenario analysis of policy decisions and pathway analysis. Other statistics, such as timber trade and use, will be incorporated into these projections.

9 Quality assurance (QA) and quality control (QC) are integral components of the governance structure, applied at multiple stages of the data flow. Feedback loops with key stakeholders including forest owners are also a crucial element, allowing for ongoing improvement and adaptation.

This proposed governance structure aligns with the objectives outlined in the EU Forest Strategy for 2030 and addresses the challenges identified in recent studies. Data privacy solutions comprise a tiered data-sharing approach, fortified by robust technical and legal safeguards. In this system, Tier 1 includes data that are fully made public, encompassing information at generalised or aggregated levels. Tier 2 involves data shared exclusively between authorities under confidentiality agreements, including plot-level data with approximate plot locations and intersections with remote sensing data that could potentially allow reverse-engineering of exact plot locations. Tier 3 data are kept confidential by Member States but may be used to contribute to EU-wide analyses when necessary, particularly precise plot locations. Robust technical and legal safeguards for managing sensitive geospatial data involve data anonymisation techniques, restricted access protocols, and legal frameworks to protect data providers. Explicitly addressing these privacy and sensitivity concerns is crucial to ensure Member State cooperation while still achieving the EFMS' goals of improved, harmonised forest monitoring across the EU.



A schematic representation of the proposed governance structure.

The process of implementing the proposed governance structure has commenced for the Member States within the PathFinder and other research projects. This involves refining protocols for harmonised data collection, demonstrating the common mapping and estimation platform through the publication of high-resolution forest attribute maps, implementing the nFIESTA software for common reporting, and training national experts. The recent establishment of the ENFIN Association as a legal entity marked another step in strengthening national collaboration to support the European Forest Monitoring System. One of the next steps should be the establishment of a central coordination unit within the European Commission, along with links to the ENFIN and ICPF expert groups. This should be followed by full implementation across all Member States, accompanied by ongoing evaluation and adjustment.

ABOUT PATHFINDER

PathFinder is a HorizonEurope funded project that develops a prototype of a European Forest Montoring System. Learn more at our website here:

https://pathfinder-heu.eu

This policy brief is based on section 3.4 of PathFinder's Deliverable 4.3:
Advice on governance structures for a permanent monitoring and pathway assessment system, and a reporting and accounting framework for the LULUCF sector by Klemens Schadauer (BFW), Stephan Graeber (BFW), Annemarie Bastrup-Birk (EEA), Marco Ferretti (WSL), Daniel Di Marzo (ALUFR), Kari T. Korhonen (LUKE), and Johannes Breidenbach (NIBIO). DOI:https://doi.org/10.5281/zenodo.14336656

A description of PathFinder's Mapping and estimation platform: https://doi.org/10.5281/zenodo.14289023

PathFinder's first high-resolution Pan-European forest structure maps: https://doi.org/10.5281/zenodo.13143235

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