

Towards a European Forest Monitoring System



NFIs can strongly support harmonized EU forest monitoring

The new EU Forest Strategy 2030 recognizes *“the need to develop a European forest monitoring system based on ground-based data and satellite images”*. The strategy points out the need *“for strategic forest planning in all EU Member States at national, and where applicable, regional level”*. The planning needs to be *“based on reliable monitoring and data, transparent governance, and coordinated exchange at the EU level”*.

Out of the 27 EU Member States, 23 have an ongoing National Forest Inventory (NFI), which has been supplying forest data and information for several decades and in some countries over 100 years, at national and sub-national levels. NFIs should form the base for monitoring the trends and developments of the European forests. Specifically, the NFIs can provide the following:

1. A European-wide network of forest monitoring specialists and scientists. In 2003, 17 European NFIs co-founded the voluntary network ENFIN which has grown to 32 members since then, see www.enfin.info. To date, ENFIN has published more than 40 peer reviewed papers (and several broadcast communications) mainly dealing with harmonization of forest data on the European level. Additionally, four books were published as an output of two COST Actions. This network is ready to support the efforts to achieve transparent governance and coordinated exchange at EU level.

2. More than 500,000 field plots that produce forest data and information on a regular basis. NFIs form a unique forest data infrastructure for Europe. The information collected in the forests include parameters related to forest biomass and carbon, forest biodiversity, growth of forests, tree species and structure, condition of forests and, land use changes.

3. Cost-efficient methodology to combine NFI data and satellite images. Many of the NFIs have long term experience in utilizing satellite images and other remote sensing techniques on multiple scales and are cooperating with other scientific bodies to develop:

- methods for utilizing latest remote sensing products for example for rapid detection of large scale forest disturbances and
- up to date statistically sound combined estimation procedures at national and European level (see e.g. https://gitlab.com/nfiesta/nfiesta_pg/-/wikis/home).

4. Framework and solutions for strategic planning at European level. In most EU Members States, the NFIs provide the core data and information on which national level strategic planning on forestry and forest policy is based; The NFIs' core data and information are essential for the countries to meet their international reporting commitments derived from the main international agreements. In the Horizon2020 project DIABOLO and in cooperation with EU Commission Joint Research Centre (JRC) the ENFIN network has developed solutions for scenario modeling at European scale.

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For more information:

Barreiro S., Schelhaas M., McRoberts, R.E., Kändler G. (eds.), 2017: Forest Inventory - based Projection Systems for Wood and Biomass Availability. Volume 29 - Managing Forest Ecosystems. Springer International Publishing, 2017.

Chirici G., Winter S., McRoberts, R.E. (eds.), 2011: National Forest Inventories: Contributions to Forest Biodiversity Assessments. Springer International Publishing, Netherlands 2011.

Tomppo, E., Gschwantner, T., Lawrence, M., McRoberts, R.E. (eds.), 2010: National Forest Inventories: Pathways for common reporting. Springer, Berlin. 612 p.

Vauhkonen, J., Berger, A., Gschwantner, T. et al., 2019: Harmonised projections of future forest resources in Europe. *Annals of Forest Science* 76, 79. <https://doi.org/10.1007/s13595-019-0863-6>

Vidal C., Alberdi I., Hernández, L. & Redmond J. (eds.), 2016: National Forest Inventories - Assessment of Wood Availability and Use. Springer International Publishing, Switzerland 2016.

JRC Framework contracts: <http://enfin.info/> (Projects)

- 1st Framework contract for the provision of forest data and services in support to the European Forest Data Centre Reference: 2007/ S 194-235358
- 2nd Framework contract for the provision of forest data and services in support to the JRC activities and applications on forest resources: Reference: 2012/ S 78-127532
- 3rd Framework contract for the provision of forest data and services in support to the JRC activities and applications on forest resources: Reference: 2017/ 934340