



Phenotyping robot for water relation studies in trees (INRA-Nancy) © INRA / C. Buré

Trees4Future

Designing Trees for the Future

Forestry research mobilises a broad spectrum of disciplines, from those focusing on the study of individual trees, on communities or on whole eco-systems, to those exploring the many uses of wood, or socio-economic aspects. While their interests often overlap, the interactions between these areas of expertise remain a complex challenge, each having developed its own scientific environment. The partners in Trees4Future intend to facilitate such exchanges — advancing the state of the art and supporting Europe's drive for greater forest sustainability and competitiveness in the process.

Carving out a common framework

Whether they view a tree as a plant, as a component of a habitat or an ecosystem, as a source of building material or fuel, or as a financial resource, tree and forestry experts have much to learn from one another. Key scientific and technical expertise and infrastructure resources for these various areas of interest exist across Europe, but individual disciplines may not be fully aware of them and of their relevance to their own work. Each discipline involved in forestry has developed its own methodologies, standards and language, which may be unfamiliar or incomprehensible to experts from another discipline. This diversity complicates the integration of research processes and the ongoing exchange of results.

The creation of a common framework therefore ranks highly among the objectives of the Trees4Future project. Priorities in this area are defining common standards and protocols and broadening the scope to access relevant databases and biological resources such as trees, seed, pollen, DNA or wood samples. As part of their remit to support the forestry research community, the partners are also opening up opportunities for transnational access to 24 research infrastructures designed for diverse activities including genetics and the assessment of wood quality.

Promoting a multifaceted view of forestry

Inter-fertilisation between the various disciplines holds the key to addressing the changing demands on Europe's forests, as the challenges are increasingly complex. Meeting the growing demand for wood products and services while striving for sustainability, protecting biodiversity and anticipating the necessary adaptations to a changing climate will require a holistic approach.

Trees4Future's assets encompass several large-scale modelling platforms, and the partners aim to develop a range of tools, resources and services. These include a platform for the analysis of statistical and genetic data, a platform for molecular analysis for fingerprinting and traceability purposes, infrastructure for the spatial description of species drawing on space-based models, and climate matching tools for species, provenance, breeding and deployment, as well as a clearing house for research data originating from national and EU plots, databases or resources.

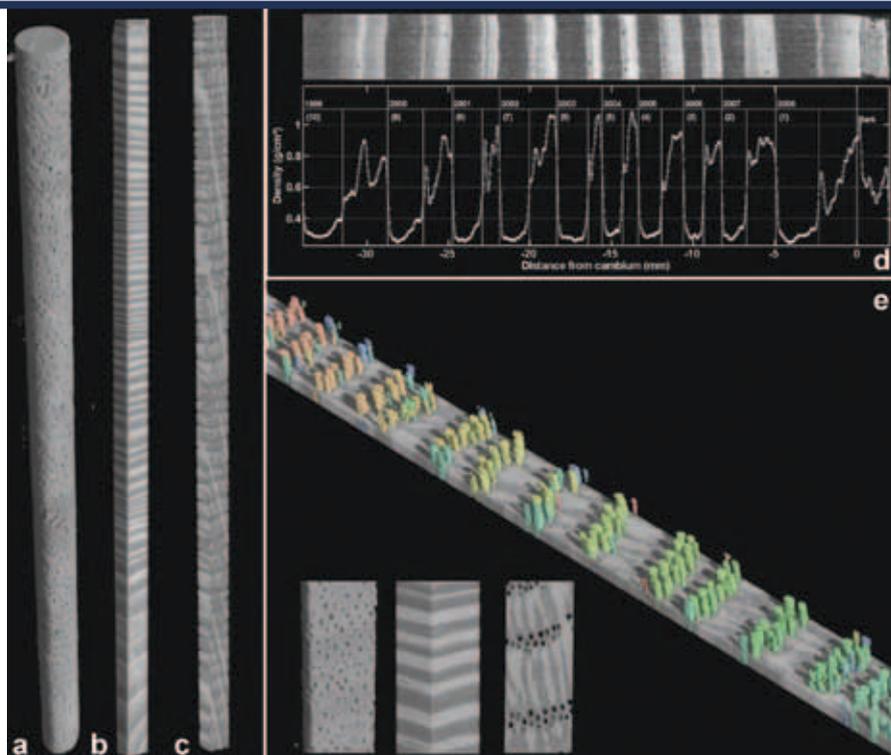
Other planned developments aim at boosting the capacity for medium- and high-throughput phenotyping of adaptive and production traits and enhancing the compatibility of modelling tools for the assessment of goods, of services and of sustainability, and for the evaluation of adaptation and mitigation strategies for European forests. Thematic networks will explore specialised topics such as key adaptive properties in the context of climate change and the social acceptability of genetically improved varieties.

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To increase the visibility and the impact of this joint endeavour, the project partners are determined to engage with a large variety of target audiences. The project will, for example, work closely with industry end-users to ensure that research services meet their needs, strive to support policy- and decision-making processes, and make information available to the general public.

Wood cores of (a) limba (Terminalia superba), (b) Scots pine (Pinus sylvestris) and (c) oak (Quercus spp.), (d) growth ring width and density profile of the outer rings of a pine core, and (e) vessel segmentation of an oak core with inset of detailed view on limba, pine and oak. © UGCT — Woodlab UGent (courtesy of Jan Van den Bulcke, Maaïke De Ridder, Dries Vansteenkiste and Joris Van Acker)



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Partners:

- Institut National de la Recherche Agronomique (FR)
- Austrian Institute of Technology (AT)
- Stichting Dienst Landbouwkundig Onderzoek (NL)
- Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten (DE)
- Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft (AT)
- Universität für Bodenkultur Wien (AT)
- Commissariat à l'énergie atomique et aux énergies alternatives (FR)
- Fundación para o Fomento da Calidade Industrial e

- Desenvolvimento Tecnológico de Galicia (ES)
- Consiglio Nazionale delle Ricerche (IT)
- Consiglio per la Ricerca e la Sperimentazione in Agricoltura (IT)
- European Forest Institute (FI)
- Institut Technologique FCBA (Forêt Cellulose Bois-Construction Ameublement) (FR)
- Fondazione Edmund Mach (IT)
- Forestry Commission Research Agency (GB)
- Instytut Badawczy Leśnictwa (PL)
- Institutul de Cercetări și Amenajări Silvice (RO)
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Project webpage: <http://www.trees4future.eu>