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Designing Trees for the Future

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The Executive Committee meeting as well as WP3 and WP8 workshops concerning the project TREES-4FUTURE were held at the Forest Research Institute (Sękocin Stary, Poland) on 3–5 June 2014.

The project TREES4FUTURE – Designing Trees for the future (duration time 1.11.2011–31.10.2015; <http://www.trees4future.eu>) is a EU-funded research infrastructure project aiming to develop sustainable solutions to increasing demands for wood products and services (among which – preservation of forest biodiversity)

TREES4FUTURE project integrates interacting forestry communities (and their resources) including geneticists, breeders, (eco-)physiologists, ecologists, wood scientists and modelers working at various scales, from tree/population scale to forestry landscape/wood basin levels. The project is focused on 3 main activities: networking, research and research infrastructure access.

The core of the project is data-oriented in the sense that all these communities share common concerns regarding data acquisition, storage, analyzing and modeling as well as that the exchange of datasets among researchers from different fields become crucial for a more global research approach and understanding of today's challenges.

The TREES4FUTURE project develops:

- A unique web-portal to access various sources of forestry information,

- A unique portal to access genetic databases,
- A forestry clearinghouse with GIS functionality to access environmental data,
- Standards for traits assessment, laboratory procedures,
- Thematic research networks around phenotypic plasticity and phenology, social aspects of forest tree breeding,
- A user-friendly analytical platform for statistical and genetic data analysis,
- A platform for molecular analysis to collect and provide a set of genetic markers and standardized laboratory protocols for genetic identification and fingerprinting of forest resources
- A GIS-based decision making tool for better matching forest tree species and varieties to environmental conditions across Europe, in particular in the context of climate change.
- Integrated compatible modelling tools for prediction of forest wood resources and services
- High-throughput phenotyping methodologies for some key-traits linked to tree adaptation and wood properties

In addition, the platform offers an access to research facilities from 28 scientific institutions that can help European foresters and wood industries. These include libraries, databanks, biobanks, biotechnology and wood laboratories, forest resources models and decision-support systems. The access to the platform is

open to researchers and other experts from EU-member and associated countries. The Call for Access for Trees4Future facilities has been opened since June 2012, and will remain open until 2015. Proposals can be submitted via the Trees4Future website in a simple, two-step process. For more information on the facilities offered, the Call for Access, and how to apply, please visit www.trees4future.eu/transnational-accesses.html.

The long-term objective of TREES4FUTURE is to provide not only the partners but the whole European forestry community for an easy and comprehensive access to complementary but currently scattered sources of information and expertise to optimize short and long-term exploitation of forest resources by both the research community and the socio-economic players. In particular, the development of a pan-European Tree Breeding Centre, already supported by the work of a previous project (TREEBREEDDEX), is one of the major focuses.

The Department of Silviculture and Genetics at the Forest Research Institute (Sękocin Stary, Poland) has been involved in the following work packages of the project: WP2 – creating common standards and protocol, WP3 – plasticity and phenology network, WP6 – elaborating integrated statistical and genetic analytical tool, WP11 – inventory of phenotyping techniques, and it is offering access to tissue culture laboratory.

The workshop on ‘Creating key thematic research networks’ (Jose Climent, INIA – Spain, WP 3 Group Leader) aimed to create and develop key thematic networks for better integration of forest research disciplines and communities. The specific objectives include:

- To establish a network of experimental trials of forest species to assess the phenotypic plasticity and phenology, as major tools for predicting biomass production and adaptation to future changeable conditions.
- To undergo a cooperative activity aimed at improving data analysis (modeling of reaction norms, adaptive interpretation of responses, and design of new experiments) and interpreting results including recommendations for the deployment of basic materials.

The workshop on ‘A GIS-based decision making tool for better matching forest tree species and varieties to environmental conditions across Europe, in particular in the context of climate change’ (Duncan Ray, Forest Research Agency – United Kingdom, WP6 Group Leader) aimed to analyze progress in the development of a climate matching tool at a European level and of a GIS-decision making tool to match species/provenance to sites based on ecological and genetic sources of information.



Participants of the Meeting

In conclusion, we believe that the activities undertaken in the project will increase scientific and technical exchanges among the scientific community and will bring new opportunities to increase our knowledge about adaptation of forests to environmental changes and about tree characteristics suited for customized wood supply and sustainable exploitation of forest re-

sources. Several outcomes towards forestry professionals and industry and policy-makers are foreseen, like the platform for fingerprinting and traceability, the decision-making tool for tree species/provenance site adaptation, a NIRS-analytical platform for wood properties, the GIS-oriented clearinghouse and modeling tools of forest resources.