

## EVOLTREE MOBILITY (JERA4.2)

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**Host:** Joukje Buiteveld, (P2a; Centre for Ecosystem Studies, Team Genetic Diversity & Population Ecology)

**Period:** 14 April 2009 till 14 June 2009.

**Connections with:** JERA4.3

The short term mission in Wageningen is mainly related to a project from JERA4.2 entitled: Comparison of small-scale spatial variation patterns of genetic variation and phenological traits in European beech (*Fagus sylvatica* L.), and conclusions on parental effects.

To study the spatial diversity in phenological traits for the above project, two contrasting stands had been selected: one fragmented population in the ISS Veluwe (NL) and one large continuous beech stand (B2) in the ISS Solling (GE). Phenological stages of bud burst were supposed to be determined by visual observations according to an adaptation of Malaisse's scale (Tessier du Cros *et.al.* 1981<sup>1</sup>).

During spring 2008, the Wageningen and Göttingen institutions accomplished the budburst observations which seem to provide substantial family characteristics among adults, but weaker structures among juvenile trees. However, concerning the comparability of data, some problems remained involving stand structure differences (e.g. stand density variation), different methods to describe family effects, and different sampling strategies as well as different scaling if adults and sapling are compared.

The project from JERA4.3 also took advantage from data already available from a beech project funded within JERA3.3. Within this project, the gene flow patterns were described within these stands based on seedlings and adults. This project provided data on the spatial structures of genetic diversity (microsatellites). Comparing these data allows us to relate the spatial variation patterns of these genetic characteristics with the variation patterns at a phenological trait. Besides this, spatial patterns of these traits can be compared between the adult and seedling population to describe the dynamics.

During the stay in Wageningen, there for the following tasks had priority:

- Exchange of experience and methods of spatial analyses of genetic and phenological data.
- Harmonisation of the datasets (especially budburst) to allow a comparative analysis of the two (Veluwe, Solling) sites.
- Comparison of different methods of parentage analyses in order to investigate the possible parental influence on the phenological trait).

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<sup>1</sup> TEISSER DU CROSS, E; LE TACON, F; NEPVEU, G; PARDÉ, J; TIMBAL, J.E; (1981): Le Hêtre, Département des Recherches Forestières, INRA, Paris, 613 pp.

During the short term scientific mission, comprehensive data and method harmonisation was possible for the project report.

The activities concern:

- Study trips and collection of additionally information about the landscape history.
- Application and comparison of different evaluation methods for phenological and spatial genetic structures within and between generations.
- Final report compilation about the Solling and Veluwe ISSs, observations, data, different evaluations and analysis

Reports (detailed, abstract) will be available at Alterra or from the Evoltree website.

Acknowledgement:

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29<sup>th</sup> June, 2009

*Laszlo Nyari*