2021 FOREST GENETICS
CFGA/WFGA STUDENT AND POSTDOC SYMPOSIUM

DEPARTMENT OF PLANT SCIENCES
UNIVERSITY OF OXFORD

GENETIC effects of applying Continuous Cover Forestry in non-native conifer UK populations

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WHY?

Climate Change

Multi-purpose Forests

Increase resilience

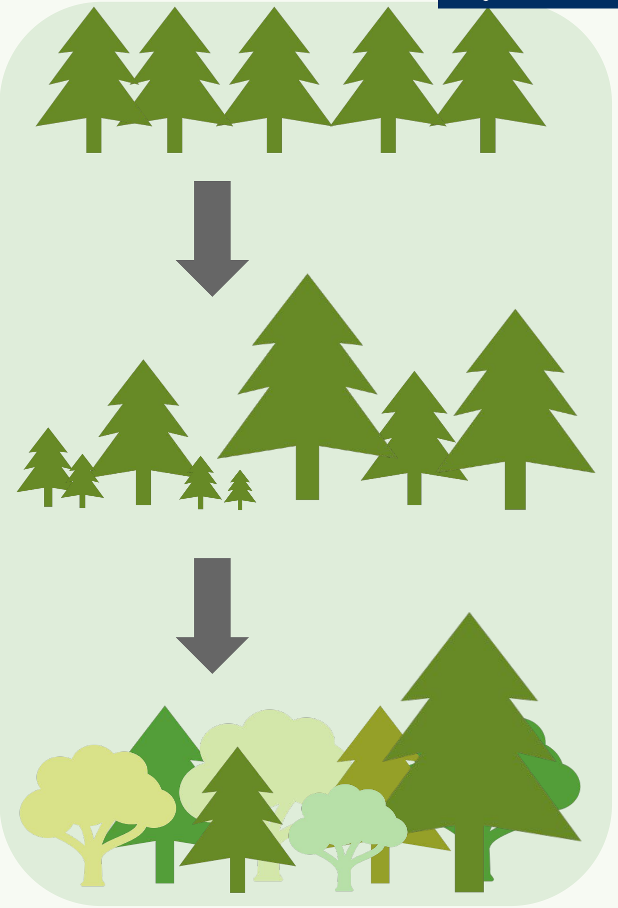
CCF approach:

Ecosystem management

Rely on **natural regeneration** and disturbances

Work with site limitations

Irregular stand structure and a mixture of ages and species



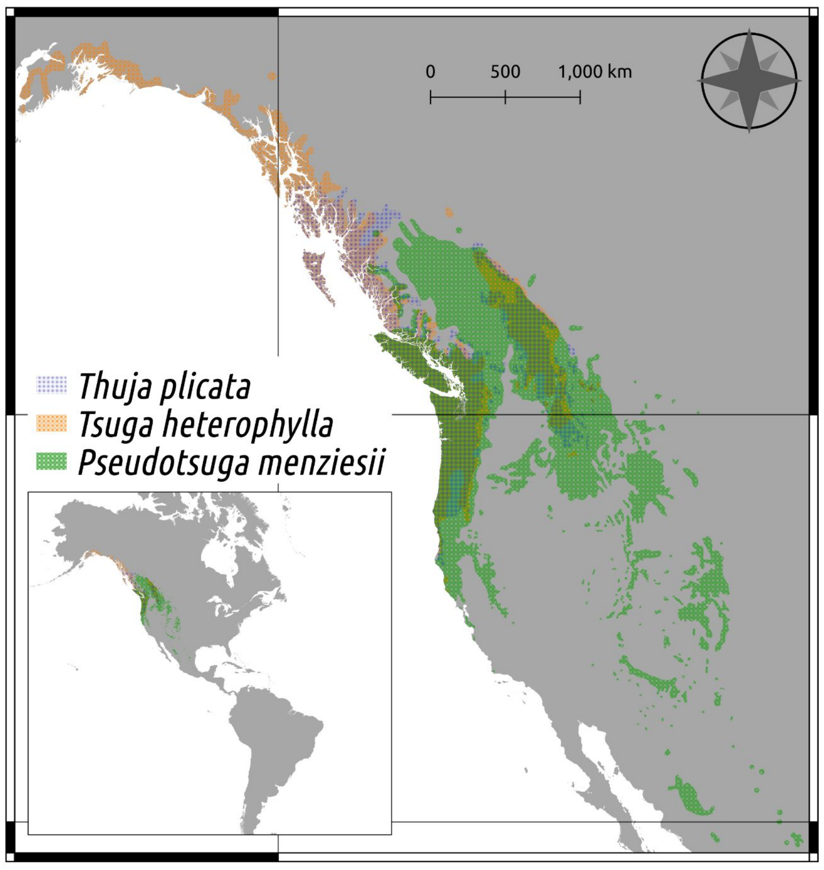
Hypothesis

The planted trees that composed the UK forests may not hold enough genetic diversity to face the current and future disturbances.

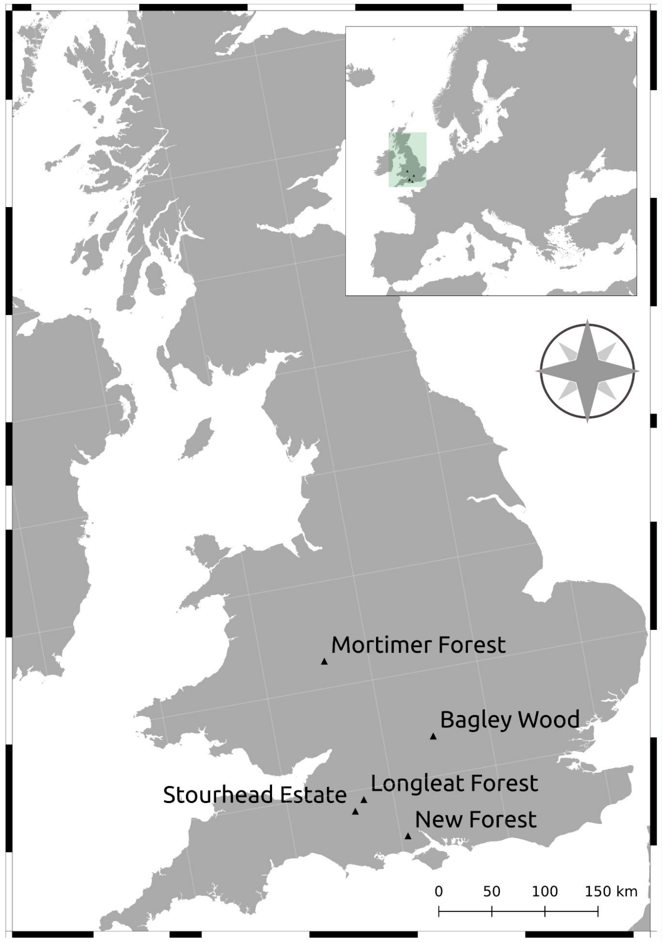
So, how the gene pool is being transmitted to the offspring?

Study Species and UK sites

Species Natural distribution:

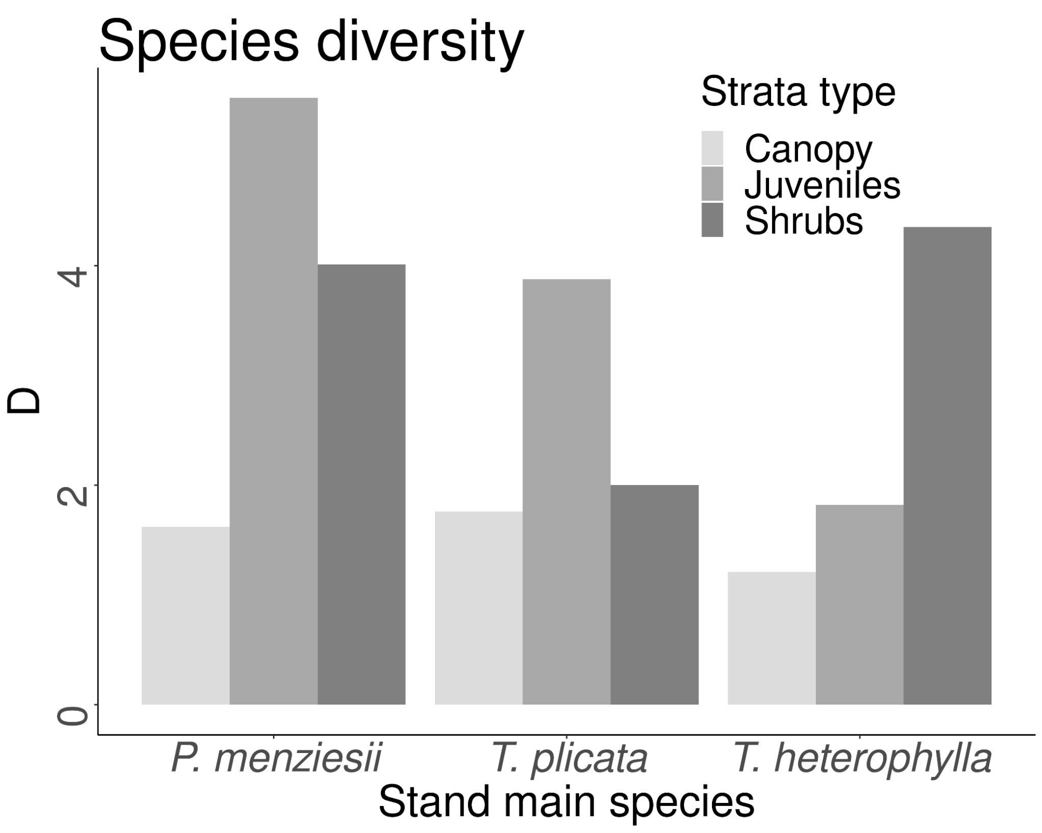


Study sites:

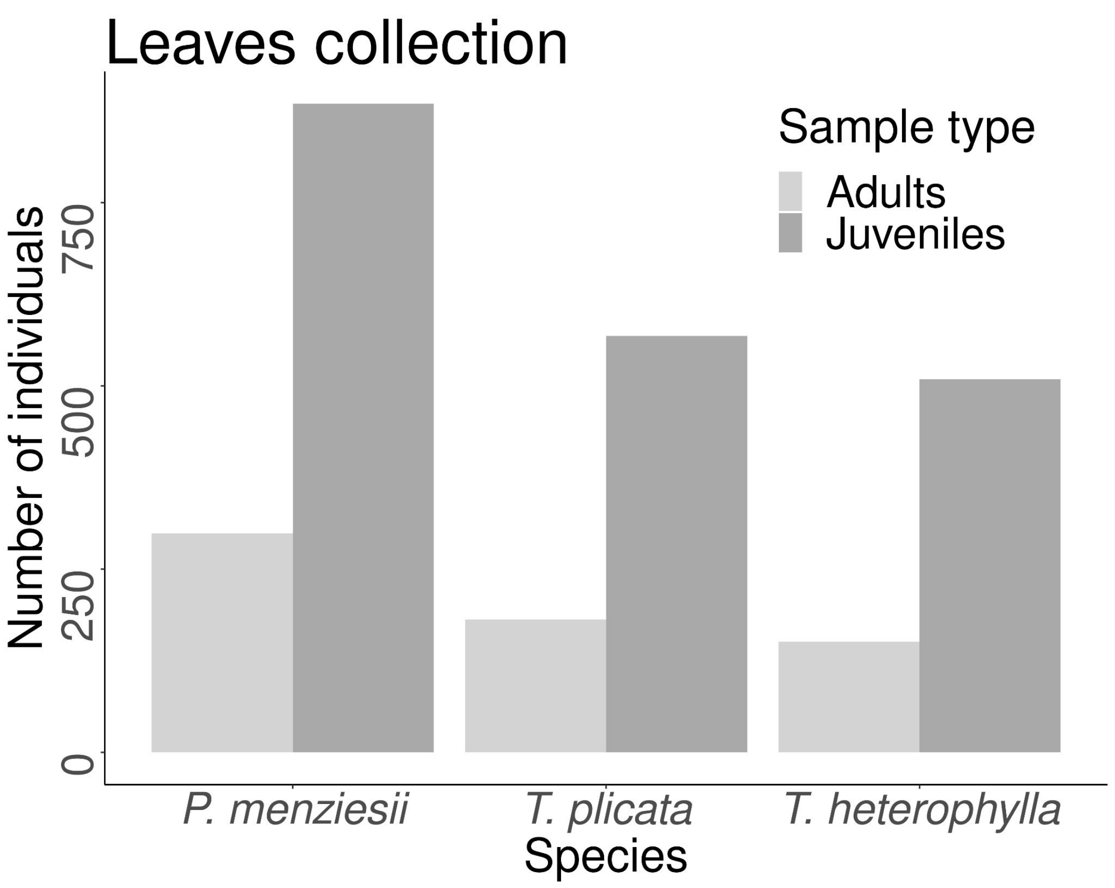


Sites characterization

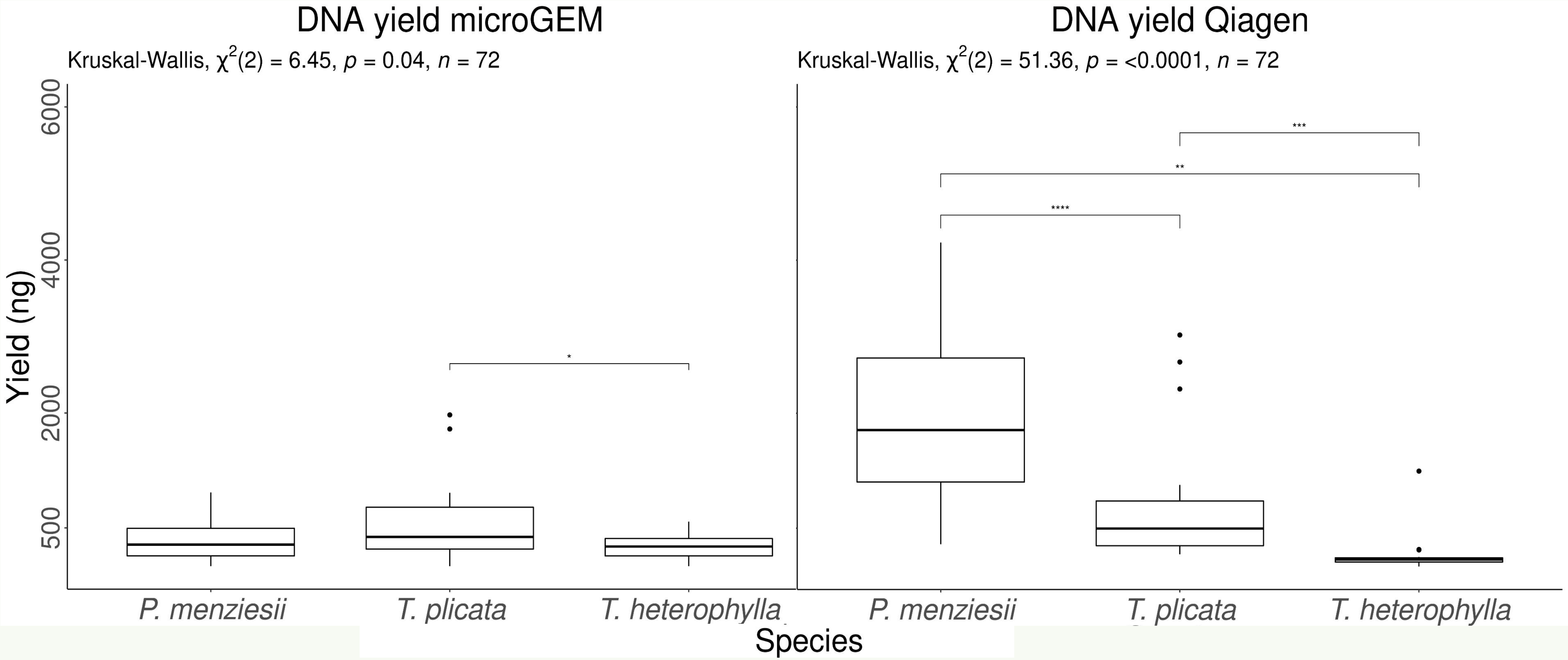
Aim: To investigate the stands CCF stage of transformation



Tissue sampling

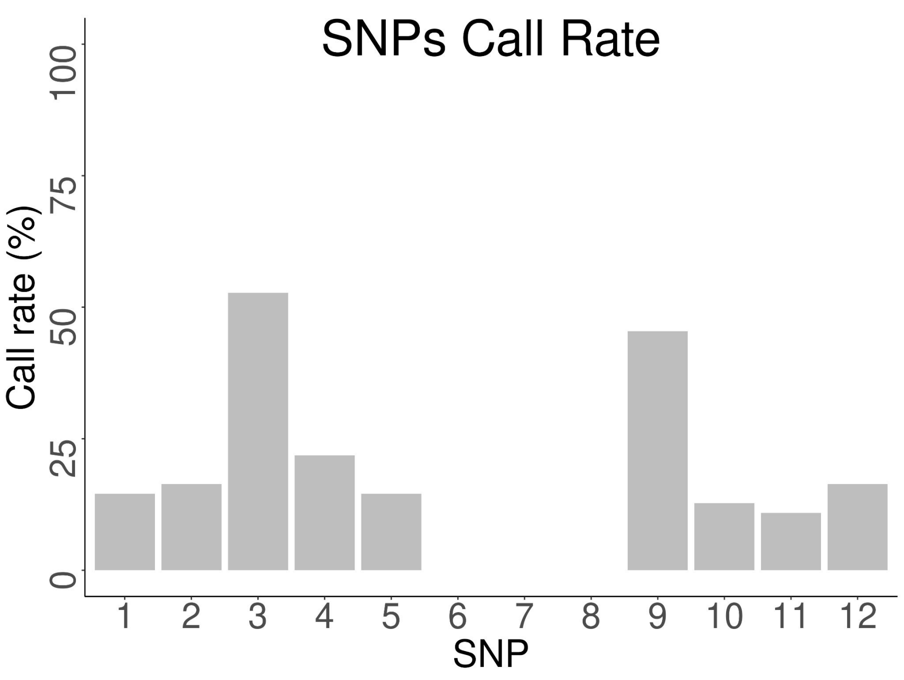


DNA extraction



Genotyping

For *P. menziesii* there is a database of 28k SNPs available (Howe et al., 2020)



FluidiGM genotyping platform steps:

D3 software to design assays (from SNP sequences)

Genomic DNA pre-amplification

Allele-specific PCR (Juno)

Detect SNPs intensity (Biomark)

References:
Howe, G. T., Jayawickrama, K., Kolpak, S. E., Kling, J., Trappe, M., Hipkins, V., … McEvoy, S. (2020). An Axiom SNP genotyping array for Douglas-fir. *BMC Genomics*, *21*(1), 9. https://doi.org/10.1186/s12864-019-6383-9

Any Questions?

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