University of Oxford
Department of Biology

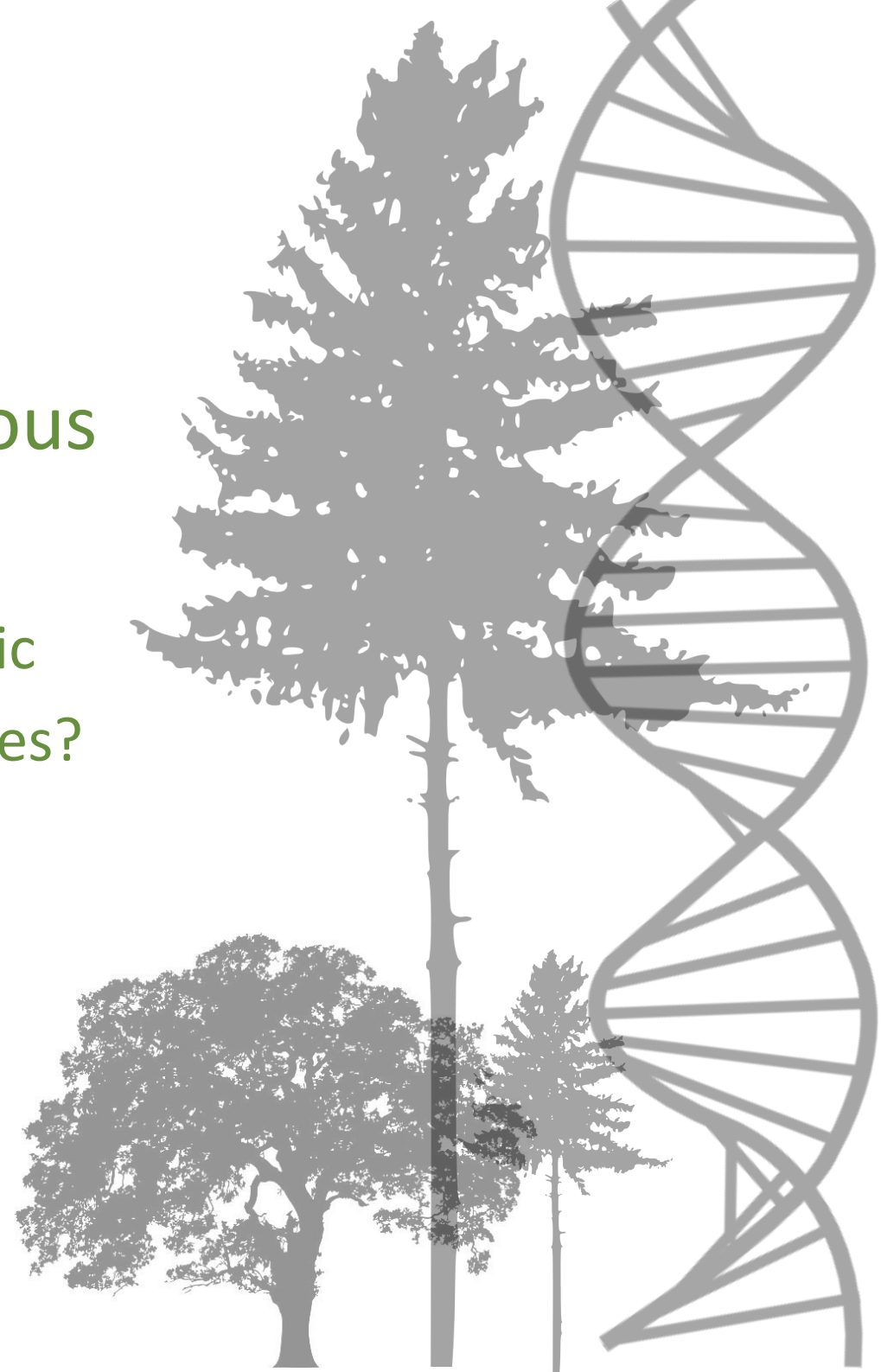
Genetics behind the Continuous Cover Forestry (CCF) -

Do UK plantations hold enough genetic diversity to face environmental changes?

B4EST International Conference
Laura Guillardin
June 2022

Department of BIOLOGY

UNIVERSITY OF OXFORD



The Continuous Cover Forestry Challenge

Even-aged **plantations**

First stages of irregular stands

Irregular, mixed stand

The planted trees in UK forests used **in CCF** may **not hold** enough **genetic diversity** to face the current and future disturbances.

We aim to assess the **diversity** in the **gene pool** and study its transmission to **offspring**

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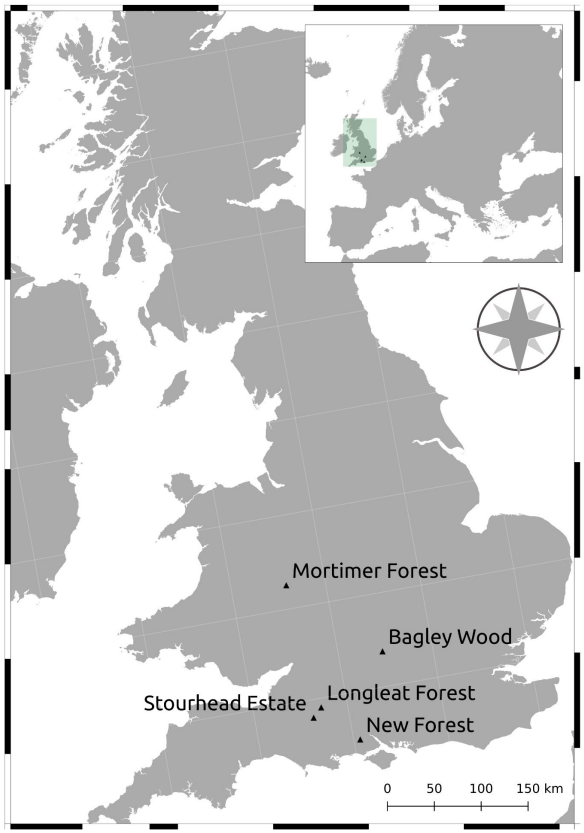
UK study sites (5) and genotyping method

Study sites and Species



Pseudotsuga menziesii

Thuja plicata

Genotyping

FLUIDIGM®

- 158 SNPs tested, 72 selected; 28K database (Howe *et al.* 2020)
- SNP type assay (Fluidigm) - Allele-specific PCR

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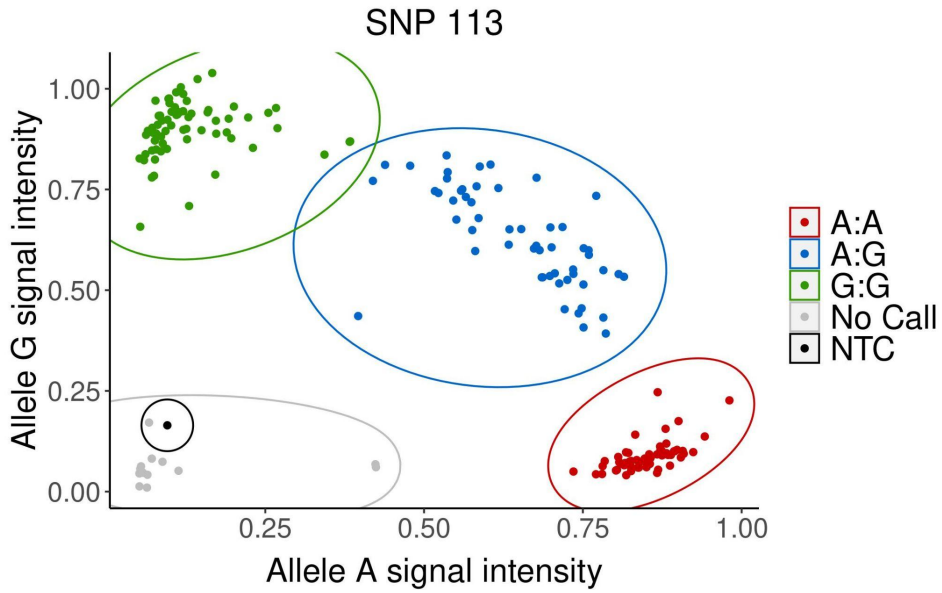
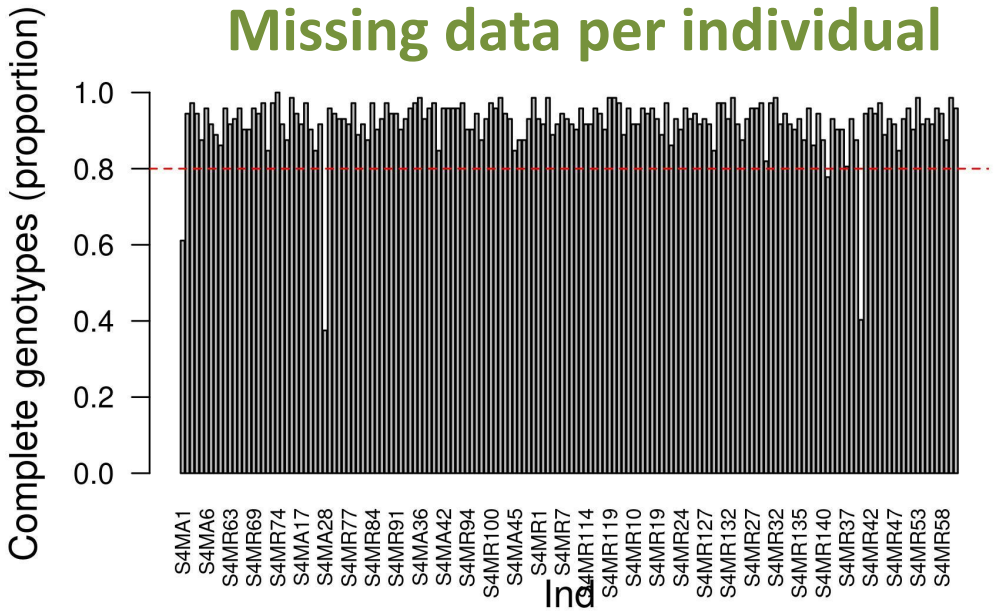
Assay development and quality control: 72 SNPs

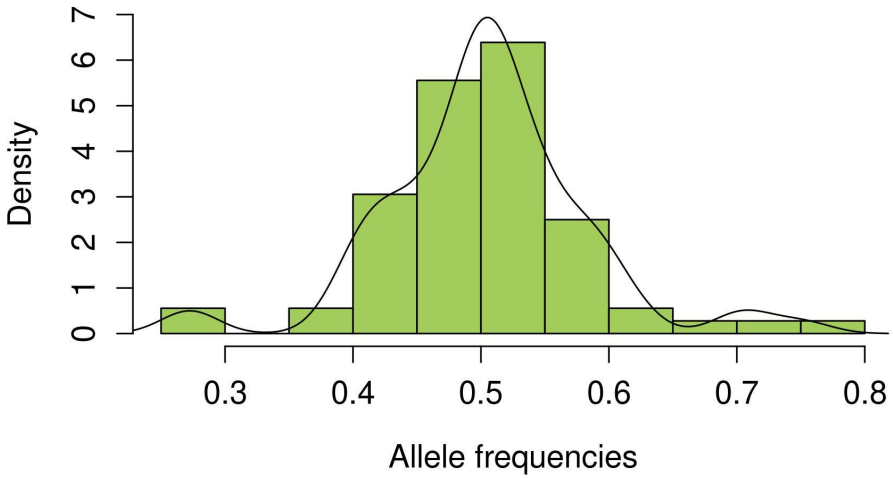
P. menziesii



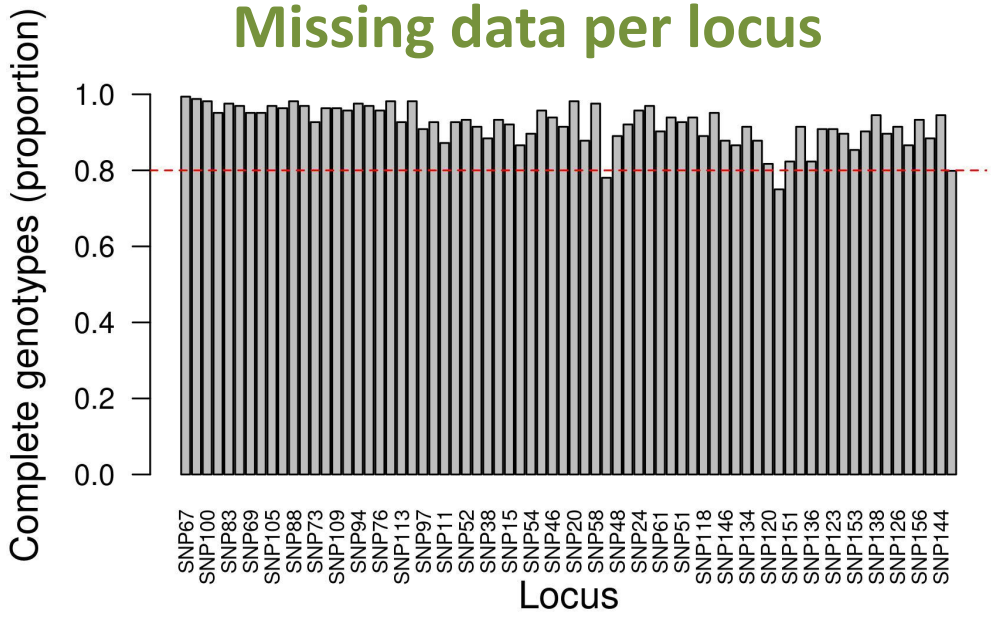
Missing data per individual



Distribution of allele frequencies



Missing data per locus



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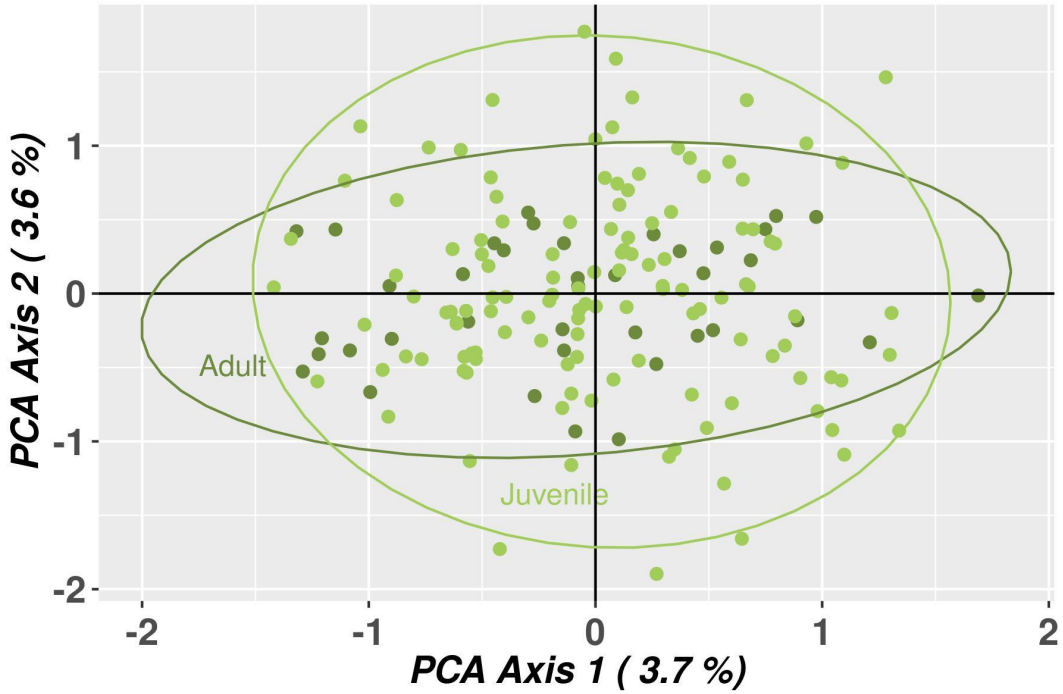
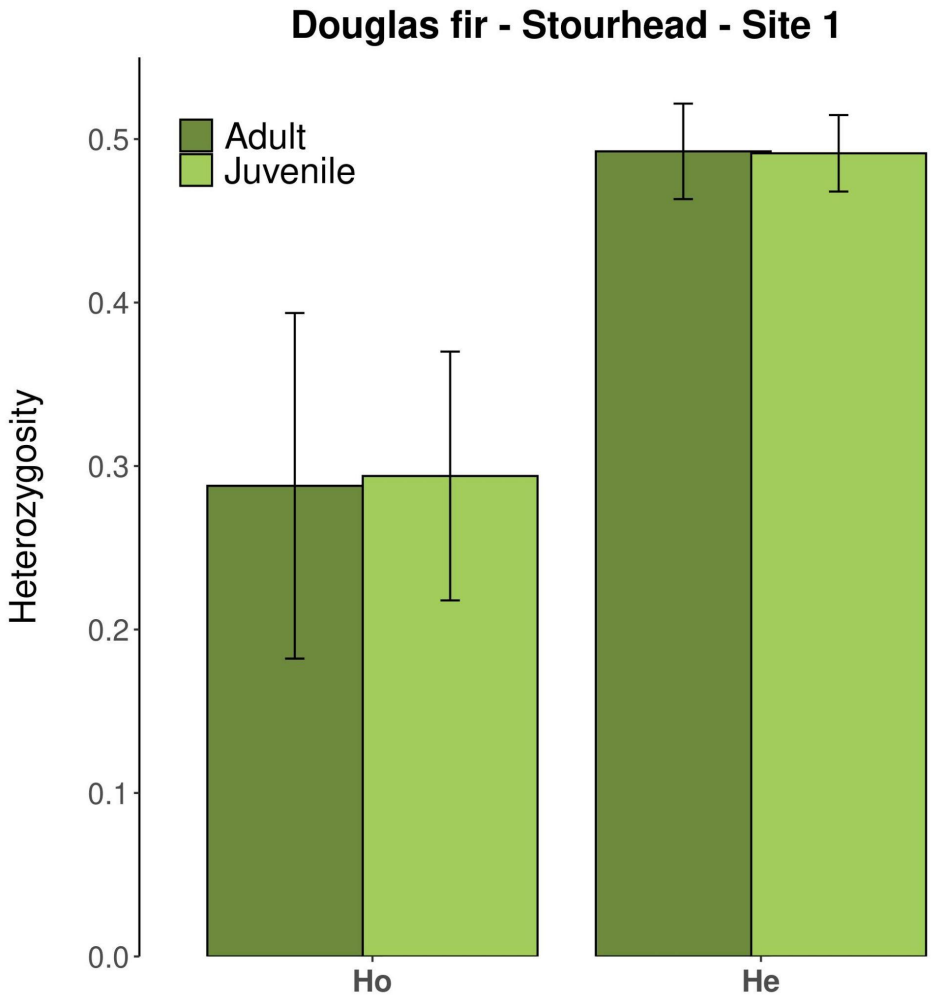
Preliminary population genetic results

P. menziesii

PCA (Principal components analysis)



Genetic diversity (GD)



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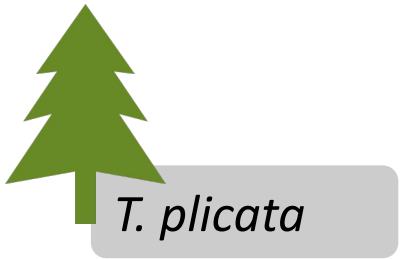
NEXT STEPS

P. menziesii

Genotype the rest of the sites

Look at different SNPs set scenarios

Measure GD per site and strata



T. plicata

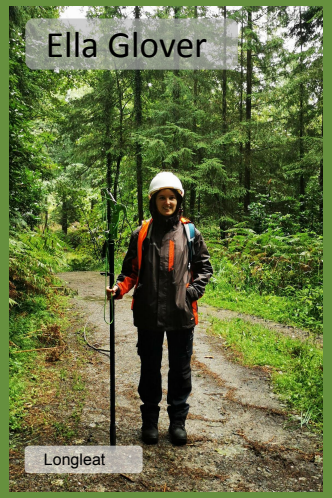
Genotyping by Sequencing (GBS)

Select the SNPs for downstream analysis

Genotype

Measure GD per site and strata

ACKNOWLEDGMENTS

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Oxford-John Oldacre Graduate Scholarship

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