

University and College Land for Carbon

Natural Environment Investment
Readiness Fund (NEIRF)



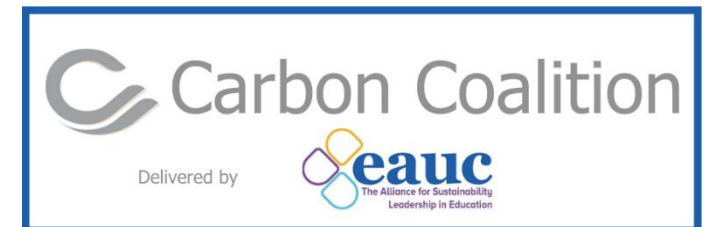
Agenda

1. Overview of the Project
2. Woodland Carbon Code and Institutional Guidance for Creating a Woodland
3. Financial Modelling Tool for Creating a Woodland
4. Case Study: University of Leeds - Gair Wood
5. Q&A

Overview of the project

The University and College Land for Carbon

- The EAUC was awarded funding from the Natural Environment Investment Ready Fund (NEIRF) by the Environment Agency to deliver the University and College Land for Carbon project.
- It aims to develop guidance on how institution's land can be used to create Woodland Carbon Code (WCC) credits.
- The WCC is a UK-government-backed credit to help institutions achieve their net-zero targets through carbon sequestration.
- The carbon credit can be used to offset institutions' residual emissions or can be traded on the carbon market via the Carbon Coalition.



The Objectives



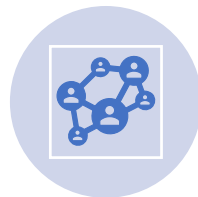
Develop a sector-wide framework that aligns with the Forestry Standard and Woodland Carbon Code requirements



Develop a market assessment and financial models using institutions data



Optimise biodiversity



Provide wider community benefits to staff, students and the general public



Use staff expertise and students to collect and monitor data to gain practical green skills

Universities and colleges involved



We thank the following institutions who have taken part in this project and helped shape the guidance:

- College of West Anglia
- Harper Adams University
- Royal Agricultural College
- South Devon College
- University of Cambridge
- University of Chester
- University of Leeds
- University of Leicester
- University of Southampton
- University of Warwick

We also thank the Woodland Carbon Code who have acted as an advisory partner:



Supporting Resources



Resources	Description
Institutional Guidance	A sector specific guidance on developing a Woodland Carbon Code project
Financial Modelling Tool	A guide to understanding the financial forecast of a woodland creation project
Business Case	An overview of the benefits and risks associated with developing a WCC project
Grants and Funding Support	A list of grants and funding opportunities to develop a woodland and tree planting for the sector
Presentation template	A template presentation for institutions to use to present to their wider teams about woodland creation and carbon codes
Case Study	A case study from the University of Leeds Gair Wood
Glossary	A glossary to understand key terminology in offsetting



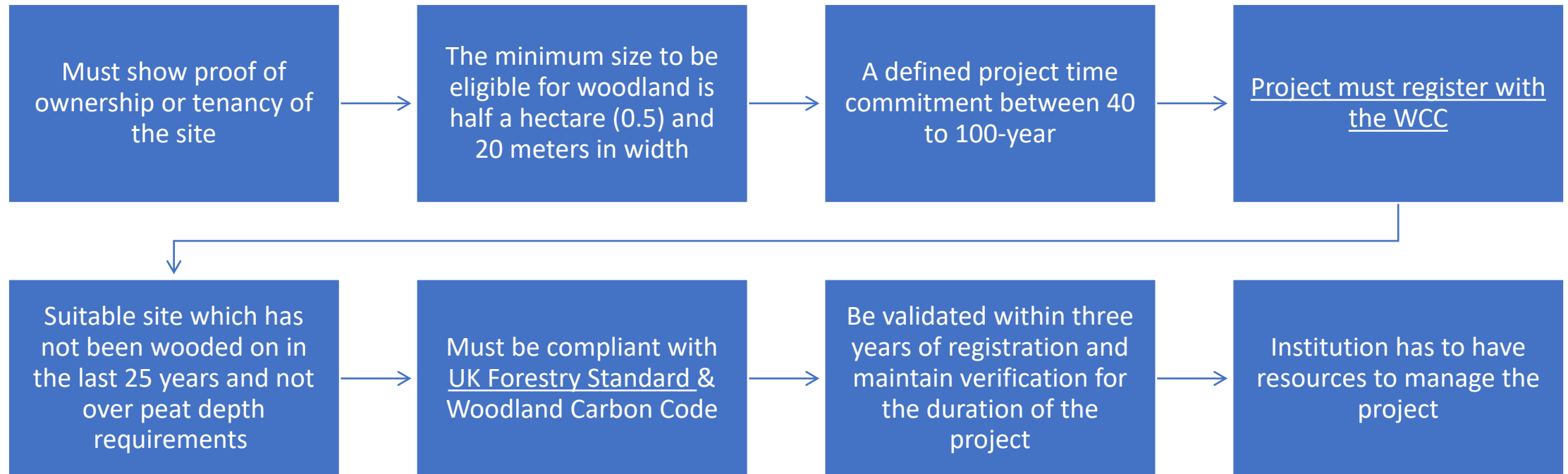
Woodland Carbon Code & Institutional Guidance

The Woodland Carbon Code (WCC)



- The WCC is the only way of generating carbon credit through UK woodland creation.
- Backed by the government, the forest industry and carbon market experts.
- The quality assurance standard and generates high integrity, independently verified carbon units.
- It is currently the only UK carbon code to be endorsed by the International Carbon Reduction and Offsetting Alliance (ICROA).
- The code allows organisations to reduce their net emissions, claim carbon neutrality and assists with institutions' routes to Net Zero.
- A low-risk form of offsetting project.
- Removal based projects are often deemed to be higher quality than avoidance based because of the direct carbon sequestration of the carbon benefit.
- WCC for offsetting cannot be used internationally, this includes supply chain and travel offsetting.

Woodland Carbon Code (WCC) Requirements



Institutional Guidance

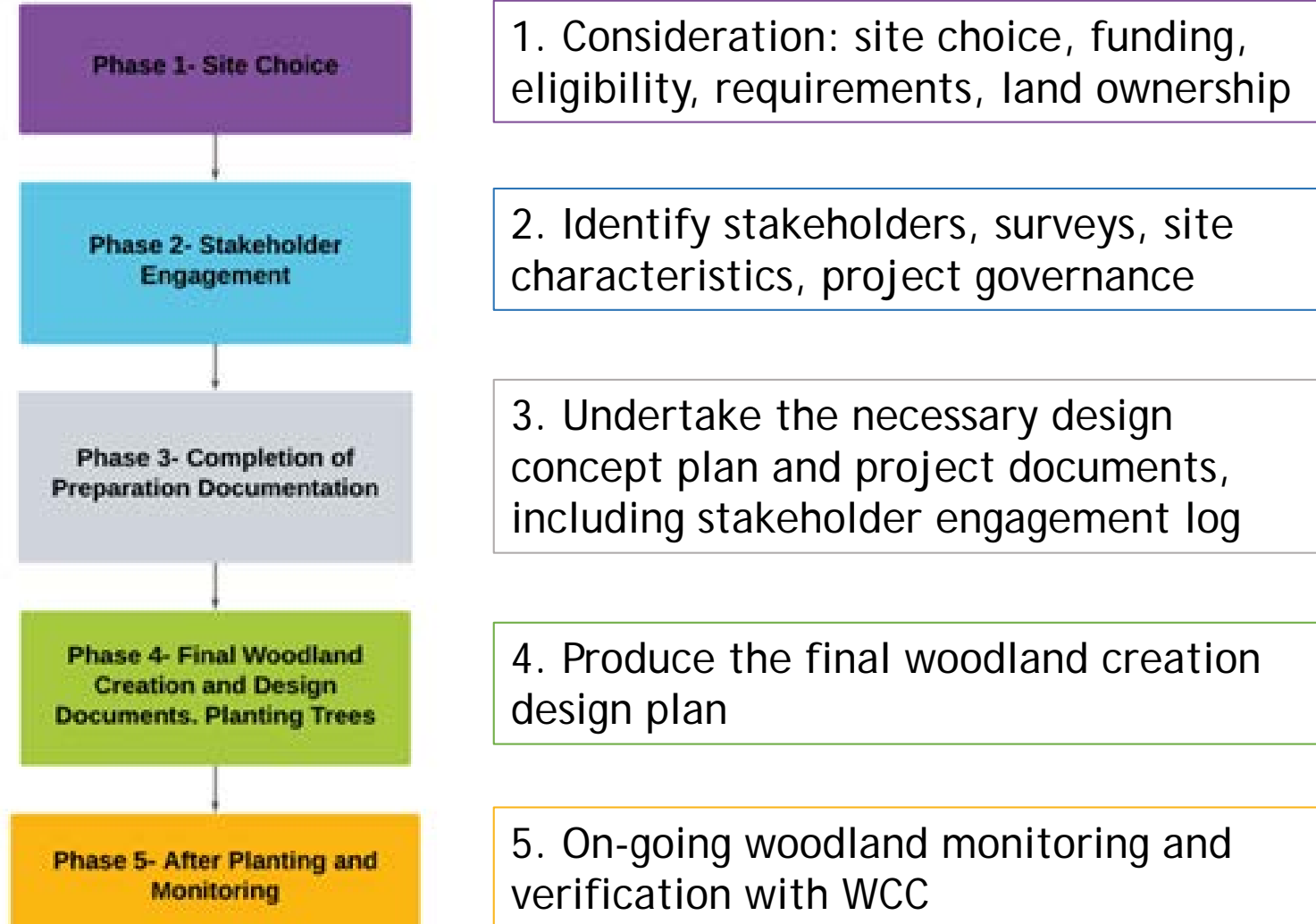
- A sector-specific guidance for developing Woodland Carbon Code Credits and the requirements from the UK Forestry standard in one document
- A brief for higher and further education institutions on the key, high-level requirements and project phases
- For large-scale and small-scale projects
- Outlines steps for project initiation, ecological site assessment, financial modelling, engaging stakeholders and governance structures

Includes:

- Project requirement checklist and task checklist
- Documentation list
- An overview of the key project stages and considerations
- Project governance
- Barriers and challenges



Institutional Guidance



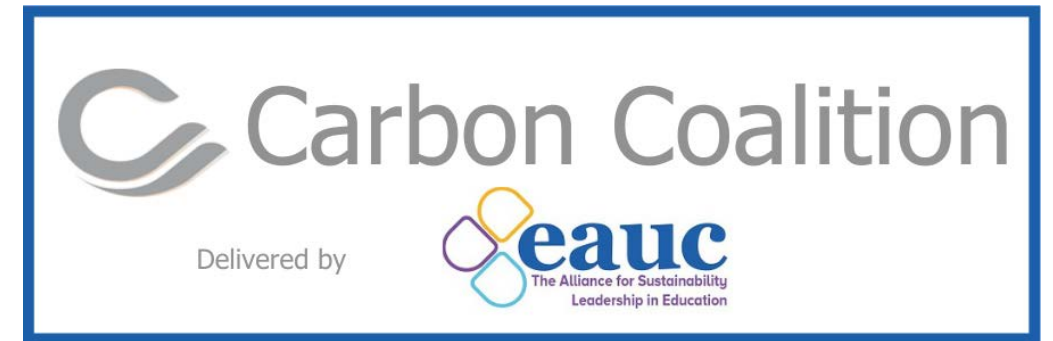
Financial Modelling of WCC Projects

Carbon Credits



By developing carbon credits, you can apply them to offset your carbon target. As the trees grow, they will sequester carbon each year, providing a cost-effective method of reducing carbon emissions until 50 years.

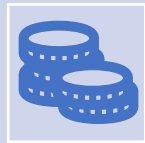
This is crucial as demand for carbon credits will surpass supply, making it imperative to initiate the development of WCC credits now to attain your net-zero target.



Carbon Coalition can trade your carbon credits to sell to other institutions

1 Carbon Credit = 1 carbon tonne removed from the atmosphere

Carbon Sequestration



An average project can sequester 450 tonnes of carbon per hectare over 50 years, claiming 450 carbon credits.



Carbon credits can be a financial investment due to high demand and limited supply. You can generate your own carbon credits through WCC.



Planting on your land now can help you achieve net-zero more cost-effectively by generating carbon credits through sequestration.

Carbon Sequestration is capturing, removal and storage of carbon dioxide (CO₂). A method for removing carbon from the atmosphere

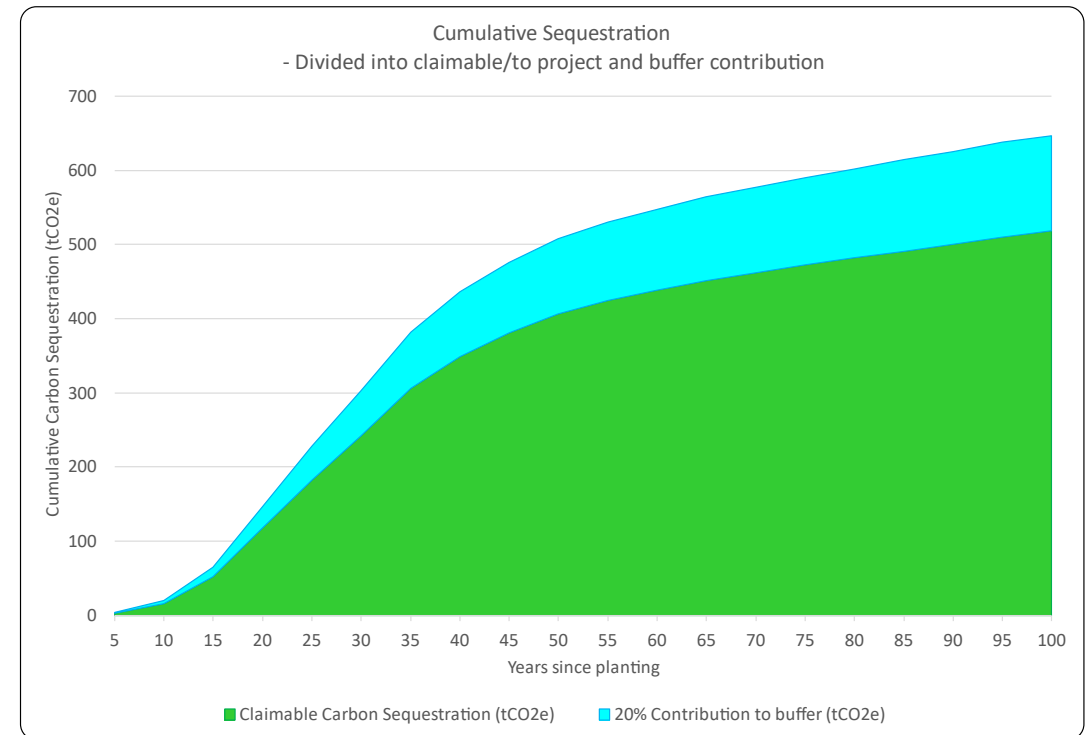


Figure 1. Carbon sequestration curve of mixed native woodland (taken from Woodland Carbon Code Carbon Calculator)

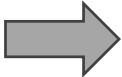
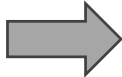
Financial Modelling of WCC Projects



- A user guide of the financial modelling process to forecast financial flows associated with a woodland creation project over time
- Provides an overview of the spreadsheet and its functionalities
- A complimentary financial tool has been created to be used in conjunction with the pre-existing WCC tools
- Assess the economic viability and potential return on investment for the woodland project
- The value of WCC units have an expectation that pricing will increase in the long term as demand for carbon credits increases



Financial Modelling Tools



Step 1:
WCC - Carbon Calculation
Spreadsheet

Step 2:
WCC - Cashflow
Spreadsheet

Step 3:
EAUC - Financial
Modelling Tool

Financial Modelling Tools



Includes Data Entry, Cashflow, Results, and cost and income data



Additionality test assumes fixed prices for WCC units when modelling long term cashflow forecasts



Financial modelling tool uses three pricing scenarios from the UK government to predict long term value generation from WCC projects



Compare to the cashflow forecast generated to understand the potential value creation above and beyond the fixed price cashflow model

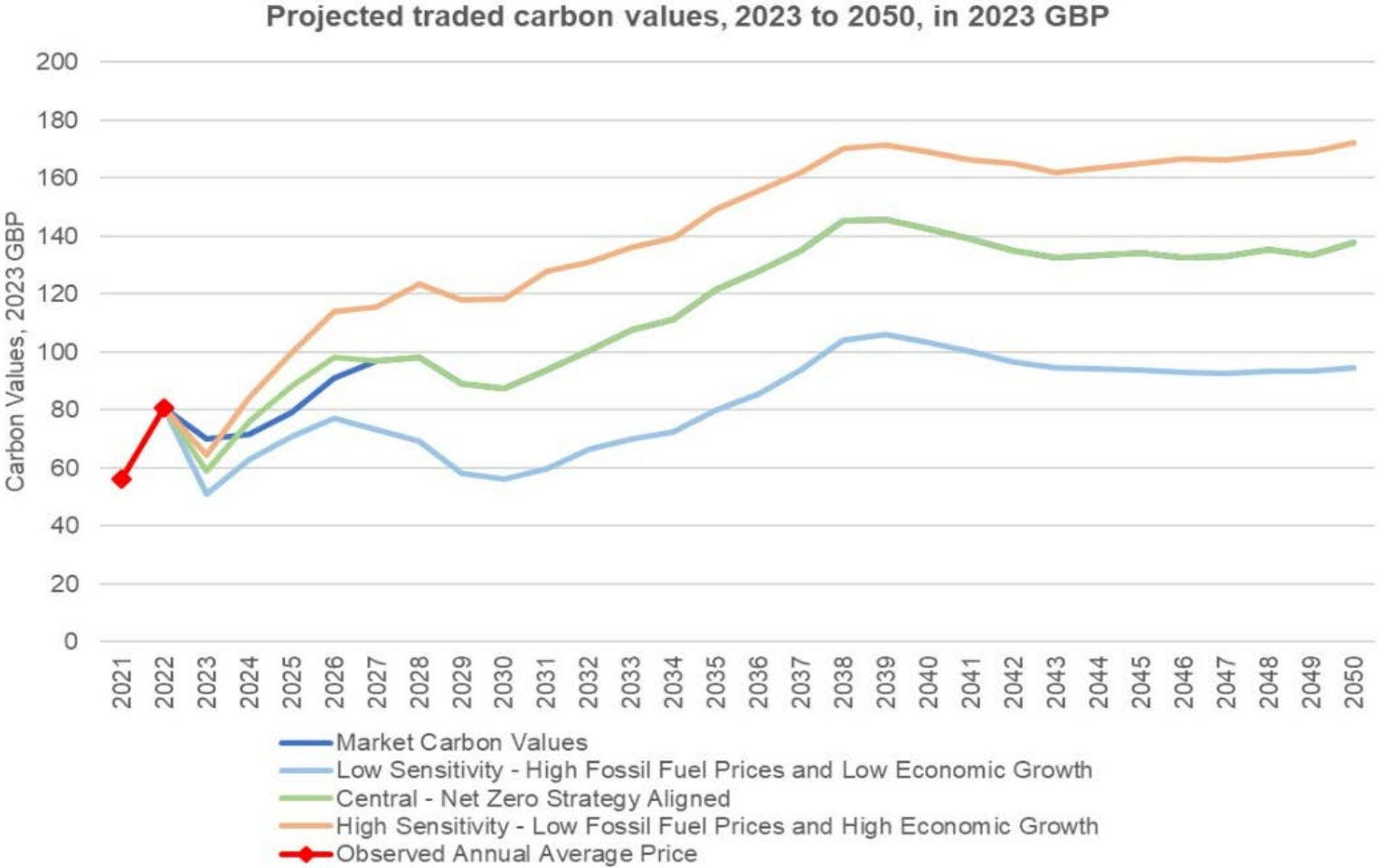


Carbon price forecasting to help developers understand potential value of the WCC units beyond the current market value



These figures are only estimates

Carbon credit price forecasting



- Forecasting data taken from DESNZ
- This is based on forecasted UK cap and trade market
- Three scenarios exist
- Forecasts have been re-baselined based on current market value of WCC PIUs
- Growth in these forecasts is relatively conservative versus other international data sources

Case Study: University of Leeds - Gair Wood

Gair Wood

A new
University of
Leeds research
woodland

Cat Scott & Tom Sloan

James McKay 2022

Introduction to Gair Wood

- 36-hectare site in north Leeds
- University owned land, previously leased for agriculture (grazing)
- Around 3 hectares of existing broadleaved woodland to the south-east of site
- Mixture of planting and natural colonisation from winter 22/23 onwards
- Developed in partnership with the White Rose Forest



Objectives for the site



- Research and teaching



- Biodiversity

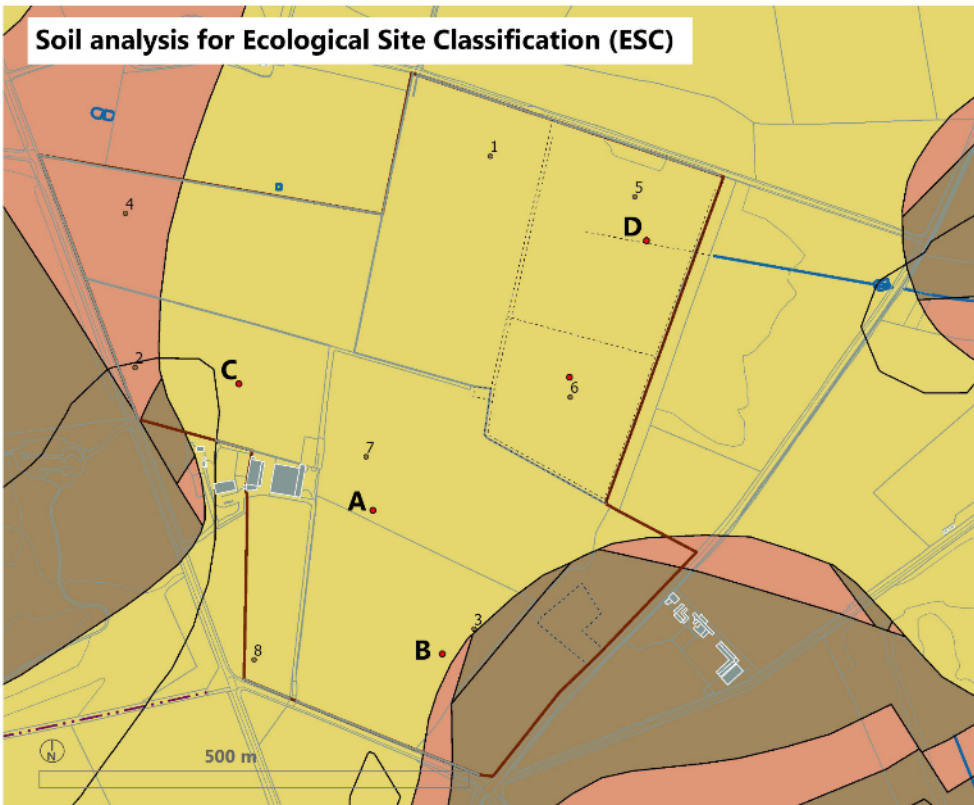


- Part of the University's Climate Plan

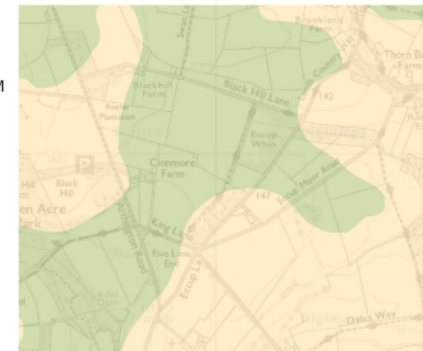


- Benefits to the University and local communities

Pre-planting research at Gair Wood



- Soil parent material**
- CLAY TO CLAYEY LOAM
 - CLAY TO SANDY LOAM
 - CLAYEY LOAM TO SANDY LOAM
 - CLAYEY LOAM TO SILTY LOAM
 - LOAM TO SANDY LOAM
 - LOAM TO SILTY
 - LOAM TO SILTY LOAM
 - PEAT
 - SAND TO SANDY LOAM
 - SANDY LOAM
 - SILTY LOAM
 - SILTY LOAM TO SANDY LOAM
 - VARIED, LOCALLY PEATY
 - <all other values>
- Stage 2 ESC Soil pits
● Stage 1 ESC Locations
--- RGW_Historic_Line
■ buildings_se2540
--- RGW_StoneWalls
--- RGW_SiteBdy
--- Building
--- General Feature
--- General Surface
--- Inland Water
--- Landform
--- Network Or Polygon Closing Geometry
--- Path
--- Road Or Track



- Soil group**
- Lightest Soils
 - Medium to Light Soils
 - Medium Soils
 - Medium Soils
 - Heaviest Soils
 - Mixed or Organic Soils
 - NA

See further analysis in excel spreadsheet called King Lane ESC output MASTER.xlsx

Data: 1:50,000 Soil parent material map scale, updated 2018
 British Geological Survey, Geological map data BGS @ UKRI 2022 Crown copyright and database rights 2022
 Ordnance Survey (100025252)



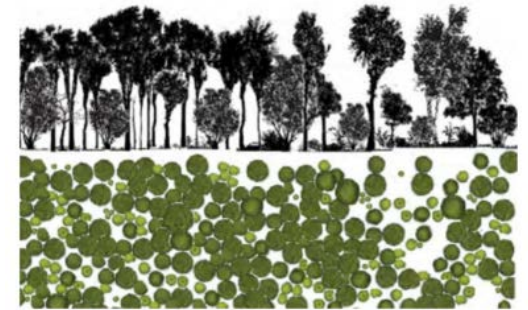
Final Woodland Design

Habitat Zone

-  Grove
-  Open wooded habitat
-  Open grown tree
-  Natural regeneration
-  Scrub
-  Open ground
-  New hedge



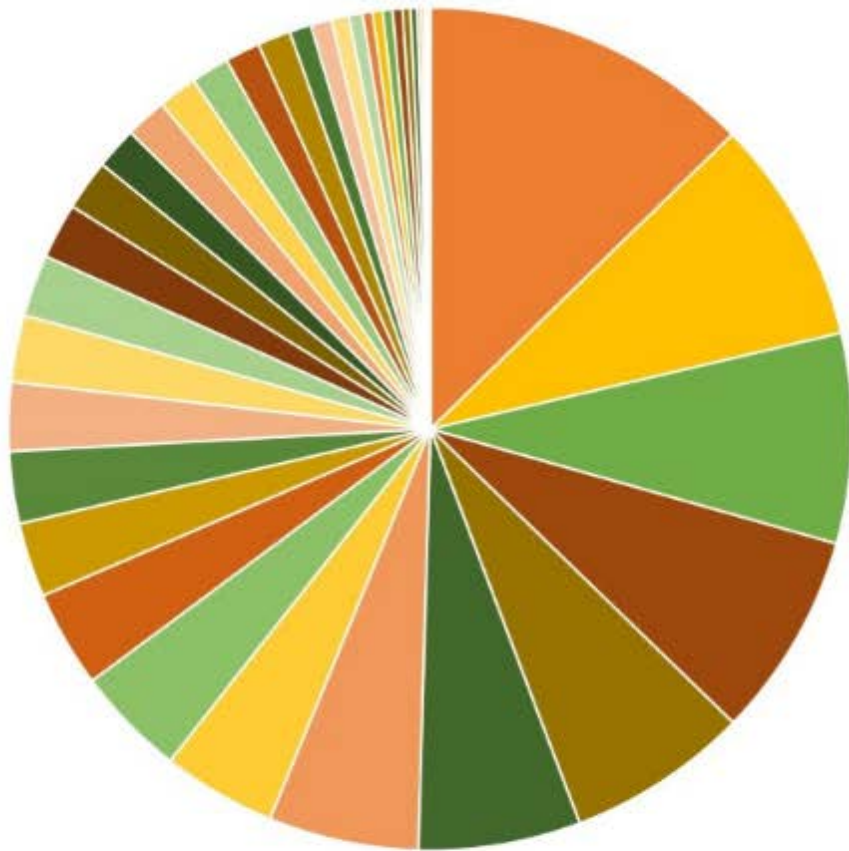
Grove



Open wooded habitat



Tree species planted



- Common alder
- Pedunculate oak
- Small-leaved lime
- Scots pine
- Hornbeam
- Hawthorn
- Sessile oak
- Holly
- White willow
- Silver birch
- Crab apple
- Wild service tree
- Hazel
- Rowan
- Sycamore
- Goat willow
- Elder
- Downy birch
- Gelder rose
- Wild cherry
- Grey willow
- Purging buckthorn
- Blackthorn
- Purple willow
- Osier willow
- Alder buckthorn
- Aspen
- Beech
- Dogwood
- Spindle tree
- Wayfaring tree
- Broom
- Bullace
- Wild pear
- Dog rose
- Field rose
- Gorse
- Field maple
- Yew

Planting campaign








- All trees were planted in January and February 2023.
- 66,000 trees now in the ground, selected to produce a native, broadleaf-dominated woodland.
- 6,000 planted by volunteers in experimental design.



Possible research questions from consultation

- Differences between directly planted areas and natural colonisation.
- Effectiveness of tree establishment strategies (planting density, guards, deterrents).
- How do the ecosystem services provided by this land change as a result of woodland creation at the site?
- Impact of species diversity on woodland development and soil characteristics.

Gair Wood monitoring

-  weather station
-  air temperature
-  air quality
-  soil probes
-  soil
-  seedling survival plots
-  vegetation monitoring transects

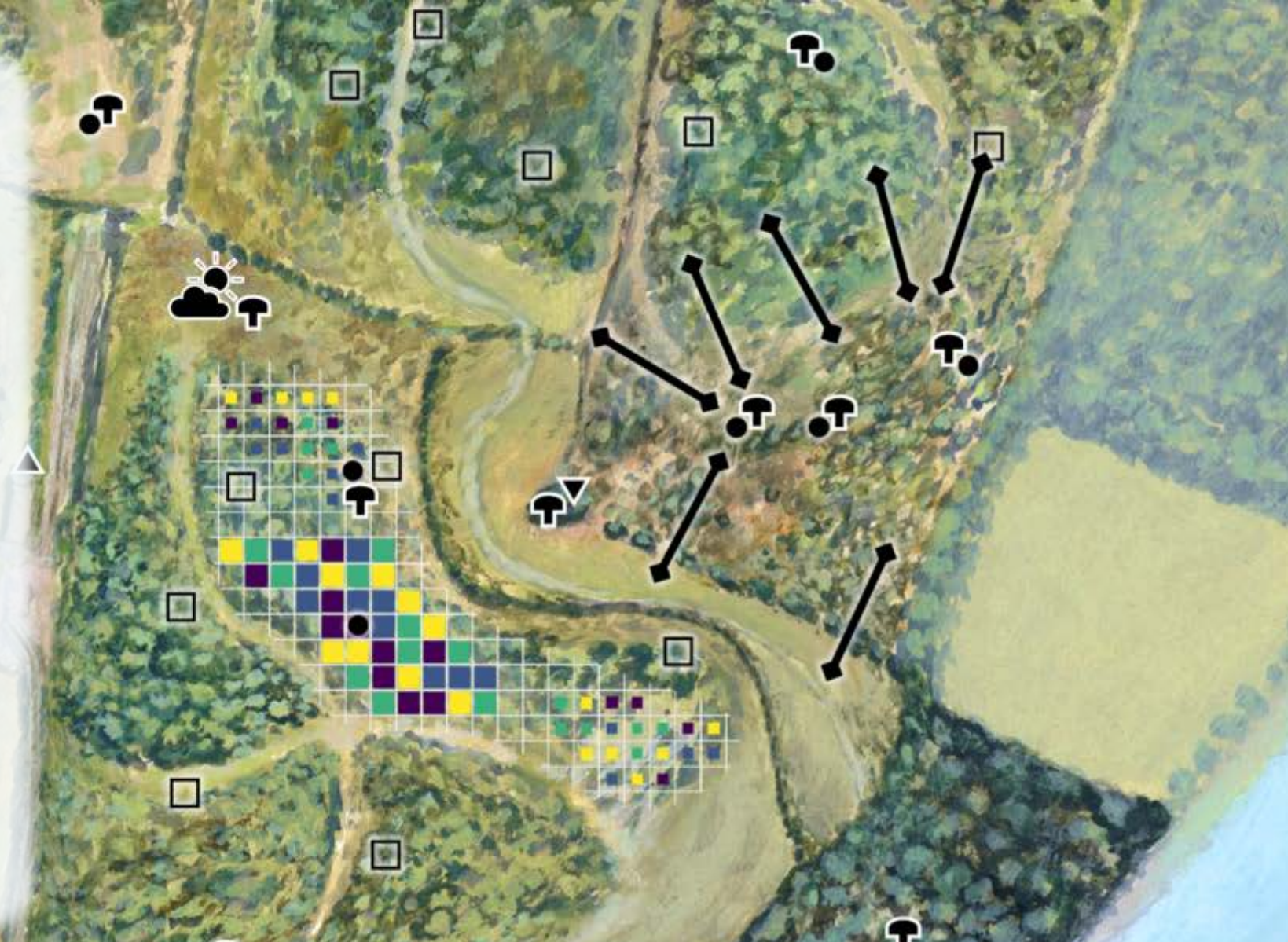
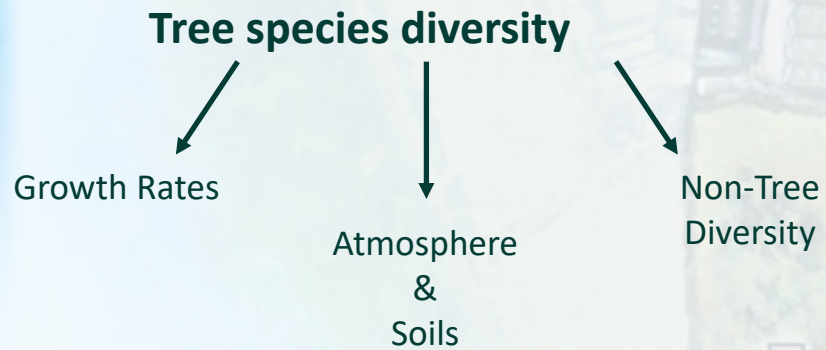


Ongoing monitoring

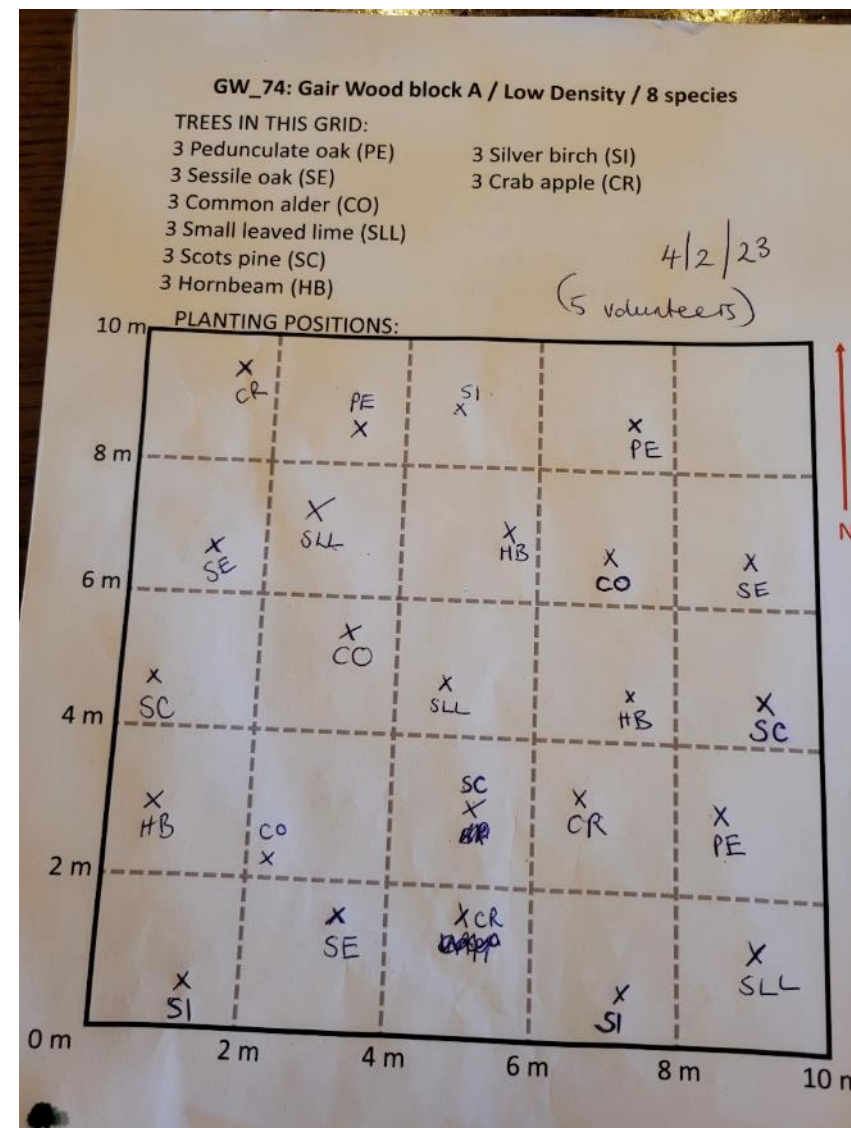


Experimental Planting

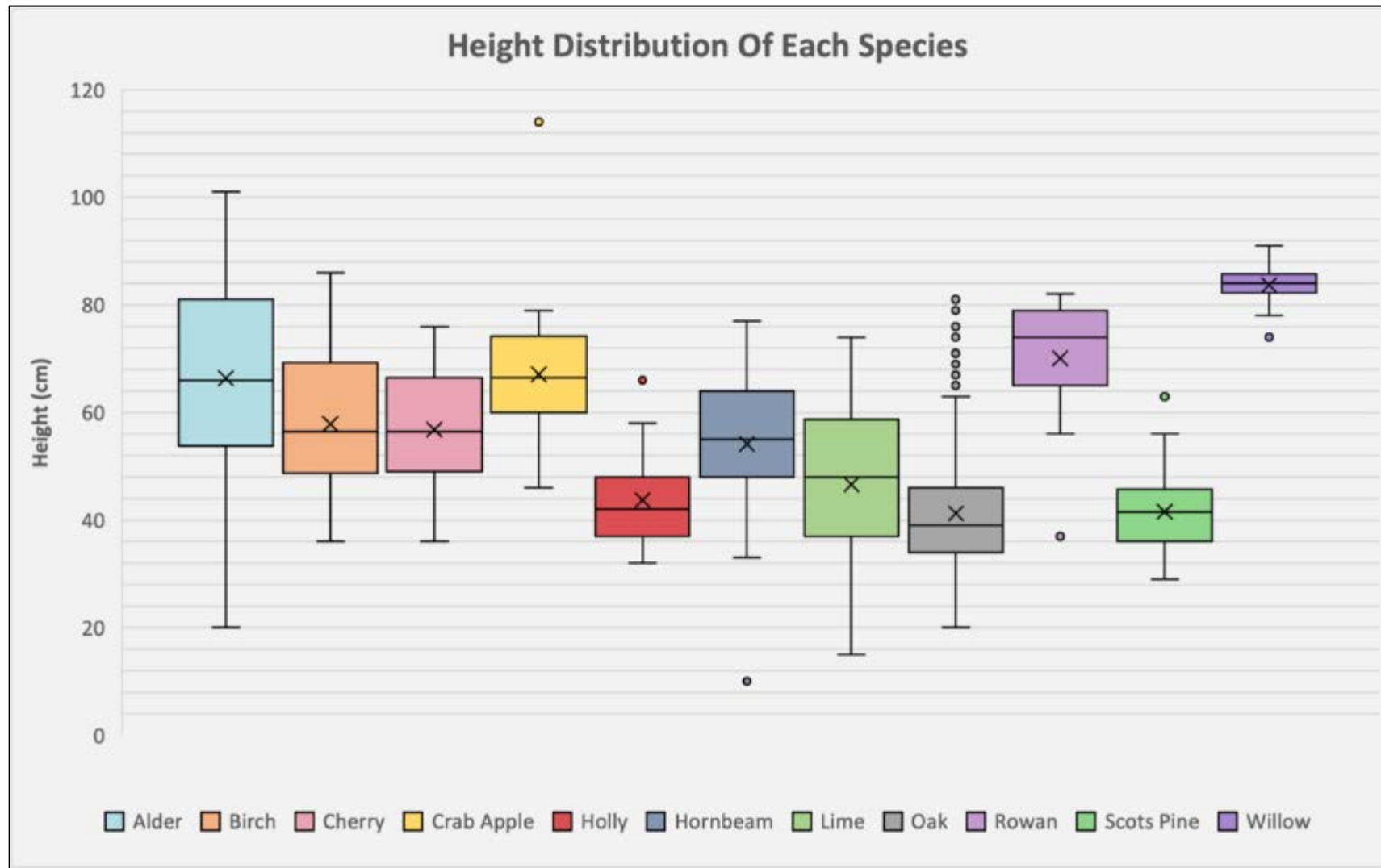
Each 10 x 10 metre grid square contains **1**, **4**, **8** or **12** different tree species.



Experimental planting



Experimental planting



Lessons learned

- Clear objectives are crucial.
- Volunteer engagement was important for the research component of the project.
- Having staff with the flexibility to be able to dedicate long periods of working time to the scheme was vital.
- Be realistic about the likely impacts of sequestering carbon as compared to the level of emissions being generated by your institution.

With thanks to:

- **The project team:** Anna Gugan, Steve Denison, Robin Hayward, and academic colleagues at the University of Leeds.
- **Project students:** Ben, Amie, Simeon, Alana, Sam, Phoebe, Emily
- **Project partners:** United Bank of Carbon, University of Leeds Estates and Sustainability Services, White Rose Forest.
- **And support from:** The Forestry Commission, Leeds City Council, Defra.

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Any Questions?

Project Resources

University's and Colleges Land for Carbon Project

https://www.eauc.org.uk/university_and_college_land_for_carbon

- Glossary
- Grants & funding
- Business case & presentation template
- Institutional guidance on how to create a WCC project
- Financial Modelling Tool



More information

University's and Colleges Land for Carbon Project

https://www.eauc.org.uk/university_and_college_land_for_carbon

NEIRF Funding

<https://www.gov.uk/government/news/50-projects-receive-up-to-100000-each-to-boost-investment-in-nature>

Woodland Carbon Code

<https://woodlandcarboncode.org.uk/>

Contact us at jnguyen@eauc.org.uk

