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Case Study: University of Leeds - Gair Wood

University of Leeds: Gair Wood Case Study

Introduction:

The University of Leeds established a woodland creation initiative at Gair Wood in northern England. This project, which aligned with the [University of Leeds Climate Plan](#), aimed to enhance biodiversity, provide public access, and contribute to carbon capture efforts. In collaboration with the United Bank of Carbon (UBoC) and the White Rose Forest. The project encompassed 66 thousand trees planted across a 36-hectare site, including land set aside for natural tree recruitment from local seed sources and 0.9 kilometres of new hedging.

Key Objectives:

1. Enhance biodiversity in the area through large scale woodland creation.
2. Provide research and teaching opportunities, fostering a living laboratory for cross-disciplinary research.
3. Contribute to the University's net-zero target by 2030 through carbon capture. This contribution is verified through the Woodland Carbon Code (WCC) credits.
4. Volunteering opportunities and public access for the benefit of both the University staff and students and the local community.

Design and Planning:

The project went through four stages: project definition, design, approval, and implementation. The initial scoping of the project definition phase took approximately a year, design and approval took a second year, and implementation took two months. The site design drew on University expertise, including academics from the Schools of Earth & Environment, Biology and Geography, as well as non-STEM departments. In addition, stakeholder consultations were used to help shape the design plan. Using the Forestry Commission/UK Forestry Standard (UKFS) guidance several plans were produced in addition to other supporting evidence: landscape context plan, site appraisal plan, site concept plan, final woodland creation plan, and an implementation plan.

Stakeholder Engagement:

A steering group was established that included academic and research staff, the facilities directorate, sustainability representatives, and partners from the White Rose Forest and UBoC to facilitate decision-making and issue resolution. Pre-planting engagement with local councils, Yorkshire Wildlife Trust, neighbours and other stakeholders via a consultation influenced the project design based on valuable feedback such as concerns around parking and traffic in the area. Stakeholder engagement and issues raised were logged as part of the Woodland Creation Planning Grant (WCPG) process.

During planting, volunteering sessions were open to the public and were advertised via social media. Nearly 400 volunteers helped to plant the trees, half of which were students and staff from the University and the other half were from the community. Initial monitoring suggests that volunteer planted trees may have a higher survival rate than contractor-planted trees. Students also contributed to research projects that produced baseline data for the site and informed many of the design decisions. This student-led data collection included

monitoring of invertebrate numbers (butterfly transect and pitfall traps), mammals (camera traps and mark-release-recapture), birds (visual and audio surveys), and vegetation surveys.

Academic and Research alignment:

Early in the planning process, the project team sent a survey to colleagues at the University of Leeds to determine possible interest in research and teaching on the site. From this exercise a list of possible collaborators was assembled, along with research questions that there was support for exploring. The team then held a series of general workshops, plus more focussed meetings on specific aspects of the design. Feedback from academics was integrated into the final plan of the site, and has shaped the wider direction of the research. As a result, the woodland hosts five field courses from multiple departments and numerous research projects from academic collaborators.

Planting

The woodland was planted in two ways: a general planting (90% of trees planted via contractors) for long term monitoring and experimental planting (10% of trees planted by volunteers) to investigate the effect of species diversity on tree growth rates, soil, and biodiversity. GIS was used as part of the design and implementation process, and to aid ongoing data collection.

All planting occurred in January and February 2023. Monitoring during the summer revealed survival rates aligned with expectations for a project of this scale.

Research, monitoring, and evaluation:

Initial monitoring involves assessments of tree survival and growth by University staff and students. Students engage with the site either as part large survey efforts that form a component of taught field courses, or as dissertation students, working on particular research questions as part of their undergraduate or Masters degrees. Data collection includes soil and vegetation characteristics, weather, air and soil temperature data, air quality monitoring, and greenhouse gas fluxes from the soil. In addition, a large experiment consisting of about 6000 trees looking at the effects of increasing species diversity was laid out as part of the volunteer planting program. The woodland serves as an accessible venue for taught field courses, offering opportunities for developing field skills close to the University. Gair Wood has also hosted groups of students from other universities in the region.

Public access to the site is initially restricted while the seedlings establish. In 2024 the University will open a permissive footpath at the south of the site, with the intent of taking pedestrians off a popular walking route along a hazardous road and into green space. Within five years a route through the centre and a significant part of the planted area in the north will be opened to the public, connecting several existing footpaths and areas of local green space. In addition to this, the University has commenced a series of public engagement exercises, including regular volunteering sessions as part of a new "Friends of Gair Wood" group, presentations to local interest groups, plus eventually community led data collection and walking tours.

Challenges and barriers:

The process of creating a woodland on this scale is time consuming and requires a large amount of planning, consultation and data collection. The flexibility that was available in the team at the University of Leeds was vital in meeting the demands of this project. The fact that the University already owned the land, and there was early institutional buy-in to a woodland creation project was key to the success of the scheme. A lack of land on which to plant can be major barrier to woodland creation.

Lessons learned:

- Clear objectives are crucial for success and will shape the design of the project.
- Volunteer engagement was vital to the success of the research component of the project, and initial findings show that there may be advantages for tree establishment and survival to working with volunteers.
- Having staff with the flexibility to be able to dedicate long periods of working time to the scheme was vital to completing a project of this scope.
- Register as early as possible for carbon credits validation.
- Be realistic about the likely impacts of sequestering carbon as compared to the level of emissions being generated by your institution.

Picture 1: Artist's impression of the Gair Wood site approximately 15 years after planting. Credit: James McKay.

Picture 2: Volunteers help to plant trees in the experimental area of Gair Wood.

For full details please visit https://www.eauc.org.uk/university_and_college_land_for_carbon