

Woodland creation and biodiversity gain.

Introduction

This project, to establish high carbon sequestration woodland, has been designed throughout to ensure an overall biodiversity gain. The planting areas replace intensively farmed crops with associated agrochemical inputs, these crops having been grown as a monoculture with very little diversity being allowed to flourish. This is generally reflected through declining soil health, low invertebrate levels (particularly insects), seed and pollination sources and associated farmland fauna and flora.

Project sites have been carefully selected to ensure that no existing biodiverse habitat (priority habitat) have been included within the project.

The opportunity this project presents to achieve a big biodiversity gain is significant and supports the direction of travel as set out by UK Government net zero commitment by 2050 and biodiversity gain targets.

The first phase of this project aims to deliver around 450 Ha of this biodiversity gain starting in 2021. This total project area will deliver biodiversity benefit through a range of habitat creation zones including native woodland creation (15% of project area, 68 ha), open space (10% of project area, 45 ha), Paulownia and associated understory (75% project area, 338 ha).

General Principles in design

The project planning has been designed with the Lawton review principles in mind (Bigger, Better, more Connected).

Bigger

Existing features have been expanded eg: native woodland blocks using the 15% native establishment to mirror what is already there and improve resilience (climate and disease), the 10% open areas have been used to create large buffers around ponds and around all historic boundaries (hedges, ditches). This builds on and enhances the size of these existing features. The project has the unique opportunity to deliver a scale change within and across intensive farmland.

Better

The project will create new habitats and target maximising the quality of these.

- Native woodland – planting mixes will mirror local context as well as building in future resilience. To achieve this, tree mixes will normally include: Sessile/Pedunculate oak 40%, silver birch 40% and mixed native broadleaved species 20% (to include in the mix wild service, small leaved lime, hornbeam, beech, rowan, whitebeam, thorn, hazel, field maple, crab apple, wild pear)
- Open areas and Paulownia understory. The low shading of the Paulownia trees will allow for the establishment of a biodiverse understory alongside the other, sunny aspect, open areas across the project sites. The principle across these areas will be

to establish and manage a diverse flora that delivers food sources to insects and birds (pollination and seeds). Mixes will include: Birdsfoot trefoil, White clover, Alsike clover, Knapweed, Kidney vetch, Timothy (low percentage for tussock formation), Slender Red fescue, Smooth stalked meadow grass.

- Ponds and existing features – buffering (6 – 20m) around ponds, hedges and woodland will improve the quality of these features as they will not be encroached upon by farming operations. In total 25 ponds will be enhanced through the first phase of this project.
- Scrubby areas. The ability to create new scrubby habitats (hawthorn, blackthorn, hazel, dogwood, privet, field maple) will be utilised where possible to enhance existing features and target specific species.

More connected

The project design has focused on joining up existing features and creating new wildlife corridors. The external perimeters to the 450 ha of project total 41 km of biodiversity interface with the surrounding farmland. The addition of internal connectivity features increase this further to 52 km. In total 39 ha of pollination and seed rich buffers will be created and managed. The native woodland has been used in a number of cases to link existing woodland, and stop islandisation potential, the deer fencing sited to ensure free flow of wildlife.

Management

Soils will be allowed to regenerate. After planting soils will not be cultivated again allowing for soil microbial biomass to re-establish (aided by the leaf fall to generate humus). Infiltration rates will increase, soils will stabilise with reduced run off, with a subsequent reduction in dissolved nutrients which have been polluting inland waters. Carbon storage will increase.

Carbon will be sequestered as trees remove CO₂ from the atmosphere and store it within the wood but they also retain an amount in the soil – root exudates etc, so that soil carbon will increase dramatically. The understorey grasses and clovers will also increase soil carbon. We will measure the layers of carbon – recalcitrant humus and active carbon to understand the additional carbon sequestered.

Cutting of understorey grasses will not be done during nesting periods. Differential cutting will allow continuous flowering throughout the season. The intention is not to use Pesticides after the trees are planted.

Target groups

Insect life will be encouraged, specifically pollinating insects, butterflies and bees, through establishing bespoke mixes at each site. This will be informed by local knowledge and priorities. Through stability, the insect life will recover and give a more robust feedstock for higher order animals at different times of year.

Bats will be encouraged by erecting bat boxes as the woodlands develop, these will target feeding rides within the plantations and linking with mature established trees and woodland.

Bird life will be encouraged through the project, providing significant additional and new feed sources and habitat over that on the existing farmland. New habitat will be within trees, understory, open ground, bushy areas, ponds, woodland edges and hedges. Some will be within the woodland and some on the perimeters adjoining external farmland. This will encourage a range of woodland birds including tits, warblers, nuthatch, woodpeckers, thrushes, little owl and woodland edge/farmland birds including barn owl, pipits, grey partridge, yellow hammer, corn bunting and lesser redpoll. New native woodland may attract Woodlark in some locations, we will also encourage spotted flycatcher, if locally present, through provision of open nest boxes and barn owls, again through appropriate nest box siting. The project will also target habitat creation for specific site context species. The creation of scrubby areas in locations where recent turtle dove records exist is an example of how species targeting can be delivered through the project. These specific targets will be documented through on the ground survey work in the spring.

Site specific site targeting

The targets for biodiversity at West Acre focus on increasing connectivity through linking with the established re wilding project alongside, increasing the quality of existing woodland and field perimeter habitats. Survey work in the spring will focus plans.

