



*Wildflower meadow in the Orchard*

# Biodiversity & Sustainability

in Worcester College's  
Gardens and Grounds

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WORCESTER COLLEGE  
UNIVERSITY OF OXFORD



## What are we doing at Worcester College?



*A tree planting party*

### What is biodiversity?

The biological diversity present in an environment as indicated by the number of different species of plants, animals, fungi and micro-organisms and their interactions.

### What is sustainability?

Meeting our own needs without compromising the planet we inhabit or the ability of future generations to meet future needs.



*Conkers collected from Aesculus wilsonii on the Nuffield Lawn*

### 1. Increasing biodiversity

We're growing and planting diverse species, from trees to sequester carbon to nectar-rich shrubs which provide food for wildlife throughout the year.

### 2. Habitats for wildlife

Our hedges, meadows, dead wood and log piles provide natural shelter and safe corridors for birds, mammals and insects.

### 3. Sustainable choices

By composting our waste, reducing our use of pesticides and oil-powered machinery, and conserving water, we're working hard to garden responsibly.

Read on to find out about what we're doing in each of these strands in more detail.

### DID YOU KNOW?

*We have more than one and half acres of long grass and meadow areas*

# 1

## Increasing biodiversity

We're choosing plants which are beneficial for pollinators and wildlife, whether because of their nectar-rich flowers or because of their time of flowering or fruiting.

Shrubs like *Buddleja*, *Pyracantha* and *Ilex* (holly) have very nectar-rich flowers, encouraging pollinators like bees to visit the garden.

It's important to offer a source of food to wildlife throughout the year, not just in summer. With their flowers and berries, plants like *Viburnum*, *Mahonia*, *Sarcococca* and *Ceanothus* extend the productive season of the garden and offer much-needed nutrition in the colder months.

We all enjoy the produce of the Orchard, but it's also key to have plants which offer plentiful fruit to insects, birds and mammals. We have planted *Malus*, *Ilex*, *Sorbus* and *Cotoneaster* for their fruits.



*Malus hupehensis*

Plant diversity encourages insects, butterflies, bees and arthropods (like spiders and millipedes) to make the College their home. These animals have increased in the areas of meadow and long grass which now make up over 6,000 square metres of the gardens.

In the Provost's Garden, we have created a new meadow area and planted over 1200 wild flowers, including:

- *Primula veris* (Cowslip)
- *Campanula rotundiflora* (Harebell)
- *Leucanthemum vulgare* (Oxeye Daisy)
- *Lychnis flos-cuculi* (Ragged Robin)
- *Geranium pratense* (Meadow Cranesbill)
- *Knautia arvensis* (Field Scabious)
- *Ranunculus acris* (Meadow Buttercup)
- *Succisa pratensis* (Devil's Bit Scabious)

In May 2021 we surveyed the meadow area in the lower Orchard and submitted the results to the conservation charity Plantlife for their 'Every Flower Counts' initiative. The level of nectar-rich plants in this area was judged to be two levels above the national average, supporting 12,587 bees.



Bee hives in the Provost's Garden

# 2

## Habitats for wildlife

Around the gardens we're creating habitats for wildlife, from 'dead hedges' for insects to bird boxes for our feathered friends. We believe in the importance of providing not just shelter for wildlife but also safe passage through natural green corridors. Our extensive hedges help to provide this safe passage, facilitating the movement of wildlife both around the gardens and to and from neighbouring environments, such as private gardens and the Oxford Canal.



*Comma butterfly  
and great spotted  
woodpecker  
photographed in  
Worcester's gardens*

### DID YOU KNOW?

*We have more than  
840 linear metres  
of hedge within  
Worcester*



### Hedges

Our hedges are created from a wide variety of trees and shrubs including *Privet*, *Conifer*, *Holly*, *Hornbeam*, *Beech*, *Yew*, *Box*, *Pyracantha*, *Pittosporum* and *Bamboo*.

*A fox skirts the lake*



### Long grass and meadows

Meadow areas provide shelter for small mammals and an excellent habitat for invertebrates. These areas are managed completely organically with no pesticides or chemicals.

### Standing dead wood

Wherever possible, we retain dead wood as it provides the perfect habitat for fungi and invertebrates. Dead trees also offer nesting opportunities for birds such as woodpeckers and roosts for bats.

### Log piles, dead hedges and bird boxes

We have built 5 log piles, 2 dead hedges measuring over 40 linear metres, and 1 bug hotel. These habitats provide sanctuary for Insects which in turn provide food for small mammals and birds. We have also installed over 60 bird boxes around the gardens and grounds to provide nesting sites for owls, tits, tree creepers and swifts.



*Retained dead wood*

### Set aside areas

Where possible, large areas are managed to provide green corridors such as the Nelson Street and canal walks.

# 3

## Sustainable choices

There are choices we make every day as gardeners: how to help our plants grow, how to remove plants we don't want, and how to manage our landscapes. By striving to choose the most sustainable option, we can promote biodiversity and reduce our consumption of energy and materials.



*Creating border edging from coppiced willow*



### Organic gardening practices

We strive to follow organic principles in our work and synthetic pesticides are only used as a last resort. Good housekeeping of plants requires less pesticide use; instead we use biological control and companion planting.

### Composting and mulching

We produce around 40 tonnes of compost on-site every year, reducing the need to purchase and transport commercial compost and synthetic fertilizers. Compost heaps are also great environments for invertebrates, slow worms and grass snakes. Our homemade compost is used throughout the gardens as a mulch, reducing water loss from the soil and therefore reducing the need for additional watering. Mulches also suppress weeds, moderate the soil temperature, prevent erosion and add nutrients.

### Machinery

We use battery-powered mowers (pictured below) which, as well as being less noisy and disruptive, do not require the oil-based fuel of a conventional mower, thereby reducing emissions.

### Water use and conservation

The College benefits from having a lake, which adds another ecosystem to the gardens and which was extended during the building of the Sultan Nazrin Shah Centre. Rain water is harvested in water butts for filling watering cans and on a larger scale from the roofs of the Terrace and Sainsbury Buildings. This water is used to replenish the lake.

### Sustainably sourced wood

Only wood from sustainable sources is used in the gardens, whether for plant supports or garden furniture.



# What next?

**There's always more that can be done. At the moment we're working towards:**

- Extending our organic practices and compost production to promote better plant health and reduce the need for the use of synthetic pesticides and fertilizers
- Continuing to reduce the use of conventional engine machinery and replace with lower emission machines
- Installing solar panels to further reduce our carbon footprint
- Growing more plants on-site to reduce our use of plastic and carbon emissions
- Planting more trees and native plants to minimise resources and promote biodiversity
- Increasing our plant of high-tolerance, drought-resistant plants suited to our changing climate
- Conserving and recycling even more water

## DID YOU KNOW?

*65 species of birds, from swans to sparrowhawks, have been recorded visiting the gardens in the last decade*

*All photographs taken in Worcester's gardens and grounds by Simon Bagnall, Charles Henderson and Allison Leslie.*



*Mute swans nesting on the lake*