



THE UNIVERSITY OF CAMBRIDGE

Colleges Biodiversity Baseline

BIODIVERSITY ACROSS THE COLLEGES OF THE UNIVERSITY OF CAMBRIDGE



Introduction

Following the launch of the University of Cambridge's Biodiversity Action Plan, the Cambridge Colleges commissioned a baseline review of what wildlife is present on their sites, and how their sites are managed with wildlife in mind. This audit of the wildlife and habitats across the collegiate operational estate highlights the diversity of flora and fauna with which we share our space.

The 31 Colleges of the University of Cambridge are responsible for the housing, wellbeing and some of the teaching of the students at the University. All Colleges admit their own students and have Fellows who are academic staff within the University. They collectively own a significant area of land for residential and leisure use across the city. All 31 Colleges were visited. This included the main courts, residential areas, sports grounds and boat houses.

To show what the Colleges manage, the broad habitat types were mapped as; amenity grass, low-intensity grassland, undefined grassland (all with or without trees), wooded areas, waterbodies, floodplain grassland, orchards, allotments, green roofs, specific wildflower plantings, and shrub/borders. Some of these habitats are of greater importance for wildlife than others. This mapping allows us to see how the pieces of College land sit together across the city, and more importantly how the areas with high wildlife value connect.

As well as information from all of the Colleges, we received information from local naturalists who have carried out surveys and worked alongside College staff to discover the wealth of wildlife that shares College land with staff and students.

It is important to consider how the collegiate estate fits into the wider picture of Cambridge city as a whole, using three broad habitat themes; grassland, trees and waterways. Resources for pollinator insects such as bees and hoverflies, namely wildflowers or other nectar providing species such as lavender, are high on everyone's biodiversity agenda, but wider grassland management can benefit small mammals, and the larger ones such as foxes which eat them. It is also important to consider other habitats such as trees, and watercourses. We end with a summary of how we can make simple changes to deliver a significant and measurable improvement in the biodiversity within Cambridge city.



Key Outcomes

The Colleges are responsible for 5% of the area of Cambridge City, and have significant areas already in positive biodiversity management. Most Colleges have a very positive approach to wildlife and were keen to implement more actions which would lead to a net gain of biodiversity.

Significant actions include grasslands not intensively managed, extensive flower and nectar provisions for pollinating insects, woodland areas, allotments and orchards and ponds.

Grassland management and nectar resources are tied together, either with specific wildflower sowing, such as the Kings College meadows and similar areas in other Colleges, or not with any specific sowings, just left to be 'wilder'. Although much grass is tightly managed in areas where the visual aesthetic of the traditional Cambridge College lawn is an iconic image for tourists and required for operational purposes, the wilder areas of grassland are significant for biodiversity. Flowers to attract bees and other insects also creep into the more formal parts of Colleges, with increasing amounts of rosemary, lavender, verbena and thyme in the formal borders of many College courts. Whilst these latter plants (apart from thyme) are not native, they are well suited to our increasingly hot, dry climate, require little maintenance and are popular with insects. Planning for a drier future in our planting schemes is as important as the provision of a wide variety of grasses, flowers and trees.



Key Outcomes

The areas of woodland or tree cover on the College estate provide vital carbon-sequestering capacity as well as being habitats. Trees support many invertebrate species which in turn provide food for other animals. Dead wood creates holes for nesting and sheltering, providing a habitat for decay-feeding insects either in situ or as deadwood habitat if removed for safety reasons. We get shade, trees store carbon, and we can have grassy areas and displays of spring bulbs underneath the canopy. Trees are a critical part of a healthy city.



Orchards could be seen as an extension of the provision of trees, but there is the added value to bees from the nectar in their blossom, which is vital for fruit formation. Without the bees, orchards cannot provide apples, plums or cherries for humans to share with wildlife. As there is no economic need for intensive management, most of the orchard areas are small and simply provide a small amount of fruit for College use. They often share space with grassland which is not managed, adding to the value of small areas of Colleges for wildlife and people. Allotments are a feature of several Colleges, and despite the issue of students not always being around during the summer growing season, they can be a very effective collaboration between staff and students. when run on organic principles for vegetable production and wildlife.



Ponds have been created in several Colleges, most often as part of the more formally-planted areas away from main courts. Additionally, minor watercourses such as Hobson's Conduit, Bin Brook and several ditches flow through or alongside several Colleges.

Along 'The Backs', the Colleges meet the main River Cam. The minor waterways suffer from widely fluctuating water levels, seasonal flooding and periods of low flow in dry summers.

Two Colleges have added areas for flooding, and others have plans for altered management of water. Several ditches which subdivide the grasslands along the Cam are owned by Colleges and used to hold water vole populations. They suffer from silting, shading and littering. There is appetite to improve matters in this regard.

In general, there are opportunities for increasing the wetland biodiversity value through sensitive management including shade reduction and softening edges.

Those Colleges with boat houses have additional frontage onto the River Cam further downstream of the city centre.





Connectivity

Wider City context

Within the city, there are wildlife initiatives underway from the University and also from the City Council. Local wildlife sites and have a degree of protection under law and are specifically managed for wildlife. Five of these are owned by Colleges, and others are adjacent to College land.

Local Wildlife sites (LWS) generally complement statutory protection provided by Sites of Special Scientific Interest (SSSI) by acting as buffer zones, wildlife corridors and raising the profile of specific wildlife sites. They are seen as important sites for monitoring the health of the natural environment by central and local government bodies. Many of the public greenspaces, whether LWS or not, are managed by the City Council with wildlife in mind. They have been proactive in creating habitats other than grass, with blocks of wildflowers present across many of the city spaces, plus a reduction in mowing of road verges. The University has also implemented wildflower plantings and less intensive management across the estate. In combination, these three initiatives provide wildlife habitats across the city, especially the western half.

Our Network

The Colleges clearly have a key place in providing a space for nature within the city. Alongside the greenspaces of the City Council then a significant, connected series of sites under good biodiversity management can be seen to stretch across the city and beyond.

There are three main habitats for which we can consider city-wide networks and in which the Colleges play a vital role; flower-rich grassland, woodland and watercourses.

Grassland

Where grassland is not intensively managed (either left to grow and only cut once or twice a year, or actively sown/planted with wildflowers or non-native plants with high pollinator value), it provides a vital habitat, which is under threat across the country. Across the Colleges there are 75 areas of grassland which are not intensively managed/flower-rich. This ranges from the high-profile King's College meadow to smaller patches across most of the Colleges. The gap between these fragments of habitat is quite large if you are an insect, at over 300m, although an official 'Gap' is considered to be 500m. Significantly, there is usually nearby amenity grassland which is more intensively managed, where there is potential for reducing the intensity of management and thus increasing the biodiversity resource, even if only in patches or strips. A gap of over 500m between the high-quality grassland patches only happens twice, as Girton College is 1.4km from the next nearest quality grassland block and Homerton 1km from the University Botanic Gardens. When we look at all grassland no matter what its management regime, and also include University and City council land, there are virtually no gaps of greater than 100m across the west and centre of the city.

Where gaps do occur, they are occupied by either private gardens or sometimes by other educational establishments. Those within the University estate are often adjacent sites and can be brought into suitable management under the University Biodiversity Action Plan. There are also areas managed by the City Council where corners or patches of the major grassland areas ('pieces') are planted with wildflowers and left to have longer grass. We have many College sites adjacent to these.

The Commons, such as Coe Fen, which are not as flowery, are valuable grassland in a different sense, as they are essentially floodplain grassland, and have grazing livestock present at least part of the year. Management at many of the Colleges has become less intensive in recent times, with most Colleges reporting that virtually no inputs or chemical treatments are applied, or if so, only organic ones, and this is true of the mown courts as much as it is of the less high-profile parts of the estate. The impacts of our grassland management most affect insect populations.





Woodland

Cambridge, viewed on satellite imagery available freely online, is a remarkably wooded city. Many of the Colleges have significant blocks of trees. Spectacular in spring, with early flowers, all tree cover plays a vital 'green lung' role within the urban environment. The woods are usually planted as screening or shelter belts for the core of a College, but could still be a couple centuries old. The landscape value of the trees along the College backs or Queen's Road is widely accepted, and it is straightforward to be able to preserve connected tree cover for wildlife, landscape and cultural heritage.

Any future plantings could, however, be considered as being solely of native (or non-native but high biodiversity value) species or cultivars. Clare College owns a woodland adjacent to its sports ground which is a LWS, and the more wooded parts of many Colleges are often adjacent to University sites. It is clear that the wooded area of College, when supported by spring/early summer flowers, must play a vital part in well-being, providing pleasant outdoor spaces for people. They also provide a home to a variety of wildlife, including woodland birds such as nuthatch, jay and tree creeper.

The connectivity of woodland is significant, and when considered with the additional context of mature private gardens especially in the western parts of the city, substantial wooded corridors make for an excellent wildlife resource. Even within the context of specimen trees in lawns and courts, the general value of trees as a green lung holds, and many individual trees will provide almost as good habitat for the species we find in the wooded parts of the estate.

Watercourses

Across the Collegiate estate, watercourses provide the largest potential for improvement. The River Cam and two minor waterways flow through several Colleges; Hobson's Brook and Bin Brook. The latter is subject to flash flooding most winters, bringing its own management issues.

Clare Hall set aside an area which is managed with inundation in mind; in winter this is much like the rest of the surrounding grassland, but in summer is an oasis of tall vegetation appreciating the damper ground. Robinson College created a pond to accommodate excess water, and St John's College plan to soften the hard, steep edges of the brook within a grassland area of the College to make a more wildlife and water-friendly area.

There is also a ditch network, and these often form boundaries, between Colleges or between College land and others, with ownership boundaries often down the middle of the channel or undefined. Most are somewhat clogged with detritus from over-hanging trees, and quite shady.

Additionally, some drains, despite designation as Local Wildlife Sites, get significant amounts of litter thrown into them. The drain separating Jesus College from the public Jesus Green is an example of possible ways forward, as despite its hard edges still in place (to be softened by the council in coming years) there is a thriving water vole population.





Concluding Remarks

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There is a wealth of wonderful habitats within the city, lots of dedicated staff working to manage and improve what we have for both wildlife and staff/student members of Colleges. This report shows, although we already have so much positive to communicate, there could be a huge step forward for biodiversity with joined-up management activities, sharing of knowledge and expertise more widely across the Collegiate, University and City Council estates.

A few simple actions such as unmown strips of grassland around sports grounds and carefully chosen plants within formal borders would further the Colleges contribution to Cambridge biodiversity. The more complex management activities of creating wildflower meadows, planting orchards and altering watercourses would also be of high benefit to wildlife, and in the long run do not cost as much in time, money or perceived proactive management as may be thought initially.

Outside of the University network, there are a few other significant landowners who could be brought into a wider consultation on city-wide biodiversity, some of whom already have Biodiversity Action Plans and interesting pieces of habitat on site.

We should of course assist the University and the City Council in dialogue with other key stakeholders on what biodiversity our city already possesses and how we can all work together to improve it.



Next steps

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Communicating with our city-wide partners will be key to delivering for biodiversity and people on a landscape scale. The Colleges will look to develop projects and habitat improvement schemes which enhance areas for biodiversity and allow our community to interpret the visual change in the Collegiate estate as those projects are delivered.

Enhancement of the Collegiate estate for biodiversity, will require a shift, in many places, from an intensively managed and manicured aesthetic to a more 'natural' and untidy visual.

Using mapping data from this baseline survey will allow the Colleges to prioritise areas that maximise connectivity for wildlife.

The development of a clear plan of action for biodiversity across the Collegiate estate will support us in achieving a vision of nature in recovery across the city.

For more information on how the University is improving
the estate for biodiversity visit:

<https://www.environment.admin.cam.ac.uk/biodiversity>

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